CHAPTER 9

Civil Engineering and Development Department
Transport Department
Highways Department

Provision of cycle track network in the New Territories

Audit Commission
Hong Kong
30 October 2014

This audit review was carried out under a set of guidelines tabled in the Provisional Legislative Council by the Chairman of the Public Accounts Committee on 11 February 1998. The guidelines were agreed between the Public Accounts Committee and the Director of Audit and accepted by the Government of the Hong Kong Special Administrative Region.

Report No. 63 of the Director of Audit contains 10 Chapters which are available on our website at http://www.aud.gov.hk

Audit Commission
26th floor, Immigration Tower
7 Gloucester Road
Wan Chai
Hong Kong

Tel : (852) 2829 4210
Fax : (852) 2824 2087
E-mail : enquiry@aud.gov.hk

PROVISION OF CYCLE TRACK NETWORK IN THE NEW TERRITORIES

Contents

PROVISION OF CYCLE TRACK NETWORK IN THE NEW TERRITORIES

Executive Summary

1. Cycling is one of the popular recreational activities in Hong Kong. Many cyclists ride bicycles on cycle tracks for recreational and leisure purposes, particularly during weekends. Under the traffic management of the Transport Department (TD), cycle tracks with a total length of 218.5 kilometres (km) are provided in eight districts.

2. In 2008, with a view to enhancing the recreational value of cycle tracks and improving the quality of living of the public, the Administration pledged to carry out the New Territories (NT) Cycle-track Network for providing a continuous east-west cycle track from Ma On Shan to Tsuen Wan with a total length of 112 km, of which 70 km would be new cycle tracks. The Network was targeted to commence from mid-2009 onwards for completion in stages from mid-2011 onwards, and the Civil Engineering and Development Department (CEDD) is responsible for the planning, design and construction of the Network. As of August 2014, the Finance Committee (FC) of the Legislative Council (LegCo) had approved funding totalling $553.9 million for implementing part of the Network.

3. In recent years, the number of bicycle accidents along cycle tracks has increased. From 2009 to 2013, there was a 66% increase in the number of accidents along cycle tracks and a 74% increase in cyclist casualties.

4. In view of the long time taken in only partially implementing the Network and the potential problems associated with cycle tracks, the Audit Commission (Audit) has recently conducted a review of the provision and management of cycle tracks in the NT with a view to identifying areas for improvement.

Implementation of NT Cycle-track Network

5. In April 2009, the Development Bureau (DEVB) informed LegCo Panel on Development that the proposed NT Cycle-track Network would be divided into four sections, with the following implementation programme:

(a) Section A: construction of the section from Ma On Shan to Sheung Shui (of 30 km) would commence in September 2009 and be completed by July 2012;

(b) Section B: construction of the section from Sheung Shui to Tuen Mun (of 30 km) would commence in August 2010 and be completed by July 2013;

(c) Section C: construction of the section from Tuen Mun to Tsuen Wan (of 22 km) would commence in stages from 2011 onwards and be completed from 2013 onwards; and

(d) Section D: construction of the six branching-off sections (of 30 km) would commence in stages from 2011 onwards and be completed from 2014 onwards (para. 2.4).

6. ***Time target for completing NT Cycle-track Network not met.*** In May 2008, the DEVB informed LegCo Panel on Development that there was strong public aspiration for linking the existing cycle tracks in the NT to form a continuous network. However, Audit examination revealed that for Section A works, while the target completion was set for July 2012, the related cycle tracks were completed and open to the public only in March 2014 (with a 20-month slippage). For Section B works, the original target completion date of July 2013 could not be met. As of August 2014, no timeframe for implementing Sections C and D works had been set (paras. 2.3, 2.11, 2.12 and 2.15).

7. ***Overall cost information for project implementation not provided.*** Audit noted that, when informing LegCo Panel on Development of the proposed implementation of the NT Cycle-track Network and seeking funding from the FC for implementing the related works projects, the DEVB and the CEDD had not provided the Panel and the FC with the estimated cost of the whole Network. The overall cost information will help stakeholders assess the cost-effectiveness of the whole programme, and is useful for the Government to plan its resource allocation for implementing the programme (para. 2.16).

Works-contract management

8. From May 2010 to November 2013, the CEDD had awarded three contracts (Contracts A1, A2 and B1) to three contractors for implementing works for Sections A and B. Contracts A1 and A2 were for implementing cycle-track works and cycle-hub works respectively in Section A, and Contract B1 was for implementing cycle-track and cycle-hub works in Section B Stage 1. Consultant A was the Engineer responsible for carrying out the detailed design, preparing the tender documents, assessing the tenders, and supervising the works under the three contracts (paras. 2.9 and 3.2).

9. ***Errors in preparing Bills of Quantities (BQ) for Contracts A1 and B1.*** For Contract A1, the quantities of two BQ items were erroneously stated and there were two missing items in the BQ. The errors were detected by the CEDD internal review procedures. In the event, Contract A1 had to be retendered. For Contract B1, the CEDD again found significant errors in the quantities of some BQ items. To rectify the errors, the CEDD had to conduct tender negotiation with the conforming tenderers before awarding the contract. The errors in the two cases had caused delays in awarding the related works contracts. If the above-mentioned errors had not been detected and rectified before contract award, the Government might have incurred nugatory expenditure totalling $72 million for Contracts A1 and B1 (paras. 3.3 and 3.11 to 3.13).

10. ***Widening works not carried out on some narrow cycle-track sections.*** According to the Transport Planning and Design Manual issued by the TD, the minimum width of a two-way cycle track is 3.5 metres (m). Contracts A1 and B1 included works for widening related existing cycle-track sections of Sections A and B respectively to meet the minimum width standard. However, Audit site inspections revealed that some cycle-track sections of Sections A and B were narrower than 3.5 m. Some of these sections could have been widened (paras. 3.22, 3.23 and 3.26 to 3.33).

11. ***Long time taken in completing Contract A1 works.*** The original scheduled completion date of Contract A1 was September 2012. However, as of August 2014, despite that the new cycle track of Section A had been open for public use since March 2014, there were still some outstanding works, including the construction of two rest stations and improvement of some existing cycle tracks (para. 3.34).

12. ***Delay in providing cycle-hub facilities for public use.*** Audit noted that, notwithstanding that Section A had been open for public use since March 2014, essential cycle facilities including bicycle-rental kiosks, first-aid stations and public toilets would only be provided at the two cycle hubs at Section A in December 2014 (paras. 3.41 and 3.43(a)).

13. ***General works-contract management.*** Audit noted that there were significant errors in preparing the tender BQ for Contracts A1 and B1 (see para. 9 above). Audit also found in recent audit reviews on government works projects that errors were sometimes made in the tender BQ, some of which had resulted in additional costs to the Government. There were also incidents where consultants' substandard work in works design and supervision of works implementation had resulted in substantial contract claims (paras. 3.47 and 3.48).

Traffic management and maintenance of cycle tracks

14. In May 2010, the TD appointed a consultant to conduct a traffic and transport study on cycling networks and parking facilities in nine new towns in Hong Kong (2010 General Study). The Study identified 20 accident-prone sites along Sha Tin and Tai Po cycle tracks, and proposed improvement measures for implementation in two phases. Phase 1 works involving conventional measures were targeted to commence in June 2012 and for completion by April 2014. Phase 2 works involving new measures would commence at a later stage upon the completion of a pilot study to be carried out in Tai Po, and subsequent evaluation of the effectiveness of the new measures implemented under the pilot study (paras. 4.2, 4.4 and 4.5).

15. ***Slow progress in carrying out improvement measures at accident-prone sites.*** Since June 2012, the TD had requested the Highways Department to carry out Phase 1 improvement works at 16 accident-prone sites in Sha Tin and Tai Po for enhancing cycling safety. However, Audit noted that the works for four sites had been/would be completed 10 to 21 months after the scheduled completion dates (para. 4.10).

16. ***Need for minimising regulatory dismount zones along cycle tracks.*** Under the Road Traffic (Traffic Control) Regulations (Cap. 374G), cyclists must dismount and push their bicycles when crossing regulatory cycle dismount zones. However, Audit examination revealed that, if the signs were followed, cyclists needed to dismount 105 times at dismount zones during their ride along the 45.6-km cycle track in Yuen Long. In other words, cyclists on average needed to dismount at a dismount zone once every 0.4 km when riding on the cycle track (paras. 4.22 and 4.27).

17. ***Cyclists not complying with dismount requirement.*** Notwithstanding that cyclists are legally required to dismount and push their bicycles when crossing a cycle dismount zone, Audit surveys at a cycle dismount zone in Tung Chung during an hour on a Sunday afternoon and on a Monday morning respectively found none of the 92 cyclists and 119 cyclists dismounted while crossing the dismount zone (paras. 4.22 and 4.33).

Audit recommendations

18. **Audit recommendations are provided in the respective sections of this Audit Report. This Executive Summary only highlights the key recommendations. Audit has *recommended* that the Administration should:**

Implementation of NT Cycle-track Network

(a) **endeavour to ensure that a publicly announced public-works programme is implemented according to the committed timeframe and scope as far as possible (para. 2.17(a));**

(b) **expedite actions to implement works for Section B Stage 2, Section C and Section D (para. 2.17(b));**

(c) **inform LegCo Panel on Development that the timeframe for completing the NT Cycle-track Network cannot be attained, and the Administration has not decided on a revised timeframe for completing the whole Network, including those for Sections C and D (para. 2.17(e));**

(d) **when seeking funding from the FC for implementing a works programme in stages in future, inform the FC as far as practicable of the estimated cost of the whole programme (para. 2.17(f));**

Works-contract management

(e) **take early actions to implement the recommendations made by the CEDD Task Group for improving the preparation and checking of tender BQ items (para. 3.18(a));**

(f) **review the feasibility of widening the cycle-track sections with a width of less than 3.5 m along Sections A and B as far as possible (para. 3.35(a));**

(g) **strengthen actions to ensure that Contract A1 works are completed as early as possible (para. 3.35(c));**

(h) **in implementing a public-facilities project in future, take measures to ensure that essential related public services are timely provided upon opening of the facilities for public use (para. 3.45(b));**

(i) **conduct a review of the system for engaging consultants and managing their work with a view to identifying better mechanisms for minimising errors made by consultants, and making them more accountable for their work (para. 3.49);**

Traffic management and maintenance of cycle tracks

(j) **take measures to ensure that improvement works at accident-prone sites are completed on schedule as far as possible (para. 4.19);**

(k) **consider taking measures, as far as possible and without compromising cycling safety, to minimise mandatory cycle dismount zones along existing cycle tracks and in planning new cycle tracks in future (para. 4.34(b)); and**

(l) **conduct a review of cyclists' compliance with the dismount requirement when crossing mandatory cycle dismount zones (para. 4.34(c)).**

Response from the Administration

19. The Administration agrees with the audit recommendations.

PART 1: INTRODUCTION

1.1 This PART describes the background to the audit and outlines the audit objectives and scope.

Background

Cycling community

1.2 Cycling is one of the most popular recreational activities in Hong Kong. Some people, particularly those in the New Territories (NT), also use bicycles for short-distance commuting purposes. According to a survey commissioned by the Transport Department (TD) in 2011 (Note 1), it was estimated that around 150,000 and 225,000 Hong Kong residents aged 15 and over had used self-owned bicycles for recreational and leisure purposes on weekdays and weekends respectively for one time or more in a three-month period, and 121,000 and 242,000 residents had rented bicycles for recreational and leisure purposes on weekdays and weekends respectively during the same period. Most of them usually rode bicycles on cycle tracks (see Appendix A).

Note 1: *The Travel Characteristics Survey aimed to collect travel characteristics data for transport planning purposes.*

Cycle tracks

1.3 Cycle tracks are mainly designed for recreational and leisure purposes. As of August 2014, cycle tracks with a total length of 218.5 kilometres (km) under the traffic management of the TD were provided in the following eight districts:

District	Length (km)
Sha Tin	56.0
Yuen Long	45.6
Tai Po	35.0
North District	27.0
Sai Kung	20.6
Tuen Mun	20.0
Lantau Island	14.0
Cyberport in Southern District	0.3
Total	218.5

1.4 The following Government bureaux and departments (B/Ds) are responsible for planning, implementation, management and maintenance of cycle-track facilities:

B/D	Responsibility
Civil Engineering and Development Department (CEDD) under the policy directives of the Development Bureau (DEVB)	Planning, design and construction of a cycle-track network in the NT for leisure and recreational purposes, and new cycle tracks in new towns and new development areas
TD under the policy directives of the Transport and Housing Bureau (THB)	Traffic management of cycle tracks and related facilities
Highways Department (HyD) under the policy directives of the THB	Implementation of related minor improvement works, and maintenance of cycle tracks and related facilities
Leisure and Cultural Services Department (LCSD — Note 2) under the policy directives of the Home Affairs Bureau	Management of first-aid stations and cycle rental kiosks in cycle hubs
Food and Environmental Hygiene Department (FEHD) under the policy directives of the Food and Health Bureau	Management of public toilets along cycle tracks and general cleansing of cycle tracks
Hong Kong Police Force (HKPF) under the policy directives of the Security Bureau	Enforcement of pertinent laws under the Road Traffic Ordinance (Cap. 374 — Note 3)

Note 2: *The LCSD is also responsible for managing cycling facilities located at public parks and playgrounds.*

Note 3: *The Road Traffic Ordinance contains provisions for regulating cycling, such as penalty clauses relating to reckless cycling and careless cycling. The Road Traffic (Traffic Control) Regulation (Cap. 374G) also contains penalty clauses relating to cyclists failing to comply with traffic signals and signs.*

NT Cycle-track Network

1.5 In the 2007-08 Policy Agenda, the Administration pledged to expedite capital works projects which would improve the quality of living of the public, including the development of comprehensive cycle tracks in the NT. In May 2008, the DEVB informed Legislative Council (LegCo) Panel on Development that:

(a) the Government had planned to develop a network for providing a continuous east-west backbone of cycle-track network in the NT from Ma On Shan to Tsuen Wan and branching-off sections from the backbone network, with a total length of 112 km (NT Cycle-track Network);

(b) the NT Cycle-track Network would comprise constructing some new cycle-track sections to connect together individual sections of existing cycle tracks, carrying out improvement works to existing sections, and building six branching-off sections; and

(c) the construction works of the Network were expected to commence in mid-2009 for completion from mid-2011 onwards (see Table 1 in para. 2.3).

1.6 In April 2009, the DEVB informed LegCo Panel on Development that the proposed Network would comprise the following four sections (see Figure 1 and Table 2 in para. 2.4):

(a) Ma On Shan to Sheung Shui (Section A under Project A): construction would commence in September 2009 and be completed by July 2012;

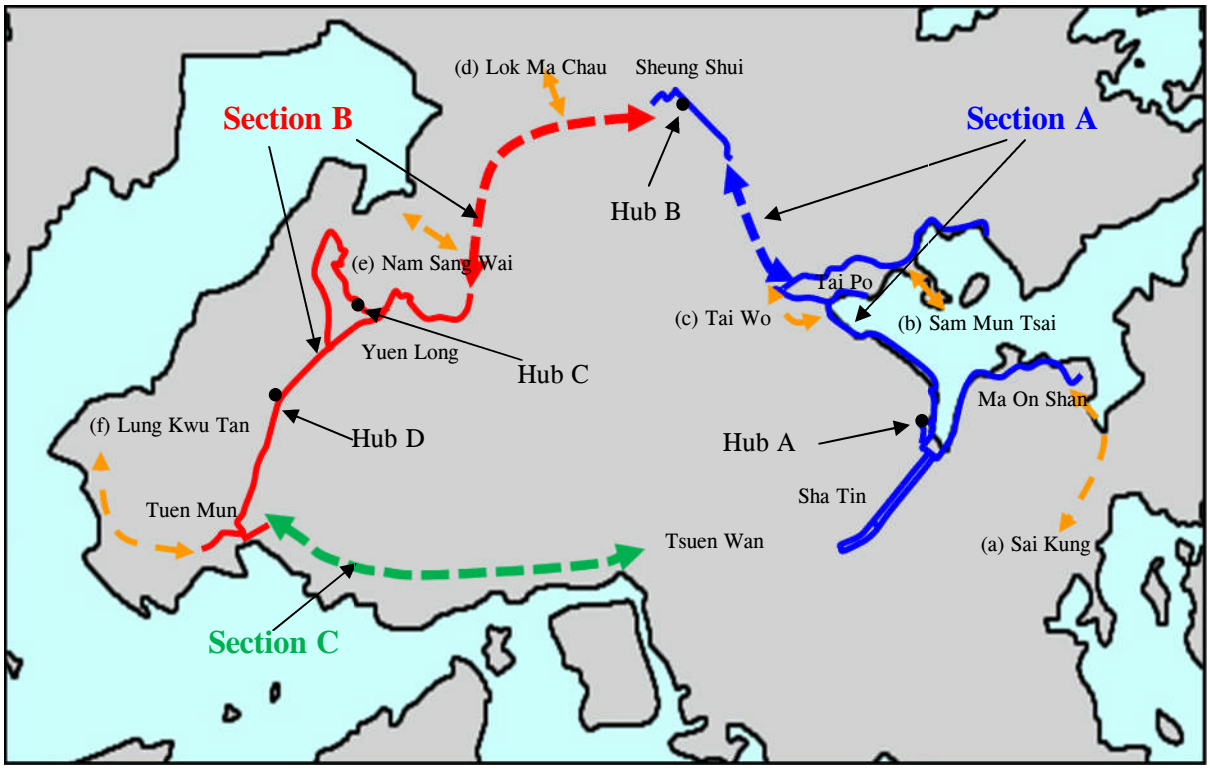
(b) Sheung Shui to Tuen Mun (Section B under Project B): construction would commence in August 2010 and be completed by July 2013;

(c) Tuen Mun to Tsuen Wan (Section C under Project C): investigation, preliminary design and construction would commence in stages from 2011 onwards and be completed from 2013 onwards; and

(d) six branching-off sections (Section D under Project D): investigation, preliminary design and construction would be planned in stages from 2011 onwards and be completed from 2014 onwards.

Figure 1

Proposed NT Cycle-track Network
(April 2009)



Source: *CEDD records*

Remark 1: *Dotted lines in the Figure denote proposed new cycle tracks, while solid lines denote existing cycle tracks.*

Remark 2: *The ← - - → lines denote six new branching-off sections under Project D, as follows:*

(a) Sai Kung Section;

(b) Sam Mun Tsai Section;

(c) Tai Wo Section;

(d) Lok Ma Chau Section;

(e) Nam Sang Wai Section; and

(f) Lung Kwu Tan Section.

Remark 3: *Cycle rental and repair kiosks, cycle parking spaces, route maps, information boards, first-aid stations and toilets would be provided at Cycle Hubs A, B, C and D.*

1.7 From June 2009 to July 2013, LegCo Finance Committee (FC) had approved funding totalling $553.9 million (see Table 4 in para. 2.8) for Projects A, B and C. As of August 2014:

(a) following the substantial completion of new cycle-track works, Section A had been fully open for public use since March 2014;

(b) Section B Stage 1 works (see para. 2.6(a)) were in progress and were targeted for completion in end 2016. The DEVB had not sought funding from the FC for Section B Stage 2 works (see para. 2.6(b));

(c) for Section C works, the DEVB had sought funding from the FC for the detailed design and site investigation of advance works and Stage 1 works (see para. 2.7(a) and (b)), and alignment review of Stage 2 works (see para. 2.7(c)), but not for the related construction works; and

(d) the CEDD was reviewing in consultation with the DEVB the way forward for implementing four of the six branching-off sections under Project D (see para. 2.10(h)).

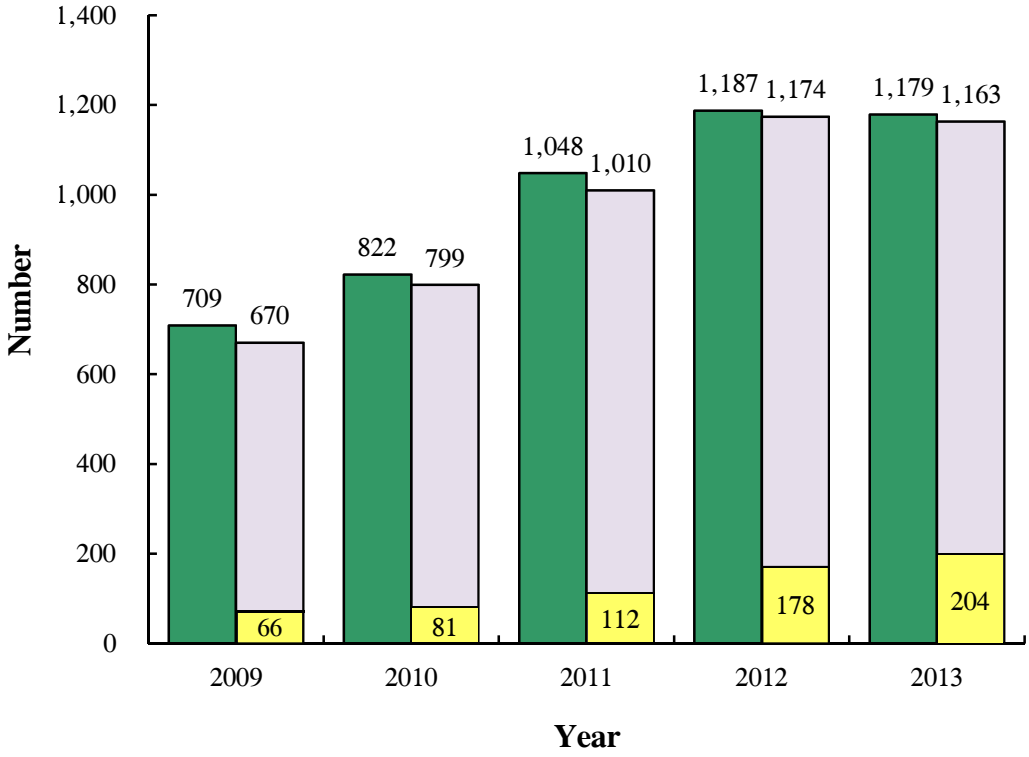
Cycling accidents

1.8 ***Cycling accidents on cycle tracks.*** Figure 2 shows the number of accidents involving bicycles and cyclists on cycle tracks from 2009 to 2013. During the five-year period, the annual number of accidents along cycle tracks had increased from 709 to 1,179 (a 66% increase) and that of cyclist casualties from 670 to 1,163 (a 74% increase). Furthermore, the number of cyclists suffering serious injury (Note 4) or death arising from cycling accidents on cycle tracks had also increased from 66 to 204 (a 209% increase) during the period.

Note 4: *A serious injury is one suffered by a person who is admitted to hospital as an in-patient for more than twelve hours after an incident, or one suffered by a person who dies resulting from an incident 30 or more days after the incident.*

Figure 2

Accidents involving bicycles and cyclists on cycle tracks (2009 to 2013)



Legend: Number of cycling accidents
Number of cyclist casualties
Number of serious injuries or deaths

Source: *TD records*

Remarks: *There were 726 cycling accidents from January to August 2014. According to the TD, about 90% of the related cyclists were slightly injured in the accidents, and 60% of the accidents were non-collision related, such as cyclists losing balance while cycling.*

1.9 ***Cycling accidents in Hong Kong.*** According to the TD:

(a) as a result of increasing cycling activities, the total number of cycling accidents in Hong Kong had increased in recent years, as follows:

Year	Number of cycling accidents
2009	1,793
2010	1,914
2011	2,348
2012	2,582
2013	2,549

(b) even though the number of cycling accidents along cycle tracks causing casualties had increased in recent years, the rising trend had become more or less levelled off after 2011 (see Figure 2). Furthermore, the 726 cycling accidents on cycle tracks in the first eight months of 2014 were less than the 749 cycling accidents in the corresponding period in 2013;

(c) the increase in the number of seriously injured cyclists on cycle tracks from 2009 to 2013 might have been attributable to more cyclists using the tracks. However, the 114 seriously injured cyclists in the first eight months of 2014 were less than the 135 such casualties in the same period of 2013; and

(d) the number of cyclists who died resulting from accidents occurring on cycle tracks was:

Year	Number of deaths
2008	3
2009	2
2010	1
2011	1
2012	2
2013	0
2014 (up to August)	0

The fatality was mainly attributed to careless cycling (either by cyclists themselves or other cyclists involved in the accidents) and loss of control of bicycles.

1.10 With a view to enhancing cycling safety, the TD has taken actions to improve the design of cycle tracks and related facilities. Furthermore, the Road Safety Council (Note 5) has made efforts to promote and educate cyclists on cycling safety. The HKPF has also taken enforcement actions against cyclists not complying with pertinent laws under the Road Traffic Ordinance.

Audit review

1.11 Cycling is a popular recreational activity in Hong Kong and many cyclists ride on cycle tracks both on weekdays and weekends. The cyclists have a demand for cycle-track facilities. With a view to enhancing the recreational value of cycle tracks and improving the quality of living of the public, the Administration informed LegCo Panel on Development in May 2008 of its plan to commence construction of the NT Cycle-track Network in phases. However, as of August 2014, only cycle-track works for Section A had been completed.

1.12 In view of the long time taken in only partially implementing the Network, the Audit Commission (Audit) has recently conducted a review of the provision and management of cycle tracks in the NT with a view to identifying areas for improvement. The review focuses on the following areas:

(a) implementation of the NT Cycle-track Network (PART 2);

(b) works-contract management (PART 3); and

(c) traffic management and maintenance of cycle tracks (PART 4).

Note 5: *The Council is chaired by a Deputy Commissioner of Police with nine members from various B/Ds and seven members from non-governmental organisations. Its main role is to coordinate actions by relevant B/Ds and organisations for improving road safety.*

1.13 In this Audit Report, Audit has found that there are areas where improvements can be made by the Administration in implementing the NT Cycle-track Network and in the traffic management and maintenance of cycle tracks to enhance cycling safety, and has made a number of recommendations to address the issues.

Acknowledgement

1.14 Audit would like to acknowledge with gratitude the full cooperation of the staff of the relevant B/Ds (including the THB, the DEVB, the CEDD, the TD and the HyD) during the course of the audit review.

PART 2: IMPLEMENTATION OF NT CYCLE-TRACK NETWORK

2.1 This PART examines the implementation of the NT Cycle-track Network.

Proposed Network

2.2 The planning and implementation of the NT Cycle-track Network under the Public Works Programme involve three key stages, namely preliminary stage, design and investigation stage, and implementation stage (see Appendix B). From November 2002 to June 2006, the CEDD commissioned a consultant at a consultancy fee of $4.1 million to conduct a feasibility study of developing a continuous cycle-track network in the NT. The study took into account the recreational value, environmental impacts, ease of implementation and costs of different cycle tracks.

2.3 In May 2008, based on the findings of the consultancy study, the DEVB informed LegCo Panel on Development that:

(a) access to some popular cycling spots in the NT was not convenient due to inadequate provision of public transport services;

(b) some supporting facilities provided along existing cycle tracks were inadequate to meet the increasing demand and higher expectation for a quality city life;

(c) there had been strong aspiration for linking the existing cycle tracks together to form a continuous cycle-track network; and

(d) the Government had planned to provide a continuous east-west backbone of cycle-track network in the NT in stages by implementing the NT Cycle-track Network (see Table 1).

Table 1

Proposed NT Cycle-track Network implementation programme (May 2008)

Section	Length	Type	Expected commencement date	Expected completion date
Ma On Shan via Sheung Shui to Tuen Mun	60 km	Both new and existing cycle tracks	Mid-2009	Early 2012
Tuen Mun to Tsuen Wan	22 km	A new cycle track	2011 (for suitable standalone sections)	In stages from 2013 onwards
Six branching-off sections (Note)	30 km	New cycle tracks	Not specified	Mid-2011 (for straightforward sections)

Source: CEDD records

Note: The six branching-off sections comprised Sai Kung Section, Sam Mun Tsai Section, Tai Wo Section, Lok Ma Chau Section, Nam Sang Wai Section and Lung Kwu Tan Section.

2.4 In April 2009, in seeking support for funding of $230.3 million for implementing the first stage of the Network (for the cycle-track section between Ma On Shan and Sheung Shui), the DEVB informed LegCo Panel on Development that, for implementing the Network in stages, some revisions (see Table 2) had been made to the implementation programme of the proposed Network reported to the Panel in May 2008 (see Table 1).

Table 2

Revised NT Cycle-track Network implementation programme (April 2009)

Section	Length	Type	Expected commencement date	Expected completion date
Ma On Shan to Sheung Shui **(Section A)**	30 km	Both new and existing cycle tracks	September 2009	July 2012
Sheung Shui to Tuen Mun **(Section B)**	30 km	Both new and existing cycle tracks	August 2010	July 2013
Tuen Mun to Tsuen Wan **(Section C)**	22 km	A new cycle track	In stages from 2011 onwards	From 2013 onwards
Six branching-off sections (**Section D**)	30 km	New cycle tracks	From 2011 onwards	From 2014 onwards

Source: CEDD records

In June 2009, in seeking the FC's funding approval of $230.3 million for commencing works for Section A, the CEDD also informed the FC that Section A was expected to be completed by July 2012.

Network implementation

2.5 Between September 2006 and July 2012, the CEDD employed four consultants under five consultancy agreements to carry out investigation, design and construction supervision of the NT Cycle-track Network (see Table 3).

Table 3

Consultancies for implementing the Network
(September 2006 to July 2012)

Date	Consultant	Consultancy	Work	Consultancy fee ($ million)
September 2006	A	A	Investigation, design and construction supervision of Sections A and B	7.0
June 2008	B	B	Investigation of three branching-off sections, namely Sai Kung Section, Nam Sang Wai Section and Lung Kwu Tan Section	4.5
August 2008	C	C	Investigation, design and construction supervision of the remaining three branching-off sections, namely Tai Wo Section, Sam Mun Tsai Section and Lok Ma Chau Section	0.8
September 2008	D	D	Investigation of Section C	8.8
July 2012	D	E	Detailed design of advance works and Stage 1 works, and alignment review of Stage 2 works of Section C	16.0
			Total	37.1

Source: CEDD records

Note: Funding for Consultancies A to D was provided under block allocations of the Capital Works Reserve Fund and that for Consultancy E under a project vote for implementing Section C.

2.6 In 2011, Section B works were subdivided into the following two stages:

(a) Stage 1: implementing improvement works at selected existing cycle-track sections between Yuen Long and Tuen Mun, and constructing a new cycle-track section each in Sheung Shui and Yuen Long; and

(b) Stage 2: constructing a new cycle track between Sheung Shui and Yuen Long.

2.7 In the same year, Section C works were also subdivided into the following three stages:

(a) Advance works: constructing a new cycle track cum footpath of 2.3 km from Tsing Tsuen Bridge to Bayview Garden;

(b) Stage 1: constructing a new cycle track cum footpath of about 4.5 km from Bayview Garden to Ting Kau; and

(c) Stage 2: constructing a new cycle track cum footpath of about 15.2 km from Ting Kau to Tuen Mun.

2.8 The design and construction of Sections A, B, C, and D were carried out under four capital works projects, namely Projects A, B, C and D. Between June 2009 and July 2013, the FC had approved funding totalling $553.9 million for the investigation, design and construction works of Project A, works of Project B Stage 1 and parts of the works of Project C (see Table 4). As of August 2014, the Administration had not yet sought funding from the FC for the construction works of Section B Stage 2, Section C and Section D.

Table 4

FC funding approvals
(June 2009 to July 2013)

Date	Project	Works	Amount ($ million)
June 2009	A	Construction works of Section A	230.3
July 2013	B	Construction works of Section B Stage 1	295.4
April 2012	C	Detailed design and site investigation of advance works and Stage 1 works, and alignment review of Stage 2 works of Section C	28.2
		Total	553.9

Source: CEDD records

2.9 From May 2010 to November 2013, the CEDD had awarded three contracts (Contracts A1, A2 and B1) to three contractors for implementing works under Projects A and B (see Table 5). The estimated contract completion dates were September 2012, October 2012 and March 2016 respectively. Consultant A was the Engineer responsible for supervising the works carried out under Contracts A1, A2 and B1.

Table 5

Contracts A1, A2 and B1
(May 2010 to November 2013)

Contract	Project (Section)	Works	Commencement date	Original contract completion date	Original contract sum ($ million)
A1	Project A (Section A)	Construction of a new cycle-track section (of 5 km) between Tai Po and Fanling Construction of 4 rest stations Improvement works at selected existing cycle track sections (of 550 m) in Tai Po and Sheung Shui	May 2010	September 2012	138.9
A2	Project A (Section A)	Construction of 2 cycle hubs (Hubs A and B) with ancillary facilities	June 2011	October 2012	27.1
B1	Project B (Section B Stage 1)	Construction of a new cycle-track section (of 1.5 km) in Sheung Shui and another one (of 1 km) in Yuen Long Construction of 2 cycle hubs (Hubs C and D) and 5 rest stations Improvement works at selected existing cycle-track sections (of 3.8 km) between Yuen Long and Tuen Mun	November 2013	March 2016	193.9

Source: CEDD records

Network implementation progress as of August 2014

2.10 Major works of Contract A2 were certified substantially completed in November 2013 and cycle-track sections of Section A were fully open for public use in March 2014. As of August 2014:

Section A

(a) the Engineer had certified the completion of all new cycle track works under Contract A1 but there were some outstanding works under the contract yet to be certified completed by the Engineer;

(b) the up-to-date expenditure of Contract A1 was $144.5 million (104% of the original contract sum of $138.9 million — see Appendix C);

(c) the up-to-date expenditure of Contract A2 was $39.8 million (147% of the original contract sum of $27.1 million (Note 6) — see Appendix C);

Section B

(d) Section B Stage 1 works under Contract B1 were in progress;

(e) an amendment scheme for Section B Stage 2 works (see para. 2.6(b)) would be gazetted in late September 2014 (Note 7);

(f) according to the CEDD, it planned to seek funding from LegCo for Section B Stage 2 works in the second quarter of 2015 for completion in 2019;

Note 6: *The contract-cost increase was mainly attributable to the construction of a public toilet installed with a biological treatment plant and sewerage system costing $8 million, which was an initiative in response to public requests.*

Note 7: *The scheme was gazetted on 19 September 2014.*

Section C

(g) Section C was at the planning and design stage and Consultant D was reviewing the cycle track alignment. The CEDD had obtained funding from the FC for the detailed design and site investigation of advance works and Stage 1 works, and alignment review of Stage 2 works. According to the CEDD, funding for each stage of construction works would be separately sought after completion of the related detailed design; and

Section D

(h) in April 2013, the CEDD informed LegCo Panel on Development that the Lok Ma Chau Section would be implemented under the Lok Ma Chau Loop Development Project (Note 8). According to the CEDD, there were serious physical and environmental constraints for constructing four of the six branching-off sections (see Table 6).

Of the total 112 km of the proposed NT Cycle-track Network, 70 km (63%) would be new cycle-track sections and the remaining 42 km (37%) existing sections.

Note 8: *In his Policy Address of 2007, the Chief Executive announced the development of Lok Ma Chau Loop as one of the ten major infrastructure projects.*

Table 6

Major constraints for constructing four branching-off sections
(August 2014)

Branching-off section	Constraint
Nam Sang Wai Section (9.2 km)	The Environmental Protection Department and green groups had expressed concerns that the number of visitors to the ecologically sensitive area would increase upon completion of the cycle-track section. Furthermore, the proposed construction of a cycle bridge over Shan Pui River would have serious ecological impacts on the surrounding area.
Sai Kung Section (7 km)	Some green groups had expressed concerns about the felling of 1,600 trees along Sai Sha Road for constructing the cycle-track section. There were also physical constraints due to steep gradients at some road sections and close proximity of the proposed cycle track to some local houses. There would also be significant visual impact due to the proposed construction of a cycle bridge over Tai Mong Tsai Road roundabout.
Lung Kwu Tan Section (4.2 km)	The existing road reserve should be kept for potential future road widening works. Furthermore, the gradient of some road sections might be too steep for cycling.
Tai Wo Section (0.7 km)	The pertinent District Council did not agree with the works because there were local objections on using the existing greening area for the purpose.

Source: *CEDD records*

Remarks: *As of August 2014, the CEDD had consulted Sai Kung North Rural Committee and Tai Po District Council regarding the proposed abandonment of constructing Sai Kung Section. According to the CEDD, it would proceed to consult the concerned parties after completing a review of the way forward for the other three branching-off sections.*

Areas for improvement

Time target for completing NT Cycle-track Network not met

2.11 In October 2007, the Government pledged to the public in the 2007-08 Policy Agenda that it would expedite capital works projects for improving the quality of living of the public, including the development of comprehensive cycle tracks in the NT (see para. 1.5). In May 2008, the DEVB informed LegCo Panel on Development that, in view of the strong aspiration for linking the existing cycle tracks to form a continuous cycle-track network, the Government had planned to implement the NT Cycle-track Network in phases, and expected that the works would commence in mid-2009 for completion in stages from mid-2011 onwards. However, the implementation progress indicates that the time target for completing the Network could not be met (see Table 7).

Table 7

Time for completing NT Cycle-track Network
(August 2014)

Section	Commencement date		Completion date	
	Planned in April 2009	**Actual/ Revised**	**Planned in April 2009**	**Actual/ Revised**
Section A	September 2009	May 2010	July 2012	March 2014 (20 months behind schedule)
Section B Stage 1	August 2010	November 2013	July 2013	March 2016 (Note 1)
Section B Stage 2		Second quarter of 2015		2019
Section C	In stages from 2011 onwards	(Note 2)	From 2013 onwards	(Note 2)
Section D	From 2011 onwards	(Note 2)	From 2014 onwards	(Note 2)

Source: CEDD records

Note 1: Section B Stage 1 works included some ancillary improvement works, such as planting of trees along the cycle-track sections, which were targeted for completion by May 2017.

Note 2: As of August 2014, the CEDD had not set revised commencement and completion dates for Sections C and D.

2.12 Table 7 shows that Section A had not been completed on schedule with a slippage of 20 months and there would be significant slippages in completing Section B. Furthermore, as of August 2014, there was still no timeframe for implementing Section C works and Section D works. It is not known as to when the Government's announced plan in May 2008 of completing a continuous cycle-track network from Ma On Shan to Tsuen Wan and six branching-off sections could be realised.

2.13 The DEVB and the CEDD need to draw lessons in implementing similar networks in future. They need to make every endeavour to ensure that a publicly announced public-works programme is implemented according to the announced timeframe and scope as far as possible. Subject to funding allocations and approvals, they also need to expedite actions to implement works for Section B Stage 2, Sections C and D, and closely monitor Section B Stage 1 works to ensure that they are completed on schedule.

2.14 According to the CEDD, the Administration's plan to implement the branching-off sections announced in 2008 had been based on a preliminary feasibility study which had taken into account the recreational value, environmental impacts, ease of implementation and costs (see para. 2.2). However, after conducting in-depth assessments and noting the public concerns, the CEDD found that there were serious environmental problems, safety concerns and physical constraints for related works implementation. The CEDD would still need to consult the stakeholders on when some of the branching-off sections could be implemented. In Audit's view, when making public announcements of proposed public works in future, the CEDD needs to inform the public if the proposed works are subject to environmental and technical difficulties.

2.15 Audit also noted that, in seeking funding from the FC for implementing Section B works in June 2013, the DEVB had informed the FC of the revised commencement and completion dates of Sections A and B. However, up to August 2014, the DEVB had not informed LegCo that the timeframe for completing the NT Cycle-track Network provided to the LegCo Panel on Development in April 2009 could not be attained, and timeframe for completing the whole Network, including those for Sections C and D had not yet been set. For public accountability purposes, the DEVB needs to keep LegCo informed of significant changes and developments of the Network.

Overall cost information for project implementation not provided

2.16 Audit noted that, when informing LegCo Panel on Development of the proposed implementation of the NT Cycle-track Network and seeking funding from the FC for implementing the related works projects, the DEVB and the CEDD had not provided the Panel and the FC with the estimated cost of completing the whole Network. While Audit agrees that at times a large capital works programme needs to be implemented in stages over time, such as the NT Cycle-track Network, the responsible B/Ds need to make a best estimate of the overall cost of the programme and, where practicable, provide LegCo with such information. The overall cost information will help stakeholders assess the cost-effectiveness of the whole programme, and is useful for the Government to plan its resource allocation for implementing the programme.

Audit recommendations

2.17 **Audit has *recommended* that the Director of Civil Engineering and Development, in collaboration with the Secretary for Development, should:**

Time target for completing NT Cycle-track Network not met

(a) **endeavour to ensure that a publicly announced public-works programme is implemented according to the committed timeframe and scope as far as possible;**

(b) **subject to funding allocations and approvals, expedite actions to implement works for Section B Stage 2, Section C and Section D;**

(c) **closely monitor Section B Stage 1 works to ensure that they are completed on schedule;**

(d) **when making public announcements of proposed public works in future, inform the public if the works are subject to environmental and technical difficulties;**

(e) **inform LegCo Panel on Development that the timeframe for completing the NT Cycle-track Network provided to the Panel in April 2009 cannot be attained, and the Administration has not decided on a revised timeframe for completing the whole Network, including those for Sections C and D; and**

Overall cost information for project implementation not provided

(f) **when seeking funding from the FC for implementing a works programme in stages in future, inform the FC as far as practicable of the estimated cost of the whole programme.**

Response from the Administration

2.18 The Director of Civil Engineering and Development agrees with the audit recommendations. He has said that:

(a) the Government has always made efforts to implement a project according to the publicly announced programme and scope; and

(b) adherence to the announced programme of a project is subject to various uncertainties. In announcing implementation of similar projects at early stages in future, more information such as scope of works, tentative programmes and possible programming risks will be provided to the public as far as possible.

2.19 The Secretary for Development also agrees with the audit recommendations. He has said that:

(a) actions are in hand to seek funding approval for the works of Section B Stage 2. The scope and programme of works for Sections C and D are under review and subject to the outcome of public consultation. The progress of these works is being closely monitored;

(b) the DEVB and the CEDD are closely monitoring Section B Stage 1 works with a view to ensuring that they will be completed on schedule;

(c) in announcing implementation of projects at early stages in future, more information on possible risks and uncertainties associated with environmental, technical and other difficulties that may affect the project scope, programme and costs will be provided to the public as far as possible;

(d) the DEVB and the CEDD reported the progress and revised programme of different sections of the NT Cycle-track Network to LegCo Panel on Development on 28 April 2009, 19 December 2011 and 23 April 2013. The DEVB and the CEDD will further update the Panel on the latest progress and programme for the Network at appropriate time; and

(e) the DEVB and the CEDD will provide the FC with latest estimated overall cost of works projects when seeking funding approval in future. However, the cost estimation at the early stage of a project is bound to be preliminary and subject to various risks and uncertainties.

PART 3: WORKS-CONTRACT MANAGEMENT

3.1 This PART examines the CEDD's management of Contracts A1 and A2 for implementing Section A works and Contract B1 for implementing Section B Stage 1 works, focusing on the following audit issues:

(a) tendering of Contracts A1, A2 and B1 (paras. 3.2 to 3.21);

(b) implementation of cycle-track improvement works (paras. 3.22 to 3.38);

(c) provision of cycle-hub facilities (paras. 3.39 to 3.46); and

(d) general works-contract management (paras. 3.47 to 3.50).

Tendering of Contracts A1, A2 and B1

Contract A1 for cycle-track works

3.2 In September 2006, the CEDD appointed Consultant A under Consultancy A to carry out investigation, design and construction supervision for Sections A and B (see Table 3 in para. 2.5). Under the Consultancy, Consultant A was responsible for carrying out the detailed design, preparing drawings, specifications and tender documents, assessing tenders received and administering Contracts A1, A2 and B1 works. In July 2009, the CEDD received six tenders in response to a tender invitation for Contract A1 (a remeasurement contract), of which only two (Tenders I and II) were conforming ones. Between the two conforming tenders, Tender I price was the lowest. The other four tenders were found to be non-conforming because they did not include a required design on works to be carried out on some private land lots which would be resumed after contract commencement. After examining Consultant A's tender evaluation report, the CEDD found that the quantities of some items in the Bills of Quantities (BQ — Note 9) of the tender document were incorrect (see Table 8).

Note 9: *The BQ contains estimated quantities of various works items. A tenderer needs to provide a tender price for each of the relevant BQ items. Under a remeasurement contract, the costs of works are based on the actual quantities of works done and the unit prices of different works items as stated in the BQ of the contract.*

Table 8

BQ items in tender for Contract A1
(May 2009)

BQ item	Incorrect excavation BQ quantity stated in tender (a) (m^3)	Correct excavation BQ quantity (b) (m^3)	Tender I	
			BQ rate (c) ($/$m^3$)	BQ amount (d) = (a) × (c) ($)
Item A (Note 1)	10,490	1,880	21	220,290
Item B (Note 2)	100 250 (Note 3)	860 7,400	8,233 7,600 (Note 3)	823,300 1,900,000

Source: CEDD records

Note 1: Item A works comprised "Excavation for foundations — maximum depth not exceeding 3 m" for three locations.

Note 2: Item B works comprised "Excavation for foundations — maximum depth exceeding 3 m but not exceeding 6 m" for the same three locations relating to Item A.

Note 3: Tenderer I submitted a rate of $8,233/$m^3$ for 100 m^3 of excavation at one location and $7,600/$m^3$ for 250 m^3 of excavation at another two locations.

3.3 In addition, the CEDD also found two missing items in the BQ, involving total estimated quantity of 5,440 m^3 of "Excavation for foundations — maximum depth exceeding 6 m but not exceeding 9 m" (collectively referred to as Item C). The CEDD noted that Tender I's rates of $7,600/$m^3$ and $8,233/$m^3$ for Item B were 330 and 358 times higher than the pre-tender estimated rate of $23/$m^3$. If the BQ quantities of Items A and B had not been corrected and the outturn quantities had been 1,880 m^3 and 8,260 m^3 (860 m^3 + 7,400 m^3) respectively, the payment for these two items of work would have been $60 million (Note 10) higher than Tenderer I's

Note 10: *(860 m^3 − 100 m^3) × $8,233/$m^3$ + (7,400 m^3 − 250 m^3) × $7,600/$m^3$ − (10,490 m^3 − 1,880 m^3) × $21/$m^3$ = $60,416,270.*

BQ sum for these two items. In November 2009, after rectifying the BQ quantities of Items A, B and C and with the approval of the Central Tender Board (CTB — Note 11), the CEDD invited Tenderers I and II to re-submit tender rates for Items A, B and C.

3.4 According to the CEDD, of the Approved Project Estimate (APE) of $230.3 million of Project A (see Table 4 in para. 2.8), $176.8 million and $34.3 million were allocated for Contracts A1 and A2 respectively, with the remaining $19.2 million for meeting contingency expenditures. Nevertheless, the CEDD found that the re-submitted tenders of Tenderers I and II both exceeded the APE allocation of $176.8 million and the pre-tender estimate of $174.4 million of Contract A1. In addition, the CEDD noted from the non-conforming tenders that the Government might obtain a lower tender price by conducting retendering. In December 2009, on the advice of the CTB, the Permanent Secretary for Financial Services and the Treasury (Treasury) approved cancellation of the tender of Contract A1 in the public interest.

3.5 In February 2010, the CEDD conducted retendering of Contract A1. In the revised tender document, the original requirement of submitting a design on works to be carried out on some private land lots was removed (see para. 3.2). In April 2010, the CEDD received 16 tenders, all of which were conforming ones. In May 2010, the CEDD awarded Contract A1 at a sum of $138.9 million to Contractor A1 (Note 12) who submitted the lowest tender. The contract works commenced in the same month, after taking additional nine months for conducting retendering of the contract.

Note 11: *The CTB was chaired by the Permanent Secretary for Financial Services and the Treasury (Treasury) and comprised four members to consider tender matters and make recommendation on acceptance of tenders.*

Note 12: *Contractor A1 originally submitted a non-conforming tender in July 2009 (see para. 3.2).*

Contract A2 for cycle-hub works

3.6 In December 2010, the CEDD invited tenders for Contract A2. In the tender BQ, the CEDD included some items of proprietary products (Note 13) and materials (mainly related to toilet facilities) and required tenderers to submit rates for the items. According to the tender document, after contract award, subject to the agreement of Consultant A, the successful tenderer might adopt alternative products or materials having equivalent functions and performance, but savings from using the alternative products or materials would be deducted from the contract sum. Furthermore, tenderers were required to make a submission (Submission A) acknowledging their understanding of the above-mentioned arrangements.

3.7 In January 2011, the CEDD received 14 tenders, of which 10 were conforming ones. The other four tenders were found to be non-conforming because they did not make Submission A. The CEDD found that the lowest conforming tender sum, while lower than the APE allocation of $34.3 million, was higher than the pre-tender estimate of $26.5 million. The CEDD also found that a saving of $6 million to $7 million could be achieved by using some alternative products instead of the proprietary products stated in the BQ.

3.8 In March 2011, in seeking approval to retender Contract A2, the CEDD informed the Public Works Tender Board (Note 14) that:

(a) a significant proportion of works (about 40% in value) under Contract A2 were building works, which, upon completion, would be handed over to the FEHD and the LCSD for management and the Architectural Services Department (ArchSD) for maintenance;

Note 13: *A proprietary product is a product sold under a brand name owned by a company, instead of under a generic name.*

Note 14: *The Board, chaired by the Deputy Director of Architectural Services and comprising two members, considered and decided on the acceptance of tenders of works not exceeding $30 million and other related matters.*

(b) at the design stage, the design of the toilets, details of the building services and sanitary materials were required to be presented to the FEHD Vetting Committee for approval. In addition, alterations of materials and products for the toilets, kiosks, landscaping features and outdoor facilities were also required to be submitted to the Design Advisory Panel of the ArchSD for comments. Most of these approved proprietary products and materials were very unique in nature in terms of their design and outlook. As it would be difficult to provide functional specifications with sufficiently precise way of describing these products, proprietary brand names were therefore used in the specifications in the original tender documents;

(c) at the time of preparing the tender documents, the CEDD made reference to a contract condition adopted by the ArchSD in its building works contracts, which required tenderers to price specified products during the tender stage and to consider adopting alternative products and materials, if any, after the award of the contract; and

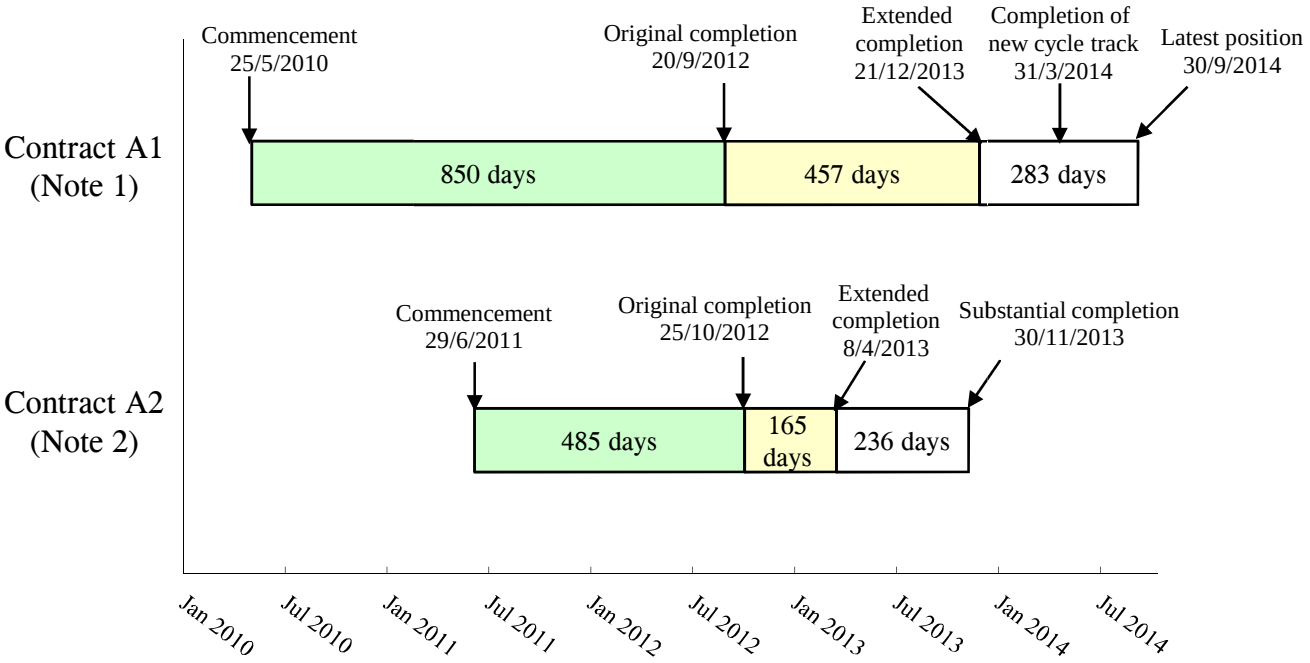
(d) tenderers who normally submitted tenders for civil works contracts were not familiar with the contract condition in (c) for building works.

3.9 With the approval of the Public Works Tender Board, the CEDD conducted retendering of Contract A2. In the revised BQ included in the re-tender document for Contract A2, tenderers were given an option to submit rates based on alternative products or materials having equivalent functions and performance. In May 2011, the CEDD received 10 tenders, of which 9 were conforming ones. In June 2011, the CEDD awarded Contract A2 at a sum of $27.1 million to Contractor A2 who submitted the lowest tender. The contract works commenced in the same month.

3.10 In November 2013, Consultant A certified the substantial completion of major works of Contract A2. Nevertheless, as of August 2014, while the new cycle tracks of Section A had been certified completed and fully open for public use in March 2014, some outstanding works were yet to be completed (see Figure 3).

Figure 3

Time of completing Contracts A1 and A2
(May 2010 to September 2014)



Original contract period

Extended contract period after granting of Extension of Time (EOT)

Source: *CEDD records*

Note 1: *As of September 2014, EOT of 457 days (mainly due to inclement weather, water-main bursts and work restrictions at related rivers and streams during the wet season) had been granted to Contractor A1, and the completion date had been extended to 21 December 2013. The EOT assessment and the contract account had not yet been finalised, and the approved completion date and payment to Contractor A1 might be further adjusted.*

Note 2: *As of September 2014, EOT of 165 days (mainly due to inclement weather and some additional works) had been granted to Contractor A2, and the completion date had been extended to 8 April 2013. The EOT assessment and the contract account had not been finalised, and the approved completion date and payment to Contractor A2 might be further adjusted.*

Areas for improvement

Errors in preparing BQ for Contracts A1 and B1

3.11 As shown in Table 8 in paragraph 3.2, significant errors had been made in preparing the BQ for the original tender for Contract A1. In the event, the CEDD had to conduct retendering and additional nine months were involved in the process. If the errors had not been identified during the tender assessment, the Government might have incurred nugatory expenditure of $60 million for the contract (see para. 3.3).

3.12 In September 2013, in examining the 12 tenders (all were conforming ones) received for Contract B1 (see para. 2.9), the CEDD again found significant errors in the quantities of some items in the BQ.

3.13 In October 2013, after rectifying the errors in the BQ for Contract B1, the CEDD conducted tender negotiation with the 12 tenderers and requested them to submit new rates for the revised quantities of the related BQ items. Subsequently, the CEDD awarded Contract B1 at a sum of $193.9 million to Contractor B1 who submitted the lowest tender (Contractor B1 had also submitted the lowest tender before the tender negotiation). Audit estimated that, if the BQ errors had not been identified, the Government might have incurred nugatory expenditure of $12 million for the contract.

3.14 In October 2013, the CEDD set up a Task Group to review the practice of its consultants and Development Offices (Note 15) in preparing and checking tender BQ items for Contracts B1 and another contract (Note 16), and to formulate improvement measures with a view to avoiding recurrence of similar incidents in future. In April 2014, the CEDD submitted a review report to the DEVB with the following recommendations:

Improvement measures to be carried out by consultants

(a) improving work procedures to prepare BQ items and quantities properly, and conducting checking of BQ quantities with reference to design drawings, assumptions and methodologies adopted;

(b) conducting independent checking of cost-significant BQ items, with the results properly documented for CEDD reference;

(c) developing a standard checklist for typical types of BQ items in different major categories of works;

(d) enhancing training to staff to reduce human errors in the preparation and checking of BQ;

Improvement measures to be carried out by CEDD Development Offices

(e) if resources permitted, conducting spot-checks of quantities of selected cost-significant items, and preferably on other non-cost-significant items after the BQ had been prepared by the consultant. Such spot checks should be properly documented; and

(f) for in-house managed contracts, passing the above recommendations to the relevant Divisions for their consideration if such measures had not been implemented in their contracts.

Note 15: *The CEDD has four Development Offices, namely Hong Kong Island and Islands, Kowloon, NT East and NT West Development Offices.*

Note 16: *This was an infrastructural works contract. During tender assessment, the CEDD also discovered significant under-estimated quantities for two BQ items in the tender. The CEDD conducted tender negotiation with the conforming tenderers after making rectifications to the errors.*

3.15 In May 2014, the DEVB agreed in principle to the findings and recommendations of the CEDD's review report. The DEVB further informed the CEDD that consultants' performance should be more tightly controlled and duly reflected in the existing appraisal mechanism. In Audit's view, the CEDD Task Group's recommendations would help strengthen controls over accuracy of BQ items. Therefore, the CEDD needs to take early actions to promulgate and implement the recommendations. Furthermore, some of the enhanced measures might also help other B/Ds in conducting tender exercises. Hence, the DEVB needs to promulgate these measures to other B/Ds.

Proprietary products leading to higher tender prices for Contract A2

3.16 According to the Stores and Procurement Regulations, tender specifications should be framed to encourage open and fair competition, and should not include any features which could be perceived as discriminatory because it is specific to a trademark or trade name, patent, copyright, design, type, origin, producer, supplier or brand of product. According to the CEDD, following the arrangement adopted by the ArchSD for building works contracts, it included some proprietary products in the BQ of the original tender for Contract A2. In the event, the outturn BQ rates were found to be much higher than the rates for alternative items having similar functions and performance. Under the original tender, while the successful tenderer might propose the adoption of alternative products after contract award, he might not have the incentive to do so because any resulting savings would be deducted from the final contract sum. Subsequently, in conducting retendering of Contract A2, the CEDD revised the tender documents where tenderers were given an option to submit rates based on alternative products or materials having equivalent functions and performance. Moreover, the requirement to deduct from the final contract sum any saving arising from adopting alternative products was also removed from the revised tender. Eventually, the CEDD awarded Contract A2 at a lower contract price than the original lowest conforming tender price.

3.17 For Contract A2, additional three months were involved for conducting retendering. Moreover, tenderers were required to make additional efforts in preparing tenders twice. In Audit's view, the CEDD needs to provide flexibility for tenderers to propose cost-effective alternative products or materials to replace proprietary products or materials stated in the BQ of a tender in future.

Audit recommendations

3.18 **Audit has *recommended* that the Director of Civil Engineering and Development should:**

(a) **take early actions to implement the recommendations made by the CEDD Task Group for improving the preparation and checking of tender BQ items; and**

(b) **provide flexibility for tenderers to propose cost-effective alternative products or materials to replace proprietary products or materials stated in the BQ of a tender in future.**

3.19 **Audit has also *recommended* that the Secretary for Development should take actions to promulgate the recommendations of the CEDD Task Group on preparing and checking tender BQ items for adoption by relevant B/Ds.**

Response from the Administration

3.20 The Director of Civil Engineering and Development agrees with the audit recommendations in paragraph 3.18. He has said that:

(a) improvement measures mentioned in paragraph 3.14(a), (c) and (d) have been promulgated and implemented, whereas the improvement measures mentioned in paragraph 3.14(b), (e) and (f) will be promulgated as soon as possible; and

(b) the CEDD will draft contractual provisions to suit the nature and requirements of individual contracts. When drafting the contractual provisions, reference will also be made to the established arrangements of other government departments for similar types of works and the prevailing practices in relevant trades in the construction industry.

3.21 The Secretary for Development also agrees with the audit recommendation in paragraph 3.19. He has said that:

(a) remedial measures to deal with BQ errors have been prepared which will soon be included in a forthcoming DEVB Technical Circular (Works) to replace Environment, Transport and Works Bureau Technical Circular (Works) No. 7/2004; and

(b) preventive measures to deal with BQ errors are being reviewed for incorporation into Chapter 6 of the Project Administration Handbook for Civil Engineering Works in the forthcoming revision of the Handbook.

Implementation of cycle-track improvement works

3.22 All sections along the proposed NT Cycle-track Network are two-way tracks. According to the Transport Planning and Design Manual (TPDM — Note 17) issued by the TD, the minimum width of a two-way cycle track is 3.5 metres (m) and the desirable width of it is 4 m (these requirements have been stipulated since December 2001). As some of the existing cycle tracks along Sections A and B were narrower than 3.5 m, improvement works were specified in Contracts A1 and B1 for widening the pertinent sections.

Areas for improvement

Widening works not carried out on some narrow cycle-track sections

3.23 Contract A1 involved constructing a new cycle track of 5 km and carrying out improvement works on selected sections of the 25 km of existing cycle tracks of Section A from Ma On Shan to Sheung Shui. Of the 25 km (or 25,000 m) of existing cycle tracks, Consultant A found that 2,900 m (12% of 25,000 m) were narrower than 3.5 m.

Note 17: *The TPDM, first issued in March 1984 and periodically updated thereafter, provides information and guidance for the planning and design of transport infrastructures in Hong Kong.*

3.24 After conducting site inspections in March 2008, Consultant A found that some portions of some existing narrow cycle-track sections could not be widened to 3.5 m because the cycle-track widening works would:

(a) reduce the width of nearby footpaths to less than the minimum width of 1.6 m stated in the TPDM (Note 18); and

(b) affect substantial number of existing large trees.

3.25 Owing to site constraints, Consultant A only specified 550 m of cycle-track sections (19% of 2,900 m) in Contract A1 for carrying out improvement works. In other words, no improvement works were carried out on the remaining 2,350 m (81%) of the narrow sections of the cycle tracks.

3.26 From May to August 2014, Audit conducted site inspections along Section A. Audit found that some cycle-track sections narrower than 3.5 m might not be subject to site constraints for carrying out widening works (see Case 1).

Note 18: *According to the TPDM, for single track access roads in rural and urban fringe areas, the minimum width of a footpath is 1.6 m and the desirable minimum effective widths are from 2 m to 4.5 m depending on the type of the adjacent land use and pedestrian volume. In cases where a footpath in rural and urban fringe areas is obstructed by lamp posts and fire hydrants, an effective clear width of at least 1 m should be provided and the obstructions should be placed at the rear of the footpath. The TPDM also states that at all times a flexible approach should be adopted with a view to producing an economic design commensurate with safety and practical considerations.*

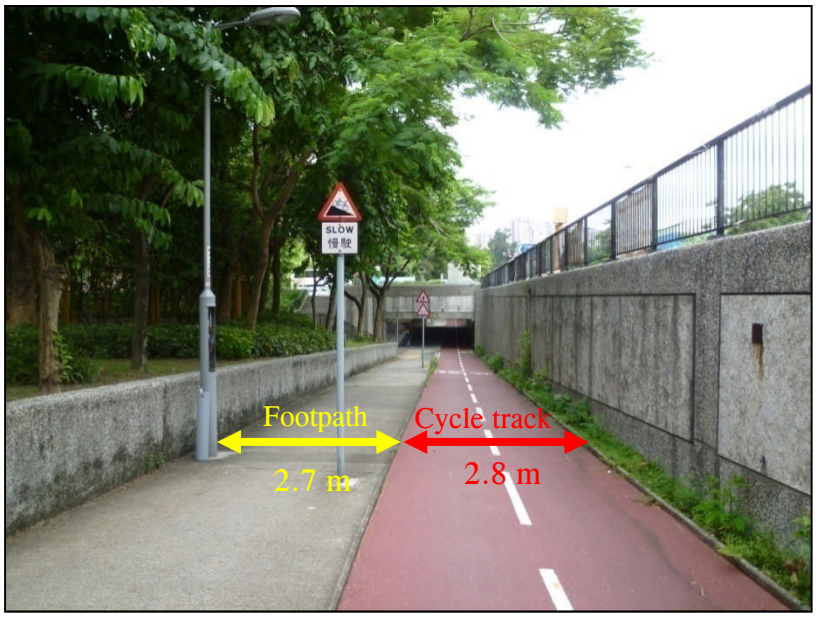
Case 1

1. A cycle-track section of 1,000 m parallel to Ting Kok Road near an industrial centre was of 2 m to 3 m wide. A section of 260 m of the 1,000 m of the cycle track was included in Contract A1 for widening works, and no widening works would be carried out for the remaining 740 m of the cycle track.

2. However, Audit noted that there was a footpath of 2.7 m to 3.5 m wide along the cycle track (see Photograph 1 for a section of the track). According to the TPDM, the minimum width and desirable minimum width of a footpath in the related area (Residential Zone 2) are 1.6 m and 2.75 m respectively.

Photograph 1

Cycle track parallel to Ting Kok Road near an industrial centre (August 2014)



Source: Photograph taken by Audit on 27 August 2014

3. ***Audit comments.*** In Audit's view, there is scope for widening some parts of the related narrow cycle-track sections.

3.27 In September 2014, the CEDD informed Audit that justifications for not including the cycle-track sections mentioned in paragraph 3.26 in the scope of improvement works had not been fully documented. The CEDD's recent review of the cycle-track sections revealed that, of the cycle-track section of 740 m (see para. 1 in Case 1) not having been included in Contract A1 for widening works:

(a) widening works for 540 m of the section could not be carried out because the works would reduce the width of the adjoining footpath near a residential zone to below the desirable minimum width, and would affect a substantial number of existing trees; and

(b) the feasibility of widening the remaining section of 200 m was subject to further detailed assessments and public consultation with the related parties.

3.28 Regarding Contract B1, it included constructing two new cycle tracks with a total length of 2.5 km and carrying out improvement works on selected sections of the 16.5 km of existing cycle tracks of Section B Stage 1 from Sheung Shui to Tuen Mun. Of the 16.5 km (or 16,500 m) of existing cycle tracks, Consultant A found that 6,230 m (38% of 16,500 m) were narrower than 3.5 m. On the grounds of site constraints and minimising impacts on the nearby environment, Consultant A only specified 3,635 m (58% of 6,230 m) of the cycle-track sections in Contract B1 for carrying out widening works. In other words, no widening works would be carried on the remaining 2,595 m (42%) of the cycle tracks. In addition, other improvement works were also carried out on 165 m of the cycle-track sections. However, Audit noted that, similar to Case 1, justifications for not carrying out widening works for some cycle-track sections narrower than 3.5 m under Contract B1 had not been documented.

3.29 Audit site inspections from May to August 2014 along Section B found that some cycle-track sections narrower than 3.5 m might not be subject to site constraints for carrying out widening works (see Case 2).

Case 2

1. A cycle-track section of 800 m parallel to Castle Peak Road near Long Lok Road was of 2.5 m to 3 m wide (see Photograph 2 for a section of the track). However, this cycle-track was not included in Contract B1 for widening works.

Photograph 2

Cycle track parallel to Castle Peak Road near Long Lok Road (July 2014)

Source: Photograph taken by Audit on 14 July 2014

2. Audit noted that there was a footpath of 3.5 m wide along the cycle track. As stated in the TPDM, the minimum width and desirable minimum width of a footpath in the related area (Residential Zone 2) are 1.6 m and 2.75 m respectively. According to the CEDD, one of the reasons for not carrying out widening works for this section was to minimise the impacts on the nearby environment.

3.30 In September 2014, the CEDD informed Audit that justifications for not including the cycle track section mentioned in paragraph 3.29 in the scope of improvement works had again not been fully documented. The CEDD's recent review of the cycle track section revealed that, of the cycle-track section of 800 m (see para. 1 in Case 2) not having been included in Contract B1 for widening works:

(a) a section of 300 m had been temporarily demolished or blocked due to works relating to an adjacent property development project;

(b) another section of 250 m was temporarily fenced off due to a road improvement project being carried out in the vicinity by the HyD; and

(c) there were planned property developments adjoining the remaining cycle-track section of 250 m.

3.31 In December 2007, the TD informed the CEDD that the proposed NT Cycle-track Network should be coherent, direct, safe and attractive, and any substandard sections should not be included in the proposed Network. In response, the CEDD informed the TD that the Network would be designed in accordance with the TPDM, and cycle-track sections with a width of a bit less than 3.5 m at some spots would be justified if there were site constraints, such as limited spaces and existence of old valuable trees.

3.32 In September 2014, the TD informed Audit that:

(a) the minimum width of a cycle track stipulated in the TPDM was to provide a guideline for the design of cycle tracks under normal circumstances. The guideline was subject to professional judgment to suit prevailing conditions, such as cycle flow, road configuration, local views and other site constraints; and

(b) in the case of a relatively wide footpath cum narrow cycle track, it was not a definite requirement to convert part of the footpath into part of a cycle track by reducing the width of the footpath for the purpose of fulfilling the minimum cycle-track width requirement. The minimum width itself should not be interpreted as a threshold value below which the cycle track would be unsafe.

3.33 According to the TPDM, the minimum width of a two-way cycle track is 3.5 m. In Audit's view, the CEDD needs to review the feasibility of widening the related cycle-track sections as far as possible. Furthermore, the CEDD needs to take measures to ensure that justifications for adjusting the scope of a project are properly documented in future. Moreover, the TD should consider taking measures at appropriate locations to alert cyclists to ride more carefully along narrow cycle-track sections.

Long time taken in completing Contract A1 works

3.34 As of August 2014, almost two years after the original scheduled completion date of September 2012, despite that the new cycle track of Section A had been open for public use since March 2014, there were still some outstanding works, including the construction of two rest stations and improvement of some existing cycle tracks. According to the CEDD, the long time taken to complete Contract A1 was mainly due to inclement weather, a water-main burst incident and other work restrictions. In Audit's view, with a view to minimising the delay already caused to the completion of the works, the CEDD needs to strengthen actions to ensure that the works are completed as early as possible.

Audit recommendations

3.35 **Audit has *recommended* that the Director of Civil Engineering and Development should:**

(a) **review the feasibility of widening the cycle-track sections with a width of less than 3.5 m along Sections A and B as far as possible;**

(b) **take measures to ensure that justifications for adjusting the scope of a project are properly documented in future; and**

(c) **strengthen actions to ensure that Contract A1 works are completed as early as possible.**

3.36 **Audit has also *recommended* that the Commissioner for Transport should consider taking measures at appropriate locations where warranted to alert cyclists to ride more carefully along narrow cycle-track sections.**

Response from the Administration

3.37 The Director of Civil Engineering and Development agrees with the audit recommendations in paragraph 3.35.

3.38 The Commissioner for Transport also agrees with the audit recommendation in paragraph 3.36.

Provision of cycle-hub facilities

3.39 Under Contract A2, Contractor A2 was responsible for constructing two cycle hubs (Hubs A and B) with ancillary facilities along Section A which would be handed over to the following B/Ds for management:

Ancillary facilities at Hubs A and B	Managing B/D
(a) Bicycle practising areas, gathering places, bicycle-rental kiosks, pavilions, information boards, first-aid stations	LCSD
(b) Public toilets	FEHD
(c) Cycle-parking spaces	TD (Note 19)

3.40 In order that facilities at Hubs A and B would be open for public use at the same time of the opening of Section A, the contract completion dates of Contract A1 (for cycle-track works) and Contract A2 (for cycle-hub works) were set in September and October 2012 respectively (see Figure 3 in para. 3.10). In the event, the new cycle track of Section A was open for public use in March 2014. Regarding Contract A2, the cycle parking spaces at Hub A were open for public use in July 2012, and major works of Contract A2 were certified substantially completed in November 2013.

Note 19: *According to the TD, it is only responsible for traffic management at cycle-parking spaces.*

Areas for improvement

Delay in providing cycle-hub facilities for public use

3.41 In April 2014, the LCSD invited tenders for providing bicycle-rental services at Hubs A and B. According to the CEDD, it needed to complete some additional works and some defect rectification works requested by the related B/Ds before handing over the cycle-hub facilities to the managing B/Ds (see para. 3.39). In Audit's view, it was unsatisfactory that essential cycle facilities including bicycle-rental kiosks, first-aid stations and public toilets had not been provided for use by cyclists since opening of Section A in March 2014. The lack of bicycle-rental kiosks may have impeded cyclists without bicycles from using the completed cycle tracks, first-aid stations affected the provision of timely medical care to needy persons, and public toilets affected provision of essential facilities required by cyclists.

3.42 According to Contract A2, Contractor A2 needed to complete outstanding works and rectify defects within 365 days after substantial completion of works in November 2013. Otherwise, the CEDD may take actions to complete the outstanding works and rectify defects and recover the costs from Contractor A2. In Audit's view, the CEDD needs to take actions to ensure that all outstanding works and defects are timely completed and rectified as early as possible.

3.43 In September 2014, the CEDD informed Audit that:

(a) since July 2013, the CEDD had been closely liaising with the LCSD, the FEHD and the TD on arranging handing over the related facilities at the two cycle hubs along Section A. The CEDD was striving to complete all works (including some additional works such as barrier-free access requested by the LCSD and some defect-rectification works requested by the FEHD for the purpose of enhancing the operation, maintenance and management of their facilities) and arrange handing over the completed works to the related B/Ds before the scheduled opening of the bicycle-rental kiosks in December 2014; and

(b) there was no requirement from the relevant B/Ds that the cycle tracks under Contract A1 and cycle hubs under Contract A2 should be open at the same time. The contract completion dates were different at the outset. Moreover, while the cycle track could be open for public use as soon as the works were completed, additional time was required for awarding the service contracts for the bicycle-rental kiosks.

3.44 Audit noted that the original target completion date of Contract A1 was September 2012 and that of Contract A2 was October 2012. In Audit's view, if the target completion date of Contract A2 had been set several months earlier than that of Contract A1, the situation that some of the essential cycle facilities were not available, including bicycle-rental kiosks, first-aid stations and public toilets, after the opening of Section A could have been avoided. Audit considers that the CEDD needs to draw lessons in this incident that essential related public services should be timely provided upon opening of public facilities for public use.

Audit recommendations

3.45 **Audit has *recommended* that the Director of Civil Engineering and Development should:**

(a) **take actions to ensure that all outstanding works and defects under Contract A2 are timely completed and rectified as early as possible; and**

(b) **in implementing a public-facilities project in future, in collaboration with the related B/Ds, take measures to ensure that essential related public services are timely provided upon opening of the facilities for public use.**

Response from the Administration

3.46 The Director of Civil Engineering and Development agrees with the audit recommendations.

General works-contract management

3.47 In recent audit reviews on government works projects, Audit also found that errors were sometimes made by consultants in the tender BQ, some of which had resulted in additional costs to the Government. There were also incidents where consultants' substandard work in works design and supervision of works implementation had resulted in substantial contract claims.

3.48 Under the present system for engaging consultants and managing their work, a B/D may issue an adverse performance report to a consultant who is found having unsatisfactory performance, and he may be suspended from bidding new agreements of the same category of works for a certain period of time after receiving some consecutive adverse performance reports. The consultant's past performance will be taken into account in future tender exercises. In view of the many errors found in the tender BQ prepared by consultants and their substandard design and supervision work, Audit considers that the present system for engaging and managing consultants' work may not be totally effective. Therefore, the DEVB needs to conduct a review of the system with a view to identifying better mechanisms for minimising errors made by consultants, and making them more accountable for their work.

Audit recommendation

3.49 **Audit has *recommended* that the Secretary for Development should conduct a review of the system for engaging consultants and managing their work with a view to identifying better mechanisms for minimising errors made by consultants, and making them more accountable for their work.**

Response from the Administration

3.50 The Secretary for Development agrees with the audit recommendation. He has said that:

(a) the recommendation aligns with the current practice of the DEVB of seeking continuous improvement to the consultancy procurement and management system. Under the present system, any errors of consultants should be duly reflected in the consultants' performance reports and managing departments would exercise professional judgment on regulatory actions against poorly performed consultants. There are standard consultancy agreement provisions requiring poorly performed consultants to indemnify the Government against any loss;

(b) the DEVB has promulgated DEVB Technical Circular (Works) No. 1/2014 with more emphases on innovation, creativity, cost effectiveness and design quality in the consultants' performance management and selection system. In addition, the enhanced measures in the forthcoming revision of Project Administration Handbook for Civil Engineering Works will require consultants to establish internal procedures for checking the BQ, which will need to be approved by the related project offices of the works departments. The new requirement in the Handbook will help facilitate works departments in taking regulatory action against consultants, and thus making consultants more accountable for their work;

(c) the DEVB will continue to carry out reviews and improvement to the existing system to ensure that the performance of consultants will meet the required standards and be accountable for any substandard work; and

(d) regarding the audit observations in paragraphs 3.11 to 3.13, the existing mechanism to locate items of exceptionally high or low tendered rates is so far effective in capturing problematic BQ items when a tenderer submits abnormal or erratic prices for the items. By properly assessing the risks therein and mitigating those significant ones by necessary post-tender negotiations, the Government has not incurred additional costs in the cases concerned.

PART 4: TRAFFIC MANAGEMENT AND MAINTENANCE OF CYCLE TRACKS

4.1 This PART examines the traffic management of cycle tracks by the TD and the maintenance of cycle tracks by the HyD, focusing on the following audit issues:

(a) measures on enhancing cycling safety (paras. 4.2 to 4.21);

(b) designation of cycle-dismount zones (paras. 4.22 to 4.36); and

(c) maintenance of cycle tracks (paras. 4.37 to 4.47).

Measures on enhancing cycling safety

2010 General Study and associated additional services

4.2 Over the years, the TD has made efforts to enhance cycling safety in Hong Kong. In May 2010, the TD appointed a consultant (Consultant F) under a consultancy (Consultancy F) to conduct a traffic and transport study on cycling networks and parking facilities in nine new towns in Hong Kong (2010 General Study — Note 20). One of the major tasks was to identify common deficiencies of existing cycle-track networks within the nine new towns and recommend generic (i.e. non-site specific) improvement measures.

Note 20: *The nine new towns were Sha Tin (including Ma On Shan), Tai Po, Fanling (including Sheung Shui), Tin Shui Wai, Tseung Kwan O, Tsuen Wan, Tuen Mun, Tung Chung and Yuen Long.*

4.3 In July 2011, the TD instructed Consultant F to conduct the following tasks (Note 21) as an additional service under the 2010 General Study:

(a) identifying and reviewing accident-prone sites along Sha Tin and Tai Po cycle tracks, and designing improvement measures at these sites; and

(b) proposing a pilot scheme to evaluate the effectiveness of recommended new improvement measures (see Category 2 measures in Table 9 in para. 4.6).

4.4 In the event, based on cycling-related accident data (Note 22), Consultant F identified 20 accident-prone sites (see Appendix D) and proposed conducting a pilot scheme in Tai Po (Tai Po Pilot Scheme). For the 20 accident-prone sites, the TD accepted Consultant F's proposals to implement improvement measures in two phases by HyD term contractors, as follows:

(a) Phase 1 works involving conventional measures, including repainting cycle-track markings, erecting appropriate traffic signs, replacing related steel bollards with plastic bollards and widening/realigning existing cycle tracks, would be implemented at 16 sites at an estimated cost of $2.5 million. The works were targeted to commence in June 2012 and for completion by April 2014; and

(b) Phase 2 works involving new measures were subject to evaluation of the measures tested under the Tai Po Pilot Scheme. Such new measures included installing plastic bollards at sharp bends to segregate two-way traffic and applying new cycle-track markings which would be implemented at 14 sites at an estimated cost of $1.5 million. The works would commence at a later stage upon the completion of the Tai Po Pilot Scheme and subject to the outcome of the evaluation of the effectiveness of the new measures.

Note 21: *The additional service also included conducting an observation survey on cyclists wearing safety helmets, reviewing problematic sites, and proposing improvement schemes and strategic implementation plans.*

Note 22: *The data were related to about 1,600 cycling accidents occurring on cycle tracks in Sha Tin and Tai Po from 2008 to 2010.*

4.5 In May 2012, the TD further extended the service under 2010 General Study and instructed Consultant F to evaluate new improvement measures tested under the Tai Po Pilot Scheme before implementing such measures under Phase 2 works for the accident-prone sites. Work under the Tai Po Pilot Scheme was originally targeted for completion by May 2013, and the evaluation of improvement measures under the Scheme were targeted for completion by March 2014. The total consultancy fee for the 2010 General Study including the two associated additional services (see paras. 4.3 and 4.5) was $1.37 million.

2010 General Study recommendations

4.6 In March 2013, Consultant F substantially completed the 2010 General Study and recommended, inter alia, the implementation of 17 improvement measures on safety, connectivity and traffic management of cycle tracks (see Table 9). The TD has endorsed the 17 improvement measures.

Table 9

Cycle-track improvement measures recommended in 2010 General Study

Recommended improvement measure
Category 1: Measures without further study/testing required, subject to site constraint
(a) Enhancement of steep ramp, sharp bend, visibility, traditional steel bollards, obstacles along cycle tracks, inadequate width for a long section, insufficient lighting
(b) Provision of railings to segregate cycle tracks and footpaths
(c) Provision of more directional signage
(d) Enhancement of cycle-track continuity at bus stops and Light Rail Transit stops subject to space availability
(e) Enhancement of training and promotion activities
(f) Standardisation of cycle-track colours
(g) Increase in regular cycle-track inspections
(h) Improvement in traffic signs
(i) Provision of more cycling practicing areas
Category 2: Measures subject to pilot test and evaluation, including Tai Po Pilot Scheme
(j) Enhancement of steep ramp, sharp bend and visibility
(k) Yellow colour surface of cycle tracks at hazardous/conflicting locations
(l) Improvements to cycle-track intersections for enhancing connectivity
(m) Provision of planter beds and shrubs to separate cycle tracks from footpaths
Category 3: Measures subject to further studies
(n) Adoption of new paving materials and road markings
(o) Replacing cycle-dismount traffic signs by words
(p) Provision of supporting facilities along trunk cycle-track networks
(q) Provision of cycle crossings at signal-controlled junctions

Source: Audit analysis of TD records

4.7 Consultant F also recommended that, as Category 1 improvement measures did not require a further study and testing and they were of low implementation difficulty, they should be implemented within a short period of time.

4.8 In August 2014, the TD informed Audit that:

(a) in considering whether, when and how to follow up the measures recommended by Consultant F, the Government needed to carefully and holistically consider various factors, including the prevailing policy, public sentiments, resources and works priority. Related locations having safety concerns and involving less complicated works would be accorded higher priority for implementing the measures;

(b) for works-related measures, the TD had adopted Category 1 measures in Table 9 as appropriate in the daily maintenance works. For Category 2 measures, they would be followed up in the 2013 Site Study taking into account the evaluation results of the Tai Po Pilot Scheme. For Category 3 measures, the TD needed to carefully consider the benefits that might be achieved prior to their implementation; and

(c) for non-works-related measures, some would require consultations with other B/Ds, and some would require legislative amendments before taking forward these measures.

2013 Site Study

4.9 In October 2013, after conducting an open tendering exercise, the TD appointed Consultant F under Consultancy G at a fee of $6.3 million to, based on the findings and recommendations of the 2010 General Study, conduct a study on specific sites for the practical implementation of improvement measures at existing cycle tracks and cycle parking facilities in new towns (2013 Site Study). Some of the main tasks of the 2013 Site Study, which were scheduled for completion in 2016, were to:

(a) identify sites along existing cycle tracks in nine new towns requiring improvements in terms of safety, connectivity and provision of parking facilities;

(b) review and design the implementation details in applying the improvement measures to each site identified in (a) above. The improvement measures included the new measures as recommended under the 2010 General Study, some of which had been tested under the Tai Po Pilot Scheme; and

(c) formulate a mechanism for prioritising and packaging the identified sites for short-term, medium-term and long-term implementation of improvement measures.

Areas for improvement

Slow progress in carrying out improvement measures at accident-prone sites

4.10 Since June 2012, the TD had requested the HyD to carry out Phase 1 improvement works at 16 accident-prone sites in Sha Tin and Tai Po for enhancing cycling safety, including repainting cycle-track markings and replacing related steel bollards with plastic ones (see para. 4.4(a) and Appendix D). In the event, improvement works for 15 sites had been completed from September 2012 to July 2014 and those for the remaining site would be completed by December 2014. According to the target completion dates stated in the TD's works requests sent to the HyD, the works for nine sites had been/would be completed later than the target completion dates, with the works for four sites having been/likely be completed ten months or more after the scheduled completion dates (see Table 10).

Table 10

Works completion at four sites

Site	Target completion date	Actual/Planned completion date	Delay (Month)
(a) Junction of Sha Tin Rural Committee Road and Yuen Wo Road (Item 1 at Appendix D)	31/12/2012	31/7/2014	19
(b) Shing Mun River Cycle Track near Hang Tai Road (Item 7 at Appendix D)	30/11/2012	18/10/2013	10
(c) Lion Rock Tunnel Road (near Tai Chung Kiu Road) (Item 19 at Appendix D)	15/3/2013	21/1/2014	10
(d) Tolo Highway Cycle Track near Sui Cheung Street Roundabout (Item 20 at Appendix D)	31/3/2013	31/12/2014	21

Source: Records of TD and HyD

4.11 According to the HyD, for item (d) in Table 10, owing to the time required for finalising the related temporary traffic arrangements, the target completion date has been extended to December 2014, 21 months later than the original target completion date.

4.12 In October 2014, the HyD informed Audit that:

(a) the HyD and the TD held regular meetings to discuss the programme of all works requests taking into consideration the relative urgency and site constraints. Updated commencement and completion dates had been set for application of funding (within the HyD) for the works; and

(b) the HyD had made constant monitoring of the works progress based on updated commencement and completion dates. According to the updated commencement and completion dates of the works items (see (a) above),

other than works for three accident-prone sites (Items 9, 19 and 20 at Appendix D), works for 13 of the 16 accident-prone sites had been completed either on schedule or within two weeks after the updated completion dates. Regarding the works at a site not having been completed (see Item 20 at Appendix D), the works involved removal of trees and the HyD had taken much time to convince the related authorities for alignment diversions of the associated utility services. The works were anticipated to complete in end 2014 which would meet the updated completion target.

4.13 In Audit's view, with a view to improving cycling safety at the accident-prone sites, the HyD needs to take measures to ensure that the cycle-track improvement works are completed on schedule as far as possible.

Progress in implementing Phase 2 works affected by delay in completing Tai Po Pilot Scheme

4.14 Regarding the implementation of Phase 2 works including installation of bollards for segregating the two-way traffic and applying new cycle-track markings at 14 accident-prone sites (see para. 4.4(b) and Appendix D), the works would be implemented upon the completion of evaluation of measures tested under the Tai Po Pilot Scheme, which was originally scheduled for completion in March 2014. However, according to the TD:

(a) the completion of the Tai Po Pilot Scheme and the evaluation of the related improvement measures had been extended to December 2014 (Note 23), due to various site issues which were beyond the TD's control (e.g. the need to conduct tree surveys before commencement of works); and

(b) the process could not be compressed to shorten the delay because the evaluation could only be made after individual improvement measures had been put in place for at least three months.

Note 23: *Owing to site constraint, the evaluation of the provision of a double-deck parking facility under the Tai Po Pilot Scheme would not be completed in December 2014.*

In Audit's view, in order that further improvement works at related accident-prone sites under Phase 2 works could be carried out as early as possible, which would help enhance cycling safety at these locations, the TD needs to expedite action to implement Phase 2 improvement works at the accident-prone sites where applicable after evaluation of the measures implemented under the Tai Po Pilot Scheme.

Follow-up action on regular cycle-track-safety inspections

4.15 In November 2011, the TD set up a Task Force on Promotion of Cycling Safety (Note 24), and the main objectives were to propose, advise and formulate improvement measures focusing on quick-win and short-term measures to enhance cycling safety and to monitor the implementation of improvement works. At its first meeting in November 2011, the TD reported to the Task Force that it planned to carry out, among others, the following tasks:

(a) exploring the feasibility of conducting on-site safety inspections along cycle tracks in future with a view to identifying areas with accident risks for improvement; and

(b) carrying out a pilot cycle-track-safety inspection, including compiling a cycle-track-safety inspection checklist for use in inspections in future.

4.16 In December 2012, a TD inspection team completed a pilot cycle-track-safety inspection in Tuen Mun. In the safety-inspection report, the TD inspection team:

(a) compiled a proposed cycle-track-safety checklist;

(b) proposed that regular safety inspections could follow the procedures as identified from the pilot cycle-track-safety inspection exercise with a view to upkeeping the safety condition of cycle tracks, which would cover site inspections of the physical conditions, and adequacy of appropriate traffic signs and road markings; and

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Note 24: *The Task Force was chaired by the Assistant Commissioner/Technical Service of the TD, and comprised representatives of the TD, the HyD and the HKPF as members.*

(c) suggested that safety inspections on a cycle track section be conducted by TD regional offices once every 12 to 24 months.

4.17 In December 2012, the Task Force on Promotion of Cycling Safety was disbanded. Audit noted that, as of August 2014, there was no TD record indicating that the TD had made decisions on whether to proceed with the regular safety inspections mentioned in the Task Force's plan (see para. 4.15(a)) and the TD inspection team's recommendation (see para. 4.16(c)). In September and October 2014, the TD informed Audit that:

(a) the safety-inspection report mentioned in paragraph 4.16 (covering findings on technical aspects but not resource implications of the proposals) was prepared for internal deliberation; and

(b) there were actually deliberations within the TD and it was concluded that the proposed regular inspections would be too resource demanding and, to a certain extent, the effort would duplicate the TD's daily tasks. For this reason, the proposal of conducting regular safety inspections on cycle tracks had not been pursued further.

In Audit's view, the TD needs to put on record its decision taken on the way forward for not conducting periodical cycle-track-safety inspections by its regional offices.

Audit recommendations

4.18 **Audit has *recommended* that the Commissioner for Transport should:**

(a) **expedite action to implement Phase 2 improvement works at the accident-prone sites in Sha Tin and Tai Po where applicable after evaluation of the measures implemented under the Tai Po Pilot Scheme; and**

(b) **put on record TD decision made on the way forward for not conducting periodical cycle-track-safety inspections by its regional offices.**

4.19 **Audit has also *recommended* that the Director of Highways should take measures to ensure that improvement works at accident-prone sites are completed on schedule as far as possible.**

Response from the Administration

4.20 The Commissioner for Transport agrees with the audit recommendations in paragraph 4.18. She has said that:

(a) the TD will closely monitor the work progress in order to complete the Tai Po Pilot Scheme as early as possible. Subject to the outcome of the evaluations of the improvement measures, Phase 2 improvement works at the accident-prone sites in Sha Tin and Tai Po will be reviewed and revised as necessary for the HyD's early implementation; and

(b) the TD agrees that the decision not to conduct periodical cycle-track-safety inspections by its regional offices and the reasons supporting this decision should be documented.

4.21 The Director of Highways also agrees with the audit recommendation in paragraph 4.19. He has said that the HyD has been taking all reasonable measures to complete the improvement works at accident-prone sites on schedule as far as possible, and the outstanding one is scheduled for completion in December 2014.

Designation of cycle-dismount zones

4.22 For the safety of cyclists and pedestrians, cyclists need to dismount at cycle-track locations with steep ramps and sharp bends, side-road crossings and vehicular entrances, and near bus stops. Under the Road Traffic (Traffic Control) Regulations:

(a) traffic sign of TS227 (see Figure 4 (a)) is a regulatory cycling restriction sign indicating that cycling is prohibited beyond the sign and cyclists must dismount and push their bicycles to proceed beyond the sign; and

(b) traffic sign of TS228 (see Figure 4 (b)) indicates the end of the cycling restriction in (a) above.

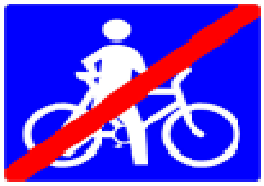
A cyclist may be prosecuted for failing to dismount at dismount zones and is liable to a maximum fine of $2,000 on conviction.

Figure 4

Regulatory traffic signs of TS227 and TS228

(a) TS227: Cyclist must dismount

(b) TS228: End of dismount zone



Source: TD records

4.23 Furthermore, the TD at times erects an advisory dismount sign of TS483 (see Figure 5 (a)) at cycle-track locations where it may be safer for cyclists to dismount and to push their bicycles, such as approaching a vehicular ingress/egress point and a narrow road section, and an advisory dismount sign of TS485 (see Figure 5 (b)) is erected for advising cyclists to dismount and not to ride their bicycles down steep roads.

Figure 5

Advisory traffic signs of TS483 and TS485

(a) TS483: Cyclist dismount sign

(b) TS485: Steep road warning sign

Source: TD records

Areas for improvement

Dismount signs causing confusion

4.24 In the 2010 General Study, Consultant F expressed a view that traffic signs of TS227 and TS228 were confusing as TS227 sign was commonly misinterpreted by cyclists as "Cycling is allowed" whereas TS228 sign as "Cycling is prohibited". Consultant F proposed conducting a further study on amending the legislation to replace the sign symbols by words, namely "Cyclist Dismount/騎單車者下車" for TS227 and "End of Cyclist Dismount Zone/下車管制區終止" for TS228. This proposal was one of the Category 3 improvement measures recommended by Consultant F (see item (o) in Table 9 of para. 4.6).

4.25 In September 2014, the TD informed Audit that enhancing education and publicity would increase public understanding of the meaning of the related signs. In Audit's view, to help prevent misinterpretation of traffic signs and enhance cycling safety, the TD needs to consider taking measures to enhance public understanding of the meaning of TS227 and TS228 signs.

Need for minimising regulatory dismount zones along cycle tracks

4.26 One of the tasks of the 2010 General Study and the 2013 Site Study was to identify sites requiring improvement in cycle track connectivity (see paras. 4.6 and 4.9). Audit noted that cyclists were required to frequently dismount along cycle tracks. For example, as of August 2014, there were 215 TS227 signs and 187 TS228 signs (Note 25) erected along the 45.6-km cycle track in Yuen Long. Of the 215 TS227 signs, 5 were erected at the end of cycle tracks where cyclists were normally required to dismount.

Note 25: *There are more TS227 signs than TS228 signs because, while a TS227 sign is erected at a location where a cycle-track section terminates, a TS228 sign sometimes is not required to be erected at another location where another cycle-track section begins.*

4.27 As the cycle tracks are two-way ones, a pair of TS227 or TS228 are normally erected at a location warranting the sign. Accordingly, cyclists needed to dismount around 105 times (Note 26) at dismount zones while riding along the 45.6-km track in Yuen Long. In other words, cyclists on average needed to dismount at a dismount zone once after riding every 0.4 km (45.6 km÷105) along Yuen Long cycle track.

4.28 In September 2014, the TD informed Audit that:

(a) regulatory signs of TS227 and TS228 were placed at locations where road safety could not be compromised; and

(b) dismount zones were set up at critical locations where potential hazards or conflicts between cyclists and other road users might exist. The focus should not be on cycling convenience at the possible expense of cycling safety.

4.29 In Audit's view, the fact that cyclists need to dismount so frequently along cycle tracks would disrupt their enjoyment of the cycling activity and diminish the recreational value of the cycle-track facilities. Therefore, the TD needs to consider taking measures, as far as possible and without compromising cycling safety, to minimise mandatory cycle dismount zones along existing cycle tracks and in planning new cycle tracks in future.

Cyclists not complying with dismount requirement

4.30 In September 2014, Audit site inspection on a cycle track section parallel to Yu Tung Road (from Lantau North Police Station to Yat Tung Estate) in Tung Chung found a dismount zone (Dismount Zone A — see Photograph 3).

Note 26: *(215 signs − 5 signs) ÷ 2 = 105 times (see para. 4.26).*

Photograph 3

Dismount Zone A along cycle track parallel to Yu Tung Road (September 2014)

Source: Photograph taken by Audit on 7 September 2014

4.31 Audit noted that:

(a) Dismount Zone A was located adjacent to two bus stops (for Bus No. 37P and 38X) on Yu Tung Road, and was provided for access of passengers using two nearby bus stops; and

(b) the two bus routes only provided services from 7:00 am to 8:32 am during weekdays and no services would be provided on Saturdays, Sundays and public holidays.

4.32 In September and October 2014, the TD informed Audit that:

(a) Dismount Zone A was situated between a bus stop and a housing estate, and there were cycle parking areas adjacent to the bus stop. Hence, there would be pedestrian/cyclist conflicts during the morning peak hours; and

(b) the cycling restriction was imposed with the intention to protect the safety of cyclists and pedestrians.

4.33 Audit noted that bus-passenger access at Dismount Zone A was only required for a short time (1 hour 32 minutes in a day) during weekdays. In September and October 2014, Audit conducted two surveys at Dismount Zone A to count the number of cyclists complying with the dismount-zone requirement there. The survey results are shown in Table 11.

Table 11

Audit survey at Dismount Zone A

Particular	Date and time of survey	
	7 September 2014 (Sunday) (3:30 p.m. to 4:30 p.m.)	**13 October 2014 (Monday) (7:30 a.m. to 8:30 a.m.)**
(a) Number of cyclists crossing the dismount zone with bicycles	92	119
(b) Number of cyclists walking across the dismount zone after dismounting from bicycles	0	0
(c) Number of cyclists riding cross the dismount zone without dismounting from bicycles (see Photograph 3)	92	119

Source: Audit survey

The survey results indicated that no cyclists complied with the requirement to dismount at Dismount Zone A. In Audit's view, the objective of providing a dismount zone at the site for enhancing public safety could not be achieved. Therefore, the TD, in collaboration with the HKPF, needs to conduct a review on the issue with a view to making improvement.

Audit recommendations

4.34 **Audit has *recommended* that the Commissioner for Transport should:**

(a) **consider taking measures to enhance public understanding of the meaning of TS227 and TS228 signs;**

(b) **consider taking measures, as far as possible and without compromising cycling safety, to minimise mandatory cycle dismount zones along existing cycle tracks and in planning new cycle tracks in future; and**

(c) **in collaboration with the Commissioner of Police, conduct a review of cyclists' compliance with the dismount requirement when crossing mandatory cycle dismount zones.**

Response from the Administration

4.35 The Commissioner for Transport agrees with the audit recommendations. She has said that:

(a) in constructing cycle tracks, the TD has provided comments to the works department on the design with a view to minimising cycle dismount zones. For existing cycle tracks, the prevailing cycle dismount zones are necessary at critical locations where there are apparent or potential conflicts among vehicles, cyclists and pedestrians, and are justified on traffic engineering and safety grounds. Cyclists using cycle tracks include novice cyclists, occasional cyclists and children. Nevertheless, when opportunities arise in future (e.g. in carrying out cycle-track improvements and nearby new developments or projects), the TD may review whether some mandatory dismount zones can be removed or replaced by advisory dismount zones; and

(b) non-compliance with traffic signs requiring cyclists to dismount is not a design flaw but an enforcement issue. The TD will work in collaboration with the HKPF on this issue.

4.36 The Commissioner of Police has said that, regarding the audit recommendation in paragraph 4.34(c):

(a) the HKPF fully supports improvements to cycling safety and will provide comments on proposals to improve cycling safety at mandatory dismount zones; and

(b) designation of dismount zones is not a policing issue. It requires an engineering solution and, if necessary, establishing physical barriers at dismount zones to ensure cyclists complying with the dismount requirements. The HKPF does not agree to any proposal that relies solely upon police enforcement to ensure cyclists' compliance with the dismount requirement.

Maintenance of cycle tracks

4.37 The HyD is the TD's works agent responsible for the maintenance of cycle tracks. The HyD appoints term contractors to carry out safety inspections and detailed inspections of cycle tracks, and carry out repairs and maintenance works to ensure that cycle tracks are kept in good and safe conditions. Furthermore, upon receiving public complaints or reports, the HyD also instructs its term contractors to conduct inspections and carry out necessary repair works. As of August 2014, the HyD had awarded three term contracts for the management and maintenance of roads and cycle tracks in three districts in the NT, namely: (a) Sha Tin, Sai Kung and Islands District; (b) Tai Po and North District; and (c) NT West District. The three contract periods ranged from four to six years.

4.38 Safety inspections are carried out once every three months (Note 27). As stated in HyD Road Inspection Manual and contract conditions, term contractors are required to place on record any defects (such as potholes) identified which may constitute imminent hazards. According to the contracts, the term contractors should repair such defects within 48 hours from identification.

Note 27: *For some major cycle track sections, safety inspections are conducted more frequently, either once every seven days or once every month.*

4.39 Detailed inspections are carried out once every six months. According to the Road Inspection Manual and contract conditions, term contractors are required to place on record any defects (such as defective surfaces, cracks, worn surfaces, depressions, and uneven surfacing) which are likely to require routine maintenance under the HyD's maintenance works programme, and any defects which may constitute imminent hazards.

4.40 If a cycle track section has deteriorated to an unsatisfactory condition, the HyD may propose to include the repavement works in the Capital Works Programme for carrying out the works. In 2013-14, the related expenditure amounted to $5 million.

Areas for improvement

Need for enhanced maintenance of cycle tracks

4.41 Audit conducted site inspections of cycle track sections in Tai Po in May 2014 and identified 10 defects in four locations (see Photographs 4 to 7 and Table 12). In July 2014, the HyD informed Audit that all the 10 defects identified by Audit would not cause imminent hazards to cyclists (see para. 4.38), and the last detailed inspections were carried out by the responsible term contractor in March 2014. The HyD's comments on each case are also shown in Table 12.

Photographs 4 to 7

Defects found in four cycle track locations in Tai Po (May 2014)

Photograph 4

Tai Mei Tuk section

Photograph 5

Ting Kok Road near Tai Po Industrial Estate

Photograph 6

Ting Kok Road near Kau Yan College

Photograph 7

Ting Kok Road near Tai Ping Industrial Estate

Source: Photographs taken by Audit on 26 May 2014

Table 12

Defects identified by Audit on cycle tracks in Tai Po (May 2014)

Location	No. of defect	Defect	Defect recorded in HyD contractor's detailed inspection report of March 2014	Target repair date
(a) Tai Mei Tuk section	1	Aging surface (see Photograph 4)	Not recorded	October 2014
(b) Ting Kok Road near Tai Po Industrial Estate	1	Pavement surface cracks (see Photograph 5)	Recorded	September 2014
(c) Ting Kok Road near Kau Yan College	1	Subsided pavement surface (see Photograph 6)	Not recorded	(Note 1)
(d) Ting Kok Road near Tai Ping Industrial Estate	7	Pavement surface cracks (see Photograph 7 for one of the defects)	All recorded	(Note 2)

Source: HyD records and Audit site inspection on 26 May 2014

Note 1: In May 2014, the HyD received a public complaint on the subsided surface in the vicinity and it arranged temporary patching up and fencing off of the area. In view of the fact that the defect was caused by water works carried out in the area, the defect had been referred to the Water Supplies Department for repair works.

Note 2: In July 2013, the HyD received a public complaint on the defects. The HyD originally planned to carry out related improvement works in December 2013. The proposed works were suspended due to the scheduled commencement of the CEDD's cycle-track widening works in the vicinity. In June 2014, the HyD completed temporary repair works to avoid further deterioration of the defects. Cycle-track widening works in the area would be carried out at a later stage.

4.42 In September and October 2014, the HyD informed Audit that:

(a) of the 10 defects shown in Table 12, the HyD's term contractor had omitted to include 1 defect (see Photograph 4) in his inspection report of March 2014;

(b) the defect at Ting Kok Road near Kau Yan College (see Photograph 6) did not exist at the time of the detailed inspection in March 2014, and therefore it could not have been recorded at that time; and

(c) the HyD had a comprehensive system in place to assess the performance of a contractor's road inspection works by conducting audit inspections on random samples. Measures such as deduction of contract payments and reflecting performance in contractor appraisal had been used to deter substandard performance.

4.43 Furthermore, in 2013, the HyD received 164 complaints relating to cycle tracks, of which 138 cases were handled by the HyD (Note 28). The HyD has adopted a performance pledge of completing repair works of potholes on a cycle track which would affect cycling safety within 48 hours after receipt of a related complaint. According to the HyD, only one of the 138 cases was pothole related and the repair works had been completed within 18 hours. Audit examination revealed that, as of June 2014, of the 138 complaint cases handled by the HyD:

(a) defects of 93 cases (67%) had been repaired within seven days from receipt of complaints;

(b) defects of 22 cases (16%) had been repaired from seven days to one month;

(c) defects of 12 cases (9%) had been repaired between one and six months;

(d) defects of 6 cases (4%) had been repaired between six and 14 months; and

Note 28: *The remaining 26 complaints were related to public utility companies and other works B/Ds which were responsible for the repair works.*

(e) defects of 5 cases (4%) had not been repaired pending approval of the related excavation-permit applications.

4.44 According to the HyD, the reasons for the long time taken in completing some of the repair works included:

(a) time was required for applying for excavation permits and liaising with relevant authorities and departments (such as the TD, the HKPF and utilities companies) on the detailed work arrangements and for tying in with the scheduled repaving works in the area for the purpose of achieving effective use of public money;

(b) some cases were complicated and complex, and some related procedures were outside the HyD's control; and

(c) for defects identified which would not cause imminent safety risks to cyclists, corresponding improvements would be included in the HyD's scheduled maintenance programme.

4.45 In Audit's view, defects along cycle tracks would cause nuisance and safety risks to cyclists and they should be repaired within a reasonable time. The HyD therefore needs to strengthen actions against term contractors who have not properly carried out inspections.

Audit recommendation

4.46 **Audit has *recommended* that the Director of Highways should strengthen actions against term contractors who have not properly carried out inspections.**

Response from the Administration

4.47 The Director of Highways agrees with the audit recommendation. He has said that:

(a) the HyD has a system in place to assess the performance of a contractor's road inspection works. It has closely monitored performance of the term contractors in this respect, and will continue to do so; and

(b) the HyD will continue to closely monitor the progress of works, and endeavor to rectify defects as early as possible even in cases of severe constraints.

Appendix A
(para. 1.2 refers)

Travel Characteristics Survey (2011)

According to the survey:

(a) 245,300 households (10.4% of the total 2,363,000 households) owned a total of 347,000 bicycles.

(b) 4,034,000 Hong Kong residents aged 15 and over knew how to cycle, of whom 535,000 residents (13%) had bicycles available for use.

(c) Of the 535,000 residents in (b), 150,000 (28%) and 225,000 (42%) residents had used their bicycles for recreational and leisure purposes on weekdays and weekends respectively in the past 3 months from the day of interview.

(d) Of the 535,000 residents in (b), 64,000 (12%) and 43,000 (8%) residents had used their bicycles for business, commuting or school trips on weekdays and weekends respectively in the past 3 months from the day of interview.

(e) Of the 4,034,000 residents in (b), 121,000 (3%) and 242,000 (6%) residents had rented a bicycle for recreational and leisure purposes on weekdays and weekends respectively in the past 3 months from the day of interview.

(f) 85% of the respondents who had cycled in the 3 months before interview usually cycled on cycle tracks while 15% on public roads.

Source: Audit analysis of TD records

Appendix B
(para. 2.2 refers)

Key stages of the Project

Preliminary stage	• Need for the project
	• Preliminary project appraisal
	  ➢ Project definition statement
	  ➢ Technical feasibility statement
	• Feasibility study

Design and investigation stage	• Resource allocation exercise • Environmental Protection Department's approval of Environmental Impact Assessment study report/Environmental Review Report • Detailed design and ground investigation • Cost estimation • Preparation of tender documents • Funding approval
Implementation stage	• Tendering • Contract award • Construction (mainly based on Engineer's design)

Source: Project Administration Handbook for Civil Engineering Works

Appendix C
(para. 2.10 refers)

Contract payments of Contracts A1 and A2 (August 2014)

Particulars	Contract A1 ($ million)	Contract A2 ($ million)
Contract works completed	125.8	38.5
Contract price fluctuation	16.0	1.3
Claim relating to late possession of works areas	2.7	—
Total	144.5	39.8

Source: CEDD records

Appendix D
(paras. 4.4, 4.10, 4.12(b) and 4.14 refer)

20 bicycle accident-prone sites along Sha Tin and Tai Po cycle tracks

	Location	Phase 1 works (see para. 4.4(a))	Phase 2 works (see para. 4.4(b))
1	Junction of Sha Tin Rural Committee Road and Yuen Wo Road	✓	✓
2	Shing Mun River near Banyan Bridge	✓	✓
3	Lion Rock Tunnel Road near Museum of Heritage	✓	✓
4	Junction of Ting Kok Road and Lo Fai Road	✓	—
5	A Kung Kok Street near Mui Tsz Lam Road	✓	✓
6	Ting Kok Road near Wong Yue Tan	✓	✓
7	Shing Mun River Cycle Track near Hang Tai Road	✓	✓
8	Junction of Nam Wan Road and Tai Po Tai Wo Road	—	—
9	Junction of Yuen Wo Road and Fo Tan Road	✓	✓
10	Lok King Street near Jubilee Garden	✓	—
11	Junction of Tate's Cairn Highway and Bridge across Shing Mun River	✓	✓
12	Kiu Ha Road near Vehicle Weighing Station	✓	✓
13	Footbridge near Ma On Shan Bypass, Hang On Estate	✓	✓
14	Tai Chung Kiu Road near Belair Garden	—	—
15	Pak Shek Kok Promenade near Science Park	—	✓
16	Lion Rock Tunnel Road (near Che Kung Temple Mass Transit Railway Station)	✓	✓
17	Che Kung Miu Road near Sha Tin Tau Road	—	—
18	Lion Rock Tunnel Road (near Shing Mun River)	✓	✓
19	Lion Rock Tunnel Road (near Tai Chung Kiu Road)	✓	✓
20	Tolo Highway Cycle Track near Sui Cheung Street Roundabout	✓	—

Source: Audit analysis of TD records

Appendix E

Acronyms and abbreviations

APE	Approved Project Estimate
ArchSD	Architectural Services Department
Audit	Audit Commission
BQ	Bills of Quantities
B/D	Government bureau/department
CEDD	Civil Engineering and Development Department
CTB	Central Tender Board
DEVB	Development Bureau
EOT	Extension of time
FC	Finance Committee
FEHD	Food and Environmental Hygiene Department
HKPF	Hong Kong Police Force
HyD	Highways Department
km	kilometre
LCSD	Leisure and Cultural Services Department
LegCo	Legislative Council
m	metre
m^3	cubic metre
NT	New Territories
TD	Transport Department
THB	Transport and Housing Bureau
TPDM	Transport Planning and Design Manual