This subject paper is intended to be a research paper delving into different views and analyses from various sources. The views and analyses as contained in this paper are intended to stimulate public discussion and input to the planning process of the "HK2030 Study" and do not necessarily represent the views of the HKSARG.

WORKING PAPER NO. 34
REVIEW OF RESIDENTIAL DENSITIES
Concepts and Case Study

Purpose

1. The purpose of this paper is:

   - to analyse the meaning of “density” in the planning context and proposes possible planning measures to address problems of high density where they occur; and

   - to bring into focus the prototypical issues associated with high densities in the built-up areas of Hong Kong, a case study at North Point has been undertaken.

2. This is a hypothetical case to discuss some of the development constraints associated with the regeneration of old urban areas, illustrate how the planning options to address the density issue can be put to practice and demonstrate the implications, especially cost implications, of the options. The selection of the area for examination is a pure theoretical exercise and not to be construed as preparation for implementation. The illustration of various proposed planning measures to address the density issue is to provide information for discussion purpose and does not imply that the Government is considering or in favour of any specific measure. They are subject to further examination at the district planning level and are by no means binding on future considerations.

Background

3. The issue of residential development densities, especially for new development areas, was explored under Stage 2 of the HK2030 Study. Most people having been consulted on this issue did not object to high densities per se, but were more concerned about design, layout, connectivity and open space which would affect both the quality and character of a development area. Planning
Department has since been reviewing the residential densities for large housing areas that have yet been developed, e.g. the remaining areas of Tseung Kwan O New Town, to take into account urban design and landscaping considerations.

4. As a consequence of the recent outbreak of SARS, the question of an appropriate level and form of development for Hong Kong has again been raised, this time with a focus on health reasons. While there is at this stage no clear evidence to demonstrate connection between SARS and development densities, it would be appropriate to re-visit the subject in the light of the overall aim to improve the living environment, especially at the older urban districts.

**What is meant by “high density”?**

5. Hong Kong has evolved in its century and a half urbanisation history into a very compact and vertical city, with the urban fabric renewing again and again (and intensifying each time) on virtually the same plots of land.

6. To a Hong Kong person, the term “high density” means quite differently than to a foreigner. It is basically a matter of perception. This gives rise to the term “overcrowding”, which is a subjective description of a perceived lack of living or personal space, therefore seen as an infringement on the quality of life of the inhabitant. “Over-population” is a more impartial term referring to the general lack of resources (such as land, infrastructure and facilities) for a given population. “People” and “space” could be considered as the parameters defining density under the town planning context.

**Population Density**

7. Density viewed from the “people” angle gives the term “population density”. It is often expressed in terms of “persons per km² (ppsk)” and serves as an important basis for the planning of transport, environmental and social infrastructure. Population density is affected by such factors as the absolute number of residents in a district, proportion of residential sites, development intensity, flat size and occupancy rate.

**Development Intensity**

8. “Development intensity” refers to the spaces (or lack of) between and the bulk (physical volume) of buildings, often represented by such indicators as plot ratio, site coverage and building height. Another major factor affecting development intensities is the development layout (i.e. land use and street patterns).
Merits and Problems of High Density Development

Sustainability

9. Compact cities are usually more sustainable. Higher development intensities imply less use of land resources to provide the same amount of housing and other forms of accommodation and therefore potentially less encroachment onto the countryside. They could also improve the efficiency of infrastructure, including sewerage, power supply and transport. Higher concentrations of population also support the provision of mass transportation, such as rail. Less use of motorised transport could lead to the consumption of less non-renewable energies and produce less pollution.

Costs and Project Viability

10. Lower development intensities are associated with higher costs, in terms of developing new areas (land assembly, formation, servicing and provision of transportation) as well as lower returns from land. They could also affect the viability of rail projects and the viability of redevelopment projects and may discourage redevelopment.

Urban Design

11. High density is not always synonymous to poor urban design. In fact, Hong Kong is renowned for producing many high-rise buildings that are well conceived. On the other hand, low-intensity developments can also be poorly designed.

12. Nevertheless, it is often true that lower plot ratios can provide more scope for the incorporation of urban design measures, such as gradation of building heights, diversity in massing, protection of views towards ridgelines and other scenic elements etc. that could produce a better living environment.

Health

13. Poor urban and building design could be harmful to health through increased risks of exposure to infections, insufficient air and light, trapped pollutants, deficiency in green plants to recycle CO₂ etc. As high plot ratios may sometimes result in less desirable building design (particularly in terms of spaces between buildings), very often people would consider high development intensities as the cause for poor health. The recent SARS incident, especially,
has prompted a public call to review development intensities. Moreover, traffic noise problem would generally be more severe and more difficult to address for higher intensity development. This may also have an impact on health.

**Social/Psychological Effects**

14. Some overseas studies have found that high population densities could be associated with stress, aggressive behaviours and social disorganisation (crimes, suicides and drug abuse). However, given the fact that a majority of our population live very close to each other in high-rise developments, such association is not apparent in Hong Kong.

15. On the other hand, densely populated neighbourhoods are said to be able to encourage interactions between residents and allow development of a sense of community. Again, this connection is not fully established. Whether an environment is conducive to good communications with neighbours and a higher level of community activities has more to do with the amount and design of the communal space in a development.

**What is the Most Appropriate Level?**

16. It is difficult to determine the most appropriate level of density as there seems to be no clear yardstick, and people’s preferences also tend to vary from time to time. For population densities, an upper limit can be set by constraints in infrastructure capacities, but these can, theoretically, be improved through investments. For development intensities, while it would be desirable that a ceiling be set by the threshold of health and safety or the ability to meet urban design principles, such measures are not easy to define.

17. More importantly, to set an appropriate level (if it can be determined), we need to balance against both tangible and intangible costs. It is therefore a community choice based on professional assessments. In terms of good urban design, plot ratios also have a lot to do with the plot size. Moreover, apart from gross population density and average development intensity, there is a case for providing a range of different densities to suit different aspirations. It also makes sense to plan for higher intensity developments at transportation nodes to optimise use of high-capacity public transport. However, it must be recognised that once a piece of land is developed to a high intensity, it is often very difficult, if not impossible, to revert to a lower-intensity development form upon redevelopment.
Existing Situation in Hong Kong

Population Density

18. The overall territorial population density in Hong Kong (6 237 ppsk) is not particularly high compared to many overseas cities, e.g. Singapore (6 075 ppsk\(^1\)), Tokyo (13 093 ppsk\(^2\)) and Mumbai (25 449 ppsk\(^3\)). But as Hong Kong's built-up areas constitute only about 20% of its total land area, it implies that there are some very high population concentrations, as shown in Table 1.

Table 1

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Kwun Tong</td>
<td>49 861</td>
<td>Kwai Tsing</td>
<td>21 578</td>
<td>Tsuen Wan</td>
<td>4 566</td>
</tr>
<tr>
<td>Wong Tai Sin</td>
<td>47 810</td>
<td>Central &amp; Western</td>
<td>21 137</td>
<td>Yuen Long</td>
<td>3 242</td>
</tr>
<tr>
<td>Yau Tsim Mong</td>
<td>40 932</td>
<td>Wan Chai</td>
<td>16 986</td>
<td>Sai Kung</td>
<td>2 535</td>
</tr>
<tr>
<td>Kowloon City</td>
<td>38 059</td>
<td>Sha Tin</td>
<td>9 157</td>
<td>Tai Po</td>
<td>2 287</td>
</tr>
<tr>
<td>Sham Shui Po</td>
<td>37 772</td>
<td>Southern</td>
<td>7 482</td>
<td>North</td>
<td>2 184</td>
</tr>
<tr>
<td>Eastern</td>
<td>33 147</td>
<td>Tuen Mun</td>
<td>5 919</td>
<td>Islands</td>
<td>498</td>
</tr>
<tr>
<td>HK Island &amp; Kowloon</td>
<td>26 565</td>
<td>All New Towns</td>
<td>18 029</td>
<td>Other Areas in NT</td>
<td>449</td>
</tr>
</tbody>
</table>

Unit: Persons per square kilometre
Source: 2001 Population Census

Development Intensity

19. There have been a number of planning studies (including the Territorial Development Strategy, the Metroplan Study, the Kowloon Density Study, the Review of Density Guidelines for Private Residential Areas, Review of Domestic Plot Ratios in New Town Areas and various other sub-regional planning and development studies) which examined appropriate levels of residential development intensities at different locations.

20. Under the Review of Density Guidelines, Residential Density Zones – R1, R2 and R3 – have been specified for Hong Kong Island and Kowloon, covering developments from highest to lowest intensities, depending on proximity of the zone to high-capacity transport systems, and exposure to environmental or other constraints.

\(^1\) 2002 data. Reference: http://www.singstat.gov.sg/
\(^2\) 2000 data for 23 wards of Tokyo Reference: http://www.stat.go.jp
\(^3\) 2001 data for Greater Mumbai Reference: http://www.mmrdamumbai.org/
21. Within New Towns, apart from R1 to R3 zones, a further low-density R4 Zone is designated where justified by severe geotechnical/infrastructure constraints or compatibility with the adjacent rural low-density developments and the countryside characteristics. Such low-density suburban-type developments also appear in the rural areas of the New Territories.

22. **Table 2** provides a general indication of the maximum domestic plot ratios imposed on different density zones at different locations. However, where there are significant constraints on development capacity (such as transport, infrastructure limitations, environmental, aesthetical, topographical or geotechnical conditions) or special design considerations, a lower plot ratio may be specified when considered appropriate and possible. For example, the domestic plot ratios for R1 sites in Sha Tin and Tai Po New Towns are mostly about 5.
<table>
<thead>
<tr>
<th>Density Zone</th>
<th>Type of Area</th>
<th>Location</th>
<th>Maximum Domestic Plot Ratio</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>Existing Development Area</td>
<td>Hong Kong Island</td>
<td>8/9/10</td>
<td>Depends on site class and whether there are non-domestic elements</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kowloon &amp; New Kowloon</td>
<td>7.5</td>
<td>Based on the Kowloon Density Study Review</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tsuen Wan, Kwai Chung and Tsing Yi</td>
<td>8</td>
<td>New development areas and comprehensive development areas at these districts are subject to a maximum plot ratio of 5 due to infrastructure and traffic capacity constraints.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other New Towns</td>
<td>8</td>
<td>Residential sites at earlier new towns, such as Sha Tin, Tai Po, Fanling/ Sheung Shui, were planned and developed to a plot ratio of 5. Some of the residential sites in the latter phases of development were, however, increased to plot ratio 6.5.</td>
</tr>
<tr>
<td></td>
<td>New Development Area and Comprehensive Development Area</td>
<td></td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td>R2</td>
<td></td>
<td></td>
<td>5</td>
<td>Can be imposed if specified on outline zoning plan or lease. May be further limited in Special Control Areas</td>
</tr>
<tr>
<td>R3</td>
<td>In New Towns and Rural Areas</td>
<td></td>
<td>3</td>
<td>Same as the above</td>
</tr>
<tr>
<td>R4</td>
<td></td>
<td></td>
<td>0.4</td>
<td></td>
</tr>
</tbody>
</table>

Source: Adapted from Hong Kong Planning Standards and Guidelines, Chapter 2
Application and Enforcement

Building (Planning) Regulations

23. Application and enforcement of the plot ratio system are provided for under the Buildings Ordinance and its associated Building (Planning) Regulations (B(P)R). Apart from plot ratios, the First Schedule of the B(P)R also specifies the percentage site coverage for domestic buildings, which can interact with the plot ratio system to control the building bulk. In fact, the B(P)R provides the only controls universally applicable to the whole territory to limit the building bulk for environmental reasons through setting of a basic standard of natural lighting and ventilation for the external environment.

24. The current controls, varied in relation to building height, are largely formulated with reference to the “Daylight Curve Tier” under the New York Zoning Regulations 1961. They also provided for different bulk controls for corner sites and infill sites (under the class of site system\(^4\)) allowing generally more plot ratio for taller buildings until they reach 61m tall.

<table>
<thead>
<tr>
<th>Height of building in metres</th>
<th>Class A Site</th>
<th>Class B Site</th>
<th>Class C Site</th>
<th>Class A Site</th>
<th>Class B Site</th>
<th>Class C Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not exceeding 15m</td>
<td>66.6</td>
<td>75</td>
<td>80</td>
<td>3.3</td>
<td>3.75</td>
<td>4.0</td>
</tr>
<tr>
<td>Over 15m but not exceeding 18m</td>
<td>60</td>
<td>67</td>
<td>72</td>
<td>3.6</td>
<td>4.0</td>
<td>4.3</td>
</tr>
<tr>
<td>Over 18m but not exceeding 21m</td>
<td>56</td>
<td>62</td>
<td>67</td>
<td>3.9</td>
<td>4.3</td>
<td>4.7</td>
</tr>
<tr>
<td>Over 21m but not exceeding 24m</td>
<td>52</td>
<td>58</td>
<td>63</td>
<td>4.2</td>
<td>4.6</td>
<td>5.0</td>
</tr>
<tr>
<td>Over 24m but not exceeding 27m</td>
<td>49</td>
<td>55</td>
<td>59</td>
<td>4.4</td>
<td>4.9</td>
<td>5.3</td>
</tr>
<tr>
<td>Over 27m but not exceeding 30m</td>
<td>46</td>
<td>52</td>
<td>55</td>
<td>4.6</td>
<td>5.2</td>
<td>5.5</td>
</tr>
<tr>
<td>Over 30m but not exceeding 36m</td>
<td>42</td>
<td>47.5</td>
<td>50</td>
<td>5.0</td>
<td>5.7</td>
<td>6.0</td>
</tr>
<tr>
<td>Over 36m but not exceeding 43m</td>
<td>39</td>
<td>44</td>
<td>47</td>
<td>5.4</td>
<td>6.1</td>
<td>6.5</td>
</tr>
<tr>
<td>Over 43m but not exceeding 49m</td>
<td>37</td>
<td>41</td>
<td>44</td>
<td>5.9</td>
<td>6.5</td>
<td>7.0</td>
</tr>
<tr>
<td>Over 49m but not exceeding 55m</td>
<td>35</td>
<td>39</td>
<td>42</td>
<td>6.3</td>
<td>7.0</td>
<td>7.5</td>
</tr>
<tr>
<td>Over 55m but not exceeding 61m</td>
<td>34</td>
<td>38</td>
<td>41</td>
<td>6.8</td>
<td>7.6</td>
<td>8.0</td>
</tr>
<tr>
<td>Over 61m</td>
<td>33.3</td>
<td>37.5</td>
<td>40</td>
<td>8.0</td>
<td>9.0</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Source: Building (Planning) Regulations First Schedule

\(^4\) Class A Site – A site, not being a class B or class C site, that abuts on one street not less than 4.5m wide or on more than one such street.

Class B Site – A corner site that abuts on 2 streets neither of which is less than 4.5m wide.

Class C Site – A corner site that abuts on 3 streets none of which is less than 4.5m wide.
25. The Second Schedule of the B(P)R specifies requirements for open space about domestic buildings. This is meant to ensure that buildings will be adequately spaced to provide light and ventilation to the internal environment of domestic units. The open space is also intended to serve as an amenity for residents. In addition, the separation between buildings is safeguarded by the provision of service lane at the rear or the side of the site.

26. However, despite the requirements in the B(P)R, small-sized plots historically designed for houses and tenement blocks often provide very limited scope for spacing out buildings, both within the development site and in relation to the surrounding built structures. The required open space under B(P)R, especially, often becomes undesirable leftover and deserted space for small Class-A-site development. Moreover, the narrow streets abutting the old development lots and insufficient open space provision in many older districts are also not complementary to the high-rise form of development nowadays.

Outline Zoning Plans and Land Leases

27. Apart from the B(P)R, plot ratios are sometimes also specified on statutory Outline Zoning Plans (OZPs) at a level below that stipulated under the B(P)R, as they often reflect such considerations as infrastructure capacity, physical attributes of a site, character of neighbourhood etc. For example, Residential (Group A) developments in the 16 planning districts in Kowloon are subject to a maximum domestic plot ratio of 7.5 mainly due to insufficient infrastructure capacities and community facilities, following recommendations of the Kowloon Density Study and its subsequent review. Special plot ratio considerations for individual sites (such as those recommended for Special Control Areas) could also be incorporated in land leases which makes such considerations enforceable.

Options to Address Problems of High Population Densities

28. Referring to the factors which affect population densities as stated in paragraph 6 above, a number of planning options are available to address problems of high population densities. Most of these are not new, but application in the past may not always have been focused on addressing density or urban design issues.

Option P1 – Rezoning residential sites to non-residential uses

29. This is a more effective planning tool to “thin out” population of the most densely populated areas. At the same time, land will be released to meet demands of
other uses in the locality, such as open space, schools and other community facilities. However, as with any other planning exercise, the planning objective (i.e. to lower population densities in this case) could be achieved only when the planned uses are implemented and this hinges on the availability of funding and efficient mechanisms for land acquisition/resumption.

Option P2 – Increasing the non-residential share at mixed-use zones

30. A number of sites have been proposed for a mixture of uses comprising a residential element. Examples include Residential (Group A) buildings which allow a commercial portion at the lowest three floors, Commercial/Residential sites where flexibility is provided for any combination of the two elements, and Comprehensive Development Areas where different combinations of a variety of uses may be specified.

31. While Option P1 involves full rezoning, this option suggests increasing the non-residential share, which can effect a corresponding reduction in the residential element at the development site, thus accommodating a lower population. Nevertheless, this option may not help to decrease the building mass at the site. In fact, as non-domestic uses are allowed higher plot ratios under the B(P)R, increase in the non-residential share would likely result in a higher development intensity, unless other means of control (such as reduction of plot ratio as described below) could be applied concurrently.

Option P3 – Reducing plot ratios

32. The population accommodated on a site could be reduced by lowering the plot ratio of the development on the site through controls under the OZP or land lease (if development involves a new or modified lease). This option could help to address both the high population and high development density problems. Examples of developments with high and medium plot ratios are shown on Plate 1 and Plate 2.

33. However, under the current stipulations, where the existing building bulk exceeds the controlled level, the OZP would allow the new development to build up to the existing bulk. Hence, tightening of plot ratio controls can only help to prevent excessive intensification in a district, but cannot resolve the high density problem if the problem already exists. Moreover, lowering of plot ratios on private sites, especially those sites where there are currently no OZP plot ratio controls, could be seen as an infringement on existing development rights and is therefore bound to generate substantial objections. As such, it is considered, as stated in
Team Clean’s Final Report published in August 2003 which also discussed the issue of development intensities, that priority for reducing plot ratios should be given to uncommitted Government sites designated for future disposal as well as public housing sites.

**Option P4 – Specifying minimum/average flat size**

34. The flat size of a development affects the total flat production at the development and the number of bedrooms in a flat affects the number of persons accommodated in that unit. One way to control the population size in a new development is therefore to prescribe a minimum flat size or average flat size and a maximum number of bedrooms within a flat. Such controls have been in practice in many overseas cities, such as New York City. However, the number of habitants is also influenced by other factors, such as the degree of sharing which is a socio-economic problem that may have to be tackled by other policies. Flat size also hinges on the issues of affordability, social expectation and market needs. This option is therefore highly controversial and likely resisted by potential home-buyers and developers. Moreover, there may be practical difficulties in the continuous enforcement of such requirements.

**Options to Address Problems of High Development Intensities**

**Option D1 – Comprehensive Redevelopment**

35. As a fundamental problem related to building mass and spacing is the obsolete development layout, comprehensive redevelopment could be a more direct method to address development density problems in older districts. It could allow re-planning of the layout so that urban design measures, such as view corridors, breezeways and stepped heights, could be incorporated into the development, and also free up space for the provision of open space and other facilities.

36. The designation of Comprehensive Development Area zone has been a long-used planning tool to indicate the planning intention for comprehensive redevelopment. However, land assembly remains the biggest hurdle. The establishment of Land Development Corporation as an agent in 1988 had helped to speed up the redevelopment process and it had successfully realised a number of comprehensive schemes at very old districts comprising mainly of low-rise pre-war/post-war tenements. But as the older stock gradually exhausts, future redevelopment projects at higher-density buildings involving more owners are expected to be much more difficult.
37. Concurrent to comprehensive redevelopment, a plot ratio reduction can be introduced into the scheme to (i) increase the scope for achieving urban design objectives and (ii) reduce the population intake. However, this may affect the overall financial viability of the project and act as a disincentive for redevelopment. Also, the right to redevelopment to existing bulk where it exceeds the controlled level (as outlined in paragraph 32 above) could effect a hurdle to this option.

**Option D2 – Implementation of planned open space as a linked project**

38. Some existing private domestic buildings in older districts, such as Wan Chai, Kennedy Town and Yau Ma Tei, have been zoned for open space development for a number of years without being implemented. Often, such zoning is a cause to planning blight as buildings on these sites have been left to degrade. However, implementation of these planned open space developments by the public sector could be very costly as it is likely to involve land resumption and therefore exerts a heavy burden on the public coffer.

39. One way to ensure early implementation of such open space is to offer incentives to the developer of a nearby development project to provide the open space as part of that project. Incentive could be rendered through allowing the transfer of air rights of the open space to that development site or even a site elsewhere (i.e. land swap). However, unless the development site and the open space are contiguous, such transfer of air rights may raise concerns on building legislation, land administration and planning. Moreover, it is sometimes difficult to identify a suitable recipient site for the extra GFA transferred from the open space as many sites in the urban areas are already subject to plot ratio control.

**Option D3 – Introduction of more open space and low-rise public facilities**

40. To free up dense building clusters and to improve pedestrian circulation, more open space or low-rise public facilities could be introduced at suitable locations through rezoning. Usually, such open space should be of a reasonable size and placed at more prominent locations to avoid being relegated to “leftover spaces” and “squalid backlanes”. Provision of public facilities should be demand-driven and may not be applicable everywhere. Moreover, there must be sufficient grounds to justify the downzoning (from residential to open space or “Government/Institution/Community” (G/IC)) and selection of site for the proposed use, especially if it involves private land. To avoid creation of
planning blight, there must also be a concrete plan for implementation (i.e. ensuring adequate public funds are available or designating the site as part of a linked project). Otherwise, such rezoning proposals are bound to meet with criticisms. Given the current financial situation, developing local open spaces and less vital community facilities with public funds may have to be a longer term option.

Option D4 – Urban design guidelines/controls

41. The Study on Urban Design Guidelines for Hong Kong has proposed a number of advisory guidelines on different urban design aspects on which the public have been widely consulted. To take these guidelines forward, it would be appropriate that studies on individual districts/areas be undertaken to examine how they could be applied. For new development areas and large development sites, master plans could be prepared to show the desirable blocking, view corridors, setback, height limits etc. to enable the guidelines to be put into practice. The scope for application of urban design guidelines in existing built-up areas, however, would be rather limited unless the private sector is supportive to devote resources into the design of projects. For developments on small plots, developers may consider the guidelines too restrictive and could reduce design flexibility. The process of a change in attitude in both consumers and developers to become more design-conscious may only be gradual.

Catalytic Measures

42. There are also various planning measures which can help to improve the overall urban environment. While they do not have a direct impact on densities, it is believed that efforts on the enhancement of the external environment and selected buildings, as well as improvements to people circulation could serve as catalysts to facilitate regeneration of the overall built fabric by the private sector. It is only through regeneration actions that any of the above-mentioned planning options could become meaningful. Market demand, it is however recognised, will remain to be the key driver.

Measure E1 – Pedestrianisation of streets/traffic management

43. Pedestrianisation of streets and traffic management measures can help to improve pedestrian circulation, reduce pedestrian/vehicle conflicts, integrate with open space networks, transport/activity nodes and places of interest, enhance micro-climate as well as to promote regeneration at abutting sites. However, full pedestrianisation may not always be appropriate as it may introduce traffic
problems at nearby streets or interfere with vehicular access to adjoining sites. Consideration could be given to instigate traffic calming measures (such as speed bumps, raised crossings, slow traffic zones) to help minimise conflict between vehicles and pedestrians. Where appropriate, automated people mover systems could be installed to further improve pedestrian movements, especially where negotiation with steep gradients is involved.

Measure E2 – Street beautification and landscaping

44. Street beautification and landscaping initiatives are usually associated with pedestrian planning. They involve such measures as greening, provision of street furniture, street paving etc. not only to enhance the external street environment, but to improve pedestrian connectivity, increase vibrancy/street life and create an identity or character for the locality.

Measure E3 – Rehabilitation of old buildings

45. As acknowledged in the Urban Renewal Strategy, proper maintenance of buildings is an essential aspect of the regeneration of older urban areas. The rehabilitation of buildings improves the built environment and reduces the need for urgency for redevelopment. It is also in line with Government’s policy for sustainable development.

46. There is often an incentive for rehabilitation of private buildings of the owners’ accord if it is perceived to derive an appreciation in property value. The sluggish property market and overall economy in recent years could have dampened the drive for undertaking renovation works. Multiple ownership coupled with the absence of any statutory requirement for the formation of owners’ committee, could also hamper renovation/rehabilitation of old buildings.

47. The Urban Renewal Authority (URA) has launched a Voluntary Building Rehabilitation Scheme targetted at older (over 30 years old) properties subject to statutory action under the Buildings Department’s Co-ordinated Maintenance of Buildings Scheme or “Blitz” Operations or other relevant statutory orders, and located within or near URA’s Target Areas. The feasibility of the pilot scheme has been tested on several buildings, including Chung Sing Building at Tai Kok Tsui. The total work cost for rehabilitation for this building is about $4.7 million, of which $300,000 is the cost of renovation materials provided by the URA.

48. However, apart from the above, there is no Government incentive or requirement for the rehabilitation of buildings outside URA’s Target Areas, nor the general
facelift of old buildings anywhere. While rehabilitation is by and large owners’ responsibility, mandatory requirement for maintenance at the owners’ expense may not always be a practical measure, as it is unlikely that every owner can afford the costs.

**Implications and Issues**

**Strategic Planning**

49. From a strategic housing supply perspective, a reduction in densities or rezoning to non-residential uses at the existing development areas will prompt a need for the earlier implementation of New Development Areas (NDAs) in the New Territories, expansion of these NDAs and/or identification of more NDAs.

50. Based on previous studies on NDAs, it is estimated that the cost (including land resumption, rehousing, site formation and provision of G/IC facilities) of an NDA which can accommodate 100,000 persons is roughly in the order of $12 to 13 billion, on average. Moreover, as employment opportunities are still focused within the Metro Area, dispersing places of residence to the New Territories may lengthen journeys to work and therefore exert pressure on the transport system.

51. Nevertheless, developing NDAs in the New Territories has its merits. For example, it can allow more people to live closer to the countryside and help redistribute population to the New Territories to achieve a more balanced territorial development pattern. In addition, as Hong Kong and the Mainland become more and more integrated socially and economically, more people are likely to prefer living closer to the boundary to facilitate their frequent cross-boundary trips.

**Land Value**

52. Reduction of plot ratio may imply lowering of development potential. For private sites, this may impede attainment of an unrealised higher land value, though lease modification may also be required. For Government sale sites, reduction of plot ratio would likely result in lower returns. On the other hand, density reduction could improve the living environment, thereby enhancing property value, sometimes not only at the subject sites, as the effect may also extend to neighbouring developments.
Incentive for Redevelopment

53. Redevelopment by market initiatives occurs when the potential development intensity at a site exceeds its de facto building bulk. Reduction of plot ratio will narrow, or even remove, this gap and therefore may discourage redevelopment by the private sector. This may not be conducive to the renewal of dilapidated urban fabric. If URA projects are rendered non-viable, it may imply that Government may have to consider alternative approaches to deal with urban renewal, including injection of funds to subsidise the projects.

Viability of Rail Projects

54. Rail development projects may also be affected by the reduction in development intensity. The development of a rail line, stations in particular, requires the creation of a critical mass of potential patrons. The tendency for using rail is liable to decline beyond a walking distance of about 500m. Locating more people within this range could therefore support the development of high-capacity rail network and encourage more rail use.

Viability of Commercial Facilities

55. Increasing the commercial portion of Residential (Group A) or Commercial/Residential sites will create a large supply of space for commercial use. However, other than in the few commercial districts, such as the Central Business District and Mong Kok where commercial activities are highly concentrated, there is often insufficient demand to support multiple floors of retail facilities. Therefore, a prudent approach would be required in the designation of additional space for commercial (especially retail) use.

Costs of Resumption

56. Rezoning private sites for public uses may incur resumption. The cost of resuming a private domestic unit may include such items as the open market value of the resumed property, removal costs and expenses as well as a Home Purchase Allowance (payable to owner-occupiers) or ex-gratia allowance (payable to owners of tenanted flats/areas). All these encumbrances may make resumption cost much higher than the open market value of the same property per se. In case the site is under the possession of a single owner, the

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5 Includes Central, Wan Chai, Causeway Bay, Sheung Wan and Tsim Sha Tsui.
redevelopment value of the site has to be considered in assessing compensation payable, thus adding to the overall cost. For commercial properties, an ex-gratia allowance or compensation for business loss may be applicable.

**Transfer of Air Rights of Open Space and Community Facilities**

57. By allowing the transfer of air rights of an open space/community facility to an adjoining site, the open space/community facility is in a sense converted from a pure social entity to a market commodity, which can help to enhance the commercial attractiveness of the adjoining development. However, one question is whether we have assumed any population on the open space/community facility site in the first place, and if not, whether the infrastructure in the locality can support the additional population. Moreover, if the “donor” and “recipient” sites are not contiguous, whether the resultant plot ratio at the recipient site would exceed the maximum permissible level for that site would be a concern.

**Future Maintenance/Management of Public Open Space Provided by Developers**

58. Provision of a public open space by the private sector has the advantage of advancing implementation of the open space without dipping into the public purse. However, one concern is that the future maintenance and management may have to be borne by the residents/owners of the development unless the open space is returned to Government, in which case the recurrent costs may have to be subsumed by the public sector. It is noted that many developers have hesitation in taking up the implementation of public open space as part of their development projects.

**North Point Case Study**

59. A hypothetical case study on North Point has been undertaken to discuss some of the development constraints associated with the regeneration of old urban areas, illustrate how the planning options to address the density issue can be put to practice and demonstrate the implications, especially cost implications, of the options. The suggested planning options are only based on a preliminary feasibility assessment. Detailed planning and engineering assessments have not been undertaken at this stage.
Study Area

60. North Point is a mature urban district comprising a mixture of old and new buildings. Comprehensive development of medium-sized commercial/residential complexes (propelled by MTR access and harbour view) such as Victoria Centre at Watson Road, Harbour Heights, Manulife Tower and Island Place, and several high-density residential developments, i.e. City Garden, Provident Centre and Tanner Garden, form the key components characterising this district.

61. The Study Area covering about 19 ha of land (Plan 1) is the part of North Point where some of the highest population and development densities are found. The area is bounded by King’s Road in the south, Tin Chong Street in the west, Island Eastern Corridor in the north and extends up to the North Point Ferry Pier towards the east. The area is characterised by high-rise commercial/residential buildings of the 70s and 80s, intermingled with medium-rise buildings of the 50s and 60s and some post-war low-rise tenements. The former North Point Estate (recently demolished), together with some smaller G/IC sites, provides an important opportunity for addressing some of the density problems of the area.

62. Two major east-west spines traverse the Study Area – Java Road is a major thoroughfare for traffic whereas Chun Yeung Street/Marble Road is a lively street market with a high volume of pedestrian flow. Chung Yeung Street also serves as a “turn-around” for trams.

Planning Objectives

63. The target of the case study is to devise a revitalisation plan to reduce both the development intensity and population density of the Study Area and to assess the implications. The following urban design objectives can also be accomplished together with density reduction:

- Optimise **spatial distribution** of development clusters to improve spaces between buildings.

- Introduce streetscape design and site planning to improve **connectivity** amongst various activity nodes and enhance local identity.

- Improve **environmental condition** through promoting urban greening, providing public amenity spaces and safeguarding natural lighting and ventilation at street levels.
Selection Criteria for Action Areas

64. Within the Study Area, a number of Action Areas have been identified where different density reduction or catalytic measures could be applied. The selection criteria for these Action Areas are:

- Large sites where urban design measures can be applied to devise optimum development density, building block layout, massing and traffic pattern to achieve a value-added cityscape.

- Older buildings and areas with obsolete street patterns which prohibit a desirable development pattern and provision of adequate public amenity spaces.

- Areas where there is noticeable pedestrian/traffic interface.

65. The existing development profile (i.e. building height and building age) of Action Areas is shown on Plan 2.

Proposed Action Plans (Plan 3)

Action Plan 1: Former North Point Estate (Orange sites on Plan 3)

- For a large development site, there is better scope to provide more open space, improve pedestrian connection as well as to incorporate urban design considerations, especially if a lower plot ratio is applied.

66. A possible development option for the former North Point Estate site is a comprehensive development comprising private housing, offices, hotels, retail facilities, public transport terminus and some social welfare facilities. Alternative uses for the site (for example, uses connected to redevelopment of the abutting ferry piers) could also be considered to further lower the population and development intensities. These alternatives could be examined separately at the district planning level.

67. A major constraint to the development on the North Point Estate site is traffic noise from the Island Eastern Corridor. This may be addressed through design

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6 While the terms “Action Area” and “Action Plan” have been used, they do not represent Government’s intention to undertake the projects, or to implement the proposals in the format presented here.
and layout, for example, positioning non-sensitive users as noise buffers.

68. The Java Road Market cum indoor recreation centre complex (shown on Plan 4) could be considered for redevelopment in the longer term to meet district requirements in G/IC needs to achieve overall improvements to the environment and pedestrian linkage. It would be desirable to retain this site for a low-density development to provide a visual corridor and breezeway. To maintain continuity of this visual corridor/breezeway, the site immediately to its north (Site D on Plan 3) is proposed for a low-rise school development.

69. Urban design principles are proposed to improve visual quality and the physical environment, including micro-climatic conditions, i.e. through improving blocking layout to optimise spaces between buildings, introducing building setback, breezeways, landscaping, stepped height profile to enhance natural lighting and air circulation. Two development intensity scenarios (one with domestic plot ratio of 5, the other with domestic plot ratio of 3) are applied to allow more scope for the incorporation of the above urban design measures and to reduce the population. Both of these scenarios represent significant reduction from the maximum plot ratio permissible under the B(P)R (which could be 8/9/10). Possible layouts are shown on Plans 5 and 6 to demonstrate how urban design measures can be incorporated as well as the difference in building mass for the two scenarios.

70. Redevelopment of the site provides better pedestrian access to the hinterland and the MTR station by elevated walkways. It also allows better connectivity to the waterfront area. Setback from the water edge provides incidental open spaces and a wider promenade.

**Issue:**

- The optimal development mix and intensity for the site and the land sale revenue foregone by adopting a lower plot ratio.

**Action Plan 2: Comprehensive Redevelopment Approach**

- Comprehensive redevelopment of clustered buildings, even without lowering the development intensity, could help to improve the development layout, but a lower plot ratio could allow more scope for achieving urban design objectives. Financial viability remains the biggest issue.

- Amalgamation with G/IC buildings and open space developments (and absorbing
unused air rights of these sites) could help to enhance viability of the redevelopment projects.

- Turning old buildings at appropriate locations into open space could “unlock” congested areas and improve pedestrian access.

- Rehabilitation of old buildings could improve the building conditions and improve vibrancy without intensification. Change to non-residential uses could help lower population density.

**2a: State Theatre Site and Adjacent Lots (Purple Sites on Plan 3)**

71. These sites have been selected based on the existing development profile shown on **Plan 2**. A comprehensive redevelopment scheme could be introduced at these sites to allow for the re-planning of development layout and the obsolete street pattern and improve vehicular access. The residential component at the site could be reduced to thin out population density. In consideration of the financial viability of the project, a maximum composite plot ratio of 11 (8 domestic, 3 non-domestic) could be introduced (Scenario 1), but a lower development intensity, say plot ratio 10 (5 domestic, 5 non-domestic), could also be considered as an alternative (Scenario 2). The non-domestic part of the development could comprise commercial shops and hotel or offices. Possible layouts are shown on **Plans 7 and 8**.

72. Building clusters could be “unlocked” through introduction of an open space at the older (1955 to 1969) buildings abutting Yuet Yuen Street and North Point Road (**Site C on Plan 7**). This open space could help to improve pedestrian access to Chun Yeung Street.

73. In order to allow revitalisation of the old tenement buildings along Java Road, they are proposed as an off-site linked project for rehabilitation into theme retail activity spaces. This will help to thin out population density and improve commercial vibrancy. Two adjoining buildings at King’s Road (18- and 15-storey respectively) (**Site A on Plan 7**) can also included in the scheme, but this inclusion would likely increase the resumption costs substantially.

**Issues:**

- A set of community-accepted criteria for selecting sites to be included in the redevelopment project
- Financial viability of development alternatives and requirement of subsidy in
case the project is not viable
- Agent for implementation – private sector or URA?
- Market demand for general and specialised retail floorspace
- Renovation and maintenance costs for preserving old buildings

2b: URA Scheme Along Java Road and Marble Road (Yellow Sites on Plan 3)

74. This is one of URA's targetted sites but there is at this stage no development programme and detailed proposal (Plan 4). The site is slightly enlarged in this exercise to include two “newer” buildings (constructed in 1962 and 1975) (see Plan 2) for a more coherent development. This is only one possible development option proposed under this exercise for illustration purpose and should not be construed as influencing the implementation plan of URA nor binding on any other development proposal on the subject lots.

75. It is proposed that bulk of development be concentrated on the western portion of the site so that a public open space could be reserved at the podium level on the eastern side with pedestrian link with the North Point Estate (see Plan 4). This could thin out the dense development clusters and provide view corridor/visual relief for the sites located behind. The street level fronting Marble Road will be retained for shops to maintain commercial vibrancy at this pedestrian priority zone. A domestic plot ratio of 8 could be applied (Scenario 1) but a lower plot ratio of 5 could be also tested (Scenario 2).

Issues:

- Financial viability of the URA scheme
- Air rights of the open space
- Future maintenance of the open space

2c: China Motor Bus Company's (CMB) Old Staff Quarters and Adjacent Lots (Green Sites on Plan 3)

76. The staff quarters site (located at the corner of Kam Hong Street and Java Road) could be amalgamated with the adjoining residential building on Marble Road, North Point Welfare Association site and temporary public ball courts (at the corner of Tin Chiu Street and Java Road) to optimise land usage and site planning opportunities.

77. Building setback is proposed to form a primary open space at ground floor with street frontage to accent the pedestrianisation scheme at Marble Road
Innovative architectural design and planning merits that would enhance "green features" and spatial quality of a residential street are encouraged. The welfare facility could be reprovisioned within the development. A domestic plot ratio of 8 is proposed (Scenario 1) but a lower plot ratio of 5 could be also considered (Scenario 2).

**Issues:**

- Consent of the welfare organisation and reprovisioning for the existing facility as necessary
- Air rights and future maintenance of open space

**Action Plan 3: Improvements to Pedestrian Circulation**

- Enhancing the external environment could serve as catalysts to revitalisation and regeneration.

**3a: Full Pedestrianisation of Chun Yeung Street**

78. A pedestrianisation scheme is proposed to provide a better pedestrian environment. This scheme could help to enhance the quality of streetscape for pedestrian comfort, promote visual interest, reinforce the socio-cultural characteristics and economic vibrancy of the existing street market.

**3b: Partial Pedestrianisation/Traffic Management of Marble Road**

79. The length of pedestrianised street could be extended to Marble Road to enhance local streetscape and improve pedestrian flow. However, in view of the requirement of access to an existing carpark, instead of full pedestrianisation, a partial scheme comprising traffic calming measures, such as narrowing of carriageway, provision of speed bumps, restrictions on non-essential road users etc. could be introduced. This would help to create an activity generator to regenerate existing street level shops and provide incentive for rehabilitation of abutting buildings.

**Action Plan 4: Introduction of Open Space Developments (Green Areas on Plan 4)**

- Government sites provide opportunity for open space developments, which could enhance pedestrian connectivity and urban design.
4a: Government site at corner of Wharf Road and Tong Shui Road

80. The site could be rezoned to open space to form part of the green network for the area to provide a better connection between Provident Centre and the future development at the North Point Estate site and to avoid introducing further building mass.

4b: Government site at corner of Java Road and Tin Chiu Street

81. The site could be rezoned for open space development as an expansion of the existing playground at King’s Road and to provide an interesting termination point for the pedestrian scheme at Marble Road/Chun Yeung Street.

4c: Western portion of vehicular ferry concourse

82. The western portion of the vehicular ferry concourse (previously used as a queuing area for vehicles) could be turned into an open space buffering the future development at the North Point Estate from the ferry concourse (which is still used by dangerous goods vehicles).

Action Plan 5: Improvements to the Public Realm (Plan 9)

83. Action Plan 5 comprises the following proposals:

- Street beautification through landscaping along pedestrianised/semi-pedestrianised areas i.e. Chun Yeung Street and Marble Street, as well as major district distributors i.e. King’s Road and Java Road.

- Traffic management schemes and road widening measures for Marble Road, Shu Kuk Street and Kam Hong Street to address pedestrian/traffic interface problems.

- A new waterfront precinct as a public amenity space for the district.

- Enhancement of accessibility to the waterfront precinct and connectivity amongst various activity nodes.

Implications on Population and Building Mass

84. The following table illustrates a comparison of the population and building mass between the two plot ratio scenarios:
<table>
<thead>
<tr>
<th>Site</th>
<th>Original</th>
<th>High PR Scenario (Plot Ratio 8)</th>
<th>Low PR Scenario (Plot Ratio 5)</th>
<th>Difference Between High and Low Scenarios</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP Estate</td>
<td>6250</td>
<td>9027</td>
<td>5642</td>
<td>3385 (37%)</td>
</tr>
<tr>
<td>State Theatre®</td>
<td>2386</td>
<td>4527</td>
<td>2827</td>
<td>1700 (38%)</td>
</tr>
<tr>
<td>Marble Road</td>
<td>462</td>
<td>1438</td>
<td>899</td>
<td>539 (37%)</td>
</tr>
<tr>
<td>CMB Staff Quarters</td>
<td>84</td>
<td>2382</td>
<td>1423</td>
<td>959 (40%)</td>
</tr>
<tr>
<td><strong>4 Sites Total</strong></td>
<td></td>
<td><strong>17374</strong></td>
<td><strong>10791</strong></td>
<td><strong>6583 (38%)</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total GFA (m²)</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NP Estate®</td>
<td>97800</td>
<td>202380</td>
<td>147780</td>
<td>54600 (27%)</td>
</tr>
<tr>
<td>State Theatre®</td>
<td>70321</td>
<td>100401</td>
<td>91274</td>
<td>9127 ( 9%)</td>
</tr>
<tr>
<td>Marble Road</td>
<td>28789</td>
<td>27550</td>
<td>18850</td>
<td>8700 (32%)</td>
</tr>
<tr>
<td>CMB Staff Quarters</td>
<td>22811</td>
<td>49113</td>
<td>32589</td>
<td>16524 (34%)</td>
</tr>
<tr>
<td><strong>4 Sites Total</strong></td>
<td></td>
<td><strong>379444</strong></td>
<td><strong>290493</strong></td>
<td><strong>88951 (23%)</strong></td>
</tr>
</tbody>
</table>

* Assuming average flat size of 50m² and average household size of 3.1 persons.

85. Although both scenarios will result in an overall increase in population and building mass compared to the existing situation, the “lower plot ratio scenario” will give 38% lower in population and 23% lower in total GFA than the “higher plot ratio scenario”.

**Cost Implications**

86. The broad costs and returns (excluding costs of building construction and costs of providing open space and other public facilities) for Action Plans 1 and 2 are estimated (as at August 2003) as follows:

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® Larger site option
### North Point Estate Development

**Revenue Foregone** (compared to the highest)

*Land value estimate:*

1. Assuming domestic PR 8: $3590 M
2. Assuming domestic PR 5: $2230 M - $1360 M
3. Assuming domestic PR 3: $1330 M - $2260 M

### State Theatre and Adjacent Sites

**Larger Development Site (Sites A+B+C)**

*Resumption estimate:* $3120 M  
*Rehabilitation costs:* $30 M

*Land value estimate of Sites A+B:*

1. Assuming domestic PR 8: $1400 M - $1750 M
2. Assuming domestic PR 5: $1200 M - $1950 M

**Smaller Development Site (Sites B+C)**

*Resumption estimate:* $1450 M  
*Rehabilitation costs:* $30 M

*Land value estimate of Site B:*

1. Assuming domestic PR 8: $1110 M - $370 M
2. Assuming domestic PR 5: $960 M - $520 M

### Marble Road Development

*Resumption estimate:* $600 M

*Land value estimate:*

1. Assuming domestic PR 8: $520 M - $80 M
2. Assuming domestic PR 5: $310 M - $290 M

### CMB Staff Quarters and Adjacent Sites

*Resumption estimate:* $390 M

*Land value estimate:*

1. Assuming domestic PR 8: $680 M + $290 M
2. Assuming domestic PR 5: $470 M + $80 M

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**Source:** ArchSD, based on costs of refurbishing an old building at Kowloon Park (on-site works only).
Conclusion

87. The analysis shows that reduction in development intensities (especially domestic plot ratios) could help to thin out population, allow better site planning and help achieve various urban design objectives contributing to a better living environment.

88. On the other hand, low development intensities may affect the financial viability of redevelopment projects which could discourage redevelopment. Hence, where the existing buildings are in a clustered or dilapidated state requiring redevelopment, reduction in development intensities may not be conducive to improvements. There is also a high public cost involved, including lower rates of returns from land sale, financial costs of developing further new development areas in the New Territories, possible subsidies to redevelopment, costs of land resumption and construction of open spaces etc. as well as other costs which are more difficult to quantify.

89. As different interests are at stake, the issue could be quite controversial. At the end, whether to reduce residential densities, what planning measures should be applied and what sites should be involved, would be a public choice requiring collective community decision.

Next Step

90. The above concepts and case study will serve as a framework to facilitate further discussion amongst stakeholders and the wider community. The Urban Design Guidelines Study has been completed and the relevant guidelines will be incorporated in the Hong Kong Planning Standards and Guidelines for public reference. The issue of residential densities and implications on strategic planning will be highlighted in Stage 3 Public Consultation of the HK2030 Study. Upon arriving at broad planning directions and principles regarding this issue, further studies at the district planning level will be required before concrete planning proposals could be drawn up, especially if density reduction measures are only to be applied on selective sites.

Planning Department
November 2003
Plate 1 - Examples of Developments with Plot Ratio 8 to 10

Grand Panorama, Mid-Levels

Aberdeen Centre, Aberdeen
Plate 2 - Examples of Developments with Plot Ratio 5

Villa Oceana, Ma On Shan

Island Harbourview, West Kowloon
State Theatre & Adjacent Sites Development Context

The State Theatre Building built in 1959 is a local district landmark.

The street block is characterized by dense commercial / residential mixed-use development.

High-density residential blocks directly fronting King's Road (a major local traffic artery) is subject under undesirable living environmental condition.

The street block is characterized by dense commercial / residential mixed-use development.

Ground level retail space is poorly managed which create unattractive street frontages.

A number of 1950’s walk-up residential apartments have no parking facilities and sub-standard road access.
Opportunity to rehabilitate the old residential lots along Java Road into retail uses.

Comprehensive development allow for better building layout, street pattern, and amenity provision which helps to improve local living environment.

Some of the low-rise 5 storeys walk-up apartments located at end section of Chun Yeung Street are proposed to be rezoned as public open space to enhance pedestrian linkages.

These pocket open spaces also introduce pleasant spatial relief amongst the dense high-rise building clusters.
Old Buildings & New Residential Developments along Tong Shui Road

Configuration of old lot sizes result in low domestic / non-domestic plot ratio and inefficient building development.
Redevelopment of CMB’s staff quarter and adjacent development sites
Java Road Development Opportunities

Physical condition of 1955 to 1975 buildings vary considerably along the same street block

The sites located directly across North Point Estate Redevelopment enjoy high degree of pedestrian circulation which offer good potential for street activities

Mixed used development with vibrant commercial activities on street level
Marble Road Development Opportunities

Redevelopment of a stretch of 1950’s tenement buildings along Marble Road to create commercial development with public plaza to reinforce linkages to North Point Estate Redevelopment.
Opportunity for Pedestrianization of Chun Yeung Street

*Mixture of old and new building fabric*

*New residential development along the street*

*Vibrant street activities*

*End stop of North Point tramline*
North Point Case Study - Existing Development Profile of Action Areas
North Point Case Study - Action Areas for Development
North Point Case Study - Improvement of Public Realm