

**For discussion  
on 26 May 2014**

**Legislative Council Panel on Transport**  
**Replacement of Area Traffic Control System  
for Tai Po and North Districts**

**PURPOSE**

This paper seeks Members' views on the proposal to replace the existing Area Traffic Control ("ATC") system in Tai Po and North ("TP&N") Districts.

**BACKGROUND**

2. The ATC system uses a central computer to coordinate the operations of on-street traffic signals on a regional basis. It aims at providing a series of green signals for vehicles passing through various signalised junctions, so as to achieve smooth traffic flow by minimising stops and delays of vehicles at traffic signals. The ATC system also allows operators in the traffic control centre to monitor and adjust the on-street traffic signals timing in real time having regard to the traffic conditions, particularly to alleviate traffic congestion arising from major traffic incidents. Currently, there are four<sup>1</sup> ATC systems for different parts of Hong Kong.

3. Development of the TP&N ATC system started in 2003 and the system was fully commissioned in 2005. At present, it controls 139

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<sup>1</sup> The four ATC systems are the Hong Kong ATC system; the Kowloon, Tsuen Wan, Sha Tin and Tseung Kwan O ATC system; the Tuen Mun and Yuen Long ATC system; and the Tai Po and North ATC system.

signalised junctions in the Tai Po, Fanling and Sheung Shui Districts. Drawings showing the signalised junctions under the TP&N ATC system are at the Annex.

## **PROPOSAL**

4. We propose to replace the ATC system for TP&N Districts at an estimated cost of \$32,200,000.

## **JUSTIFICATIONS**

5. Reliable operation of traffic signals is important not only for maintaining smooth traffic flow, but also for the safety of motorists and pedestrians. In order to maintain a smooth and efficient traffic flow in TP&N Districts, a reliable, effective and efficient ATC system for controlling the signalised junctions is essential. The existing ATC system for TP&N Districts, comprising a central control computer and 131 on-street traffic signal controllers for 139 junctions, was commissioned in 2005 and has since been operating round-the-clock. The system is reaching the end of its serviceable life cycle, which is about 10 to 15 years. The majority of the equipment will have been continuously operating for about 13 to 15 years by 2018. According to the operation and maintenance records in the past three years, the fault<sup>2</sup> rates of the related equipment were on the increasing trend.

6. The maintenance of the system has also become increasingly difficult and costly as many of its critical electronic components are

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<sup>2</sup> The types of faults include switching off of signals due to failure of controllers or signal aspect cables; temporary transmission problem between the central control computer and on-street controllers and detector failure, etc.

outdated and replacement spare parts have been very difficult to source. The original equipment manufacturers have ceased producing the outdated model of the central computer, the on-street traffic signal controllers and some spare parts, thus affecting the proper and continual operation of the system. With only limited spare parts for maintenance, it is anticipated that the operation of the system will be affected. As such, timely replacement of the TP&N ATC system is necessary.

7. The new system will be more reliable, and breakdowns and faults will be reduced. It will also be easier to purchase the necessary spare parts for regular maintenance, which will help reduce the estimated recurrent expenditure. In addition, with the use of advanced microprocessor and electronic components, the new traffic signal controllers will be more energy efficient. The signal controllers are also designed to be compatible with the LED traffic signals which were introduced in recent years, thus facilitating more accurate reporting of LED signal failures.

## **FINANCIAL IMPLICATIONS**

### Non-recurrent Expenditure

8. The estimated non-recurrent expenditure of the proposal is \$32,200,000, with the breakdown as follows –

	<b>\$ '000</b>
(a) Renewal of the ATC system in TP&N Districts	25,600
(b) Project management cost	4,100
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	<b>\$ '000</b>
(c) Contingency	2,500
	32,200
<b>Total</b>	<b>32,200</b>

9. Regarding paragraph 8(a) above, the estimated cost of \$25,600,000 is for the following items –

- (a) supply, installation, testing and commissioning of the ATC system, including the central computer system, telecommunication equipment, operator consoles, on-street traffic signal controllers, and vehicle detectors;
- (b) civil works required for replacing on-street traffic signal controllers, checking and repairing on-street signal lamps cable and cable ducting as well as other associated works; and
- (c) building services and cabling works required to accommodate the ATC system in the traffic control centre.

10. Regarding paragraph 8(b) above, the estimated cost of \$4,100,000 is for meeting the project management cost for the replacement project, which includes preparing for the tender documents, overseeing the tendering process, undertaking contract management, supervising site replacement and installation works, and testing and commissioning the new system.

11. As regards paragraph 8(c) above, the estimated amount of \$2,500,000 represents a 10% contingency on the items set out in paragraph 8(a).

12. The estimated cash flow requirements between 2014-15 and 2018-19 are as follows –

<b>Year</b>	<b>\$ '000</b>
2014-15	200
2015-16	3,900
2016-17	11,500
2017-18	10,100
2018-19	6,500
<b>Total</b>	<b>32,200</b>

#### Recurrent Expenditure

13. The estimated annual recurrent expenditure for maintaining the new system will be about \$5,000,000, which is less than that for the existing system, which is about \$6,600,000. Such requirement will be reflected in the Estimates of relevant years.

#### **IMPLEMENTATION PLAN**

14. We plan to start the implementation of the project in the third quarter of 2014 for completion by early 2018. The proposed programme is as follows –

<b>Activity</b>	<b>Target completion date</b>
(a) Preparation of tender document and tender invitation	April 2015
(b) Contract commencement	July 2015
(c) ATC system design	October 2015
(d) Hardware delivery	January 2016
(e) ATC system development	April 2016
(f) Installation of central computer system	April 2016
(g) Replacement of on-street traffic signal controllers	November 2017
(h) Testing and commissioning of ATC system	January 2018

## **WAY FORWARD**

15. Subject to Members' views, we will seek funding approval from the Finance Committee to implement this proposal.

## **ADVICE SOUGHT**

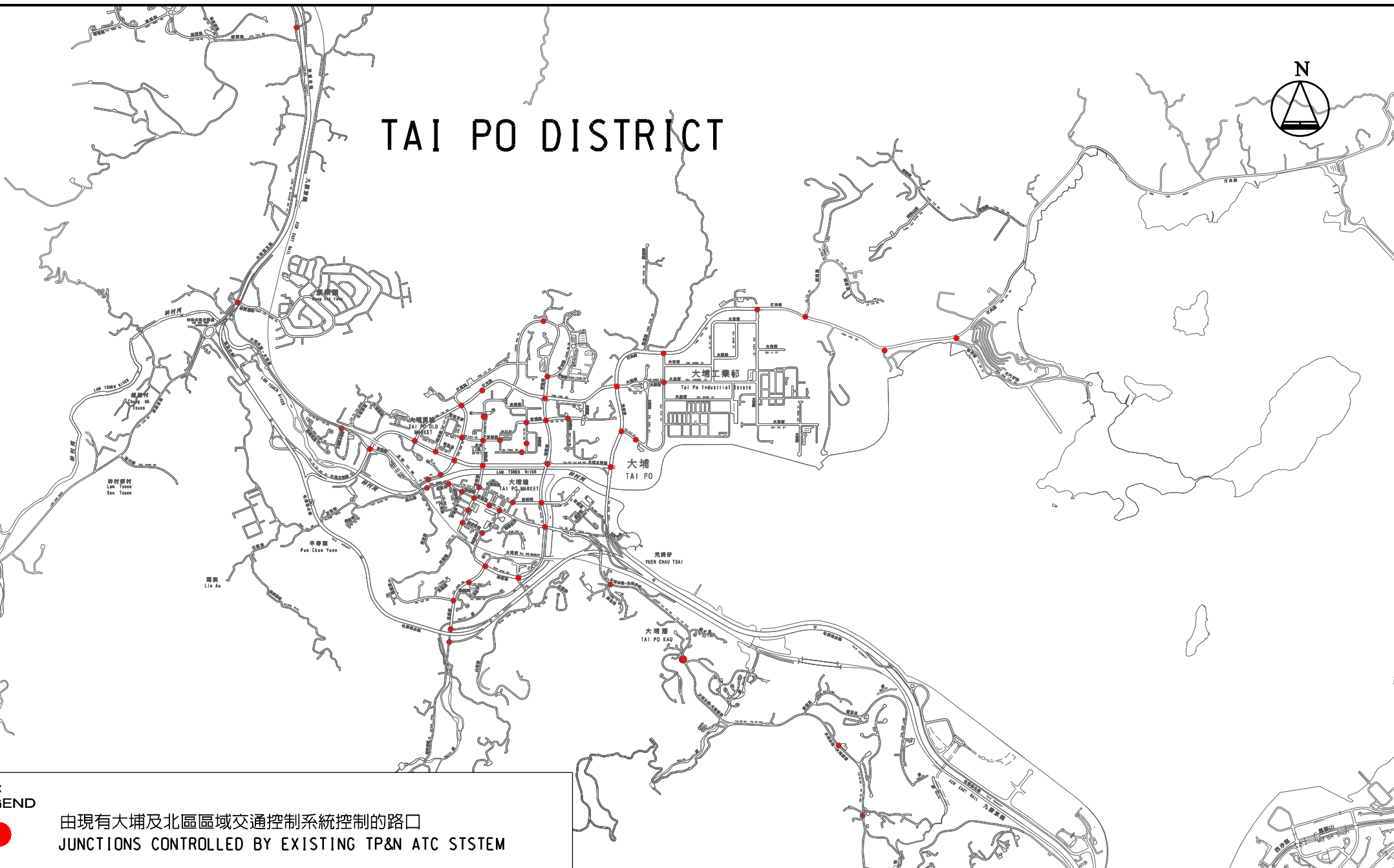
16. Members are invited to provide comments on and support the proposal.

**Transport and Housing Bureau**

**Transport Department**

**May 2014**

# TAI PO DISTRICT



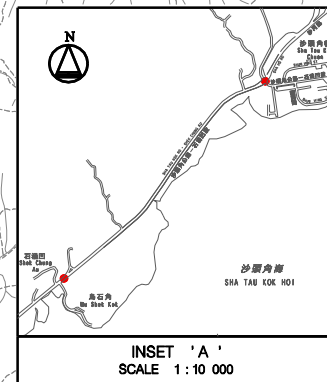
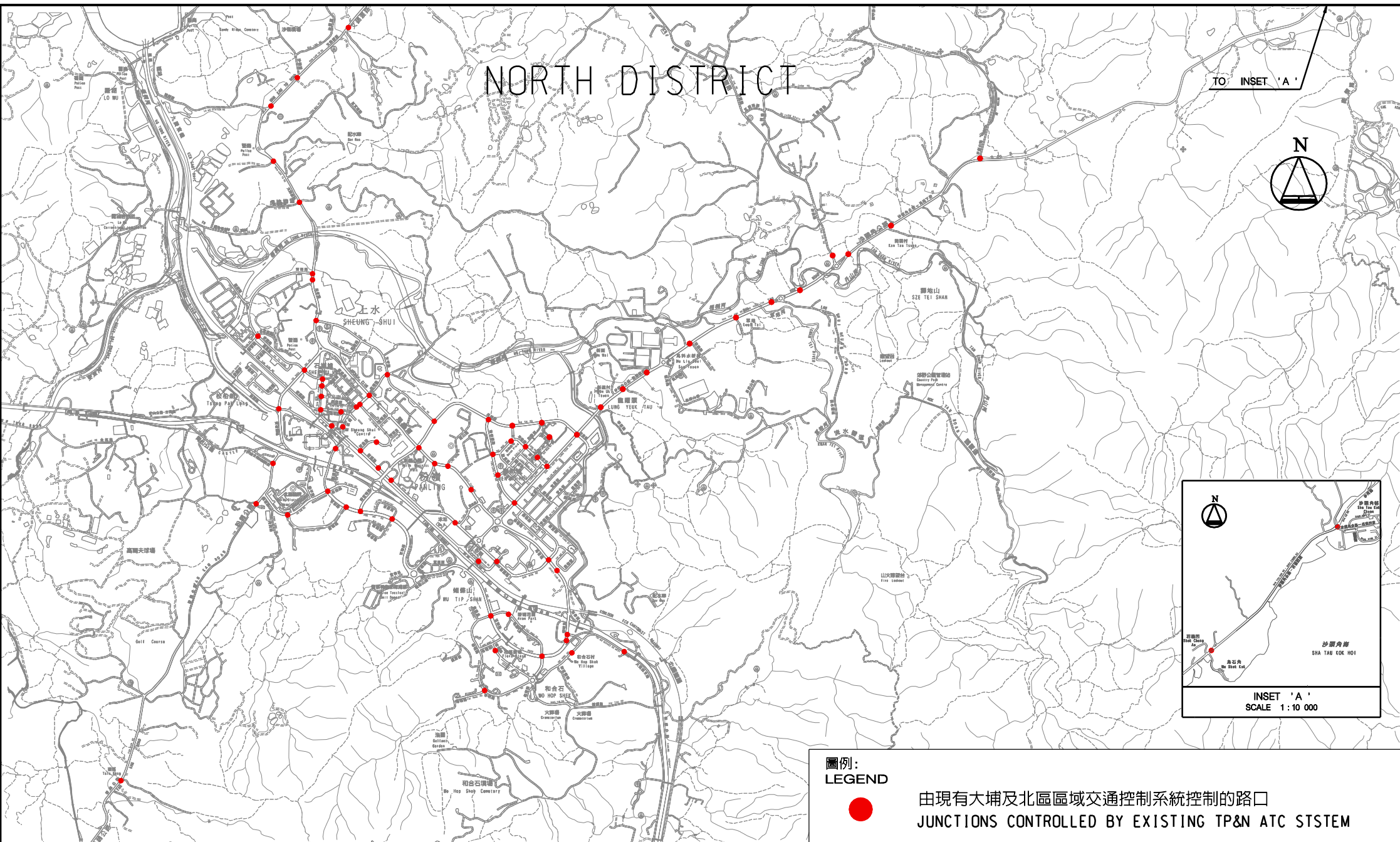
圖例:  
LEGEND



由現有大埔及北區區域交通控制系統控制的路口  
JUNCTIONS CONTROLLED BY EXISTING TP&N ATC SYSTEM

# NORTH DISTRICT

TO INSET 'A'



**圖例:**  
**LEGEND**



由現有大埔及北區區域交通控制系統控制的路口  
**JUNCTIONS CONTROLLED BY EXISTING TP&N ATC SYSTEM**