

1. INTRODUCTION

1.1 Preamble

Tolo Highway and Fanling Highway are expressways in the North East New Territories connecting Sha Tin, Tai Po and Fanling. These highways form a vital part of the strategic Route 1, which links Hong Kong Island to Shenzhen. At present, this section of Route 1 is dual 3-lane carriageway. However, at several major interchanges along this section of Route 1, the highway is only dual-2 lane. Severe congestion is a frequent occurrence during peak periods, particularly in the Kowloon bound direction.

The North East New Territories (NENT) Development Strategy Review indicated that by 2006, the forecast traffic demand in the southbound direction of the Tolo Highway and Fanling Highway between Island House Interchange and Fanling would exceed their design capacities. Moreover, the v/c ratios of several major interchanges along the Tolo Highway and Fanling Highway would also significantly exceed 1.2.

In order to alleviate the current traffic congestion problems and to cope with the increasing transport demands to and from the urban areas and also cross boundary traffic, the Tolo Highway and Fanling Highway would have to be widened to dual 4-lane carriageway in phases by the end of 2005. Widening of a 5.4km long section of Tolo Highway between Sha Tin and Tai Po commenced in March 1999 for completion by the end of 2001.

The section of Tolo Highway and Fanling Highway between Island House Interchange and Fanling is about 8.7km long (see Figure 1.1 for Location Plan). A Preliminary Project Feasibility Study (PPFS) for the Project was completed for Highways Department by Mott Connell Ltd. in March 1998. The PPFS identified the project constraints, proposed a preliminary development option and recommended further investigations and studies. The Project was included in Category C of the Public Works Programme as Item No. 6720TH on 7 July 1998.

On 12 February 1999 Highways Department, Major Works Project Management Office commissioned Mott Connell Ltd. to undertake the Investigation and Preliminary Design Assignment under Agreement No. CE 73/98 for Widening of Tolo Highway/ Fanling Highway between Island House Interchange and Fanling.

The purpose of this Assignment includes a review of the findings of the Preliminary Environmental Review (PER) completed as part of the PPFS and to undertake an Environmental Impact Assessment (EIA) in accordance with the requirements of the EIA Study Brief (no. ESB-004/1998 issued on 30.6.98). The Study Brief was prepared by the Government based on the Technical Memorandum of the EIA Ordinance (EIAO).

The project is a designated project under the Environmental Impact Assessment (EIA) Ordinance (Cap.499) under Section A.1 of Schedule 2 and will require an environmental permit.

1.2 The EIA Study Area

The Study Brief states that "The boundary of the Study Area for the purpose of this EIA shall be of 500m from either side and along the full stretch of the proposed alignment, except that, for noise impact and water impact assessment, the Study Area shall be generally defined by a distance of 300m from the proposed road alignment. Sensitive receivers in relation to the visual impact assessment and ecological impact assessment shall be assessed regardless of the distance from the proposed road alignment (see Drawing 551/R/9001).

With respect to noise impact assessment, the Study Area may be reduced accordingly, if the first layer of noise sensitive (NSRs), closer than 300m from the road, provide acoustic shielding to those NSRs located further behind.

All the figures of distance mentioned above shall be measured at the edge of kerb or hard shoulder whichever is applicable.”

1.3 Objectives of the EIA Study

The objectives of the EIA Study are to identify and quantify various potential environmental impacts arising from the construction and operation of the project and to recommend effective (both cost and performance) mitigation measures. The EIA will also take cognisance of the EIA objectives as stated in Clause 6.40.2 of the Assignment Brief.

The EIA Study will incorporate the detailed design of the environmental mitigation measures recommended in the Preliminary Environmental Review (Agreement No. CE 28/98), following their review and evaluation. Mitigation measures required to address identified construction impacts will become part of the Design Memorandum and are to be implemented during the Construction Phase. A detailed Environmental Monitoring and Audit (EM&A) Programme, along with the appropriate environmental clauses, will support the design and implementation of the mitigation measures. An EM&A Manual will be formulated with respect to the findings of the review and detailed design exercises undertaken as part of this study. The manual will detail the environmental monitoring and audit requirements necessary for both the construction and the post-project operational phases.

The specific objectives for the Study are set out in the Study Brief, as listed below:

- (i) to describe the proposed project, associated works and project needs;
- (ii) to identify key environmental issues, with agreement from relevant government departments;
- (iii) to identify applicable regulatory requirements and guidelines;
- (iv) to identify and describe the representative existing and planned sensitive receivers (SRs) likely to be affected by the project, and those likely to cause adverse impacts on the project, if any. To include both man made, natural and associated environmental constraints;
- (v) to establish baseline information and data and identify the need for further site specific survey(s) to supplement lack of existing data;
- (vi) to assess and quantify emission sources and determine the acceptability of impacts on representative SRs and potential affected uses;
- (vii) to identify, predict and evaluate the residual environmental impacts and cumulative impacts that may arise during construction, development and operation with respect to SRs and potential affected uses;
- (viii) to identify and quantify any potential residual and cumulative ecological impacts in terms of potential losses or damage to flora, fauna or natural habitats;
- (ix) to identify any potential landscape and visual impacts and to propose mitigation measures;

- (x) to identify any potential impacts to the historical, archaeological and cultural resources within the study area and to propose mitigation measures;
- (xi) to develop practicable and effective mitigation strategies and measures for the control and minimisation of adverse environmental impacts in the short and long term;
- (xii) to identify, assess and specify measures, methods and standards to be incorporated into the detailed design, construction and operation of the project so that adverse predicted impacts are reduced and controlled to within acceptable levels;
- (xiii) to investigate the extent of side effects of proposed mitigation measures and constraints associated with proposed mitigation measures; and
- (xiv) to prepare the environmental monitoring and audit programme implementation schedule to ensure the control and minimisation of adverse environmental impacts during construction and operation.

1.4 Structure of the Environmental Impact Assessment Report

After this introductory section, the remainder of this EIA Report is arranged as follows:

- Section 2 presents a brief description of the Project;
- Section 3 presents the relevant environmental standards and guidelines for air quality, construction and operation noise, water quality, waste management ecology, landscape and visual and heritage aspects of the Study;
- Section 4 describes the assessment of the air quality impacts;
- Section 5 describes the assessment of the noise impacts;
- Section 6 discusses the water quality impacts;
- Section 7 discusses the issues associated with waste management and disposal;
- Section 8 presents the ecological impacts;
- Section 9 presents the landscape and visual impacts;
- Section 10 presents the assessment of the impacts on archaeological and historical monuments;
- Section 11 discusses the environmental monitoring and audit requirements; and
- Section 12 reviews the findings and presents the overall conclusions of this Report.
- Section 13 presents the schedule of recommended mitigation measures.