

INFORMATION NOTE

Regulation of aircraft noise in Hong Kong and San Francisco

1. Background

1.1 During the discussion of the Hong Kong International Airport Master Plan 2030 at the meeting of the Panel on Economic Development on 10 June 2011, members requested the Research Division to study the regulations relating to aircraft noise in Hong Kong and San Francisco of the United States. This information note provides an overview of the existing regulations regarding aircraft noise in both places, and a summary of the key findings are presented in the **Appendix**.

2. Hong Kong

Hong Kong International Airport

2.1 Being one of the world's busiest airports, the Hong Kong International Airport offers flights to 160 destinations (including around 45 destinations in the Mainland). In 2010, it was the world's 11th busiest airport in terms of passenger traffic¹, and handled over 840 flights on average on a daily basis. Since 1996, it has been ranked as the busiest airport for international air cargo. The following table presents the basic facts about the Hong Kong International Airport.

¹ Centre for Asia Pacific Aviation (2011).

Table 1 – Basic facts about the Hong Kong International Airport

| | |
|-------------------------------|---|
| Commencement date | July 1998 |
| Total site area | 1 255 hectares |
| Number of terminals | Two |
| Services hours | 24 hours, all year |
| Number of runways | Two, i.e. South (07R/25L) and North (07L/25R) Runways |
| Dimension of runways | 3 800 m long and 60 m wide for both runways |
| Flight handling capacity | Up to 61 flights per hour |
| Passenger throughput in 2010 | 50.9 million ⁽¹⁾ |
| Air cargo throughput in 2010 | 4.1 million tonnes ⁽²⁾ |
| Air traffic movements in 2010 | 307 000 ⁽³⁾ |

Notes: (1) The figure comprises originating, terminating, transfer and transit passengers. Transfer and transit passengers are counted twice.

(2) Cargo handled comprises import, export, and transshipment (counted twice) cargo. Air mail is excluded.

(3) Air traffic movements comprise civil international passenger, cargo and non-revenue flights. Military and local flights are excluded.

Legislation for aircraft noise control

2.2 In Hong Kong, aircraft noise is controlled under the following environmental legislation², which is enforced by the Civil Aviation Department ("CAD"), with the Director General of Civil Aviation acting as the controlling authority:

- (a) *Civil Aviation (Aircraft Noise) Ordinance (Cap. 312) 1986*, requiring all subsonic narrow-bodied jet aircraft flying in and out of Hong Kong to meet the international noise standard;
- (b) *Civil Aviation (Aircraft Noise) (Certification) Regulations 1987*, requiring all subsonic jet aircraft departing or landing in Hong Kong to be certificated in accordance with international established procedures; and

² Environmental Protection Department (2009).

- (c) *Civil Aviation (Aircraft Noise) Ordinance (Amendment of Schedule) Notice 2002*, tightening aircraft noise control by amending the Schedule to the *Civil Aviation (Aircraft Noise) Ordinance (Cap. 312)*, which specifies standards of noise.

2.3 As regards land use planning, the *Hong Kong Planning Standards and Guidelines* (Chapter 9) stipulates that certain noise sensitive uses should not be located within specified Noise Exposure Forecast ("NEF") contours³. The NEF standard applicable to the Hong Kong International Airport at Chek Lap Kok is NEF 25 contour, where all noise sensitive developments, such as domestic premises, hotels and hostels, educational institutions, and hospitals and clinics, are prohibited within this contour.

Penalty

2.4 Provisions for matters relating to aircraft noise, including the possession of a noise certificate for any civil aircraft using the Hong Kong International Airport, are contained in the *Civil Aviation (Aircraft Noise) Ordinance* and the *Civil Aviation (Aircraft Noise) (Certification) Regulations*. If the Director General of Civil Aviation believes that any aircraft fails to meet the requirement, he or she may give direction that the aircraft is not permitted to make a flight. The aircraft operator who fails to comply with the direction is deemed to have committed an offence and is liable to a fine of HK\$50,000 and imprisonment for six months.

Noise mitigation measures

2.5 In addition to enforcing legislation to control aircraft noise, CAD has also implemented noise mitigating measures to minimize the impact of aircraft noise on the areas near the flight paths since October 1998. These measures are implemented daily to reduce aircraft noise levels without affecting flight safety and air traffic operation, and they include:⁴

- (a) preferential use of runways and flight paths during night-time hours;

³ NEF represents the noise impact arising from aircraft operation.

⁴ GovHK (2011).

- (b) noise abatement departure procedures; and
- (c) prohibition of noisy aircraft from operating at the Airport.

Preferential use of runways and flight paths

2.6 As a mitigating measure, between midnight and 7 am, where operationally possible, aircraft approaching or departing from the Hong Kong International Airport should use the preferred runway for noise abatement. During this period of time, to avoid overflying densely populated areas as much as possible, flights departing from Hong Kong are required to use the southbound route via the West Lamma Channel, while flights arriving in Hong Kong are directed to land from the waters southwest of the airport, as long as weather and flight conditions permit.

Noise abatement departure procedures

2.7 CAD requires all aircraft departing to the northeast of the airport to adopt the Noise Abatement Departure Procedures ("NADP") stipulated by the International Civil Aviation Organization ("ICAO"),⁵ as long as safe flight operations permit. These procedures require aircraft to initiate noise abatement procedures by means of power reduction upon reaching an altitude of 800 ft or above, thus alleviating aircraft noise impact during take-offs on communities in the vicinity of the airport. For aircraft landing from the northeast between 11 pm to 7 am, they are encouraged to adopt the Continuous Descent Approach procedure when weather and flight conditions permit. By adopting this Approach, they may fly higher and in a lower power and drag configuration so that noise experienced in areas such as Sai Kung, Tseung Kwan O and Ma On Shan will be lowered.

⁵ ICAO is a specialized agency of the United Nations for promoting the safe and orderly development of international civil aviation. It sets standards and regulations necessary for aviation safety, security, efficiency and regularity, as well as for aviation environmental protection. The Organization serves as the forum for cooperation in all fields of civil aviation among its 190 Contracting States. NADP are aircraft operating procedures developed by ICAO for take-off climbs to ensure that the necessary safety of flight operations is maintained whilst minimizing exposure to noise on the ground.

2.8 CAD monitors the implementation of the noise abatement procedures with the aid of the Aircraft Noise and Flight Tracking Monitoring System. This System comprises 16 fixed noise monitoring terminals installed in the vicinity of flight paths⁶ for collecting real-time noise data, which enable CAD to compile accurate statistics on aircraft noise and more effectively investigate noise complaints.

2.9 Additionally, CAD is developing new departure procedures to reduce the noise impact on the residents in Ma Wan. Following the recommendations of a consultancy study completed in 2010, CAD has planned to promulgate the procedures by the end of 2011 to require all aircraft which can use satellite navigation technology to follow a set of "Radius-to-Fix" turn procedures when making south turns so that they follow the designated flight paths closely during the turn.

Prohibition of noisy aircraft from operating at the Airport

2.10 Under the *Civil Aviation (Aircraft Noise) Ordinance (Amendment of Schedule) Notice 2002*, CAD has banned operations of the old and noisy "Chapter 2" aircraft at the Hong Kong International Airport since July 2002. Only the newer and quieter "Chapter 3" aircraft are allowed to land in and depart from Hong Kong. The prohibition of "Chapter 2" aircraft helps reduce the overall noise impact to communities near the flight paths.⁷

3. San Francisco

San Francisco International Airport

3.1 Being owned and operated by the City and County of San Francisco, the San Francisco International Airport is the second busiest airport in the State of California. The Airport provides domestic flights to destinations throughout North America, and international flights to Latin America, Europe, Asia and Australasia. In 2010, the passenger count of the San Francisco International Airport was the ninth largest in the United States and the 23rd largest in the world. The basic facts about the Airport are provided in Table 2.

⁶ The noise monitoring terminals are installed in Sha Lo Wan, Tung Chung, Yan O, Ting Kau, Tai Lam, Tsing Yi (two terminals), Kwai Chung, Tai Wai, Mid-levels in Central, North Point, Jardine's Lookout, Shaukeiwan, West Tsuen Wan, Tsing Lung Tau and Ma Wan.

⁷ "Chapter 2" aircraft are those aircraft which comply with the noise standard stipulated in Chapter 2 of Annex 16, Volume 1, Part II to the Convention on International Civil Aviation, whereas "Chapter 3" aircraft are those aircraft which comply with the more stringent noise standard stipulated in Chapter 3 of Annex 16, Volume 1, Part II to the Convention on International Civil Aviation.

Table 2 – Basic facts about the San Francisco International Airport

| | |
|----------------------------------|---|
| Commencement date | June 1927 ⁽¹⁾ |
| Land area covered by the airport | 5 207 acres ⁽²⁾ |
| Number of terminals | Four |
| Services hours | 24 hours, all year |
| Number of runways | Four, with two parallel north-south runways – 1R/19L and 1L/19R, and two parallel east-west runways – 10R/28L and 10L/28R. |
| Dimension of runways | (a) Runway 1R/19L: 8 648 ft long and 200 ft wide; (b) Runway 1L/19R: 7 500 ft long and 200 ft wide; (c) Runway 10R/28L: 10 602 ft long and 200 ft wide; and (d) Runway 10L/28R: 11 870 ft long and 200 ft wide. ⁽³⁾ |
| Passenger throughput in 2010 | 39.4 million ⁽⁴⁾ |
| Air cargo throughput in 2010 | 384 179 tonnes ⁽⁵⁾ |
| Air traffic movements in 2010 | 387 248 ⁽⁶⁾ |

Notes: (1) The airport commenced operation in 1927 and was named Mills Field Municipal Airport. It was renamed the San Francisco International Airport in 1955. The airport has undergone major expansions in the past decades.

(2) 1 acre = 0.405 hectares.

(3) 1 ft = 0.305 m.

(4) Total airport passengers comprise total enplaned and deplaned passengers and passengers who fly into and out of the airport on the same aircraft.

(5) Cargo handled comprises domestic and international cargoes. Air mail is excluded.

(6) Air traffic movements comprise operations of air carrier, air taxi, civil and military flights.

Legislation for aircraft noise control

3.2 In San Francisco, there are federal, state and local regulations regarding aircraft noise. Under the current regulatory scheme in the United States, federal law pre-empts state and local regulations with regard to aircraft noise. The Federal Government has the authority and responsibility to control aircraft noise by the regulation of source emissions, flight operational procedures, and the management of the air traffic control system and navigable airspace in ways that minimize noise impact on residential areas. While the state sets forth noise standards and guidelines for compatibility planning, the local government and airport proprietors are responsible for planning and implementing noise abatement activities to ameliorate the adverse effects of noise on residents living in areas surrounding the airport, such as optimizing site locations, improving airport design and implementing noise abatement ground procedures.

Federal law

3.3 In the United States, the Federal Aviation Administration ("FAA") is the sole government agency responsible for the movement of aircraft. FAA exercises direct control of aircraft noise at source through a number of federal legislation and *Federal Aviation Regulations* ("FAR"), including:

- (a) *FAR Part 36*, introduced in 1968 to create a system for measuring aircraft noise and establishing maximum levels of noise output for aircraft;
- (b) *FAR Part 91*, enacted in 1976 to limit the noise emissions of existing aircraft by applying stricter standards retroactively to all aircraft⁸;
- (c) *FAR Part 150*, enacted in 1984 to provide guidelines and instructions for obtaining federal funding to implement noise compatibility programmes on a voluntary basis to reduce noise and incompatible land uses. FAA is authorized to provide Airport Improvement Programme funding for airport noise compatibility planning activities;

⁸ *FAR Part 91* was enacted in response to problems occurring under *FAR Part 36*, because the latter implemented prospective noise standards only.

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- (d) *Airport Noise and Capacity Act* ("ANCA"), a pivotal piece of legislation adopted in 1990 to establish a national policy on aviation noise. The Act set a deadline (i.e. 31 December 1999) for the phase-out of Stage 2 aircraft over 75 000 lbs, and established a process for reviewing airport noise and access restrictions on the use of Stage 2 and Stage 3 aircraft;⁹ and
- (e) *FAR Part 161*, adopted in 1991 to implement provisions of ANCA by establishing a national programme for reviewing airport noise and access restrictions on Stage 2 and Stage 3 aircraft operations. Part 161 requires that airport proprietors examine the impact of a proposed noise or access restriction within an "airport noise study area". That area must include all property within the Ldn 65 dB contours.¹⁰

State regulations

3.4 The state's aircraft noise regulations are organized under the *California Code of Regulations, Title 21, Subchapter 6, "Noise Standards"*, issued by the California's Department of Transportation ("DOT"). This set of regulations governs airport noise and land use, and provides the following two methods by which the state can deal with noisy airports:

- (a) any airport may be designated as a "noise problem airport" by the local county. In doing so, the state will regularly review the aircraft noise measurements required to be provided by the airport; and

⁹ *FAR Part 36* breaks noise emissions into three different levels or stages, based on an aircraft's size and number of engines. Stage 1 aircraft are those certified prior to the publication of Part 36 and not thereafter modified to satisfy the new standard. Aircraft meeting the 1969 standard are referred to as Stage 2 aircraft. Stage 3 aircraft are those certified after 1977, and subject to a stricter standard for aircraft noise emissions.

¹⁰ Ldn (day-night average sound level) is the average noise level over a 24-hour period.

- (b) all airports in the state must obtain a permit to operate. If the operation of an airport produces noise levels that exceed the standard set by the state, the airport must obtain a variance (i.e. exemption) from DOT and develop a plan for complying with the noise standard. The state may revoke an airport's operating permit if the airport fails to comply with noise regulations. In the State of California, the maximum reasonable level of noise acceptable to a person residing in the vicinity of airports is set at a Community Noise Equivalent Level ("CNEL") value of 65 dB¹¹.

Noise problem airport

3.5 The San Francisco International Airport has been designated by San Mateo County as a "noise problem airport" under the *California Code of Regulations* for more than 20 years. As a result of this designation, the Airport is required to develop a noise monitoring plan for measuring and monitoring aircraft noise levels in the surrounding areas. Such plan should be submitted to DOT for approval and should consist of information such as the locations and types of equipment to be used, justification for any deviations from the measurement locations specified in the relevant state regulations, and statistical sampling plan proposed for intermittent monitoring at community locations.

3.6 To comply with the state's requirements, the San Francisco International Airport has set up a noise monitoring system consisting of 29 noise monitors, including 27 off-site noise monitors and two monitors near the runway ends. Each monitor is linked to a central computer processor. The collected noise monitoring data are used for various purposes, such as recording aircraft noise events, tracking noise levels over time, assessing adherence to noise abatement flight paths, linking complaints to flights, airlines and aircraft types, validating the accuracy of computer created noise maps, and generating reports. These data are updated and submitted to both San Mateo County and DOT for review on a quarterly basis.

¹¹ CNEL is a descriptor used by the State of California for the cumulative noise exposure for an annual average day of aircraft operations. It is similar to Ldn, but adds a penalty of five dB to noises measured between 7 pm and 10 pm.

Local regulations

3.7 While a municipality in the United States may not control the source of noise, it may use its police powers¹² to mitigate the noise, such as zoning power. In San Francisco, the *Noise Control Ordinance* is found in Article 29 of the *San Francisco Police Code* (1972). The Ordinance recognizes that adverse effects on a community can arise from noise sources such as transportation, construction, mechanical equipment, entertainment, and human and animal behaviour. According to the Ordinance, "it shall be the policy of San Francisco to maintain noise levels in areas with existing healthful and acceptable levels of noise and to reduce noise levels, through all practicable means". The Ordinance is enforced by the Department of Building Inspection during normal business hours and the Police Department during all other hours.

Airport rules and regulations

3.8 Being the airport proprietor, the Airport Commission of the City and County of San Francisco may exercise its power to control airport noise in a reasonable and non-discriminatory fashion and in conformity with federal law. In order to reduce the noise impact surrounding the San Francisco International Airport, the Airport Commission developed a *Noise Abatement Regulation* to provide aircraft operators with guidance for operating at the Airport. The *Noise Abatement Regulation* (Rule 11, Resolution No. 09-0274) has been incorporated into the *San Francisco International Airport's Rules and Regulations* adopted in December 2009. The *Noise Abatement Regulation* recommends the use of specific departure procedures to reduce the noise impact on communities close to the airport, particularly during night-time hours.

Penalty

3.9 Violations of any provision of the *Noise Abatement Regulation* are subject to the following penalties:

- (a) first violation in a 12-month period – letter of admonishment from the Airport Director;

¹² Police power describes the basic right of governments to make laws and regulations for the protection and maintenance of the health, safety or welfare of its citizens.

- (b) second violation in a 12-month period – a fine in the amount of US\$1,000 (HK\$7,774);
- (c) third violation in a 12-month period – a fine in the amount of US\$2,000 (HK\$15,548); and
- (d) additional violations in a 12-month period – a fine in the amount of US\$3,000 (HK\$23,322).¹³

3.10 Aircraft operators may request for a variance from any provisions of this regulation by writing to the Airport Director at least 60 days prior to the date of the requested variance. Based on factors such as the noise impact on the surrounding community and fairness to other operators, the Airport Director or his or her designated representative will review the request and determine whether a variance should be granted.

Noise mitigation measures

3.11 In addition to implementing a noise monitoring plan, the San Francisco International Airport has also adopted other measures to address aircraft noise. The major noise mitigation initiatives are:

- (a) preferential use of runways;
- (b) soundproofing of buildings;
- (c) restriction on the types of aircraft allowed to use the airport;
- (d) limiting the use of auxiliary power units ("APUs")¹⁴ under certain conditions; and
- (e) implementation of the Fly Quiet Programme.

¹³ The average exchange rate in May 2011 was US\$1=HK\$7.774.

¹⁴ APUs are small jet engines located in the tail of an aircraft that are used to supply electrical power and air-conditioning to the aircraft while it is on the ground. It is one of the most significant sources of cabin noise from commercial jet aircraft.

Preferential use of runways

3.12 Similar to Hong Kong, the San Francisco International Airport encourages the use of certain runways for noise abatement purposes through implementing a Night-time Preferential Runway Use Programme. The Programme was developed in 1988 to maximize flights over water and minimize flights over land and populated areas between 1 am and 6 am. Further, a Night-time Noise Clearance Centre has also been established to operate between 10 pm and 7 am. The Centre is manned by a duty officer, who is responsible for monitoring compliance with the Programme and responding to requests for exemptions to the noise regulations.

Soundproofing of buildings

3.13 San Francisco has implemented the Residential Sound Insulation Programme to reduce interior sound levels for homes in the vicinity of the airport since 1983. The Programme is funded through the Airport Improvement Programme Grants offered by FAA (80%) and the general revenue of the San Francisco International Airport (20%). Based on a memorandum of understanding between the Airport and the surrounding communities, the Programme is administered directly by the local jurisdictions which decide on specific properties to be treated and the order eligible properties to be insulated. Participants of this programme must sign an aviation easement¹⁵ prior to receiving sound insulation.

3.14 Since 1983, the Airport has insulated 15 118 homes, eight churches and seven schools against aircraft noise. All of these properties are located within the area defined as significantly impacted by aircraft noise by the State of California. The total programme expenditure has amounted to over US\$153 million (HK\$1,189 million). The Programme has recently been completed and the funds have been exhausted.

3.15 Additionally, the state requires that any property transaction made in those cities participating in the sound insulation programme must include a real estate disclose notice of potential airport and aircraft impact.

¹⁵ These easements grant the Airport the right to use navigable airspace, generate noise associated with aircraft operations, and prohibit future airspace obstructions.

Restrictions on the types of aircraft allowed to use the airport

3.16 As aforementioned, in accordance with *FAR Part 91*, all Stage 2 aircraft of over 75 000 lbs are prohibited from operating at the San Francisco International Airport.

Limiting the use of auxiliary power units under certain conditions

3.17 Operators are encouraged to use ground power and air sources whenever practicable. At the domestic terminals of the San Francisco International Airport, the use of APUs is prohibited between 10 pm and 6 am except 30 minutes prior to departure, when passengers are aboard, or when it is needed to test other aircraft equipment. At the international terminal, unless prior permission is received, the use of APUs is not authorized during the use of ground power and pre-conditioned air until 30 minutes prior to push-back.

Fly Quiet Programme

3.18 The Fly Quiet Programme was created by the San Francisco International Airport and the "San Francisco International Airport/Community Roundtable", a voluntary public forum established in 1981 for discussion about the noise mitigation strategies of the Airport. The Programme aims to encourage the airlines to operate as quietly as possible by grading their compliance with the Airport's *Rules and Regulations*. The scores obtained by the airlines will be presented to the public each quarter via a published report. The major grading criteria of the Programme are:

- (a) the overall noise quality of each airline's fleet operating at the San Francisco International Airport;
- (b) exceedance of noise level generated by a single overflight;
- (c) the airline's compliance with the preferred runways for noise abatement during night-time hours; and
- (d) the airline's adherence to the departure procedures recommended by the Airport.

Appendix

Regulations relating to aircraft noise in Hong Kong and San Francisco

| | Hong Kong | San Francisco |
|-----------------------------|--|---|
| Regulatory framework | | |
| Relevant legislation | <p>Aircraft noise is controlled under several environmental legislation:</p> <p>(a) <i>Civil Aviation (Aircraft Noise) Ordinance (Cap. 312) 1986</i>;</p> <p>(b) <i>Civil Aviation (Aircraft Noise) (Certification) Regulations 1987</i>; and</p> <p>(c) <i>Civil Aviation (Aircraft Noise) Ordinance (Amendment of Schedule) Notice 2002</i>.</p> | <p>Aircraft noise is controlled under federal, state and local regulations, with federal pre-emption of state and local regulations. Specifically, federal law deals with aircraft noise at source, whereas state law sets noise standards and local ordinance provides for planning and implementing noise abatement activities. The relevant regulations are:</p> <p>(a) at the federal level, <i>Airport Noise and Capacity Act and Federal Aviation Regulations ("FAR")</i> (e.g. Parts 36, 91, 150 and 161);</p> <p>(b) at the state level, <i>California Code of Regulations, Title 21, Subchapter 6, "Noise Standards"</i>; and</p> <p>(c) at the local level, <i>San Francisco Noise Control Ordinance</i>.</p> |
| Noise standards | <p>The <i>Hong Kong Planning Standards and Guidelines Chapter 9</i> stipulates that certain noise sensitive uses (e.g. residential) should not be located within specified Noise Exposure Forecast ("NEF") contours. The NEF standard applicable to the Hong Kong International Airport is NEF 25 contour.</p> | <p>The State of California specifies a Community Noise Equivalent Level ("CNEL") value of 65 dB as the maximum reasonable level of noise acceptable to a person residing in the vicinity of an airport.</p> |

Appendix (cont'd)

Regulations relating to aircraft noise in Hong Kong and San Francisco

| | Hong Kong | San Francisco |
|---|---|---|
| Regulatory framework (cont'd) | | |
| Responsible authority | Civil Aviation Department ("CAD"). | (a) At the federal level, the Federal Aviation Administration ("FAA"); (b) at the state level, the California Department of Transportation; and (c) at the local level, both the Department of Building Inspection and the Police Department. |
| Noise mitigation measures relating to aircraft operation | | |
| Preferential use of runways | Between midnight and 7 am, aircraft flying to and from the Hong Kong International Airport should use the preferred runway and over water routes, where operationally possible. | The Night-time Preferential Runway Use Programme was developed by the San Francisco International Airport to encourage the use of certain runways and maximize flights over water between 1 am and 6 am, where operationally possible. |
| Noise abatement departure procedures | The Noise Abatement Departure Procedures stipulated by the International Civil Aviation Organization are adopted. | Specific departure procedures are recommended under the <i>Noise Abatement Regulation</i> found in the <i>San Francisco International Airport's Rules and Regulations</i> . |
| Noise monitoring system | The Aircraft Noise and Flight Tracking Monitoring System implemented by CAD, comprising 16 fixed noise monitors installed in the vicinity of flight paths. | A noise monitoring system set up by the San Francisco International Airport, comprising 27 off-site noise monitors and two monitors near the runway ends. |

Appendix (cont'd)

Regulations relating to aircraft noise in Hong Kong and San Francisco

| | Hong Kong | San Francisco |
|--|--|---|
| Noise mitigation measures relating to aircraft operation (cont'd) | | |
| Prohibition of noisy aircraft from using the airport | Operation of certain noisy aircraft is banned under the <i>Civil Aviation (Aircraft Noise) Ordinance (Amendment of Schedule) Notice 2002</i> . | Operation of certain noisy aircraft is banned under <i>FAR Part 91</i> . |
| Restriction on the use of auxiliary power units ("APUs") | Nil. | Conditions are specified for aircraft's use of APUs at both domestic and international terminals of the San Francisco International Airport. |
| Assessment programme for airline compliance | Nil. | The Fly Quiet Programme, aiming to encourage the airlines to operate as quietly as possible by scoring and reporting to the public the airlines' compliance with the San Francisco International Airport's rules and regulations for noise abatement. |

Appendix (cont'd)**Regulations relating to aircraft noise in Hong Kong and San Francisco**

| | Hong Kong | San Francisco |
|--|------------------|---|
| Other strategies for addressing aircraft noise | | |
| Sound insulation programme for residences and public buildings | Nil. | The Residential Sound Insulation Programme implemented by the San Francisco International Airport since 1983. A total of 15 118 homes, eight churches and seven schools have been insulated against aircraft noise. The total expenditure has amounted to over US\$153 million (HK\$1,189 million). The Programme has been completed. |
| Statutorily established funding source for airport mitigation activities | Nil. | The federal Airport Improvement Programme Grants administered by FAA. The Grants provided 80% of the funding for the Residential Sound Insulation Programme, with the remaining 20% being funded through the San Francisco International Airport's general reserve. |
| Real estate disclosure | Nil. | The state requires realtors in those cities participating in the sound insulation programme to disclose the potential airport and aircraft impact. |

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