

1 INTRODUCTION

1.1 BACKGROUND

- 1.1.1 The title of the Project is “Traffic Improvement Scheme in Tuen Mun – Widening and Addition of Slip Roads at Lung Fu Road / Tuen Mun Road / Wong Chu Road / Hoi Wing Road” (hereafter referred to as the Project).
- 1.1.2 The Tuen Mun - Chek Lap Kok Link Tunnel (TM-CLKT) was commissioned on 27 December 2020. The traffic flow within Tuen Mun District, including Tuen Mun Road (Town Centre Section) (TMR (TCS)) and its slip roads to and from Wong Chu Road (WCR), has been gradually increasing after the commissioning of TM-CLKT.
- 1.1.3 After the commissioning of TM-CLKT in 2020, Lung Fu Road (LFR), WCR and other local roads in Tuen Mun will be operating beyond capacity after 2026 due to the development in the Northwest New Territories and development in North Lantau. The concerned roads are currently very busy especially during peak hours. The Project not only helps to relieve traffic congestion in Tuen Mun area and other major roads in Tuen Mun area but it also improves the capacity of major local road junction and roads by directing traffic between Northwest New Territories and North Lantau.
- 1.1.4 WSP (Asia) Ltd. (WSP) was commissioned by the Highways Department (HyD) of the Government of the Hong Kong Special Administrative Region to undertake this Agreement No. CE 11/2021 (HY) Traffic Improvement Scheme in Tuen Mun – Widening and Addition of slip roads at Lung Fu Road/ Tuen Mun Road/ Wong Chu Road/ Hoi Wing Road (Extension Works to Major Roads in Tuen Mun) – Investigation, Design and Construction for this Project. The commencement date of this Assignment was 28 September 2021.
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1.2 PURPOSE, OBJECTIVE AND BENEFITS OF THE PROJECT

- 1.2.1 Objectives of this Project is to relieve the anticipated traffic congestion problems of WCR, by
- Provision of new grade separated road links connecting existing LFR viaduct and Tsing Wun Road (TWR), with a view of enhancing the attractiveness of the alternative route for Tuen Mun Road (TMR) & WCR via Tsing Tin Road (TTR), Ming Kum Road (MKR), TWR;
 - Provision of a new alternative route connecting Tuen Mun Road (Sam Shing Section) (TMR (SSS)) northbound with Castle Peak Road (Castle Peak Bay Section) (CPR(CPBS)) westbound, near Hoi Wing Road (HWR), for traffic towards the southern part of Tuen Mun;
 - Provision of additional traffic lane to allow dedicated traffic lanes for traffic heading to Tuen Mun West and Tuen Mun South, thus minimizing weaving movement at the downstream section of the heavily trafficked slip road from TMR southbound to WCR westbound by widening.
- 1.2.2 After completion of this Project, attractiveness of the alternative route for TMR & WCR via TTR, MKR, TWR connecting Yuen Long & the northern part of Tuen Mun in one side and Tuen Mun Area 40 & TM-CLKT will be enhanced. The bottleneck at the existing slip road connecting TMR (TCS) southbound and WCR westbound will be improved.
- 1.2.3 An alternative route connecting TMR(SSS) northbound and CPR(CPBS), near HWR will be provided to relieve the congestion problem of WCR westbound.
- 1.2.4 This Project is identified as a medium-term mitigation measure to alleviate the traffic congestion in WCR before commissioning of Tuen Mun Bypass (TMB).
- 1.2.5 The scope of the Project mainly comprises:

- Construction of a single elevated road of 800m long approximately connecting TWR southbound and the existing elevated LFR southbound (hereafter referred to as LFRSR - SB);
- Modification of the existing at-grade slip road of 150m long approximately connecting TWR southbound and WCR eastbound affected by LFRSR southbound;
- Construction of an elevated road of 600m long approximately connecting the existing elevated LFR northbound and TWR northbound (hereinafter referred to as LFRSR - NB);
- Modification of the existing at-grade slip road connecting WCR westbound to TWR northbound;
- Construction of an at-grade slip road of 550m long approximately connecting TMR(SSS) northbound and CPR (CPBS) westbound, near HWR (hereinafter referred to as HWRSR);
- Construction of an elevated road of 300m long approximately for widening the existing single-lane elevated slip road connecting TMR (TCS) southbound and WCR westbound (hereinafter referred to as WCRSR); and
- Ancillary works including geotechnical, drainage, sewerage, water, utilities, lighting, landscaping, construction/reconstruction of noise barriers, retaining walls, slope improvement, and traffic improvement works.

1.3 DESIGNATED PROJECTS

1.3.1 A Project Profile (No. PP-620/2021) was submitted to the EPD on 3 May 2021 for application for an Environmental Impact Assessment (EIA) Study Brief under Section 5(1)(a) of the Environmental Impact Assessment Ordinance (EIAO) and the EIA Study Brief No. ESB-339/2021 for the Project was issued on 9 June 2021 under the EIAO.

1.3.2 The Project comprises the following which are classified as a Designated Project (DP) under Part I, Schedule 2 of the EIAO:

Item A.1 - A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing roads

1.3.3 The proposed road links (See **Figure 1.1**) under the Project comprise primary distributor road and district distributor road constituting a DP item under A.1, as follows:

- Construction of the new LFRSR - SB of 800m long connecting TWR southbound and existing elevated LFR southbound which is a District Distributor (DD);
- Modification of the existing at-grade slip road of 150m long connecting TWR southbound and WCR eastbound which is a Primary Distributor (PD);
- Construction of the new LFRSR - NB of 600m long connecting existing elevated LFR northbound and TWR northbound which is a DD;
- Construction of the new HWRSR of 550m long connecting TMR(SSS) northbound and CPR (CPBS) westbound which is a DD; and
- Widening of the existing elevated WCRSR of 300m long (from a single lane to single two-lane), which is a PD, connecting TMR (TCS) southbound and WCR westbound.

Item A.8 - A road or railway bridge more than 100 m in length between abutments

1.3.4 LFRSR SB and LFRSR NB are all elevated roads with lengths between abutments more than 100m.

1.4 INDIVIDUAL WORK NOT CONSTITUTE MATERIAL CHANGE TO A DESIGNATED PROJECT OR TO AN ENVIRONMENTAL IMPACT

- 1.4.1 In accordance with Section 6.2 of the EIAO-TM, the environmental impact of a designated project, for which an environmental permit has been issued, is considered to be materially changed if the environmental performance requirements set out in the EIA report for the project may be exceeded or violated even with the mitigation measures in place. The TMR (TCS) is an expressway (south to WCR) and an urban trunk road (north to WCR). Being a designated project under Part I of Schedule 2 of the EIAO, it is controlled by an existing environmental permit (No. EP-342/2009/C) for construction and operation.
- 1.4.2 The EIA Ordinance comes into operation on 1 April 1998. Since LFR has been completed before the EIA Ordinance was in force, LFR is classified as an exempted DP under Item I.1(a), Part I, Schedule 2 of the EIAO. Nevertheless, in accordance with Clause 9(4) of the EIAO, a material change to an exempted project still requires an environmental permit. A material change means a physical addition or alteration to a designated project which results in an adverse environmental impact as defined in section 6.1 of the EIAO-TM.
- 1.4.3 To facilitate the construction of the Project, the following changes to the existing noise barriers at LFR are required and shown in **Figure 1.2**. The potential environmental impacts during both construction and operation phases due to the following changes have been reviewed and addressed in this EIA report. Based on the findings described in Section 3 and Section 4 for air quality impact assessment and noise impact assessment respectively, potential air quality and noise impacts due to the following changes to the existing noise mitigation measures at LFR are not expected to be adverse. Besides, no other adverse environmental impacts would be anticipated. Hence, according to Section 6.2 of the EIAO-TM, the following changes to the existing noise mitigation measures would not constitute a material change to a designated project or to an environmental impact.
- Erection of a 5m vertical noise barrier of approximately 22m in length at LFRSR - SB and dismantling of the existing ones during the construction of the Project; and
 - Erection of a 3m vertical noise barrier of approximately 195m in length at LFRSR - NB and dismantling of the existing ones during the construction of the Project.

1.5 PURPOSE OF THE EIA STUDY

- 1.5.1 The purpose of the EIA study is to provide information on the nature and extent of environmental impacts arising from the construction and operation of the Project and the associated works that take place concurrently. This information will contribute to decisions on:
- the overall acceptability of any adverse environmental consequences that are likely to arise as a result of the Project;
 - the conditions and requirements for the detailed design, construction and operation of the Project to mitigate against adverse environmental consequences wherever practicable; and
 - the acceptability of residual impacts after the proposed mitigation measures are implemented.

1.6 OBJECTIVES OF THE EIA STUDY

- 1.6.1 The objectives of the EIA study as defined in Section 2 of the EIA Study Brief are as follows:

- (i) to describe the Project and associated works, and any options(s) of alignment together with the requirements and environmental benefits for carrying out the proposed Project;
- (ii) to identify and describe the elements of the community and environment likely to be affected by the Project and/or likely to cause adverse impacts to the Project, including both the natural and man-made environment and the associated environmental constraints;
- (iii) to identify and quantify emission sources and determine the significance of impacts on sensitive receivers and potential affected uses;
- (iv) to identify and quantify potential waste management issues and impacts arising as a result of the construction activities of the Project;
- (v) to identify and quantify contaminated land within any Project Area for development works, and to propose measures to avoid disposal in the first instance;
- (vi) to identify, assess and quantify any potential ecological impacts arising from the construction and operation of the Project, including potential losses or damage to flora, fauna and natural habitats; and to propose measures to mitigate these impacts;
- (vii) to identify any potential landscape and visual impacts and to propose measures to mitigate these impacts;
- (viii) to identify any negative impacts on cultural heritage and to propose measures to mitigate these impacts;
- (ix) to propose the provision of infrastructure or mitigation measures so as to minimise pollution, environmental disturbance and nuisance during construction and operation of the Project;
- (x) to investigate the feasibility, practicability, effectiveness and implications of the proposed mitigation measures;
- (xi) to identify, predict and evaluate the residual (i.e. after practicable mitigation) environmental impacts and the cumulative effects expected to arise during the construction and operation phases of the Project in relation to the sensitive receivers and potential affected uses;
- (xii) to identify, assess and specify methods, measures and standards, to be included in the detailed design, construction and operation of the Project which are necessary to mitigate these residual environmental impacts and cumulative effects and reduce them to acceptable levels;
- (xiii) to investigate the extent of secondary environmental impacts that may arise from the proposed mitigation measures and to identify constraints associated with the mitigation measures recommended in the EIA study, as well as provision of any necessary modification;
- (xiv) to design and specify the environmental monitoring and audit requirements; and
- (xv) to identify any additional studies necessary to implement the mitigation measures of monitoring and proposals recommended in the EIA report.

1.7 STRUCTURE OF THE EIA REPORT

1.7.1 The background of the Project, description of the Project, objectives and scope of the EIA study are introduced in this section. Details of considerations of alternative options are provided in **Section 2**. **Sections 3 to 10** detail the relevant legislation, environmental conditions, assessment criteria, methodology and results and recommended mitigation measures of the technical assessments.

1.7.2 Sections 3 to 10 are outlined as follows:



- Section 3: Air Quality Impact
- Section 4: Noise Impact
- Section 5: Water Quality Impact
- Section 6: Waste Management Implications
- Section 7: Land Contamination
- Section 8: Ecological Impact
- Section 9: Landscape and Visual Impact
- Section 10: Impact on Cultural Heritage

- 1.7.3 An outline of the requirements for the Environmental Monitoring and Audit (EM&A) is presented in **Section 11**. The EM&A programme is presented in detail in a separate EM&A Manual. A summary of environmental outcomes is provided in **Section 12** and a conclusion of the whole assessment is given in **Section 13**.
- 1.7.4 An Executive Summary has been prepared as a separate document in both Chinese and English, which contains summaries of the key findings, recommendations and conclusions of the EIA Report.