

**LegCo Panel on Transport  
and LegCo Panel on Environmental Affairs**

**Third Comprehensive Transport Study (CTS-3)  
and the New Transport Strategy -  
Environmental Impact of Transport Activities**

**INTRODUCTION**

1. In August 1997, the Government commissioned the Third Comprehensive Transport Study (CTS-3) to develop a balanced transport plan for Hong Kong well into the new millennium. The Study was completed in September 1999. The Government has updated the existing transport policy in the light of CTS-3's findings and formulated an environmentally sustainable transport strategy. The New Transport Strategy entitled "Hong Kong Moving Ahead: A Transport Strategy for the Future" was issued in October 1999.

**BACKGROUND**

2. In order to develop a transport strategy in Hong Kong with due regard to the environment, a Strategic Environmental Assessment (SEA) is required to be conducted to address the potential environmental impacts of different transport strategies to ensure that future transport developments are realized in an environmentally acceptable manner. As part of the CTS-3, an SEA was carried out to examine the environmental constraints on further strategic transport developments, and of the air and noise pollution as well as general ecological profile to identify where strategic transport developments should be avoided.

3. Building on the foundation of our existing transport policy as promulgated in the 1990 White Paper on Transport Policy and taking into account the recommendations of CTS-3, a new transport strategy was formulated for Hong Kong for the next two decades. The main objective of the Strategy is to provide a safe, efficient and reliable transport system to meet the economic growth, social

and recreational needs of Hong Kong in a sustainable manner.

## **STRATEGIC ENVIRONMENTAL ASSESSMENT**

### ***Methodology***

4. In order to establish the baseline environmental conditions so that the potential deterioration of future transport scenario could be identified, a baseline environmental study was conducted at the beginning of the SEA study. The Study has established the baseline air quality in 1997 and the number of exceedances of Air Quality Objectives (AQO) were identified. The baseline noise study has established a network of roads and the noise exposure to population on these roads was established. The ecological baseline study has identified the ecologically sensitive areas within the territory of HKSAR. The methodology for CTS-3 was developed based on research on SEA conducted elsewhere in the world and its applicability in HKSAR.

### ***Findings***

5. As regards the impact of road traffic on the environment, the results of SEA show that the implementation of various control measures on vehicle emissions being put forward by the Government initiatives will generally reduce vehicle emission and improve the environment in the short term (before 2006).

6. In respect of noise assessment, the predicted noise exposure is measured as a combination of the number of people affected and the degree to which they are affected. This is anticipated to increase.

### ***Recommendations***

7. In view of the forecast problems, SEA has identified a number of mitigation measures to improve the environment. Mitigation measures recommended by SEA are at Annex A.

8. It should be noted that the SEA process as applied to the study was at

the strategic level. All projects which are classified Designated Projects under the Environmental Impact Assessment Ordinance (EIAO) will undergo an Environmental Impact Assessment before project implementation to evaluate their environmental impacts.

9. We support the spirit of CTS-3 and have accepted most of its recommendations in formulating our new transport strategy.

## **THE NEW TRANSPORT STRATEGY**

10. A multi-faceted approach was adopted by the New Transport Strategy:

- better integration of transport and land use planning;
- better use of railways as the backbone of our passenger transport system;
- better public transport services and facilities;
- better use of advanced technologies in transport management; and
- better environmental protection.

### ***Environmental Objective***

11. It is our objective to provide transport infrastructure and services in an environmentally acceptable manner to ensure the sustainable development of Hong Kong.

12. In recent years, there has been a greater focus on protecting the environment. On the transport front, air pollution and noise pollution are the two major concerns. It is obvious that a balance has to be struck between the need to provide transport infrastructure and the need to protect the environment.

## ***Improvement Measures***

13. The Government recognises that transport does have an impact on our environment. We will implement various measures to alleviate the environmental impact of transport activities:

### Better integration of transport and land use planning

14. We believe that the long term solutions lie in an integrated land use and transport planning approach which will manage traffic, in an extensive use of environmentally friendly carriers such as railways, alternative fuel vehicles (e.g. LPG and electric vehicles) and in a change of travelling habit such as relying more on walking for short distance trips.

15. In this connection, the Planning and Lands Bureau (PLB, formerly the Planning, Environment and Lands Bureau) has unveiled the latest concept in new town developments. Our next generation of new towns will have more environmentally friendly transport modes (such as railway) as the backbone of passenger transport. It is also planned that pleasant pedestrian facilities would be provided in Fanling North, Kwu Tung North and Hung Shui Kiu.

16. A study on pedestrianisation schemes is being carried out and the target areas covered are Causeway Bay, Mongkok and Tsim Sha Tsui. The Government aims to implement these schemes in mid 2000.

### Better use of railways

17. Railways are environmentally friendly and efficient mass carriers. Locating future strategic developments along rail alignments will reduce reliance on road-based transport. As regards the better use of railways, the Government is investing heavily in the development of our railway network but the result will not be felt until the six rail projects are completed by 2002 to 2005.

### Better public transport services and facilities

18. The Government will upgrade our public transport system by rationalising, and improving co-ordination of, public transport services to better match demand, minimising wasteful competition and duplication of effort and curtailing in some cases, low demand level. For example, bus stops in busy districts such as Central and Wanchai have been rationalised to reduce bus stopping activities, and bus-bus interchanges would be introduced as a means of promoting efficient use of bus resources and reducing the number of buses on the road.

### Better use of new technologies

19. The use of advanced technologies will allow us to improve the efficiency of our transport system and enhance road safety.

### Better environmental protection

20. The quality of life in Hong Kong is directly related to the quality of the environment. On the transport front, air pollution and noise pollution are the two major concerns. Various measures can mitigate the environmental impact of transport activities. These include:

- Priority for efficient, environmentally friendly transport modes such as railways and greater emphasis on pedestrian facilities.
- Further tightening of vehicle emission controls.
- Using alternative fuel vehicles, which includes the mandatory use of LPG for all new taxis registered from 2001 and LPG for public light buses subject to a successful trial scheme.
- Implementing noise reduction measures in all new highway projects and, where possible, retrofitting existing highways with low-noise road surfaces and noise barriers.

- Traffic management measures, such as park-and-ride schemes, area restrictions and pedestrianisation, and rationalising the number of bus stops in busy areas.
- Other possible measures include strengthening vehicle inspection and maintenance programmes, strengthening vehicle pollution control enforcement, and introducing additional vehicle restraint measures if needed.
- Exploring the feasibility of introducing trolley buses to Hong Kong.

21. The relevant policy bureaux and departments have been working closely together on implementing the above measures which aim to mitigate the environmental impact of transport activities.

Transport Bureau  
January 2000

**Environmental Mitigation Measures Recommended  
by CTS-3 SEA Report**

***A. Mitigation Measures for Air Quality***

<b><i>Mitigation Measures</i></b>	<b><i>Objective</i></b>	<b><i>Audit Parameter</i></b>	<b><i>Action</i></b>
Euro III	Reduce vehicle emissions	<ul style="list-style-type: none"> <li>• implementation schedule</li> <li>• roadside air quality</li> </ul>	<ul style="list-style-type: none"> <li>• reassess environmental conditions if implementation schedule is delayed</li> <li>• monitor effectiveness by observing trends in roadside air quality</li> </ul>
LPG Taxi	Reduce particulates emissions from taxis	<ul style="list-style-type: none"> <li>• implementation schedule (2001-2005)</li> <li>• roadside air quality</li> </ul>	<ul style="list-style-type: none"> <li>• ensure implementation schedule meets target dates</li> <li>• monitor effectiveness by observing trends in roadside air quality</li> </ul>
Motorcycle Emissions Control	Reduce pollutant emissions from motorcycles	<ul style="list-style-type: none"> <li>• implementation schedule (from end of 1999)</li> </ul>	<ul style="list-style-type: none"> <li>• ensure implementation schedule meets target dates</li> </ul>
Diesel Catalytic Converters (DCC)#	Reduce pollutant emissions from vehicles	<ul style="list-style-type: none"> <li>• target dates and no of vehicles fitted with DCC</li> </ul>	<ul style="list-style-type: none"> <li>• ensure progress meets target dates</li> </ul>
Particulate Traps (PT)#	Reduce particulate emissions from vehicles	<ul style="list-style-type: none"> <li>• target dates and no of vehicles fitted with PT</li> </ul>	<ul style="list-style-type: none"> <li>• ensure progress meets target dates</li> </ul>

<b>Mitigation Measures</b>	<b>Objective</b>	<b>Audit Parameter</b>	<b>Action</b>
More Frequent Street Cleaning	Reduce prd emissions	<ul style="list-style-type: none"> <li>• frequency of street washing</li> <li>• roadside air quality</li> </ul>	<ul style="list-style-type: none"> <li>• ensure frequencies are met</li> <li>• monitor effectiveness by observing trends in roadside air quality</li> </ul>
Strengthening of Inspection and Maintenance Programme	Reduce vehicle emissions	<ul style="list-style-type: none"> <li>• inspection frequencies</li> <li>• no. of failed inspection</li> </ul>	<ul style="list-style-type: none"> <li>• expand requirements to other vehicles</li> <li>• increase parameters to be tested during inspection</li> </ul>
Diesel with low sulphur content/City Diesel (ULSD)#	Reduce vehicle emissions and permit use of DCC	<ul style="list-style-type: none"> <li>• target dates for implementation</li> <li>• % of diesel sold as ULSD</li> </ul>	<ul style="list-style-type: none"> <li>• introduce legislation to replace conventional diesel by ULSD</li> <li>• set target dates for implementation</li> </ul>
Pedestrianisation	Separate sensitive receivers from vehicle emissions	<ul style="list-style-type: none"> <li>• no. of Pedestrianisation Zones</li> <li>• target dates for introduction of Pedestrianisation Zones</li> </ul>	<ul style="list-style-type: none"> <li>• set target dates for introduction of Pedestrianisation Zones</li> <li>• ensure implementation meets target dates</li> </ul>
Incentive for scrapping old cars	Replace polluting cars	<ul style="list-style-type: none"> <li>• no. of old cars being scrapped</li> </ul>	<ul style="list-style-type: none"> <li>• increase incentives</li> <li>• monitor the no. of old cars being scrapped</li> </ul>
Vehicle Restraint Measures	Restrain growth of vehicles	<ul style="list-style-type: none"> <li>• no. of vehicles registered per year</li> </ul>	<ul style="list-style-type: none"> <li>• set target no. of vehicles and implement measures to ensure targets are met</li> </ul>
Freight Transport by Rail	Reduce no. of heavy vehicle trips	<ul style="list-style-type: none"> <li>• freight movement by goods vehicles</li> <li>• freight movement by rail</li> </ul>	<ul style="list-style-type: none"> <li>• investigate feasibility of freight rail</li> </ul>



<b>Mitigation Measures</b>	<b>Objective</b>	<b>Audit Parameter</b>	<b>Action</b>
LPG for Public Light buses#	Reduce particulate emissions from PLBs	<ul style="list-style-type: none"> <li>• implementation schedule</li> </ul>	<ul style="list-style-type: none"> <li>• set implementation schedule</li> <li>• ensure schedule is met</li> </ul>
Expand River Trade Terminal (RTT) Operations	Reduce no. of heavy vehicle trips	<ul style="list-style-type: none"> <li>• freight movement by goods vehicles</li> <li>• freight movement by RTT</li> </ul>	<ul style="list-style-type: none"> <li>• investigate feasibility of expanding RTT</li> </ul>
Hybrid Vehicles#	Replace polluting vehicles	<ul style="list-style-type: none"> <li>• no. of operating hybrid vehicles</li> </ul>	<ul style="list-style-type: none"> <li>• promote hybrid vehicles when commercially viable</li> </ul>
Cycling and Walking paths in all New Towns	Separate sensitive receivers from vehicle emissions	<ul style="list-style-type: none"> <li>• length of cycling and walking paths</li> </ul>	<ul style="list-style-type: none"> <li>• ensure incorporation of cycling and walking paths in New Towns</li> </ul>
Trolley Buses	Eliminate emissions from diesel powered buses	<ul style="list-style-type: none"> <li>• no. of trolley buses in service</li> </ul>	<ul style="list-style-type: none"> <li>• promote and plan for the introduction of trolley buses where viable</li> </ul>
Area Restrictions	Reduce pollution in hot-spots areas	<ul style="list-style-type: none"> <li>• no. of areas being restricted</li> </ul>	<ul style="list-style-type: none"> <li>• investigate feasibility of area restrictions</li> </ul>
Limiting Vehicle Fleet Age	Replace polluting cars	<ul style="list-style-type: none"> <li>• average vehicle fleet age</li> </ul>	<ul style="list-style-type: none"> <li>• incentives for scrapping old cars</li> </ul>
Incentives on Environmentally Friendly Vehicles	Replace polluting cars	<ul style="list-style-type: none"> <li>• no. of environmentally friendly cars registered</li> </ul>	<ul style="list-style-type: none"> <li>• provide incentive for environmentally friendly cars</li> </ul>
Electric Vehicle#	Replace polluting vehicles	<ul style="list-style-type: none"> <li>• no. of operating electric vehicles</li> </ul>	<ul style="list-style-type: none"> <li>• promote electric vehicles when commercially viable</li> </ul>
<p># These measures are still under development and will be recommended, after detailed feasibility study, if deemed commercially available in the future.</p>			

## B. Mitigation Measures for Noise

<i>Mitigation Measures</i>	<i>Objective</i>	<i>Audit Parameter</i>	<i>Action</i>
More extensive network of rail service	Reduce vehicle trips	<ul style="list-style-type: none"> <li>passenger trips via rail vs road transport</li> </ul>	<ul style="list-style-type: none"> <li>promote rail as the primary transportation service provider</li> </ul>
Putting new roads underground as far as practicable	Separate sensitive receivers from traffic noise	<ul style="list-style-type: none"> <li>number of new roads built underground</li> </ul>	<ul style="list-style-type: none"> <li>promote and plan for underground roads wherever feasible</li> </ul>
Pedestrianisation	Separate sensitive receivers from traffic noise	<ul style="list-style-type: none"> <li>no of pedestrianisation zones</li> <li>target dates for introduction of pedestrianisation zones</li> </ul>	<ul style="list-style-type: none"> <li>set target dates for introduction of pedestrianisation zones</li> <li>ensure implementation meets target dates</li> </ul>
More stringent vehicle noise emission standards	Reduce noise emission from individual vehicles	<ul style="list-style-type: none"> <li>the prevailing noise emission standard</li> </ul>	<ul style="list-style-type: none"> <li>introduce the most current emission standards in force in Japan and the European Union</li> <li>ensure Hong Kong is not lagging behind Japan and the European Union in terms of implementation schedule</li> </ul>
Engine encapsulation for heavy vehicles	Reduce engine noise from heavy vehicles	<ul style="list-style-type: none"> <li>no of engine encapsulated heavy vehicles</li> </ul>	<ul style="list-style-type: none"> <li>identify the types of heavy vehicles that could be encapsulated</li> <li>introduce legislation to require engine encapsulation of the identified vehicle types</li> </ul>

<b><i>Mitigation Measures</i></b>	<b><i>Objective</i></b>	<b><i>Audit Parameter</i></b>	<b><i>Action</i></b>
Trolley Buses	Provide alternative to buses powered by diesel engines	<ul style="list-style-type: none"> <li>no of trolley buses in service</li> </ul>	<ul style="list-style-type: none"> <li>promote and plan for the introduction of trolley buses where viable</li> </ul>
More extensive use of low noise surface materials	Reduce road/tyre interaction noise	<ul style="list-style-type: none"> <li>no. of low speed roadways with low noise surfaces</li> </ul>	<ul style="list-style-type: none"> <li>investigate the local applicability of various types of low noise surface materials</li> </ul>
Consideration of retrofitting existing roads	Provide relief to residents who could not benefit from more recent planning against traffic noise initiatives	<ul style="list-style-type: none"> <li>no. of roadways retrofitted with noise mitigation measures</li> </ul>	<ul style="list-style-type: none"> <li>consider the feasibility (financial or otherwise) of the retrofitting exercise</li> </ul>
Traffic management on noise grounds	Reduce traffic noise by diverting heavy vehicles from sensitive areas	<ul style="list-style-type: none"> <li>number of roadways with applicable traffic management measures on noise grounds</li> </ul>	<ul style="list-style-type: none"> <li>investigate the identify roadways suitable for applicable traffic management measures</li> </ul>
Speed regulation	Reduce traffic noise associated with high speed vehicle movements	<ul style="list-style-type: none"> <li>no. of roadways with reduced speed limits</li> </ul>	<ul style="list-style-type: none"> <li>identify roadway sections that would benefit from lowering of speed limits</li> </ul>