

This section describes the assessment of noise levels arising from each flyover at each NSR.

Two factors have been considered in order to establish whether the selected flyovers are likely causes of adverse traffic noise problem. Firstly, the likely noise levels arising from each flyover has been compared to other sources of road traffic noise in the vicinity. Where the flyover is shown to be the dominant source of road traffic noise in the vicinity, the predicted noise level at the nearest NSR has been assessed.

## 5.1

### PREDICTION OF NOISE LEVELS

The approximate traffic noise levels arising from each flyover have been predicted on the basis of traffic flow data published by the Transport Department (TD) in the latest edition of the *Annual Traffic Census*, ie 1995 edition. Where 1995 data was not available, an actual traffic count was undertaken. Otherwise, 1995 data from the TD was used.

For those traffic counting stations where only Annual Average Daily Traffic (AADT) flows were available, the nominal peak hour traffic flow was calculated by applying a conversion factor (K factor) obtained from the core stations within the same traffic counting station group or area to the traffic counting station. By a similar principle, the percentage of heavy vehicles recorded at these core stations was used.

Predicted traffic noise levels arising from each flyover have been compared to other road traffic noise sources in the vicinity. Where the traffic noise contribution from other nearby sources (such as neighbouring at-grade roads) are comparable to or dominate the noise arising from the flyover, mitigation measures on the flyover would not be effective. It has therefore not been necessary to include these instances for further consideration.

## 5.2

### PREDICTED LEVELS AT THE NEAREST NSR

Representative NSRs have been identified for each of the flyovers under consideration. The separation distance between each flyover candidate and NSRs has also been identified. The predicted traffic noise levels (described above) at the nearest NSR have been assessed to establish whether the flyover can be described as a significant environmental impact at the NSR.

At present there are no standing policies to redress traffic noise from existing roads. For the evaluation of noise impacts at existing sensitive receivers, it is considered appropriate to adopt road traffic noise criteria similar to those stipulated in the *Hong Kong Planning Standards and Guidelines* (HKPSG), which require that the noise level  $L_{10, \text{peak hour}}$  at the external façade due to road traffic should not exceed 70dB(A) for domestic premises. Cases in which traffic noise levels from the flyover are lower than 70dB(A) at sensitive receivers have therefore been omitted from further consideration.

Taking into account the government constraints and special requirements, 16 flyovers are considered 'noisy' which can be treated with direct technical remedies. However, with the at-grade road traffic also taken into account, 13 flyovers were found to be less dominant sources of noise at the respective NSRs. Facade noise calculations for each concerned flyovers are presented in *Annex C*. The NSR would therefore not benefit from application of direct technical measures to these flyovers, and they have hence been dismissed from further consideration. The 13 abandoned flyovers are listed below:

- H5      Robinson Road - over Magazine Gap Road;
- H8      Upper Albert Road - over Albany Road;
- H9      Cotton Tree Drive - near St. Joseph's College;
- H16     Canal Road - over Morrison Hill Road;
- H22     Gloucester Road - turning from Victoria Road to Causeway Bay;
- H23     Gloucester Road - near Moreton Terrace;
- H27     IEC - branch to King's Road;
- H37     Aberdeen Main Road - Aberdeen Main Road to Aberdeen Praya Road;
- H38     Wong Chuk Hang Road - near HK School of Motoring;
- H43     Stubbs Road - over Wong Ngan Chung Road;
- H45     Repulse Bay Road - above South Bay Road;
- H46a    Chi Fu Road - Pok Fu Lam Road to Chi Fu Road; and
- H46b    Chi Fu Road - Chi Fu Road to Pok Fu Lam Road.

The three remaining flyovers on Hong Kong Island were considered as adverse sources of road traffic noise which do not have constraints or specific requirement for direct technical remedies. These flyovers are:

- H26     IEC - from Oil Street to Tin Chui Street; and
- H34     IEC - near Heng Fa Chuen.
- H41     Ap Lei Chau Bridge;

The benefits of applying direct technical remedies to these flyovers are discussed in *Section 6*.

#### KOWLOON AND THE NEW TERRITORIES

Taking into account the government constraints and special requirements, 65 flyovers are considered 'noisy' which can be treated with direct technical remedies. However, further to site survey, 23 flyovers were found to be on an embankment, or nearby NSRs already within the shadow zone of the flyover (ie the elevation of the NSRs are lower than the flyover). With the at-grade road traffic also taken into account, 34 of the 42 flyovers were found to be less dominant sources of noise at the representative NSRs. Facade noise calculations for each concerned flyovers are presented in *Annex C*. The NSR would therefore not benefit from application of direct technical measures to these flyovers, and they were hence dismissed from further consideration. The 57 flyovers excluded from further assessment are listed below:

- K3      West Kowloon Corridor - near Lai Chi Kok;
- K8      Lung Ping Road - near Beacon Heights;
- K9      Waterloo Road - between Ede Road and Suffolk Road;

- K10 Waterloo Road - over Prince Edward Road;
- K14 Boundary Road - College Road up to Prince Road West;
- K16 Argyle Street - near Olympic Park;
- K18 Chatham Road South - beneath Wylie Court;
- K26 Dyer Ave;
- K30 Chuk Yuen Road - Lung Yin Road;
- K31 Fung Mo Street;
- K32 Po Kong Village Road;
- K34 Prince Edward Road East - near Choi Hung Estate;
- K39 Wai Yip Street - access road to Telford Garden;
- K41 Ngau Tau Kok Road - near Ngau Tau Kok Upper Estate;
- K42a Shun Lee Tsuen Road - near Shun Lee Estate;
- K42b Shun Lee Tsuen Road - near Shun Tin Estate;
- K43 Lee On Road;
- K48 Kwun Tong Road - near Kai Tai Court;
- K54 Kwun Tong Bypass - parallel to Wang Kwong Road;
- K57 Lin Tak Road;
- K58 Sceneway Road;
- NT3 Pak Wo Road - over Fanling Highway and next to Tai Ping Estate;
- NT4 So Kwun Po Road Network - link to Farling Highway;
- NT5 Jockey Club Road - adjacent to Wo Hop Shek;
- NT6 Tai Po Tai Wo Road - near Kam Shek San Tsuen;
- NT7 Po Heung Street - over Lam Tsuen River;
- NT9 Tai Po Road Yuen Chau Tsai - near Wang Fuk Court;
- NT10 Tai Po Road Yuen Chau Tsai - link to Tolo Highway;
- NT11 Yuen Shan Road - join Tlo Highway;
- NT14 Tsun King Road;
- NT15 Ma On Shan Road Network;
- NT16 Sai Sha Road - link to Hang Tak Street;
- NT17 Hang Tak Street;
- NT18 Tai Po Road Sha Tin - near Hilton Centre;
- NT23 Sha Tin Road - near KCRC House;
- NT24 Sha Tin Road - near Sha Tin Wai;
- NT27 Tai Chung Kiu Road - near Ravana Garden;
- NT28 Sha Tin Wai Road - near Chap Wai Kon New Village;
- NT29 Shek Mun Roundabout;
- NT34 Lion Rock Tunnel Road - over Shing Mun River;
- NT35 Lion Rock Tunnel Road - near Hung Mui Kuk;
- NT38 Tseung Kwan O Road - near Hong Sing Garden;
- NT39 Tai Po Road Tai Wo - near Hong Lok Yuen;
- NT40 Hong Lok Yuen Road;
- NT41 San Tin Road;
- NT42 Ling Tin Road;
- NT46 Tsing Tin Road;
- NT47 Castle Peak Road - San Hui Section;
- NT48 Pui To Road - over nullah and San Fa Estate;
- NT49 Pui To Road - over Tuen Mun Road;
- NT56 Tuen Hing Road;
- NT59 Tuen Mun Road - Castle Peak Bay to Siu Lam;
- NT60 Tuen Mun Road - Sham Tseng Section;
- NT65 Texaco Road North - near Shek Wai Kok Estate;
- NT74 Lai King Hill Road Network - next to Kwai Fong Garden;
- NT75 Ching Cheung Road - near Ching Lai Court; and
- NT76 Wah Tai Road - near Lai Yiu Estate.

The remaining 8 flyovers in Kowloon and the New Territories were considered as adverse sources of road traffic noise which do not have constraints or specific requirement for direct technical remedies. These flyovers are:

- K2 Kwai Chung Road - near Mei Foo Sun Chuen;
- K4 West Kowloon Corridor - between Willow Street & Tong Mi Road (near Nam Cheong Estate);
- K53 Kwun Tong Bypass - near Laguna City;
- K56 Tseung Kwan O Road - near Tsui Ping South Estate;
- NT25 Sha Tin Road - near City One Shatin;
- NT62 Tsuen Wan Road - near Clague Garden Estate;
- NT69 Kwai Chung Road - near Kwai Fong Estate; and
- NT71 Tsing Tsuen Road - near Riviera Gardens and Cheung On Estate.

The benefits of applying direct technical remedies to these flyovers are discussed in *Section 6*.

After three levels of flyovers screening, a total number of 11 out of 188 flyovers have been selected for further assessment of direct technical remedies. A summary of excluded flyovers in Hong Kong Territories is shown in *Annex A*.