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Table 3.1 Summary of Public Consultation Activities and Consultation Meetings

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Appendix A Photos of Roving and Mobile Exhibitions and Public Forum

1 EXECUTIVE SUMMARY

- 1.1 The Civil Engineering and Development Department (CEDD) commissioned AECOM Asia Company Limited (AECOM) to undertake the Feasibility Study on Green Transit System (GTS)¹ in Hung Shui Kiu/Ha Tsuen New Development Area (HSK/HT NDA)² and Adjacent Areas (the Study) to evaluate the feasibility of developing GTS in the HSK/HT NDA and adjacent areas, and to formulate a suitable and feasible recommendation.
- 1.2 The Study is conducted in two stages. Stage 1 Study was to formulate a well-planned GTS network in HSK/HT NDA, explore a possible connection to the Yuen Long South (YLS) Development, and evaluate and shortlist suitable green public transport modes to serve as GTS. The Stage 1 Study shortlisted the Automated People Mover (APM), Green Bus System (GBS) and Modern Tram³ to gauge public views.
- 1.3 Public Consultation (PC) activities were carried out between September 2019 and January 2020. The Stage 1 Study's findings and recommendations, as well as details of the PC, have been published through various channels such as press releases, study website, digest, and posters. We have met with relevant stakeholders, including the Panel on Development of Legislative Council, District Councils, Rural Committees, and Transport Advisory Committee to collect public views. A public forum, focus group meetings and roving and mobile exhibitions were also conducted. A total of 35 comments were collected through various channels including post, telephone, fax and email. Views from local residents were also collected through community liaison teams of HSK/HT NDA and YLS Development.
- 1.4 Public views collected from the above PC activities clearly supported the implementation of GTS in HSK/HT NDA and YLS Development to promote green mobility. The public expressed the following major interests and expectations on GTS:
- Innovative and Flexible
- 1.5 Keep pace with the latest technology developments, and have routing flexibility and can be extended to adjacent areas;
- Convenient and Fast
- 1.6 Fast and convenient boarding and alighting, and convenient interchange with other public transport modes;

¹ "Environmentally Friendly Transport Services" has been renamed as "Green Transit System".

² "Hung Shui Kiu New Development Area" has been renamed as "Hung Shui Kiu/Ha Tsuen New Development Area".

³ Include Modern Tram with track and Trackless Tram.

Integrated with Surroundings

- 1.7 Integrate with the surrounding environment and quiet operation, and minimise impact on other traffic; and

Affordable and Early Commissioning

- 1.8 Reasonable capital cost and fare level, and early implementation and commissioning of GTS for public use.
- 1.9 The Study has considered the views received during the PC activities. The green road-based mode (such as GBS and Trackless Tram) and the green rail-based mode (such as APM and Modern Tram with track) were compared based on five key considerations, i.e. routing flexibility, station accessibility, visual impact, overall journey time and capital cost.
- 1.10 Taking into account the above advantages of green road-based mode, the Study recommended to adopt the green road-based mode for GTS in HSK/HT NDA and YLS Development. In addition, the Study has formulated the recommended alignment for GTS that will traverse HSK/HT NDA and YLS Development, and connect with Tuen Ma Line Hung Shui Kiu Station and Tin Shui Wai Station, Light Rail Chung Fu Stop and Nai Wai Stop, as well as the proposed and existing public transport interchanges.

2 INTRODUCTION

2.1 Background

HSK/HT NDA

- 2.1.1 HSK/HT NDA will be developed as a new generation new town in Hong Kong. Green mobility within HSK/HT NDA is promoted through a Green Transit Corridor (GTC) comprising a GTS, pedestrian walkways, and cycle tracks. GTS is highly efficient and convenient and will provide rapid transport services connecting different population centres, commercial nodes, employment zones, and key community facilities within the NDA. It will also facilitate convenient transfers to other public transport modes including the Tuen Ma Line and Light Rail, as well as connecting the NDA with the YLS Development. Apart from enhancing internal and external connectivity of the NDA, the GTS will bring about social and economic benefits including inducing employment, cultivating a greener and more liveable environment, and promoting local economic development.

YLS Development

- 2.1.2 YLS Development is positioned as an extension of Yuen Long New Town and will be one of the major sources of land supply. A GTS corridor has been reserved in the YLS Development to enhance the transport efficiency and connectivity with HSK/HT NDA and Tuen Ma Line Tin Shui Wai Station.

The Feasibility Study

- 2.1.3 CEDD commissioned AECOM Asia Company Limited to undertake the Feasibility Study on Green Transit System in Hung Shui Kiu/Ha Tsuen New Development Area and Adjacent Areas. The Study is to evaluate the feasibility of developing GTS in the HSK/HT NDA and adjacent areas, and to formulate a suitable and feasible recommendation. PC would be carried out to gauge the public views on the recommendations of the Study.

2.2 Public Consultation

- 2.2.1 PC aimed to gauge public views on the GTS network in HSK/HT NDA, the connection to YLS Development, and the three shortlisted green public transport modes (i.e. APM, GBS and Modern Tram) to serve as GTS.
- 2.2.2 The Stage 2 Study has considered the public views collected in the PC and formulated the recommended GTS mode and alignment, and will report the findings and recommendations as well as the way forward to the public.

2.3 Purpose of this Report

- 2.3.1 This report consolidates the views received from the PC activities and consultation meetings, and provides responses to the major views.

3 OVERVIEW OF PUBLIC CONSULTATION

3.1 Public Consultation

3.1.1 PC activities were carried out between September 2019 and January 2020. The Stage 1 Study's findings and recommendations, as well as details of the PC, have been published through various channels such as press releases, study website, digest, and posters. We have met with relevant stakeholders including the Panel on Development of Legislative Council, District Councils, Rural Committees, and Transport Advisory Committee to collect public views. A public forum, focus group meetings and roving and mobile exhibitions were also conducted. A total of 35 comments were collected through various channels including post, telephone, fax and email. Views from local residents were also collected through community liaison teams of HSK/HT NDA and YLS Development.

3.2 Public Consultation Publicity

3.2.1 A Study website (<https://www.hskefts.hk/>)⁴ was launched to provide the public with the details of PC, findings and recommendations of the Study.

3.2.2 The PC digest was uploaded to the Study website, and distributed during the consultation meetings and public forum. During the PC period, copies of the digest could be obtained at Home Affairs Enquiry Centres, public libraries and community halls/centres in the concerned districts. They were also distributed to local residents by community liaison teams in HSK/HT NDA and YLS Development.

3.2.3 Posters were distributed to the relevant residential developments and housing estates in the vicinity of the study area to promote the Stage 1 PC, including a public forum, roving and mobile exhibitions and consultation channels.

3.3 Roving Exhibitions and Mobile Exhibitions

3.3.1 Roving and mobile exhibitions were organised at different locations in the vicinity of the study area to promote the PC and invite the public to provide views. Roving exhibitions were conducted at Yuen Long District Office Building, Tin Yan Shopping Centre, Tuen Mun Government Offices and Ping Shan Tin Shui Wai Public Library. Mobile exhibitions were conducted at Tin Chak Estate, Tong Yan San Tsuen Road parking spaces, and Hung Fuk Estate. Photos of roving and mobile exhibitions are in **Appendix A**.

⁴ The Study website has been updated as (<https://www.hskhtgts.hk/>).

3.4 Channels for Enquiries and Views

3.4.1 During the PC⁵ period, members of the public could provide their views via the following channels:

Post Civil Engineering and Development Department
 West Development Office
 9/F, Sha Tin Government Offices
 1 Sheung Wo Che Road, Sha Tin, New Territories
 Tel. 2158 5680
 Fax 2693 2918
 Email enquiry@hskefts.hk

3.5 Public Consultation Activities and Consultation Meetings

3.5.1 Relevant activities and consultation meetings are in **Table 3.1**.

Table 3.1 Summary of Activities and Consultation Meetings

Date	Activities / Meetings
Consultation Meetings	
5 September 2019	Ha Tsuen Rural Committee
6 September 2019	Shap Pat Heung Rural Committee
13 September 2019	Environment, Hygiene and District Development Committee, Tuen Mun District Council
16 September 2019	Ping Shan Rural Committee
18 September 2019	Town Planning and Development Committee, Yuen Long District Council
26 October 2019	Tuen Mun Rural Committee
29 October 2019	Transport Advisory Committee
16 December 2019	Panel on Development, Legislative Council
19 December 2019	The Hong Kong Institute of Planners
Focus Group Meetings	
15 October 2019	Public Transport Operators
16 October 2019	Green Groups
18 October 2019	Professional Bodies
Public Forum	
4 January 2020	Public Forum

⁵ From 2 October 2019 to 14 January 2020

3.6 Ha Tsuen Rural Committee

3.6.1 The meeting with the Ha Tsuen Rural Committee was held on 5 September 2019. Members in general supported the implementation of GTS in HSK/HT NDA and YLS Development and raised views and enquiries, as summarised below:-

- (1) Supported the elevated mode, such as the APM, to avoid impact on other traffic;
- (2) GTS should avoid blocking the village roads and accesses;
- (3) Station accessibility was a key consideration;
- (4) Station should provide sufficient waiting area for passengers, and should be near the existing villages for convenient use by the residents;
- (5) Concerned that the fare level would be high and would affect the usage of GTS;
- (6) Suggested that the service from Nai Wai to Lau Fau Shan could be routed via the Chung Fu Stop for better connectivity; and
- (7) Enquired the commissioning time of GTS.

3.7 Shap Pat Heung Rural Committee

3.7.1 The meeting with the Shap Pat Heung Rural Committee was held on 6 September 2019. Members in general supported the implementation of GTS in HSK/HT NDA and YLS Development and raised views and enquiries, as summarised below:-

- (1) Elevated APM was the preferred mode. It would meet the long-term transport demand and occupy less ground space. It could be built above existing roads and nullahs and would not affect private lots. However, there would be an additional 3 to 4 minutes of walking time from the at-grade walkway to the platform of the elevated APM stations;
- (2) GBS was the next preferred mode. It had a lower capital cost and higher routing flexibility as trackwork was not required. It could extend its services to adjacent areas and provide different service arrangements;
- (3) Concerned about the possible noise nuisance to residents when Modern Tram with track running on physical rail tracks; and
- (4) Suggested extending GTS to the areas at the east of YLS Development and Yuen Long Town Centre.

3.8 Environment, Hygiene and District Development Committee, Tuen Mun District Council

3.8.1 The meeting with the Environment, Hygiene and District Development Committee of Tuen Mun District Council was held on 13 September 2019. Members in general supported the implementation of GTS and raised views and enquiries, as summarised below:-

- (1) Some supported GBS as it operated on roads without trackwork required, having higher routing flexibility and it could provide different service arrangements, and opined that GBS had a lower capital cost;
- (2) Concerned about adopting the elevated APM system as it had higher capital cost and visual impact compared with the other two shortlisted modes;

- (3) Concerned about the fare level of the GTS due to its high capital cost;
- (4) The implementation arrangement of GTS, including selection of operator, should be carefully considered to maintain a reasonable fare level;
- (5) Concerned about the traffic arrangement of GTS and road traffic at shared junctions;
- (6) Concerned whether there would be sufficient depot(s) and charging facilities in the HSK/HT NDA;
- (7) Suggested extending the existing Light Rail into the HSK/HT NDA and YLS Development to minimise the capital cost and interchange. However, there were also objections to extending the Light Rail as it would cause many traffic issues and congestion;
- (8) Concerned that connecting the GTS to the Light Rail Nai Wai Stop and Tuen Ma Line Tin Shui Wai Station would exacerbate the crowded situation; and
- (9) Concerned about the security of GTS and suggested enhancing the security measures to avoid vandalism.

3.9 Ping Shan Rural Committee

3.9.1 The meeting with the Ping Shan Rural Committee was held on 16 September 2019. Members in general supported the implementation of GTS and raised views and enquiries, as summarised below:-

- (1) Concerned whether the capacity of GBS and Modern Tram would be able to cope with the passenger demand in the NDA;
- (2) Concerned about the adverse traffic impacts arising from the GTS sharing the road junctions with other traffic and pedestrians;
- (3) Suggested that the interchange between GTS and existing Light Rail should be convenient;
- (4) Suggested adopting an elevated or underground mode despite its high capital cost to avoid impact on other traffic;
- (5) Concerned that connecting the GTS to the Tuen Ma Line would exacerbate the crowded situation of the Tuen Ma Line; and suggested constructing a new mass public transportation system to provide inter-district transport services to the urban area;
- (6) Suggested connecting the podium of developments and the elevated station concourse to improve station accessibility;
- (7) Suggested making reference to the SkyTrain in Canada and the elevated transport modes in Japan; and
- (8) GTS services should cover adjacent areas of Ping Shan and Ha Tsuen.

3.10 Town Planning and Development Committee, Yuen Long District Council

3.10.1 The meeting with the Town Planning and Development Committee of Yuen Long District Council was held on 18 September 2019. Members in general supported the implementation of GTS and raised views and enquiries, as summarised below:-

- (1) Recommended to adopt an elevated mode such as the APM, which would be fully segregated from the road traffic. However, there were concerns about its high capital cost and financial viability which might lead to a high fare level,

- and the possible noise and privacy issues to nearby residents;
- (2) Some supported the road-based mode such as GBS due to its lower capital cost and higher routing flexibility to dovetail with the phased development of the NDA. In addition, it would be quicker and easier to implement. However, there were concerns that GTS running at-grade would have conflicts with road vehicles and pedestrians which might cause traffic congestion;
 - (3) Suggested considering Modern Tram on a green track without overhead catenary and grade-separated from other road traffic at junctions as far as practicable, if the elevated mode such as the APM was not financially viable;
 - (4) Did not recommend the rail-based mode with physical rail track due to its limited routing flexibility and high capital cost;
 - (5) Suggested adopting an elevated or underground mode despite its high capital cost to avoid traffic congestion in future;
 - (6) Stations should be highly accessible and convenient;
 - (7) Some supported extending the GTS to Tin Shui Wai North. Some suggested extending the GTS to Tin Shui Wai, the area to the east of YLS Development and the Tuen Ma Line Yuen Long Station;
 - (8) Suggested constructing the GTS over or under the existing nullah to minimise the land impact;
 - (9) Concerned about the interchange arrangement between GTS and the existing railways, and concerned whether the capacity of existing railway stations in Yuen Long could cope with the additional passengers from the GTS; and suggested constructing a new mass public transportation system to provide inter-district transport service to urban areas;
 - (10) Suggested taking into account the service life of GTS and road traffic condition; and
 - (11) Enquired whether the GTS corridor would be opened to other environmentally friendly vehicles such as electric private cars.

3.11 Tuen Mun Rural Committee

- 3.11.1 The meeting with the Tuen Mun Rural Committee was held on 26 October 2019. Various members raised about compensation and rehousing issues, and the Vice-Chairmen concluded that the compensation and rehousing arrangements should be addressed first before discussion.

3.12 Transport Advisory Committee

- 3.12.1 The meeting with the Transport Advisory Committee was held on 29 October 2019. Members supported the use of green and efficient public transport modes for providing services to support internal movement among the development clusters within the NDA and connect the NDA with nearby development. Members also expressed views on the three shortlisted green public transport modes, namely APM, GBS and Modern Tram.

3.13 Panel on Development of Legislative Council

- 3.13.1 The Panel on Development of the Legislative Council was consulted in its meeting on 16 December 2019. Members in general supported the implementation of GTS in HSK/HT NDA and YLS Development and raised

views and enquiries, as summarised below:-

- (1) There was support for developing a dedicated corridor that could avoid repeating the traffic issues associated with the Light Rail. GTS should be grade-separated from vehicular road system at busy road junctions to avoid adverse impacts on road traffic and pedestrians;
- (2) Some opposed to adopt APM due to its high capital cost, significant visual impact, poor station accessibility, limited routing flexibility and comparable overall journey time with the other two shortlisted modes;
- (3) Consideration should be given to adopting a green public transport mode with higher flexibility and that would be easier to expand (such as GBS) to cope with the phased development of NDA. As GBS could operate on roads, it would be easier for GBS to connect with or extend to other districts;
- (4) The traffic and transport arrangements of HSK/HT NDA, including Tin Ying Road and GTS extension, should be considered in a holistic manner;
- (5) Suggested exploring the feasibility of providing a free GTS service with reference to the Melbourne's City Circle Tram system, so that an open platform without ticket gates could be adopted to reduce the station size;
- (6) Concerned about the high capital cost required for the GTS project and requested for more detailed cost information;
- (7) Concerned about the fare, financial arrangement, operation mode of the future GTS, and whether there would be free interchange between GTS and Tuen Ma Line;
- (8) Requested to consult the Panel again with more details provided before the finalisation of the mode; and
- (9) Requested to keep up with the technological developments of green public transport modes, including catenary-free tram and trackless tram.

3.14 The Hong Kong Institute of Planners

3.14.1 The meeting with The Hong Kong Institute of Planners, as invited, was held on 19 December 2019. Members in general supported the implementation of GTS in HSK/HT NDA and YLS Development and raised views and enquiries, as summarised below:-

- (1) Some opposed to the elevated GTS due to its poor station accessibility and higher visual impact which might cause Feng Shui issues and could not tie in with the planning of the NDA;
- (2) There was support for the Modern Tram as it would bring a positive effect on urban aesthetics with references to examples in Europe;
- (3) There was support for GBS due to its higher routing flexibility. It could serve as an interim system due to its high routing flexibility and expandability to tie in with the phased development of the NDA;
- (4) Suggested adopting a GTS mode which could be implemented quickly and expanded easily to tie in with the phased development of the NDA;
- (5) Concerned about the security and contingency measures of GTS to cope with possible vandalism;
- (6) Concerned about the fare level of the GTS; and
- (7) Concerned about the interchange arrangement of GTS and Tuen Ma Line.

3.15 Focus Group Meetings

3.15.1 Three focus group meetings were arranged with groups of similar interests, including public transport operators, green groups, and professional bodies, to discuss the matter.

Public Transport Operators

3.15.2 The focus group meeting with the public transport operators was held on 15 October 2019. Representatives from Citybus Limited, Hong Kong Tramways Limited, Long Win Bus Company Limited, MTR Corporation Limited, New Lantao Bus Company (1973) Limited, New World First Bus Services Limited and The Kowloon Motor Bus Company (1933) Limited attended the meeting. All representatives supported the implementation of GTS in HSK/HT NDA and YLS Development and raised views and enquiries, as summarised below:-

- (1) The technology of the shortlisted green public transport modes was mature;
- (2) Some supported GBS as it had higher routing flexibility and could extend its services by operating in the suitable road network outside GTS corridors to adjacent areas, and could even provide direct long-haul service to the urban areas to help relieve the Tuen Ma Line loading;
- (3) GBS had the lowest start-up cost and a higher flexibility and would be flexible to adjust routing and frequencies to tie in with the phased development of the NDA and to cater for the actual transport demand in different periods;
- (4) The GBS depot could also be expanded in phases;
- (5) The capacity and driving range of electric buses could be increased in future with the technology development;
- (6) The electrical power supply and charging facilities at the depot and stations should be well planned to cope with the electricity demand for charging the electrical bus fleet;
- (7) The maintenance cost of GBS should be lower than the other two shortlisted modes;
- (8) The financial viability and implementation arrangement were critical for the implementation of GTS;
- (9) The green track of the Modern Tram might not be suitable for Hong Kong's environment and would be difficult to maintain, increasing the maintenance costs and requiring subsidies from the Government;
- (10) The GTS should be grade-separated from the road traffic at junctions as far as practicable to ensure there is sufficient system capacity and to avoid causing traffic congestion; and
- (11) Doubt whether the APM could achieve its maximum speed in HSK/HT NDA as the station spacing of GTS was close.

Green Groups

3.15.3 The focus group meeting with the green groups was held on 16 October 2019. Representatives from the Friends of the Earth (HK), Green Power and World Wide Fund for Nature Hong Kong (WWF-HK) attended the meeting. They in general supported the implementation of GTS in HSK/HT NDA and YLS Development and adopting green public transport mode to promote green mobility. Views and enquiries were raised by the representatives, as

summarised below:-

- (1) Suggested that GTS should have a dedicated corridor and be grade-separated from the road traffic as far as practicable to avoid traffic congestion;
- (2) GTS should have adequate capacity to cater for the transport demand, and be convenient, fast and easily accessible to attract passengers so as to reduce the number of cars on roads and roadside emissions;
- (3) Some supported GBS as it had the lowest capital cost and higher routing flexibility, could extend its services by operating in the suitable road network outside GTS corridors to adjacent areas, and could cope with the changing transport demand;
- (4) Suggested extending the GBS to other districts via the existing suitable road network to help relieving the saturated situation of Tuen Ma Line;
- (5) The connectivity of GTS with Light Rail HSK Stop should be enhanced;
- (6) A participant supported connecting Tuen Ma Line Tin Shui Wai Station and YLS Development, as it would help relieve road traffic congestion in Yuen Long New Town during the peak hours; and
- (7) Concerned about the noise impact of the rail-based mode GTS on nearby residents.

Professional Bodies

3.15.4 The focus group meeting with the professional bodies was held on 18 October 2019. Members from The Hong Kong Institute of Architects, The Hong Kong Institute of Surveyors, Hong Kong Institute of Urban Design, Association of Engineering Professionals in Society Ltd., and the Association of Hong Kong Professionals attended the meeting. Members in general supported the implementation of GTS in HSK/HT NDA and YLS Development and raised views and enquiries, as summarised below:-

- (1) The station accessibility of the APM was relatively poor since the entire system was elevated, and it would take time for passengers to walk from the at-grade walkway to the elevated station platform;
- (2) Suggested that the footpaths and cycle tracks should be well integrated with the GTS to enhance connectivity;
- (3) Concerned about the noise generated by the operation of GTS;
- (4) Suggested that GTS should be grade-separated from other road traffic at the road junctions as far as practicable to avoid conflict with road vehicles and pedestrians to reduce traffic congestion;
- (5) The selected green public transport mode should be highly flexible in routing to tie in with the phased development of the NDA;
- (6) The GBS might not be attractive at the time of commissioning as the technology was developing fast;
- (7) Suggested adopting humanised designs to minimise visual impact and to integrate with the surrounding environment; and
- (8) Suggested extending the GTS to the adjacent areas to replace the existing Light Rail.

3.16 **Public Forum**

3.16.1 The Public Forum was held on 4 January 2020 at Tin Yiu Community Centre. About 55 people attended. Participants in general supported the implementation of GTS in the HSK/HT NDA and the YLS Development and

raised views and enquiries, as summarised below:-

- (1) Participants in general supported the GBS, while some participants supported the Modern Tram;
- (2) Suggested that GTS should be grade-separated from other road traffic at the junctions to enhance efficiency and to avoid conflicts with road vehicles and pedestrians;
- (3) Suggested reconsidering the extension of the Light Rail to the NDA as it had lower capital cost and was more convenient to interchange with other public transport modes. However, some objected the extension of the Light Rail since it had limited expansion capabilities and could only run in a single direction requiring more space for turning facilities;
- (4) The future fare should be reasonable and affordable. A participant was concerned about the future operator;
- (5) Due to the ageing population, suggested that the GTS stations should be convenient and highly accessible, and the stations could adopt an open platform design without ticket gates for better pedestrian circulation;
- (6) Concerned about the implementation programme of the GTS and requested for early implementation of GTS. The GTS should tie in with the phased development of the NDA to cope with the gradually increasing transport demand;
- (7) Concerned about the interchange arrangement between GTS and other public transport modes (such as the Light Rail and Tuen Ma Line), and suggested making the interchange arrangement as convenient as possible to improve system attractiveness;
- (8) Concerned that additional passengers brought by GTS would overload the railway as the Light Rail and Tuen Ma Line were already very crowded during the peak hours;
- (9) Suggested that GTS should cover adjacent areas such as Tan Kwai Tsuen, Tin Shui Wai area, Yuen Long Town Centre and Siu Hong to help alleviate current traffic issues; and
- (10) Concerned about the project supervision mechanism and cost control.

3.16.2 The photos taken at the public forum are in **Appendix A**.

3.17 Public Views

3.17.1 A total of 35 comments⁶ were collected. Views were also collected through the community liaison teams in HSK/HT NDA and YLS Development. The major comments on GTS are summarised below:

- (1) In general supported the implementation of GTS, and adopting green public transport mode to provide highly efficient transport services. It would encourage the reduction of the use of private vehicles and thus reduce roadside emissions promoting green mobility;
- (2) Some supported the GBS since it would not require physical rail track, had a lower capital cost, was cost-effective and easy to setup, and had a higher routing flexibility and station accessibility. It could adjust the routing flexibly and be temporarily diverted to operate outside the dedicated corridor, and thus providing flexible service arrangement to meet the changing transport

⁶ 2 comments were received after the PC period.

demands under the phased development of the NDA. GBS could also be extended to adjacent areas through the existing suitable road network. It also allowed flexibility in the scheduling and provision of express bus services to optimise operational efficiency. In addition, the maintenance cost of charging facilities for GBS was reduced and became more cost-effective. There were concerns that the GBS would require a large area of road space and cause traffic congestion on the roads if the junctions were not properly designed. There were concerns about the current technology and performance of green buses. There were also concerns that accident rates of buses might be higher than that of rail-based mode;

- (3) Some supported the Modern Tram since it had better station accessibility, less visual impact, and lower capital cost than the APM. However, there were concerns that the Modern Tram would occupy more road space and might have conflicts with road vehicles and pedestrians causing traffic issues similar to that of the existing Light Rail;
- (4) Some also supported the elevated mode as GTS, such as APM, Monorail and Low-speed Maglev trains, as these modes would not affect road vehicles and pedestrians and could avoid causing traffic issues. Some considered that automated systems like the APM would have a higher carrying capacity and better service reliability. However, there were objections to the APM because of its high capital cost, significant visual impacts, poor station accessibility and limited routing flexibility. There were doubts on its cost-effectiveness as the transport demand would be relatively low during phased implementation of the NDA. Besides, the installation, testing and commissioning of the signalling, mechanical and power supply system would require a relatively long construction and testing time. Some comments suggested that the overall journey time would be a better indicator for comparing the three modes as it would take into account the walking time from the at-grade walkway to the station platform, especially for the elevated APM system;
- (5) Some supported underground mode to release the space at ground level for other uses and reduce the noise nuisance to nearby residents;
- (6) There was support on extending the existing Light Rail into HSK/HT NDA for more convenient interchange to adjacent areas being served by the existing Light Rail;
- (7) There was strong aspiration for early implementation of the GTS to tie in with the development of HSK/HT NDA and YLS Development;
- (8) Some supported developing a dedicated corridor for GTS for better efficiency. GTS should be grade-separated from other road traffic at major road junctions to avoid causing traffic congestion and conflicts with pedestrians. Some suggested that the dedicated corridor should not be shared use with other traffic to avoid disturbance to the services;
- (9) There were suggestions that the GTS service should extend to adjacent areas, including Tin Shui Wai, Tuen Mun and Yuen Long areas, Yuen Long Nullah, MTR Yuen Long Station, developments near Shap Pat Heung Road, and Shenzhen Bay Port, to help alleviate current traffic issues;
- (10) There were concerns about the station locations, which should be carefully considered, and should be convenient for the elderly to use;
- (11) There were suggestions that the design of GTS should be passenger-friendly, such as providing real-time arrival display and information panels, and providing real-time data and service;
- (12) There were concerns about the slow boarding and alighting of GBS. However,

- some suggested providing off-board fare collection system and using multi-door green buses to shorten boarding and alighting time;
- (13) There were comments that interchange with other public transport modes, such as Tuen Ma Line, buses and minibuses should be convenient. There was suggestion to allow flexibility so that it could tie in with other new transport infrastructure in future;
 - (14) There were concerns that with the new transport demand from the NDA, GTS serving as a feeder service to the Tuen Ma Line would exacerbate the crowded situation of the Tuen Ma Line. A new mass public transportation system was suggested, to provide inter-district transport services connecting to the urban area;
 - (15) There were also comments on the high capital cost of GTS, concerns about the fare level and cost-effectiveness, and requests for more detailed information, including the passenger demand forecast, operation and maintenance cost, financing arrangement, fares, noise level and implementation schedule; and
 - (16) There were suggestions that GTS, pedestrian network, cycle track network and other transportation should be well integrated in order to achieve better connectivity.
 - (17) There were suggestions of considering other transport modes, e.g. Skytram and Group Rapid Transit (GPT).

4 SUMMARY OF MAJOR VIEWS AND RESPONSES

4.1 Overview

4.1.1 The public actively participated in the Stage 1 PC activities. We have met with relevant stakeholders, including the Panel on Development of Legislative Council, District Councils, Rural Committees, and Transport Advisory Committee to collect public views. A public forum, focus group meetings and roving and mobile exhibitions were also conducted. A total of 35 comments were collected through various channels including post, telephone, fax and email. Views from local residents were also collected through community liaison teams of HSK/HT NDA and YLS Development.

4.1.2 Public views collected from the above PC activities clearly supported the implementation of GTS in HSK/HT NDA and YLS Development, to promote green mobility. The public expressed the following major interests and expectations on GTS:

Innovative and Flexible

4.1.3 Keep pace with the latest technology developments, and have routing flexibility and can be extended to adjacent areas;

Convenient and Fast

4.1.4 Fast and convenient boarding and alighting, and convenient interchange with other public transport modes;

Integrated with Surroundings

4.1.5 Integrate with the surrounding environment and quiet operation, and minimise impact on other traffic; and

Affordable and Early Commissioning

4.1.6 Reasonable capital cost and fare level, and early implementation and commissioning of GTS for public use.

4.1.7 The following paragraphs summarise the public views collected during the PC activities and the responses from the Study team:

4.2 Major Interests and Expectations

4.2.1 Innovative and Flexible

- (1) There were requests for the Government to keep pace with the latest technology developments of green public transport modes, including Trackless Tram and hydrogen fuel cell bus.
- (2) The public opined that GTS should have routing flexibility and could be extended to adjacent areas. GBS and Trackless Tram without physical rail track ran on roads and had higher routing flexibility and were flexible to adjust routing and service frequencies to tie in with the phased development of the NDA and to cater for the actual transport demand in different periods, including extending its services to adjacent areas and providing long-haul services. Some were concerned that GTS sharing the road with other traffic would affect its capacity and efficiency. Some supported providing flexible and express bus route services by the GBS. They also concurred that the APM and Modern Tram with track had limited routing flexibility and had more constraints in extending services to other areas.

4.2.2 Convenient and Fast

- (1) The public generally agreed that GTS should be more efficient and faster than conventional road-based public transport. Some opined that while the APM had the shortest on-vehicle journey time, it had no apparent advantages over the other two GTS modes in overall journey time when the walking time to and from at-grade walkway and the elevated station platform was considered. There were also comments that APM could not leverage its speed advantage due to the close spacing of the stations. Some suggested providing off-board fare collection system and adopting green buses with multiple doors to shorten the boarding and alighting time of GBS.
- (2) There were comments that the GTS should have sufficient capacity to cope with the transport demand of the HSK/HT NDA and YLS Development and enquired the estimated passenger demand of GTS.
- (3) The public in general concurred that the GTS stations should be accessible and convenient for the passengers especially for the elderly and people with mobility difficulties. GTS should be convenient for the use of residents and working population in the HSK/HT NDA and YLS Development as well as the existing villages to increase its attractiveness, and help reduce roadside emission and overall energy consumption, and promote green mobility.
- (4) The public in general considered that the interchange of GTS with other public transport modes, such as railway, bus and mini-bus, should be convenient. GTS should also be well integrated with pedestrian walkways and cycle track networks to enhance the overall connectivity.

4.2.3 Integrated with Surroundings

- (1) Some comments preferred at-grade green public transport mode as it could integrate with the surrounding environment in the NDA and bring a positive

effect on urban aesthetics. There were concerns that the fully elevated APM would have a high visual impact and could not suit the planning of the NDA.

- (2) There were also concerns about the noise level of GTS in operation, in particular the noise induced by rail-based mode, and the public would like the GTS operation to be quiet.
- (3) The public in general considered that GTS's impact on other traffic should be minimised. Although GTS is recommended to be grade-separated from other road traffic at major road junctions, there were concerns of GTS sharing the road junctions with other traffic causing impact. Some requested to adopt fully elevated system to minimise impact on other traffic and village road/access.

4.2.4 Affordable and Early Commissioning

- (1) The public in general considered that the capital cost and fare level of GTS should be reasonable. There was a general concern about the high capital cost of GTS, particularly APM, which might lead to a high fare level and make it not affordable to the public. There was doubt whether GTS, particularly APM, is financially viable. Hence, some supported GBS and Modern Tram with track as these systems are considered more cost-effective. Nonetheless, some opined that APM should still be adopted despite its high capital cost as it would be fully segregated from road traffic and had a shorter journey time.
- (2) The public had strong aspirations for the early implementation and commissioning of GTS to tie in with the phased development of the NDA. Some considered that GBS should be adopted as it had a higher routing flexibility to dovetail with the phased development of the NDA and had a lower initial implementation cost.

4.2.5 Responses

- (1) Public interests and expectations on the GTS were noted. Green mobility within HSK/HT NDA is promoted through a Green Transit Corridor (GTC) comprising a GTS, pedestrian walkways, and cycle tracks. GTS is highly efficient and convenient and will provide rapid transport services connecting different population centres, commercial nodes, employment zones, and key community facilities within the NDA. It will also facilitate convenient transfers to other public transport modes including the Tuen Ma Line and Light Rail, as well as connecting the NDA with the YLS Development. Apart from enhancing internal and external connectivity of the NDA, the GTS will bring about social and economic benefits including inducing employment, cultivating a greener and more liveable environment, and promoting local economic development.
- (2) The Study has considered the views received during the PC activities. The green road-based mode (such as GBS and Trackless Tram) and green rail-based mode (such as APM and Modern Tram with track) were compared based on five key considerations, i.e. routing flexibility, station accessibility, visual impact, overall journey time and capital cost.
- (3) The green road-based mode runs on roads and does not require physical rail track. Examples are Green Bus System and Trackless Tram. It has sufficient

carrying capacity for the transport demand. Compared to the green rail-based mode, it has a higher routing flexibility and is flexible to adjust routing and service frequencies to tie in with the phased development of the NDA and to cater for the actual transport demand in different periods. The green road-based mode will use green energy sources: electricity is commonly used at the moment, and hydrogen is starting to become widely used. The stations of green road-based mode are mainly at-grade. Compared to the elevated green rail-based mode, i.e. APM, its stations are more accessible and it has a lower visual impact which can be better integrated with the environment of the NDA. The overall journey time of the green road-based mode and green rail-based mode are comparable⁷. The green road-based mode also has a lower capital cost than the green rail-based mode. The green road-based mode can adopt off-board fare collection system and low-floor design to allow fast and convenient boarding and alighting. It is recommended that GTS will be grade separated from other road traffic at major road junctions. Shared junctions with less traffic flow are also designed to maintain smooth traffic flow.

- (4) Taking into account the above advantages of green road-based mode, the Study recommended to adopt the green road-based mode for GTS in HSK/HT NDA and YLS Development.
- (5) The recommended alignment of GTS is about 16 km long⁸ and will traverse HSK/HT NDA and YLS Development, and connect with Tuen Ma Line Hung Shui Kiu Station and Tin Shui Wai Station, Light Rail Chung Fu Stop and Nai Wai Stop, as well as the proposed and existing public transport interchanges. Bicycle parking spaces will be provided near the GTS stations to facilitate green interchange. At the same time, the Study has reviewed the interface and arrangement of the GTS and the existing Tin Ying Road and confirmed that a synergy effect could be achieved. Hence, it is recommended to retain the existing Tin Ying Road that can allow flexibility to cater for the needs of further development.
- (6) Public concerns about the capital cost and fare level of GTS were noted. The Transport and Logistics Bureau (TLB)/the Transport Department (TD) will further consider the fare level of the recommended GTS mode during the implementation stage, taking into account factors such as capital and operating cost, fare level of existing public transport modes and public affordability.
- (7) Noise level of the GTS during the operation will be reviewed during the implementation stage of the GTS project.
- (8) Public's aspiration for early implementation and commissioning of the GTS was noted. To tie in with the phased development of HSK/HT NDA and the YLS Development, GTS will be commissioned in phases. TLB/TD will make reference to the findings and recommendations of the Study and commence the implementation of GTS. CEDD will complete the associated road works

⁷ Taken into account the passenger walking time to and from at-grade walkway and the station platform if elevated green rail-based mode is adopted, and the time taken to pass through the non-major road junctions if green road-based mode is adopted.

⁸ Part of the alignment will be reviewed under the Remaining Phase Development of HSK/HT NDA.

in a timely manner to tie in with the implementation of GTS.

4.3 **Other Views**

4.3.1 **Underground Alignment**

- There were suggestions to adopt an underground alignment for GTS to avoid road traffic congestion, release the ground surface for other uses, and reduce visual and noise impacts.

Responses

- The infrastructure work of underground alignment is more substantial than at-grade and elevated alignment. Extensive measures are required for construction of underground system and to fulfil the ventilation and fire services requirements, including the statutory requirements of means of escape and means of access for rescue. In addition, associated infrastructures and entrances of ancillary buildings would take up significant areas at ground level. The capital and operation cost for an underground system would be very expensive and it is not a viable option.

4.3.2 **Extension of Existing Light Rail**

- There were suggestions to reconsider extending the existing Light Rail service into HSK/HT NDA and adjacent areas to serve as GTS for lower capital cost and more convenient interchange.

Responses

- The recommended green road-based mode runs on roads and does not require physical rail track. It adopts low-floor design and has higher routing flexibility and station accessibility compared to the existing Light Rail. It also has a lower capital cost and is more suitable for use in the NDA.

4.3.3 **Extension of GTS to adjacent areas**

- There were suggestions to extend the GTS to adjacent areas such as Tin Shui Wai area, Yuen Long New Town and village areas at the east of the YLS Development.
- The public in general supported the extension of GTS to Tin Shui Wai North.

Responses

- Suggestions for extending the GTS to adjacent areas were noted. The recommended green road-based mode runs on roads and does not require physical rail track. It is flexible to adjust routing and frequencies. The extension of GTS to adjacent areas is subject to further review depending on the future actual demand and technical feasibility.

4.3.4 **Implementation Arrangement**

- There were enquiries about the procurement, implementation, operation arrangement, operation cost and financial performance of GTS.

Responses

- TLB/TD will make reference to the findings and recommendations of the Study and commence the implementation of GTS in order to ascertain the detailed matters of implementation and operation.

4.3.5 **Security Measures of GTS**

- There were suggestions to enhance security measures of GTS system to avoid vandalism.

Responses

- The overall safety and security measures of GTS will be considered in the implementation stage to avoid damages from vandalism.

4.3.6 **Capacity of Tuen Ma Line**

- There were concerns about whether the capacity of the Tuen Ma Line was sufficient to cater for the additional passengers from the GTS.

Responses

- In the planning of the HSK/HT NDA and YLS Development, the existing and proposed traffic and transport infrastructures, including the road infrastructures, Tuen Ma Line, GTS, and public transport interchanges, have been assessed to cater for the additional traffic and transport demand arising from the development. The Government will continue to closely monitor the operation of the Tuen Ma Line.
- In the long term, the Government is conducting the "Strategic Studies on Railways and Major Roads beyond 2030" to explore the layout of railway and major road infrastructure, such that the planning of large-scale transport infrastructure will complement or even reserve capacity to meet the overall long-term development needs of Hong Kong.

Appendix A

Photos of Roving and Mobile Exhibitions and Public Forum

Roving Exhibitions



Yuen Long District Office Building



Tin Yan Shopping Centre



Tuen Mun Government Offices



Ping Shan Tin Shui Wai Public Library

Mobile Exhibitions



Tin Chak Estate



Tong Yan San Tsuen Road Parking Lot



Hung Fuk Estate

Public Forum



