

ERM 100

路政署

Highways Department

合約編號 CE 24/94

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柴灣道/永泰道道路擴闊工程

環境影響評估：摘要

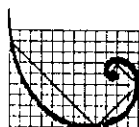
**Environmental Impact Assessment  
for Chai Wan Road/Wing Tai Road Widening:  
*Executive Summary***

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ERM Hong Kong  
6/F Hecny Tower  
9 Chatham Road  
Tsimshatsui  
Kowloon, Hong Kong

Telephone (852) 2722 0292  
Facsimile (852) 2723 5660



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## EXECUTIVE SUMMARY

1

### INTRODUCTION

The proposed improvement works under the Chai Wan Road/Wing Tai Road Widening are required to cater for traffic growth resulting from development in Siu Sai Wan and the industrial area on the eastern side of Wing Tai Road.

The introduction of a one-way gyratory system in March 1994 improved junction capacity giving a reserve capacity of about 20%. However, the junction is still unable to cope with any further developments in Siu Sai Wan. To resolve this problem and meet demand for the foreseeable future the Highways Department propose to modify the junction to increase its capacity. The proposed improvement works are described below (see *Drawing No. HH 8132A*):

- construction of a flyover to carry through traffic from Chai Wan Road westbound to Wing Tai Road northbound;
- widening of a section of Wing Tai Road between Sheung On Street mini-bus terminus and Chai Wan Road to dual three-lane carriageway;
- modification of the junction layout of Chai Wan Road/Wing Tai Road and Chai Wan Road/Sun Yip Street; and
- construction of the associated traffic islands, footway, landscaped open-space and traffic aids.

As the construction and operational phases of this project have the potential to affect the surrounding environment, an environmental impact assessment (EIA) has been carried out. The findings of the EIA are presented within this report. The Executive Summary provides a précis of the report.

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### SITE DESCRIPTION

The road network identified for modification connects the Island Eastern Corridor to the industrial area near Chai Wan cargo handling basin and the residential development at Siu Sai Wan.

The study area for the EIA extends from the boundary of Wing Tai Temporary Housing Area in the north-east to Hiu Tsui Street in the southeast. Residential buildings within the study area include Yue Wan and Tsui Wan Estates to the west and Fu Shing Court, Fu On Court, Artland Court and Sun Tak House to the south of Chai Wan Road in the east.

Approximately 300m of Wing Tai Road, which is dual-lane in each direction will be affected by the proposals. The area to the north is mainly industrial and includes Chai Wan Industrial City Phases I and II, Cornel Centre, Chai Wan Fire Station. There is an open-air bus depot small sitting-out areas, a playground and two estates adjacent to the junction with Chai Wan Road. To the south of Wing Tai Road there is Tsui Fuk House, Tsui Wan Estate, and two schools within the Yue Wan Estate. There are proposals for two additional housing blocks to be built between Tsui Fuk House and the schools.

# 摘要

## 1 引言

建議中之柴灣道/永泰道擴闊道路改善工程是有見於因小西灣及永泰道東面工業區之發展所引起的交通增長而進行。

一九九四年三月引用的單向迴旋交通系統，提高了交匯處的容量，令交匯處擁有大約百分之二十的預留容量。不過，交匯處現時的容量仍不足以應付小西灣的未來發展。為了解決這個問題及迎合可見將來的需求，路政署建議改建交匯處以提高它的容量。建議中的改善工程如下(請參閱附圖編號 HH8132A)：

- 興建一條天橋以疏導由柴灣道西行至永泰道北行之交通；
- 將由常安街小巴士站至柴灣道之間之一段永泰道擴闊為三線雙程行車道；
- 改變柴灣道/永泰道及柴灣道/新業街兩個交匯處的設計；及
- 興建和以上工程相關的安全島、行人道、經美化環境之空曠地方及交通輔導設施。

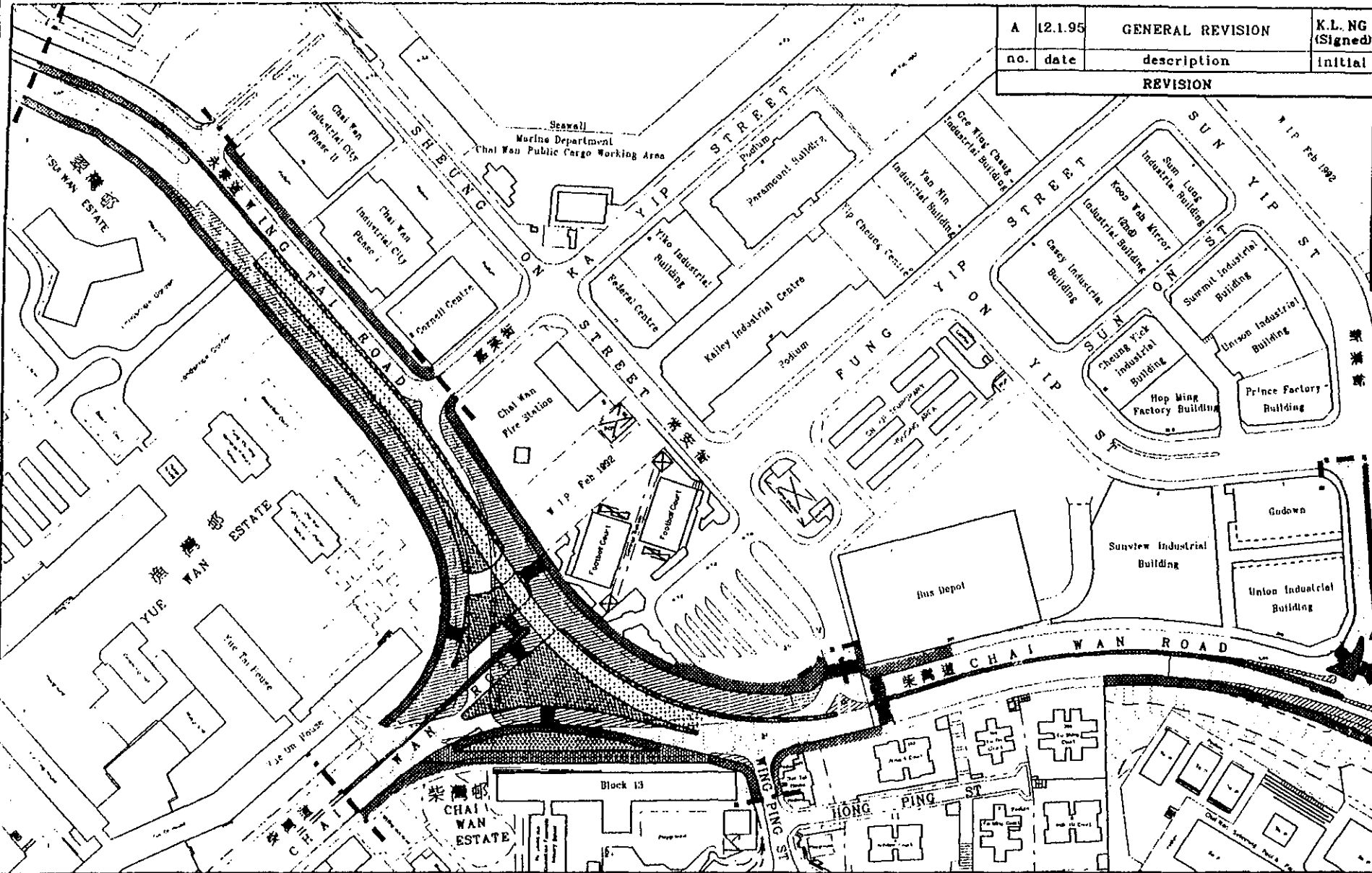
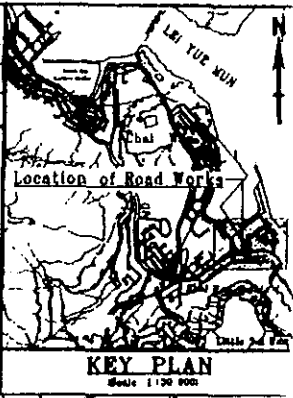
由於本計劃之施工及運作有可能對周圍環境造成影響，所以就本計劃進行了環境影響評估(以下簡稱環評)。環評結果在環評報告內詳細闡述。本摘要為環評報告的撮要。

## 2 研究區域概況

計劃中需改善的道路網絡連接東區走廊和柴灣貨物裝卸灣毗鄰之工業區及位於小西灣的住宅區。環評研究區域範圍自東北面的永泰臨時房屋區邊緣起至東南面的曉翠街止。在區內的住宅樓宇包括有西面的漁灣邨及翠灣邨；及東面位於柴灣道以南的富城閣、富安閣、雅麗閣及新得閣。

大約有三百米長之永泰道(每個方向均為雙線行車)將受本計劃影響。研究地區北部主要為工業用途，主要建築物包括了柴灣工業城第一及二期、港利中心及柴灣消防局。永泰道與柴灣道交匯處毗鄰有一露天巴士廠、一些小型休憩處、一個公共遊樂場及兩個公共屋邨。永泰道以南有翠灣邨的翠福樓及漁灣邨內的兩間學校。現時，政府亦已有計劃於翠福樓及學校之間的土地上再建兩幢居屋。

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no.	date	description	initial
REVISION			



工程界限 Project Limit	建議中之行人過路處 Proposed Pedestrian Crossing
將予重校之現有行車道 Existing Carriageway to be reconstructed	建議中之緊急車輛通道 Proposed Emergency Vehicular Access
建議中之行人道 Proposed Footway/Traffic Island	建議中之天橋 Proposed Flyover
建議中之行車道 Proposed Carriageway	建議中之園景美化地區 Proposed Landscape Area

project no. 459TH  
 file no. HH CW 459TH  
 drawing title  
**柴灣道/永泰道擴闊工程**  
**CHAI WAN ROAD /**  
**WING TAI ROAD WIDENING**

drawn *Guyphan*  
 W.K.CHAN  
 approved  
**K.L. NG (Signed)**  
 office  
 HIGHWAYS / HONG KONG REGION

date 20.5.94  
 date 1.12.94  
 drawing no. **HH 8132<sup>A</sup>**  
 scale 1:2 500  
 AS SHOWN  
  
**HIGHWAYS DEPARTMENT**  
**HONG KONG**

About 600m of Chai Wan Road will be involved in the road widening scheme. To the north of the road industrial developments dominate the area. Yue On House and Yue Wan Estate are on the northern side of the road to the west of the proposed road works. To the south of the road there are several residential blocks and a swimming pool complex.

The road widening will also affect about 100m of Sun Yip Street. The land both sides of this stretch of the road supports industrial use.

### 3 NOISE ASSESSMENT

#### 3.1 BASELINE NOISE ENVIRONMENT

The existing noise environment surrounding Chai Wan and Wing Tai roads is dominated by traffic noise. Baseline noise measurements have indicated that the existing environment within the Study Area is noisy with peak hour, daytime noise levels at several sensitive receivers approaching or above the maximum recommended limiting noise levels for both construction activities and traffic noise.

#### 3.2 NOISE IMPACTS DURING CONSTRUCTION

To assess the extent and magnitude of construction noise levels at nearby noise sensitive receivers (NSRs), the noisiest, simultaneous activities proposed for each Stage of construction were identified and modelled. The worst case scenario assessed for this study included two noisy activities acting simultaneously; concrete breaking for the main road acting in parallel with bored piling for the fly-over.

Predicted noise levels based on this worst case scenario have indicated that noise impacts at nearby receivers from the construction of the road will be significantly above the recommended daytime noise criterion of  $L_{Aeq,30min}$  75 dB at most nearby NSRs.

To reduce these predicted impacts to acceptable levels, noise mitigation measures in the form of packages of barriers, quiet working methods and limiting plant total sound power levels have been recommended, for each construction stage. Furthermore, appropriate noise insulation and air conditioning have been recommended for installation in the two schools in the Study Area prior to the commencement of construction works. To ensure that these mitigation measures are employed, it has been recommended that the relevant noise mitigation measures be written into all contract documents and that noise monitoring be carried out during the construction works to check for compliance with the appropriate criteria.

#### 3.3 OPERATIONAL NOISE IMPACTS

Predicted  $L_{A10,peak\ hour}$  noise levels for the post-widened roads, in the year 2011, have indicated that most residences and schools in the Study Area will experience levels that exceed the HKPSG 70 dB(A) and 65 dB(A) levels, respectively. To reduce noise levels to acceptable limits, modelling of different noise mitigation schemes were carried out. These different potential mitigation options included road side noise barriers, low noise road surfacing and the provision of barriers/enclosures on the proposed fly-over section.

大約有六百米長的柴灣道將受道路擴闊工程計劃影響。柴灣道以北主要為工業樓宇。漁灣邨的漁安樓則位於道路工程西部的柴灣道以北。柴灣道以南有數幢住宅樓宇及一個泳池。道路擴闊工程亦會影響新業街約一百米長的路段。此段道路兩旁俱為工業用地。

### 3 噪音評估

#### 3.1 基準噪音環境

現時柴灣道及永泰道的噪音環境主要為交通噪音支配。基準噪音測量結果顯示研究區域附近的環境現時已非常嘈吵，有幾個地點承受的繁忙時間噪音水平接近或已超過建議居民可承受的最高建築噪音水平及已超過建議一般居住環境的噪音水平。

#### 3.2 施工期間的噪音影響

為了評估建議道路改善工程施工及運作所引致噪音水平改變的影響，研究區域範圍內對噪音感應強的地方都已被識別。典型的嘈吵施工活動包括了在興建天橋時在數處同時破碎混凝土及進行鑽孔或打樁。

在最差的情況下，噪音感應強的地方樓宇外牆前的噪音水平已經過預測。預測所得噪音水平的數據顯示，在附近的噪音感應強的地方將承受顯著的施工噪音影響。大部份噪音感應強的地方承受的噪音影響將會超過  $L_{Aeq, 30min}$  75 分貝的建議日間噪音標準。

為了將預期的影響減至可接受的水平，環評研究就此已為施工期的每個階段建議了可行的噪音緩解措施，如設置隔音屏障、採用較寧靜的施工方法及限制總聲功率級等。此外，環評亦建議在工程開展前應為區內兩間學校裝設合適的隔音設施及冷氣。為了確保上述緩解措施得以採用環評建議將有關之噪音緩解措施開列於工程合約條款內，並需在施工期間進行噪音監測以確定符合有關標準。

#### 3.3 運作噪音影響

模擬所得公元 2011 年的預計  $L_{A10, peak hour}$  噪音水平顯示大部分的住宅和學校都將會承受超出《香港規劃標準與準則》內分別為這兩類場所訂定的 70 分貝(A)及 65 分貝(A)噪音標準。為了將噪音減至可接受的水平，環評就不同的噪音緩解方案進行了電腦模擬。這些不同方案包括了路旁隔音屏障、低噪音路面及天橋隔音屏障或上蓋。



Road side barriers of 3m height were modelled at a minimum distance of 3.5m from kerbside to allow for drop-off areas and pedestrian movements. The results of this modelling indicated that a small number of the lower floors in the residential dwellings and at the schools were protected. However, it was noted that barriers of any height were considered impractical due to visual impairment to drivers and residents as well as conflicts with bus stops, taxi drop-off points, road safety and underground services near the road edge.

The current low noise surface mix employed in Hong Kong, termed 'friction course', is not recommended by Highways Department for local roads or roads with difficult geometry such as steep grades, tight bends and near junctions where braking and accelerating is frequent. As all the roads in the Study Area are local roads with difficult geometry, the lifetime of the mix would be quite short (approximately 1 year) and so problems associated with the need for continual maintenance of the road surface would cause continuous nuisance to the public. It was noted, however, that Highways Department is currently testing new aggregate mixes to develop a low noise surface which will be applicable to local roads. Results from this testing, however, will not be available for at least another 2 years and so are not applicable to this study as Chai Wan and Wing Tai Roads will be widened in 1996. If suitable low noise surfacing were applied to the majority of the roads in the Study Area, noise predictions have indicated that noise levels would be reduced by between 2-3 dB(A) at most locations. However, noise levels at these locations would still be significantly above the HKPSG noise criterion (in the range of 75-80 dB(A)), and so it was concluded that low noise surfacing would generally be ineffective in reducing noise levels to acceptable levels for this particular project.

Modelling of barriers and enclosures on the fly-over showed that these measures were ineffective in reducing noise levels at nearby receivers. When modelled, barriers or enclosures were found to reduce noise levels by about 1 dB(A) at a limited number of locations; primarily at the schools and Chai Wan Block 13. The lack of noise reduction attributable to barriers/enclosures on the fly-over indicated that the primary noise source in the Study Area are the at-grade roads; the fly-over making only a secondary contribution to noise levels. As a result, barriers or enclosures on the fly-over are not recommended as a noise mitigation measure.

As there is no further scope to reduce the noise levels by direct mitigation measures, indirect technical remedies in the form of window insulation and air conditioning were recommended for the affected dwellings, subject to ExCo approval. It is noted that approximately 460 residential units would be eligible for consideration for noise insulation under the ExCo directive XCC(89)157: *Equitable Redress for Persons Exposed to Increased Noise Resulting From the Use of New Roads*. The two affected schools (48 classrooms) would be insulated under the Education Department school insulation programme. If these schools are not insulated prior to the construction works for the widened road, the required insulation will be borne by the road widening project.

經電腦數學模擬所得的3米高路旁隔音屏障需設於距行人路邊3.5米處，以預留足夠地方供上落客及行人之用。模擬結果顯示只有為數甚少的低層住宅單位/班房可受保護免受噪音滋擾。由於阻礙駕駛人士及行人視線、影響巴士的士上落客、有損交通安全及路邊的地底設施等種種原因，任何高度的隔音屏障都不是可行的方案。

路政署並不建議在地區性道路及某些特別類型的道路鋪設低噪音路面，例如斜度大的道路、急彎及交匯處附近常需剎車及加速的路段。由於所有本工程涉及的路段均為上述類型的道路，鋪設路面材料的壽命將頗短(約為1年)，因此而需持續進行的路面維修保養工程將為公眾帶來滋擾。路政署現正測試一些適用於地區性道路的新型鋪路材料，但此等測試最快也要兩年後才有結果，所以並不能趕及在1996年進行的柴灣道/永泰道擴闊工程中採用。若區內大部份道路均鋪上低噪音路面，大部份地點所承受的噪音水平將減低2至3分貝(A)。但是由於這些地點的噪音水平仍明顯地高於《香港規劃標準及準則》規定的噪音水平(即75-80分貝(A))，所以環評的結論是低噪音路面不能有效地減低本工程引起的噪音影響。

因應天橋隔音屏障及上蓋而進行的電腦模擬顯示這些措施並不能有效地減低附近對噪音感應強的地方的噪音水平。模擬結果顯示此等屏障及上蓋只能為少數地點(主要為學校及柴灣邨13座)減低約1分貝(A)的噪音，由於區內的主要噪音來源應為地面路段，而天橋只為次要的噪音來源，所以天橋屏障及上蓋並不能達致可觀的消減噪音效果。因此，環評並不建議採用天橋隔音屏障或上蓋作為噪音緩解措施。

監於直接緩解措施並不足以解決噪音問題，環評建議受影響的民居(有待行政局批准)裝設隔音玻璃窗及冷氣以間接舒緩噪音。根據行政局指令編號XCC(89)157的規定，約有460戶民居，均合符安裝隔音設施的資格。此外，兩間受影響的學校(共48間班房)可根據教育署的規定而獲配安裝隔音設施。但是，若此等學校在道路工程開展前尚未裝置隔音設施，則需由本道路擴闊工程經費中撥出有關費用。

## 4.1

## AMBIENT AIR QUALITY

Ambient air quality was monitored at the roof of Chai Wan Fire Services station. The following parameters were measured:

- Total Suspended Particulates (TSP);
- Respirable Suspended Particulates (RSP);
- Nitrogen Dioxide (NO<sub>2</sub>);
- Nitrogen Monoxide (NO); and
- Carbon Monoxide (CO).

Over the two week period 21 December 1994 to 5 January 1995, both the maximum and 90-percentile hourly and daily averaged concentrations of air pollutants monitored were found to be below the statutory requirements.

Air sensitive receivers (ASRs) were identified at twelve locations using a combination of site visits and reference to the development plans for the study area. The ASRs were selected using criteria set out in the Hong Kong Planning Standards and Guidelines and the Air Pollution Control Ordinance.

## 4.2

## AIR QUALITY IMPACTS

The likely air quality impacts arising from the proposed road improvement works will relate to dust nuisance during construction activities and gaseous emissions from construction plant and vehicle exhaust both during the road improvements and once they are completed.

*Gaseous Emissions*

During construction SO<sub>2</sub> and NO<sub>2</sub> will be emitted from diesel-powered equipment. However, only a limited amount of such equipment will be required on site and emissions of SO<sub>2</sub> and NO<sub>2</sub> are not predicted to be significant. The relevant Air Quality Objectives will not be breached. Vehicular emissions will be the major pollutants during the operational phase of the road junction improvement; NO<sub>2</sub>, CO and RSP will be the main pollutants. Projected morning peak hour traffic flows and vehicle mix were obtained from the transport model data provided by the Transport Department. Modelling of these gases has indicated that even under the worst case meteorological conditions, pollutant levels will not exceed the Hong Kong Air Quality Objectives (HKAQOs) at any of the nearby ASRs.

As indicated in noise section of the report, a 3 m acoustic barrier has been proposed along the southern edge of the fly-over to reduce noise impacts at the nearby receivers. With this barrier in place, dispersion of pollutants will be obstructed and pollutants will therefore accumulate at the fly-over. When the wind is blowing along the fly-over, these accumulated pollutants will be dispersed and the surrounding ASRs will receive a higher pollution impacts. As the traffic flow over the flyover is small in volume (less than 1000 veh/hr), however, the air quality impact attributable to the vehicular emissions of flyover will be small compared with the main road network. Hence, the bluff effect due to the 3m barrier will lead to insignificant increases in pollutant levels at the nearby ASRs.

## 4 空氣質素評估

### 4.1 大氣空氣質素

該區的大氣空氣質素經已在柴灣消防局天台加以監測。經測量的參數如下：

總懸浮粒子(TSP)；

可吸入懸浮粒子(RSP)；

二氧化氮(NO<sub>2</sub>)；

一氧化氮(NO)；及

一氧化碳(CO)。

在一九九四年十二月廿一日至一九九五年一月五日之間的兩星期內，最高百分之九十或然率的空氣污染物濃度時平均值及日平均值均低於法例要求的水平。

實地考察及參考研究區域的發展藍圖的結果顯示，該區有十二個地點為對空氣污染感應強的地方。這些地點都是按照《香港規劃標準及準則》及《空氣污染管制條例》的規定而選出的。

### 4.2 空氣質素影響

建議中道路改善工程可能引起的空氣質素影響將來自施工活動的塵埃滋擾、施工機器的廢氣和改善工程期間及完工後的汽車廢氣。

#### 廢氣排放

施工期內，以柴油發動的設備將發出二氧化硫及二氧化氮。但是，由於地盤內只需有限數量的柴油發動設備，所以預料並不會有大量二氧化硫及二氧化氮排出，亦不會違反有關的空氣質素指標。汽車廢氣將為道路改善工程運作期的主要空氣污染物。環評使用了運輸署提供的道路運輸模擬數據，以早上繁忙的交通流量及車輛類別的推算值作為評估基礎。預料二氧化氮、一氧化碳及可吸入懸浮粒子將為主要的空氣污染物。但在最差的象條件下，在任何空氣污染感應強的地方都將不會有上述污染物超出《香港空氣質素指標》的情況。

如環評報告有關噪音部份所建議，天橋南邊將需裝置一系列3米高的隔音屏障以減低附近對噪音感應強地方的噪音影響。裝設上述屏障後，空氣污染物的擴散將會受阻，因而引致此等污染物在天橋上積聚。當風向順應天橋走向時，經已積聚在天橋上的污染物將隨風擴散，致令周圍對空氣污染感應強地方的空氣污染影響提高。可是，由於天橋上交通流量低(少於每小時1000架次)，由天橋上車輛廢氣引起的空氣污染影響將較主要道路網絡的為低。故此，由3米高隔音屏障引起的邊坡效應將不

As a result, it can be concluded that levels of NO<sub>2</sub>, RSP and CO will not exceed the HKAQOs in the design year at any of the nearby ASRs.

### *Dust Impacts*

The construction work for the project will inevitably lead to dust emissions, mainly from concrete drilling, aggregate materials handling and the excavation of soil and rock. Using the *Fugitive Dust Model* the dust generated from excavation and drilling is predicted to be well within the limits of the Hong Kong Air Quality Objectives (HKAQO) and therefore significant impacts are not expected. However, dust control measures are recommended for implementation as part of good site housekeeping practice to minimise any dust nuisance.

## 5 VISUAL IMPACT ASSESSMENT

### 5.1 LANDSCAPE QUALITY

The site lies within a low lying flat area near the north eastern coastline of Hong Kong Island. Glimpses of the surrounding mountains to the west, south and east of Chai Wan can be seen between the buildings. Vegetation cover comprises mostly immature road side trees with a few semi-mature specimens.

The current visual character is urban roadscape, with large scale buildings predominant features within the local environment. The recommended architectural treatment to the flyover, for example smooth profiles, has been designed to alleviate any visual impacts.

### 5.2 VISUAL IMPACTS

A large number of trees will be affected by the road widening works. Trees will be retained where possible, for example incorporated into pavement widening designs, or transplanted or replaced if they cannot be retained.

When the proposed landscaping/planting matures, a large portion of the elevated structure will be screened from sensitive receivers.

The roadwork will lead to impacts throughout the zone of visual influence. The most significant impacts will be experienced by the residents of the housing areas to the south of Chai Wan/Wing Tai Road, particularly residents of Chai Wan Estate Block 13 and Sun Tak House. Significant impacts will also be experienced by pedestrians walking along Chai Wan/Wing Tai Road. However a widespread improvement in the visual quality of the landscape would be generated by the landscape mitigation measures proposed.

會令鄰近空氣污染感應強地方的污染物明顯增加。

由道路擴闊後交通流量增加而致的二氧化氮、可吸入懸浮粒子及一氧化碳的水平已經電腦數學模擬評估，結果顯示儘管在最壞情況下，在任何空氣質素感應強的地方，上述污染物的水平都不會超越《香港空氣質素指標》的規定。

### 塵埃影響

本計劃的施工無可避免地會產生塵埃，而這些塵埃主要是來自破碎混凝土、搬運泥頭和開挖泥土及石塊。根據《美國飄塵數學模擬》的計算結果顯示，挖路及鑽路產生的塵埃將不會超出《香港空氣質素指標》的限制水平，故此亦預料不會有重大影響。不過作為良好地盤管理守則的一部分來看，仍應實行抑減塵埃的措施以盡量減少塵埃滋擾。

## 5 景觀影響評估

### 5.1 景觀質素

研究地區是位於香港島東北海岸線附近的一幅平坦低地之上。此處西望山景，向南及東則可從樓宇間隙望見柴灣。此處的植物主要是路旁所植樹苗及少量樹齡較長的樹木。

現時區內的景觀特色是市區街道環境，而有大型樓宇處於其中。為減輕建議中的天橋帶來的景觀影響設計，將會考慮用平滑而具曲線美的結構外型。

### 5.2 景觀影響

大量樹木將受道路擴闊工程影響。在可能情況下，將盡量保留現有樹木，例如將樹木融入行人路的設計中。如不能在現有地點保留原有樹木，則或可將其移植或以新樹苗代替。

當建議中的美化環境措施確立及所植樹木成長後，大部分高架結構，將為樹木遮隔。

本道路工程將引起沿路視線範圍內的景觀影響。柴灣道/永泰路以南住宅區的居民，尤其是柴灣邨第13座及新得閣的居民，將受最大影響。柴灣道/永泰道上的行人亦會受影響。雖然如此，建議中的環境美化措施將普遍改善區內環境的景觀質素。

## 6 *LAND USE ASSESSMENT*

### 6.1 *CURRENT LAND USE*

The current land use along the proposed alignment is comprised of Government, Institutional and Commercial (GIC), residential and industrial category sites.

Along Chai Wan Road there is the Bus Depot, Chai Wan Swimming Pool and Park, Po Leung Kuk Committee Fellowship Primary School and Chai Wan Estate Playground. Along Wing Tai Road there is the Chai Wan Fire Station, Football Court, Fung Yiu Hing Memorial Primary School and Chai Wan Faith Love Lutheran School.

### 6.2 *LAND USE IMPACTS*

The proposed project will have an impact on a number of existing developments. Several facilities will need to be reduced in size or demolished, including the CMB bus parking area. The widening of the road reserve adjacent to Chai Wan Estate Block 13 will marginally improve the current situation by providing an increased distance from the road edge to Chai Wan Estate Block 13. This will be a marked improvement on the current situation where the Housing Block abuts the road edge.

The implementation of the road widening proposals will require the provision of secure pedestrian crossings to provide safe access to public transport and GIC facilities in the neighbourhood.

Several public residential blocks are anticipated to be redeveloped over the next six years. The layout of the replacement estates will need to take account of the changes due to the road widening proposals. For example, the designers of the redevelopment of these estates could adopt self protective building design and orientation measures which would mitigate anticipated impacts identified in this study.

## 7 *CONCLUSIONS AND RECOMMENDATIONS*

### 7.1 *CONSTRUCTION NOISE*

Noise impacts during the construction phase have been predicted to produce impacts in exceedance of the recommended daytime noise criterion at most of the nearby receivers. To reduce these predicted impacts to acceptable levels, noise mitigation measures in the form of packages of barriers and limiting plant total sound power levels have been recommended, for each construction stage. Furthermore, appropriate noise insulation and air conditioning have been recommended for the two school in the Study Area. To ensure that these mitigation measures are employed, it has been recommended that the relevant noise mitigation measures be written into all contract documents and that noise monitoring be carried out during the construction works to check for compliance with the appropriate criteria.

## 6 土地用途評估

### 6.1 土地用途現況

建議中的道路沿途的現有土地用途包括有政府、學校及商業用地、住宅用地及工業用地。

沿柴灣道有巴士廠、柴灣游泳池及公園、保良局總理聯誼會第一小學及柴灣邨遊樂場。沿永泰道有柴灣消防局、足球場、馮耀卿紀念小學及柴灣信愛小學。

### 6.2 土地用途影響

在土地用途方面，本計劃將對一些現有的設施有影響。一些現有的設施如中巴巴士停泊處等將需要縮小或清拆。位於柴灣邨第13座側之道路預留區域擴闊後可將第13座與路邊的距離拉闊，由此稍為改善現有狀況。擴闊道路工程將令第13座一些緊貼路邊的地點拉闊，對現狀有莫大的改善。

實施本道路擴闊工程期間將需要提供安全的行人過路處，為前往乘搭公共交通工具或其他各項設施的行人提供安全通道。

在未來六年內，預料區內有數幢公屋會被拆卸重建。重建公屋的建築設計應將本道路擴闊工程的影響一併考慮，例如：重建公屋可採用防噪音樓宇設計及樓宇採向等措施以減低本環評研究中發現的噪音影響。

## 7 結論及建議

### 7.1 施工期間的噪音

在施工地點附近大部分的噪音感應強的地方，預料在施工期內所承受的噪音影響會超出建議的日間噪音標準。環評研究就此已為施工期的每個階段建議了噪音緩解措施，如設置噪音屏障及限制總聲功率級等，以盡量減低上述各處承受的噪音影響。環評更建為區內兩間學校安裝適當的隔音設施及冷氣。為了確保上述緩解措施得以採用，環評建議將有關之噪音緩解措施開列於工程合約條款內，並需在施工期間進行噪音監測以確定符合有關標準。



## 7.2 *OPERATIONAL NOISE*

The peak-hour 2011 noise levels at most NSRs have been predicted to be significantly above 70 dB(A) at most residences and above 65 dB(A) at the schools. As a result, different noise mitigation measures have been assessed to reduce predicted impacts to acceptable levels. As this assessment has shown that all direct mitigation measures will either be ineffective or impractical, the preferred mitigation option is the provision of window insulation and air conditioning at the affected NSRs.

## 7.3 *AIR QUALITY DURING CONSTRUCTION*

The construction work for the widening of Chai Wan Road and Wing Tai Road will inevitably lead to dust emissions, mainly from excavation of soil and rock. The dust generated from excavation and drilling is however predicted to be well within the limits of the Hong Kong Air Quality Objectives (HKAQO) and therefore significant impacts are not expected. However, dust control measures should be implemented as part of good site housekeeping practice to minimise any dust nuisance.

## 7.4 *OPERATIONAL AIR QUALITY*

Levels of NO<sub>2</sub>, RSP and CO have been modelled and the bluff effect due to the proposed 3m noise barriers has been studied. Predictions have indicated that the HKAQOs will not be exceeded in the design year (2011) at any of the identified air sensitive receivers.

## 7.5 *LANDSCAPE AND LAND USE IMPACTS*

Negative impacts will be experienced throughout the zone of visual influence. The most significant of these will be experienced by the residents of the housing areas to the south of Chai Wan/Wing Tai Road, particularly residents of Chai Wan Estate Block 13 and Sun Tak House. Significant negative impacts will also be experienced by pedestrians walking along Chai Wan/Wing Tai Road. The negative impacts experienced from the northern side of the road works will be insignificant or very low.

Positive visual impacts would be generated by the additional landscape mitigation measures resulting in a widespread improvement in the visual quality of the landscape.

With regard to land use impact, the proposed Chai Wan Road/Wing Tai Road widening will have an impact on a number of existing developments which will be reduced in size or will be lost completely. The widening of the road reserve adjacent to Chai Wan Estate Block 13 will marginally improve the current situation by providing an increased distance from the road edge to Chai Wan Estate Block 13. This will be a marked improvement on the current situation wherein the Housing Block abuts the road edge. The existing CMB bus parking area will be absorbed by the road widening proposals. An alternative site for bus parking will, therefore, be required.

## 7.2 運作噪音

環評研究推算了2011年在各噪音感應強的地方的繁忙時間噪音水平，結果預料大部分住宅承受的噪音會明顯超過70分貝(A)，而沿途各學校承受的噪音會超過65分貝(A)。有見及此，環評就不同的噪音緩解措施進行了評估，以將預期的影響減至可接受的水平。由於評估結果顯示所有接緩解措施都沒有效用或不實際，所以最理想的噪音緩解措施將會是為受影響的地方裝設隔音玻璃窗及冷氣。

## 7.3 施工期的空氣質素

擴闊柴灣道及永泰道的建築工程將無可避免地產生塵埃，而這些塵埃是主要來自開挖泥土及石塊。不過開挖泥土及鑽鑿路面產生的塵埃預料將不會超出《香港空氣質素指標》的限制，故此預期不會構成重大影響。不過，作為良好地盤管理守則的一部分來看，仍應實行抑壓塵埃的措施以盡量減少塵埃滋擾。

## 7.4 運作期的空氣質素

區內的二氧化氮、可吸入懸浮粒子及一氧化碳水平已經過電腦數學模擬，由3米高隔音屏障引起的邊效應亦經研究。結果顯示在所有空氣污染感應強的地方，到設計年份(2011年)時都不會有超越《香港空氣質素指標》的情況。

## 7.5 景觀及土地用途影響

沿路視線範圍內的地方將感受到負面景觀影響。在柴灣道/永泰道以南住宅區的居民，尤其是柴灣邨第13座及新得閣的居民，將受最大影響。柴灣道/永泰道上的行人亦會受影響。道路工程以北地點所受的負面影響將不嚴重。

道路工程計劃中包括的額外環境美化措施會產生正面的景觀影響，從而普遍改善區內環境的景觀質素。

至於土地用途影響方面，建議中的柴灣道/永泰道擴闊工程會對一些現有的設施構成影響，致令這些設施需要縮小甚或遷拆。當柴灣邨第13座側之道路預留區域擴闊，第13座與路邊之間的距離將會加闊，從而令該處的現況得以改善，尤其是第13座現時緊貼路邊地點可見的改善更甚，現時中巴巴士停泊處所在的地方將為道路擴闊工程所用，故此有需要另覓地點供巴士停泊之用。

實施本道路擴闊工程期間將需要提供安全的行人過路處，為前往乘搭公共交通工具或其他各項設施的行人提供安全通道。

在未來六年內，預料區內有數幢公屋會被拆卸重建。拆卸後的土地將會交回地政署處理，新的土地用途會一併考慮本道路擴闊工程的影響。

The implementation of the road widening proposals will require the provision of secure pedestrian crossings to provide safe access to public transport and GIC facilities.

Several public residential blocks are anticipated to be demolished over the next 6 years. The land will be returned to the Lands Department and future developments should take cognisance of the impact of the road widening proposals.