

**inter.noise 2000**

*The 29th International Congress and Exhibition on Noise Control Engineering  
27-30 August 2000, Nice, FRANCE*

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I-INCE Classification: 5.0

## PLANNING OF NEW SUB-URBAN TOWNS IN HONG KONG

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**Keywords:**

NOISE PLANNING, PLANNING OF NEW TOWNS

**ABSTRACT**

Hong Kong is a very small but hyper-dense city. Tackling environmental noise problem to provide a quality living is not an easy task. More areas for development are needed to accommodate the fast growing population, estimated to reach some 8.3 million by the year 2011. Transportation demand, commercial and other activities coming with the population growth would inevitably further aggravate the noise situation if not handled properly. Proactive action at the outset of development planning is required to avoid noise problem. To make Hong Kong a livable place with a good acoustic environment, proactive environmental planning principles are adopted in preparing the land use proposals. This paper summarizes the planning efforts spent in two development areas to arrive at integrated land use and transport plans incorporating environmentally friendly modes of transport.

### 1 - INTRODUCTION

By the standard of most world cities, Hong Kong is indeed a very small but hyper-dense place. The city has an area of about 1,000 sq. km of which some 80 % is hilly but houses 6.8 million population. Tackling environmental noise in such a hyper-dense city is not easy. A strategic planning study recently completed by the government projected that by the year 2011, the population would reach 8.3 million [1]. To address the need of the existing and additional population, more development areas for housing, community, transport and other supporting facilities are necessary. New strategic growth areas are being identified in the New Territories, notably in the North West and North East New Territories which are mostly vacated farm lands at present with scattered rural developments [2, 3]. Potential areas such as Hung Shui Kiu, and Kwu Tung North are identified to accommodate some 340,000 population.

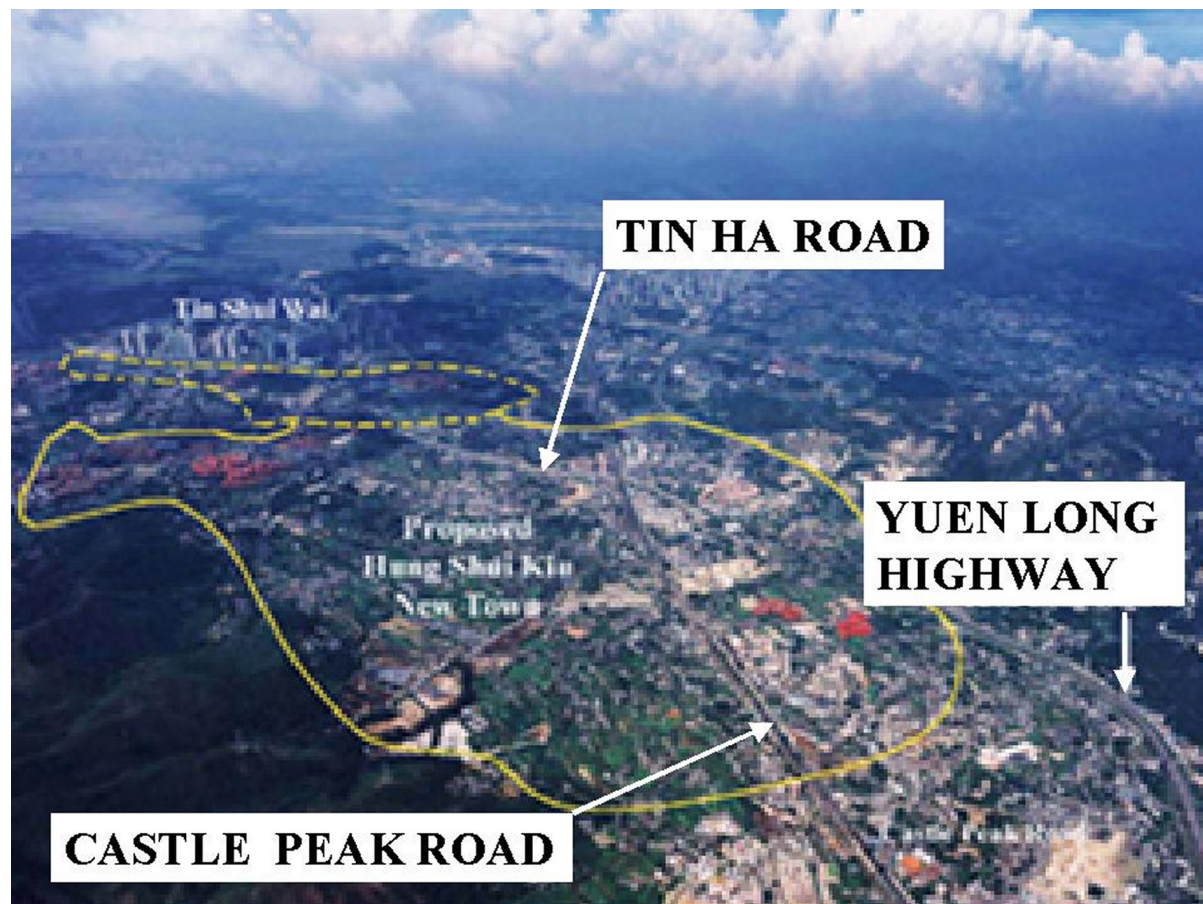
Environmental noise is undoubtedly a key indicator for good quality living. The proactive noise planning of Tung Chung New Town, a development area in an outlying island planned in the 1980s, confirmed that integration of environmental considerations at the very early stage is essential to achieve a pleasant living environment while satisfying the housing and transport needs [4]. This paper demonstrates how proactive noise planning is blended in the planning process for these strategic growth areas. The planning efforts to minimizing noise included optimization of rail-based development, design of truck route and peripheral trunk roads, and use of sunken roads. The provision of travellers and people-mover systems, and use of trolley bus and electric vehicles, etc. have been explored and adopted to enhance a quieter environment.

### 2 - NOISE PLANNING OF STRATEGIC GROWTH AREAS

#### 2.1 - Shortcomings of non-integrated planning

The planned strategic growth areas are subject to various development constraints. For instance, there are existing major highways bisecting or running close to the areas (Figures 1 and 2). There are also many container backup and open storage sites scattered in the areas. Planning effort is vital to pre-empt noise problems.

Given the development constraints along the past planning of land use and transport separately, the residents could only be protected from excessive noise through extensive noise barriers which would



**Figure 1:** Strategic growth area at Hung Shui Kiu.

unlikely be compatible with the greenery nature of the areas. Other measures such as the use of noise insulation would impound residents in a closed-window environment.

## **2.2 - Planning opportunities**

From the noise perspective, emphasis was placed on four key areas, namely (a) rail-based residential development; (b) people movement within community; (c) environmental-friendly transport planning; and (c) consolidation of container backup areas.

The strategic growth areas at Hung Shui Kiu and Kwu Tung North will make optimum use of the planned rail lines connecting the northern and western territory to the metro area. At the strategic level, rail-based transport will reduce intra-territory road traffic demand and hence traffic noise impact. At the community level, high-density developments will be located within walking distance of the railway stations based on a stepped-density concept. The approach will encourage walking and minimize the need for feeder services. There is also opportunity to extending an existing quiet Light Rail Transit system to serve Hung Shui Kiu and provide an efficient connection to the wider areas in western New Territories. Other environmentally friendly modes of transport such as trolley bus and electric vehicles were also looked into to make allowance in the transport infrastructure for adoption. To maximize utilization of public transport, comprehensive networks of pedestrian corridors and cycle tracks were integrated in the open space system of the strategic growth areas. A 300 m traveller was planned in Hung Shui Kiu to connect residential developments with the future railway station and the Light Rail Transit. Similarly, the design of Kwu Tung North strategic growth area has also allowed for the use of travellers and people-mover systems at strategic locations.

Sensible transport planning could minimize traffic noise impact on residents. Special routes designated for heavy vehicles were designed to minimize goods vehicle movements within the strategic growth areas. The truck route will provide direct access to a planned container backup site in Hung Shui Kiu via highways running at outskirts of the area. New distributor roads to connect the highways are also planned at the boundary of the strategic growth areas. The diversion of traffic from the center of the areas onto the peripheral routes will minimize through traffic. In addition, traffic noise in the development will be

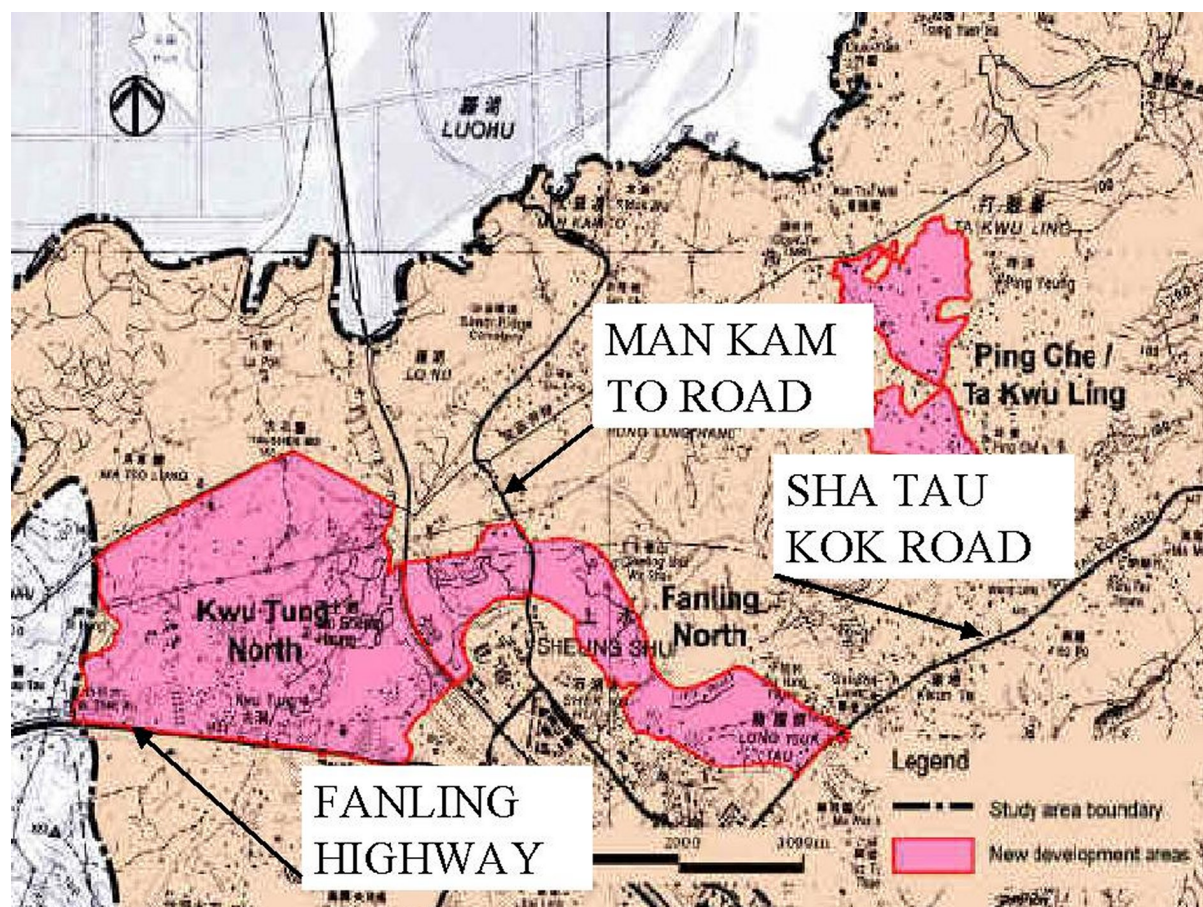


Figure 2: Strategic growth areas at Kwu Tung North, Fanling North and Ping Che/Ta Kwu Ling.

further reduced by using sunken roads and downgrading some existing roads from main road to local road which would have lower speed limit. The container backup site mentioned above will be located away from the main residential areas in Hung Shui Kiu. The site will help to consolidate the existing scattered container storage yards in the North West New Territories and hence improve the general noise environment to the whole area.

Shown in Figure 3 is the proposed development plan for Hung Shui Kiu portraying how noise planning is incorporated in the strategic growth area.

### 3 - BENEFITS OF NOISE PLANNING

Making proactive noise planning principles an integral part of the early development planning process is vital for achieving a good quality living environment. This will avoid noise problems like traffic noise and industrial/residential interface in old urban areas. Table 1 demonstrates the key noise benefits of the planning effort for Hung Shui Kiu.

Item	Conventional Planning Concept	Proactive Planning Concept
Road traffic generated (daily trips)	400,000	190,000
Population exposed to unmitigated traffic noise	50,000	20,000
Length of roads with noise barriers	19 km	8 km

Table 1: Noise benefits of planning effort for Hung Shui Kiu.

### 4 - CONCLUSIONS

The early planning focus of noise in the development process is the key to attain a quiet environment. Various planning principles such as rail-based residential development and environmental-friendly transport modes and measures are available to pre-empt noise problems. The integrated transport and land

use planning approach in Hong Kong has shown good results as illustrated in the design of Tung Chung New Town. The integrated planning approach has explored and incorporated a comprehensive array of environmental concepts and measures in the North West and North East New Territories. Everyone involved in the planning process has a part to play. With the joint efforts from the planners, engineers, architects and noise specialists, the planning of next generation of new towns would become a reality.

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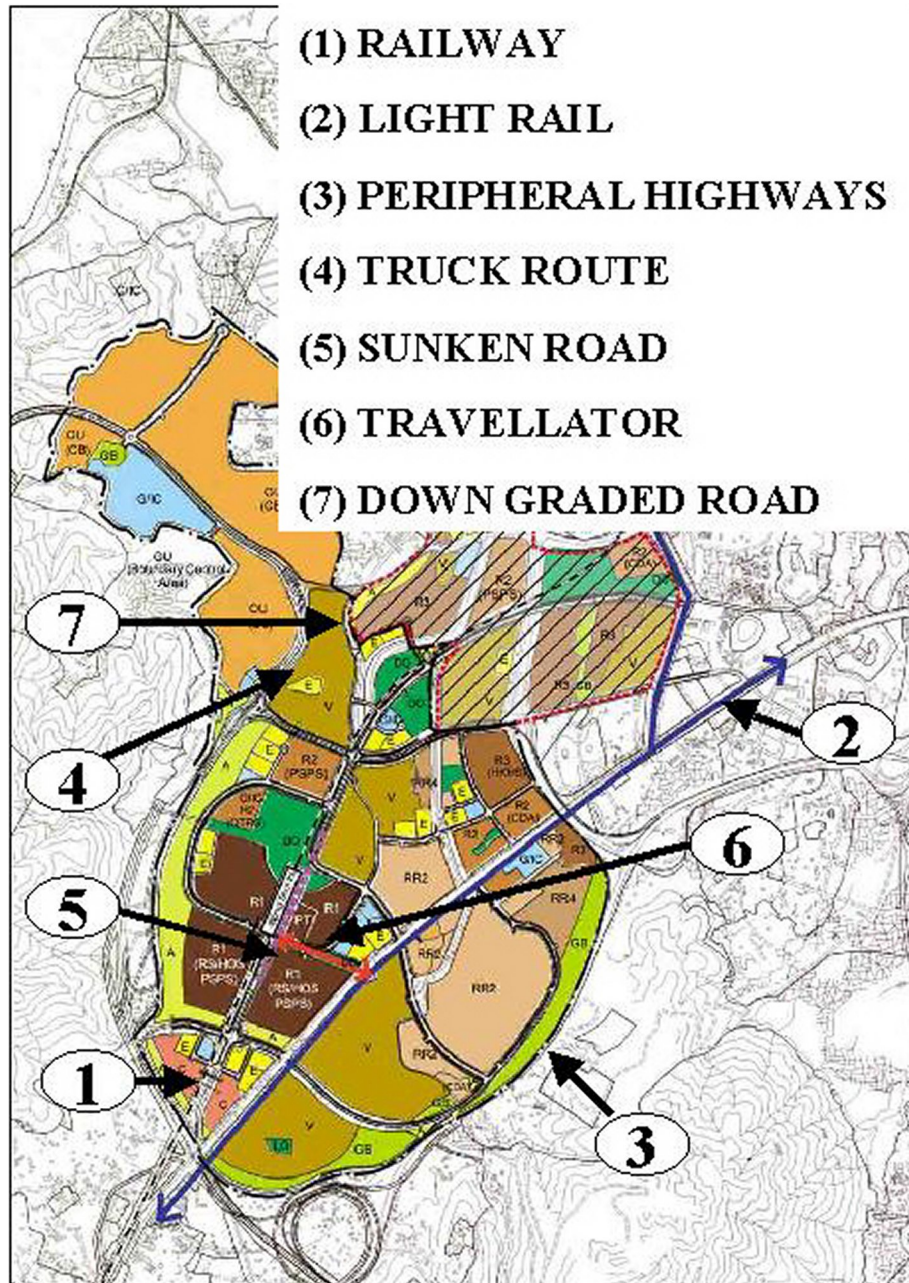


Figure 3: Proposed Hung Shui Kiu development plan.