黃大仙區議會文件第 5/2019 號(8.1.2019)

# 發展九龍東為智慧城市區－可行性研究
# 第二階段公眾參與

## 目的

本文旨在向議員匯報發展局起動九龍東辦事處（下稱「辦事處」）進行的「發展九龍東為智慧城市區－可行性研究」（下稱「本研究」）的成果和擬議的智慧城市措施，並就此徵詢議員的意見。

## 背景

2. 政府以九龍東為試點，研究發展智慧城市的可行性。九龍東包括啟德發展區、九龍灣和觀塘商貿區。本研究於 2016 年 2 月展開，旨在為九龍東智慧城市發展制訂框架及為智慧城市方案制定策略和優先次序，以切合本區的挑戰、限制和機遇，促進九龍東共建成為充滿活力、智慧和可持續的香港第二個核心商業區。自 2017 年 10 月起，起動九龍東措施延伸至新蒲崗商貿區，因此亦建議於新蒲崗商貿區施行智慧城市方案。

3. 本研究包括兩個階段的公眾參與。第一階段公眾參與和一系列的公眾參與活動(包括焦點小組會議、諮詢會議、社區工作坊、智慧城市週 - 智慧城市展覽以及巡迴和流動展覽)已於 2017 年 1 月完成。其中於 2016 年 11 月 7 日舉辦的焦點小組會議，我們邀請了觀塘、九龍城和黃大仙區議會議員出席，了解議員對九龍東智慧城市發展的意見。

4. 於第一階段公眾參與中，參與者普遍支持以下方向：

(i) 優先推行與九龍東智慧城市框架方向一致的智慧城市方案，聚焦於加強流動及易行、完善資源管理及改善城市環境及促進社會經濟活力；

(ii) 以九龍東作為創新和跨界別合作的試點；以及

(iii) 推行概念驗證測試以示範智慧城市措施帶來的好處，並研究擴大應用規模的可行性和成本效益。

5. 其他收集到的主要意見，請參閱附件的第 7 至 10 頁。

擬議的智慧城市措施

6. 我們按照為九龍東制訂的智慧城市框架內的五大範疇提出短期（至 2020 年）及中長期（2020 年後）的智慧城市措施。各範疇的建議重點撮要如下。

*流動及易行*

7. 良好的流動性可大幅增加城市的活力和吸引力。針對區內擠擁的行人環境和交通擠塞，我們建議改善步行環境，鼓勵市民多步行和減少使用機動交通工具，並透過改善管理路邊活動，更有效地使用道路和區內大廈的停車場。我們亦鼓勵市民多使用公共交通工具，並引入更有效、更環保的運輸方式（詳見附件第 16 至 35 頁）。

*資源管理及城市環境*

8. 整體而言，在九龍東轉型為第二個核心商業區的過程中，有需要制定有效措施，實踐可持續發展的原則。藉着改善資源消耗的效率，善用改善環境質素和減少生態足跡的機會，提升就業和增長方面的競爭力，並兼顧市民在該區工作或生活的福祉。要營造和維持良好的城市環境，我們建議通過引入科技實現具資源效益的基礎設施，並透過結合水文和生態價值於城市景觀設計中，引入藍綠基礎設施（詳見附件第 36 至 40 頁）。

*治理及社會經濟活力*

9. 我們期望透過創新科技，加強於大型活動或惡劣天氣期間的城市應變能力。通過嶄新的模式，鼓勵各界在智慧城市發展方面進行合作，並推動良好的資產管理以提升治理。此外，我們促進社區共融，致力讓所有人都能享受不同方面的生活（詳見附件第 41 至 48 頁）。

*資訊及通訊科技*

10. 資訊及通訊科技能實現不同裝置之間的連接。我們希望透過物聯網收集城市數據和資料，促進規劃和決策過程，建議提供高速可靠的通信網絡，並為分享空間數據設立空間數據共享平台，以支持智慧城市措施的發展（詳見附件第 49 至 55 頁）。

*創新平台*

11. 我們建立創新平台，促進政府部門、業界、學術界、研究機構、其他持份者及公眾之間的共同創造及跨界別合作。同時，我們鼓勵利用九龍東作為試點，探索智慧城市發展，以實現智慧九龍東的願景。此外，我們參與了各種探索學習及協作研習、經驗分享和聯繫網絡活動，建立跨界別及多層的協作和夥伴關係，涵蓋本地和海外持份者。我們亦重視在九龍東智慧城市發展過程中的社區參與和共同創造的重要性，提高各持份者的認知及促進他們的參與，以確保充份考慮社區的需要和期望（詳見附件第 56 至 61 頁）。

<u>第二階段公眾參與活動</u>

12. 剛展開的公眾參與活動為期約兩個月至 2019 年 3 月 9 日，目的是收集市民及相關持份者就本研究擬議的智慧城市措施的意見。我們將在 2019 年 2 月 23 日於辦事處展覽廳舉辦公眾論壇及技術展覽，邀請社區人士參與。我們並於數個地點設展覽介紹擬議的智慧城市措施（詳見附件第 63 頁）。

13. 同時，我們通過網頁 www.smartke.hk 向公眾發放相關資訊，讓市民可充份了解我們的建議措施。歡迎市民透過郵寄、傳真、電郵或於網上互動公眾參與平台（http://mapping.arup.com/smartke/）提交意見。

<u>意見徵詢</u>

14. 歡迎議員就本研究擬議的智慧城市措施給予寶貴意見。

附件
第二階段公眾參與摘要

發展局 檔案編號：HAD WTSDC 13-5/5/53 Pt. 51
起動九龍東辦事處
二零一九年一月

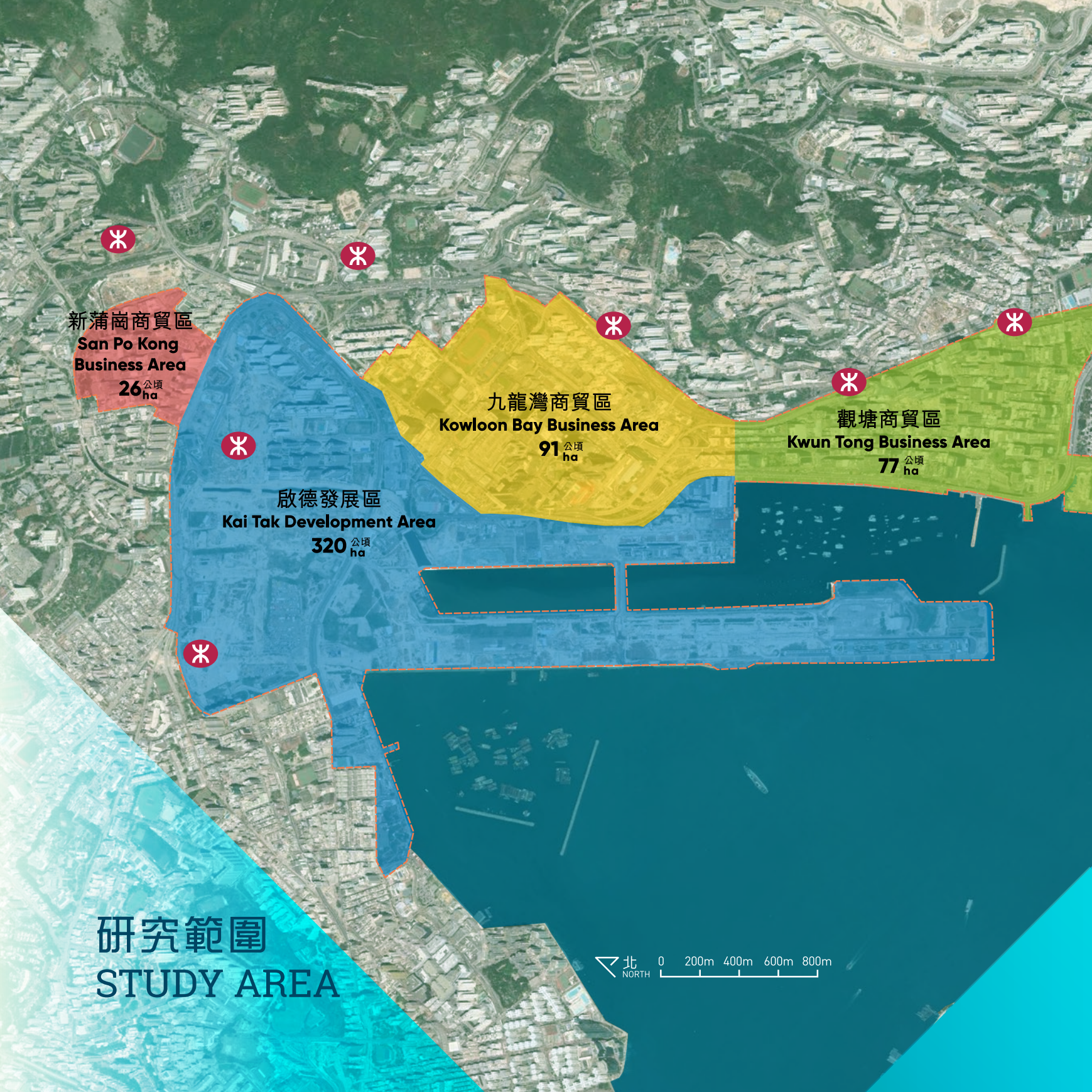
附件

# 發展九龍東為智慧城市區可行性研究

# DEVELOPING KOWLOON EAST INTO A SMART CITY DISTRICT FEASIBILITY STUDY

第二階段公眾參與
STAGE 2 PUBLIC ENGAGEMENT

一月
JAN | 2019




# 研究範圍
# STUDY AREA

# 目錄
# CONTENTS


01
引言
INTRODUCTION

02
願景
VISION

03
研究過程及公眾參與
STUDY PROCESS AND
PUBLIC ENGAGEMENT

04
九龍東智慧城市發展
SMART CITY DEVELOPMENT
IN KOWLOON EAST

05
你的意見
YOUR VIEWS

# 01 引言 INTRODUCTION

九龍東面積約488公頃，由啟德發展區、九龍灣商貿區和觀塘商貿區組成。它是探索智慧城市發展可行性的試點。

起動九龍東辦事處於二零一六年二月展開「發展九龍東為智慧城市區 - 可行性研究」(本研究)。本研究旨在為九龍東智慧城市發展制訂框架及為智慧城市方案制定策略及優先次序，以切合本區的挑戰、限制和機遇。

自二零一七年十月起，起動九龍東措施已延伸至新蒲崗商貿區，覆蓋約26公頃的面積。智慧城市方案亦建議於新蒲崗商貿區施行。

Kowloon East (KE), with an area of about 488 hectares, comprises the Kai Tak Development (KTD) Area, the Kowloon Bay Business Area (KBBA) and the Kwun Tong Business Area (KTBA). It is a pilot area for exploring the feasibility of Smart City development.

The Energizing Kowloon East Office (EKEO) commissioned the "Developing Kowloon East into a Smart City District – Feasibility Study" (the Study) in February 2016. The Study aims to formulate a framework for smart city development in KE, and develop strategies and set priorities for smart city proposals with due consideration to the challenges, constraints and opportunities in the district.

Since October 2017, the Energizing KE initiative has been extended to the San Po Kong Business Area (SPKBA), covering an area of about 26 hectares. Smart city proposals are also recommended for SPKBA.

# 02 願景 VISION

促進九龍東共建成為充滿活力、
智慧和可持續的香港第二個核心商業區

To facilitate co-creation of Kowloon East into a vibrant, smart and sustainable CBD2 of Hong Kong

# 03 研究過程及公眾參與
# STUDY PROCESS AND PUBLIC ENGAGEMENT

本研究包括兩階段的公眾參與。第一階段公眾參與和一系列的公眾參與活動，包括焦點小組會議、諮詢會議、社區工作坊、智慧城市週展覽以及巡迴和流動展覽，已於二零一七年一月完成。公眾意見亦已透過不同渠道收集，包括信件、電郵、電話及網上互動公眾參與地圖。有關資訊可於www.smartke.hk參閱。

整合第一階段公眾參與所收集的意見及建議後，我們開始推行持分者支持的概念驗證測試，並進一步為本區制定合適的智慧城市方案。

我們誠意邀請你參與第二階段公眾參與並表達意見，幫助我們完善智慧城市方案，以備進一步詳細研究和逐步推行。

The Study includes two stages of public engagement (PE). The Stage 1 PE, with a series of PE activities including focus group meetings, consultation meetings, a community workshop, Smart City Week Exhibition, and roving and mobile exhibitions, was completed in January 2017. Public views were also collected through various channels, including letters, emails, phone calls and online interactive public engagement map. Relevant information is available at www.smartke.hk.

After consolidating the comments and suggestions received during Stage 1 PE, we began to implement proof of concept (PoC) trials which were supported by the stakeholders and further developed suitable smart city proposals for the district.

We cordially invite you to participate in Stage 2 PE by providing your views, which will help us to refine the smart city proposals for further detailed study and progressive implementation.

# 第一階段公眾參與主要意見
# MAJOR COMMENTS FROM STAGE 1 PUBLIC ENGAGEMENT

於第一階段公眾參與中，參與者普遍同意本研究觀察到九龍東的挑戰、限制及機遇，並支持以下方向：

- 優先推行與智慧城市框架方向一致的智慧城市方案，聚焦於：
  (1)加強流動及易行；
  (2)完善資源管理及改善城市環境；以及
  (3)促進社會經濟活力。
- 以九龍東作為創新和跨界別合作的試點
- 推行概念驗證測試以示範智慧城市措施帶來的好處，並研究擴大應用規模的可行性和成本效益

During Stage 1 PE, the participants generally concurred with the challenges, constraints and opportunities in KE identified by the Study and supported the following directions:

- To accord priorities to smart city proposals which are aligned with the direction of the Smart City Framework for KE, focusing on:
  (1) enhancing mobility and walkability;
  (2) optimising resources management and improving the urban environment; and
  (3) promoting socio-economic vibrancy .
- To use KE as a test bed for innovation and cross-sector collaboration
- To conduct PoC trials to demonstrate the benefits of such smart city initiatives and investigate the feasibility and cost effectiveness of wider applications

## 收集到的主要意見包括：
## MAJOR COMMENTS RECEIVED INCLUDE:

### 願景及智慧城市框架
### VISION AND SMART CITY FRAMEWORK

- 支持願景和建議的智慧城市框架，其中「流動及易行」和「資源管理及城市環境」是應較優先處理的重點策略範疇
- 支持開放和具彈性地在九龍東採用新科技和推行各種智慧城市措施
- 支持採納以人為本的方式
- 支持牽頭推動智慧城市發展並聯絡各界

- Support for the Vision and proposed Smart City Framework with “Mobility and Walkability” and “Resources Management and Urban Environment” identified as strategic aspects of higher priority
- Support for being open and flexible in adopting innovations and carrying out different types of smart city initiatives in KE
- Support for adopting a people-centric approach
- Support for taking lead in driving smart city development and liaising with various parties

## 流動及易行
## MOBILITY AND WALKABILITY

- 支持發放實時空置泊車位資訊及加強路旁停車設施的功能
  Support for dissemination of real-time parking vacancy information and strengthening functions of on-street parking facilities
- 支持改善行人環境、交通道路網絡及行人連繫
  Support for improvements to the pedestrian environment, traffic and road network, and pedestrian connectivity
- 支持為建築物及街道提供導航
  Support for providing way-finding to buildings and streets
- 支持採用智能交通燈系統及發放實時交通資訊
  Support for adoption of smart traffic light systems and dissemination of real-time traffic information
- 支持推廣綠色運輸網絡
  Support for promotion of green transport network

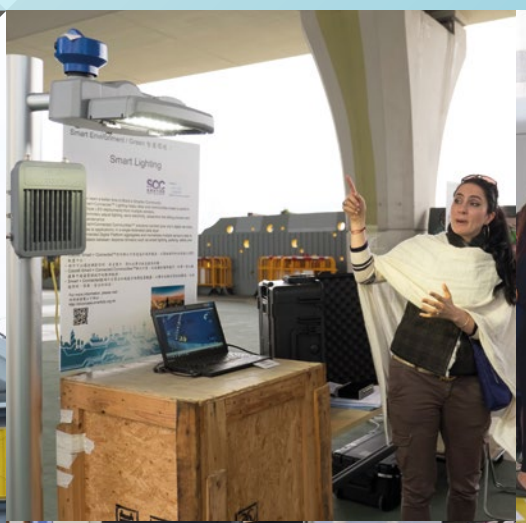
## 資源管理及城市環境
## RESOURCES MANAGEMENT AND URBAN ENVIRONMENT

- 支持推廣綠色建築設計及節能措施
  Support for promotion of green building design and energy saving measures
- 支持安裝智慧燈柱，內設多項功能支援城市管理
  Support for installation of smart lamp posts with various functions embedded to support city management
- 支持智慧廢物管理措施
  Support for smart waste management measures
- 支持發放實時空氣質素資訊
  Support for dissemination of real-time air quality information

## 其他智慧城市措施
## OTHER SMART CITY INITIATIVES

- 要求加強資訊的交換及發放
- 要求推行社會及數碼共融措施，以增強治理及社會經濟活力
- 支持空間數據平台標準化，並開放數據以促進公眾創意、創新及發展

- Request for enhancement of information exchange and dissemination
- Request for social and digital inclusion measures for better governance and socio-economic vibrancy
- Support for standardisation of spatial data infrastructure and open data to facilitate public creativity, innovation and development



# 04 九龍東智慧城市發展
# SMART CITY DEVELOPMENT IN KOWLOON EAST

# 主要事件簿
# LOG OF MAJOR EVENTS

## 2016

### 2月 FEBRUARY

展開本研究

Commencement of the Study

### 5月 MAY

智能室內和室外地理信息系統建立 (見第58頁)

Smart Indoor and Outdoor Geographic Information System for KE was set up. (See P.58)

### 7月 JULY

九龍東內的停車場場主和營運者被邀請透過「我的九龍東」手機應用程式(「我的九龍東」)分享實時空置車位資訊 (見第29頁)

Car park owners and operators in KE invited to share real-time parking vacancy information via My Kowloon East (MyKE) mobile application. (See P.29)

### 9月 SEPTEMBER

「按個人特性及喜好提供的行人導向」概念驗證測試展開 (見第20頁)

Proof of concept (PoC) trial on "Persona and Preference-based Wayfinding for Pedestrians" commenced (See P.20)

### 11月 NOVEMBER

九龍東第一幅商業用地和第一幅住宅用地在賣地條款納入智慧城市相關要求並售出 (見第44頁)

First commercial site and first residential site in KE sold with smart city related requirements incorporated into land sale conditions (See P.44)

第一階段公眾參與展開

Stage 1 Public Engagement launched

### 12月 DECEMBER

「我的九龍東」試驗版推出

Trial version of MyKE launched

# 2017

## 1月 JANUARY

「智慧人流管理系統」概念驗證測試於香港街馬@九龍2017進行
(見第42頁)

PoC trial on "Smart Crowd Management System" deployed in Hong Kong Streetathon @ Kowloon 2017 (p.42)

## 3月 MARCH

「智慧人流管理系統」重新配置，測試監測人流和車流

"Smart Crowd Management System" redeployed for a trial to monitor pedestrian and traffic flows

## 6月 JUNE

「易行」、「主題導賞」及「個人化導賞」功能在「我的九龍東」上推出

"Easy Walking", "Thematic Tour" and "Personalised Tour" functions launched in MyKE

## 9月 SEPTEMBER

「能源效率數據系統」概念驗證測試展開
(見第39頁)

PoC Trial on "Energy Efficiency Data System" commenced (p.39)

# 主要事件簿
# LOG OF MAJOR EVENTS

## 2018

### 1月 JANUARY

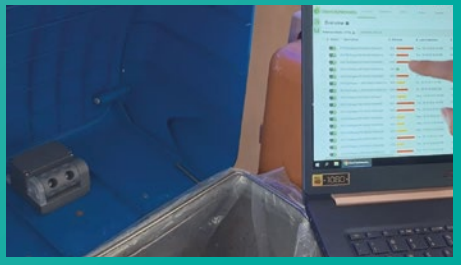
「路旁上落貨區監察系統」概念驗證測試展開 (見第23頁)

PoC Trial on "Kerbside Loading/ Unloading Bay Monitoring System" commenced (See P.23)

### 7月 JULY

「智慧回收箱系統」概念驗證測試展開 (見第38頁)

PoC trial on "Smart Recycling Bin System" commenced (See P.38)



### 5月 MAY

「我的九龍東」中的「易行」功能延伸至新蒲崗商貿區

"Easy Walking" function in MyKE extended to cover SPKBA

為期12個月的「智慧節能計劃」展開

12-month "Smart Energy Saving Scheme" commenced

### 6月 JUNE

「多功能路燈」概念驗證測試展開 (見第50頁)

PoC trial on "Multi-purpose Lamp Post" commenced (See P.50)

## 8月 AUGUST

長遠利用影像分析技術作交通執法的路徑圖研究展開 (見第26頁)

Roadmap Study for the long-term deployment of video analytic technology for traffic enforcement commenced (See P.26)

## 11月 NOVEMBER

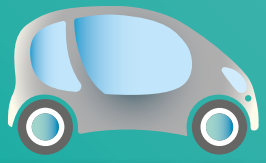
「違例泊車監察系統」概念驗證測試展開 (見第25頁)

PoC trial on "Illegal Parking Monitoring System" commenced (See P.25)

## 1月 JANUARY

第二階段公眾參與展開

Stage 2 Public Engagement launched



# 2019

## 9月 SEPTEMBER

主題導賞「漫談新蒲崗」在「我的九龍東」上推出

Theme walk of "San Po Kong Story" launched in MyKE

## 12月 DECEMBER

「實時道路工程資訊」概念驗證測試展開 (見第27頁)

PoC trial on "Real-time Roadworks Information"commenced (See P. 27)

04 九龍東智慧城市發展
SMART CITY DEVELOPMENT IN KOWLOON EAST

# 流動及易行 MOBILITY & WALKABILITY

良好的流動性可大幅增加城市的吸引力和競爭力。本研究建議推行與下列目標一致的短期(至2020年)及中長期(2020後)智慧措施，以增強九龍東區內人和貨物的流動性，特別是在已建的觀塘及九龍灣商貿區：

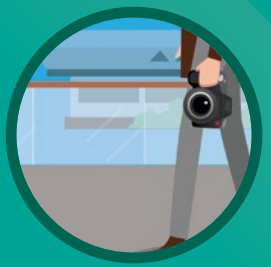
Good mobility greatly increases the attractiveness and competitiveness for cities. The Study proposes to take forward smart measures in short (up to 2020), medium and long term (beyond 2020) which are in line with the following objectives for increasing the mobility of people and goods in Kowloon East, in particular for the built-up areas of the Kwun Tong and Kowloon Bay Business Areas:

- 鼓勵更多步行和減少使用機動交通工具，促進**易行九龍東**；
  Foster a **Walkable Kowloon East** by encouraging more walking and less use of motorised transport;
- **改善管理路邊活動**，以更有效使用道路和非路旁停車場；
  **Better management of roadside activities** to enable better utilisation of roads and off-street car parks;
- **鼓勵使用公共交通工具**多於自駕;以及
  **Encourage the use of public transport** over self-driving; and
- 從低能源和環境效益的運輸方式轉變為更有效、**更環保的運輸方式。**
  Shift away from energy and environmentally less efficient modes of transport to more efficient, **greener modes of transport.**

「易行」
Easy Walking



主題導賞
Thematic Tour



個人化導賞
Personalised Tour

# 易行九龍東
# WALKABLE KOWLOON EAST

「我的九龍東」中的「易行」功能提供一個能配合個人用戶需要及喜好的導向工具，而「主題導賞」及「個人化導賞」功能使在九龍東步行更有趣味。

The "Easy Walking" function in MyKE provides a way-finding tool to cater for the needs and preferences of individual users, while the "Thematic Tour" and "Personalised Tour" functions make walking in Kowloon East more interesting.

## 「易行」
## EASY WALKING

建議步行路線包括區內特色，令用戶能找到最適合其需要和喜好的步行路線。

The walking route suggestion includes features specific to the district, enabling users to identify a walking route that is most suited for their needs and preferences.

在九龍灣的一個購物商場內安裝室內定位裝置作為試驗計劃，利用「我的九龍東」進行室內定位。

As a trial project, indoor positioning devices were installed in a shopping centre in Kowloon Bay, making indoor positioning possible in MyKE.

▲ 有蓋行人路徑
Sheltered paths

▲ 無障礙路徑
Barrier free paths

☐ 計劃中 Planned ☑ 已完成/進行中 Completed / On-going

# 流動及易行
# MOBILITY & WALKABILITY

## 短期
## SHORT TERM

☑ 豐富和更新數碼步行地圖的內容，包括後巷、大廈內通道、行人天橋、隧道、升降機、坡道、有蓋路線等，以滿足個人用戶的需求。
Enrich and update the digital walking map contents to include features, such as back alleys, internal passageways through buildings, footbridges, subways, lifts, ramps, sheltered route, etc. to meet the needs of individual users.

☐ 根據預測的空氣質量，建議“清新空氣”路線。
Provide “clean air” route suggestion based on predicted air quality.

☑ 利用「我的九龍東」作為示範平台，展示室內定位帶來的便利。
Use MyKE as a demonstration platform to showcase the convenience brought about by indoor positioning.

☐ 倡議設有內部公共通道的建築物業主於「我的九龍東」提供室內定位和行人導向。
Advocate to building owners with internal public passageways to provide indoor positioning and way-finding in MyKE.

## 中 - 長期
## MEDIUM TO LONG-TERM

- 提供機械無障礙設施，例如升降機和輪椅升降台的實時操作狀態。
  Provide real-time operation status of mechanical barrier-free facilities such as lifts and stairlifts.

- 逐步擴展運輸署的「香港出行易」手機應用程式的行人導向功能（包括無障礙步行路線搜尋），以覆蓋主要購物點。
  Progressively extend the way-finding function (including barrier-free walking routes search) to cover major shopping areas in Transport Department's HKeMobility app.

- 為九龍東制訂三維行人地圖。
  Formulate 3D pedestrian map for KE.

▲ 安裝在商場內的室內定位裝置
Indoor positioning devices installed in a shopping centre

# 流動及易行
# MOBILITY & WALKABILITY

## 「主題導賞」及「個人化導賞」
## THEMATIC TOUR AND PERSONALISED TOUR

為締造愉快的步行體驗，「我的九龍東」的「主題導賞」功能提供「綠色生活」、「漫談新蒲崗」、「後巷體驗」、「健康悠閒」及「工業文化」等主題步行路線。

To make walking a pleasant experience, walking routes with specific themes such as "Green Living", "The San Po Kong Story", "Back Alley", "Health and Leisure" and "Industrial Culture" are available in the "Thematic Tour" function of MyKE.

「我的九龍東」的「個人化導賞」按個人喜好和興趣提供連接特色景點的路線建議。Facebook用戶可透過該系統的人工智能來分析用戶在Facebook上的帖文，以獲得更準確的個人化建議。

Walking route suggestion, linking Point of Interests (PoIs), according to personal preferences and interests is also available under "Personalised Tour" of MyKE. For Facebook users, the system uses artificial intelligence (AI) to analyse users' Facebook posts for a more accurate personal recommendation.

1小時探索觀塘路線
1-hour Kwun Tong Exploratory

後巷體驗路線
Back Alley

綠色生活路線
Green Living

健康悠閒路線
Health and Leisure

工業文化路線
Industrial Culture

漫談新蒲崗路線
The San Po Kong Story

## 短期
## SHORT TERM

- 在「我的九龍東」提供60多個於九龍東及新蒲崗商貿區的特色景點及不同主題路線。
  Provide some 60 PoIs and different thematic walking routes in KE and San Po Kong Business Area (SPKBA) in MyKE.

- 採用人工智能按用戶喜好推薦個人化的步行路線。
  Recommend personalised walking routes based on the users' persona by AI.

- 利用擴增和虛擬實境突出有關特色景點的有趣背景和資料。
  Use augmented reality and virtual reality (AR/VR) to highlight the interesting background and facts about the PoIs.

- 在「我的九龍東」加入新的地標及景點，以擴展特色景點的資料庫。
  Expand the PoI library by incorporating new landmarks, places of interest, etc. in MyKE

- 將特色景點資料作開放數據，於政府公共資料網站「資料一線通」www.data.gov.hk 分享。
  Share the PoI information as open data in Government's Public Sector Information (PSI) Portal www.data.gov.hk.

## 中 - 長期
## MEDIUM TO LONG-TERM

- 研究將「我的九龍東」的「主題導賞」及「個人化導賞」功能與其他功能相近的政府手機應用程式合併。
  Explore the feasibility of integrating the "Thematic Tour" and "Personalised Tour" functions in MyKE with other similar mobile apps managed by the Government.

◀▲ 以虛擬實境形式介紹景點
Using virtual reality to introduce PoIs

# 流動及易行
# MOBILITY & WALKABILITY

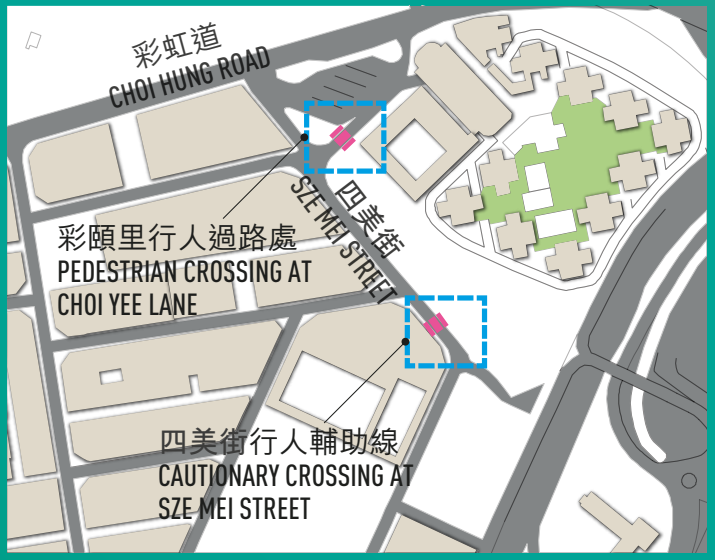
## 智能路口
## INTELLIGENT JUNCTIONS

配置了傳感器的智能交通燈號系統收集實時交通信息，以減少等候時間，並提高行人和行車安全。

Intelligent traffic signal system with sensors collects real-time traffic information so as to minimise waiting time and enhance safety for both pedestrians and vehicles.

### 中 - 長期
### MEDIUM TO LONG-TERM

- 研究於九龍東及新蒲崗商貿區內合適的路口安裝配置人車傳感器的智能交通燈號系統。
- To explore installing intelligent traffic signal system with sensors for pedestrians and vehicles at suitable junctions in KE and SPKBA.




▲ 考慮於新蒲崗商貿區內安裝智能路口
Consider installing intelligent junctions in SPKBA

▲ 智能路口
Intelligent junction

## 更好的路旁活動管理
## BETTER MANAGEMENT OF ROADSIDE ACTIVITIES

**正在開發運用科技的系統，例如影像分析、機器學習、人工智能、擴增實境定位等技術。將以上科技與非路旁停車場實時空置車位資訊和實時交通速度情況整合，便可更善用道路和非路旁停車場的使用。**

Systems using technologies such as video analytics (VA), machine learning, AI, AR positioning, etc. are being developed. With such technologies and coupled with the real-time parking vacancy information in off-street car parks and live traffic speed conditions, the utilisation of roads and off-street car parks can be enhanced.

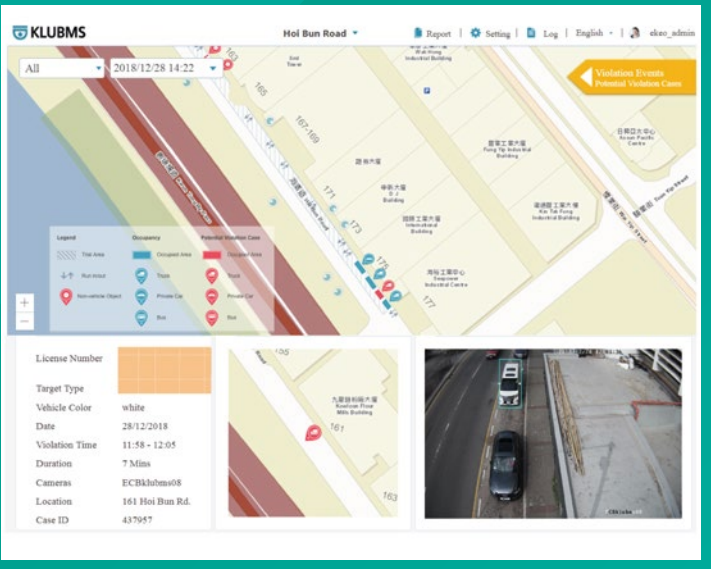
## 路旁上落貨區監察系統
## KERBSIDE LOADING AND UNLOADING BAY MONITORING SYSTEM

不正確使用路旁上落貨區例如違例泊車，導致交通阻塞，包括司機因尋找空置上落貨區和上落貨活動而引起的道路阻塞。

於觀塘區內揀選了兩個試點，安裝路旁上落貨區監察系統。該系統設有閉路電視攝影機、車牌識別和影像分析功能，用於監察沒有任何上落貨活動而在路旁長時間的停泊。

Improper use of kerbside loading/unloading bays such as illegal parking is causing traffic congestion from drivers looking for a vacant bay and blockages of roads arising from loading/unloading activities.

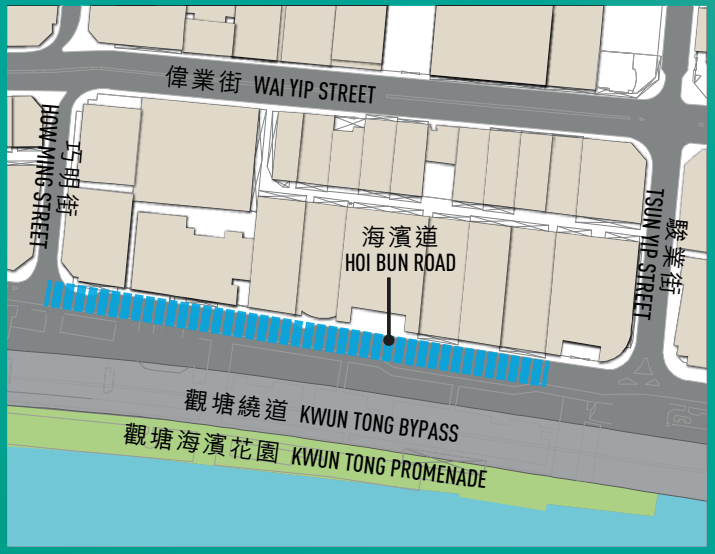
Two pilot sites in Kwun Tong have been selected for installing the kerbside loading and unloading bay monitoring system. The system, comprises of CCTV cameras, car plate recognition and VA capabilities, is used to monitor prolonged parking at the bays without any loading and unloading activities.

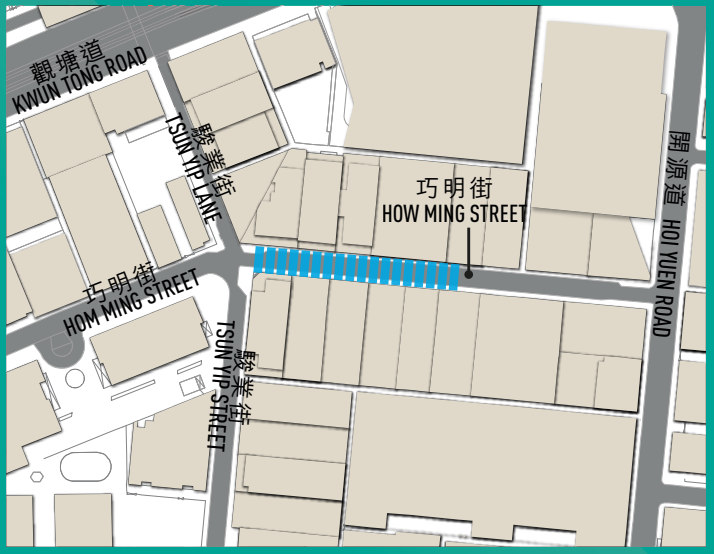



▲「路旁上落貨區監察系統」網上管理平台
"Kerbside Loading and Unloading Bay Monitoring System" Management Portal

該系統能夠監察車輛使用狀況、停泊時間和車輛登記號碼；亦能偵測是否有濫用或違例佔用。相關影像和資訊會提供予警方，以探討未來將此系統應用到交通執法的可行性。路旁上落貨區的使用情況將會上傳到「我的九龍東」，協助有上落貨需要的駕駛者。

The system can detect vehicle occupancy status, vehicle-parking duration and vehicle registration marks. It can also detect whether there is any abused or illegal occupancy. The images and information will be provided to the Police for exploring the possibility of using such system in traffic enforcement. The occupancy status will be disseminated to the MyKE mobile app to assist drivers with loading and unloading needs.




▲ 概念驗證「路旁上落貨區監察系統」的測試位置
Locations of PoC on "Kerbside Loading and Unloading Monitoring System"

# 流動及易行
# MOBILITY & WALKABILITY

## 違例泊車監察系統
## ILLEGAL PARKING MONITORING SYSTEM

違例泊車影響道路容車量和行人安全。

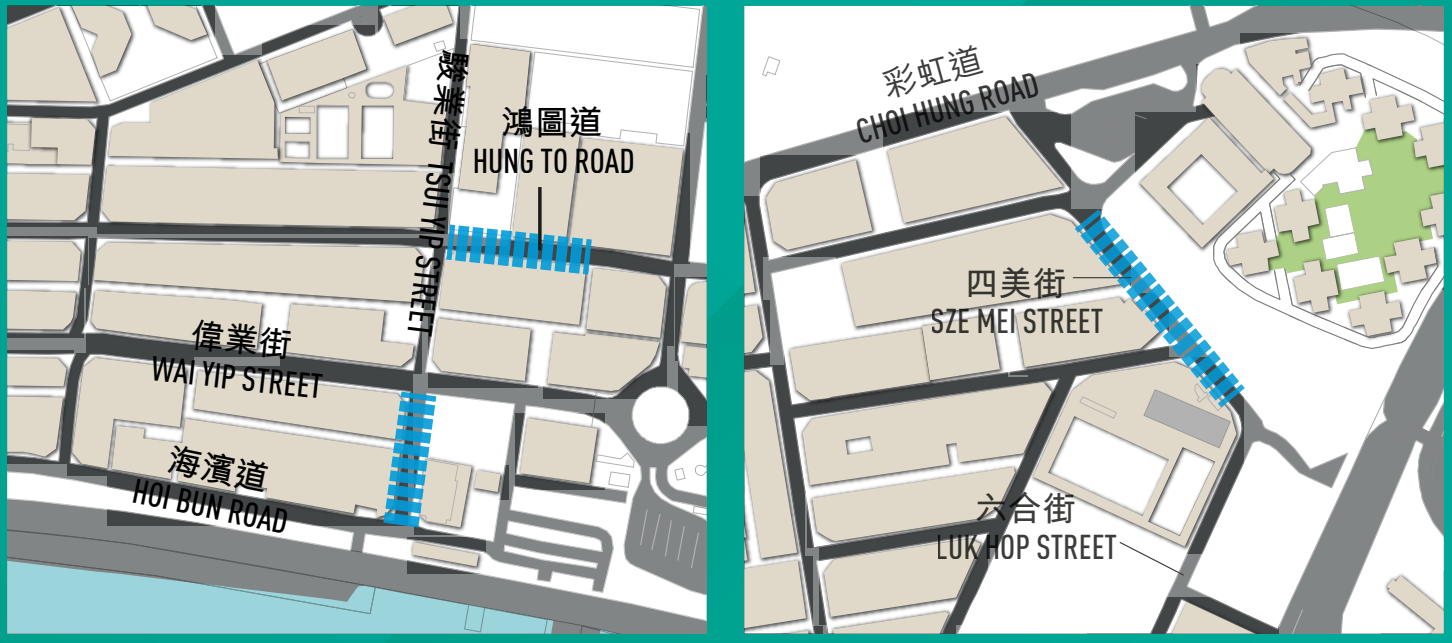
違例泊車監察系統裝有閉路電視攝影機、車牌識別和影像分析功能，以遏止違例泊車。

已揀選3個試點（包括1個在新蒲崗和2個在觀塘）安裝違例泊車監察系統進行概念驗證測試。

Illegal parking on roads and pavements are affecting the road carrying capacity and pedestrian safety.

The illegal parking monitoring system comprises of CCTV cameras, car plate recognition and VA capabilities to deter illegal parking.

Three pilot sites, one in San Po Kong and two in Kwun Tong have been selected for installing the illegal parking system for a proof of concept trial.




▲ 概念驗證「違例泊車監察系統」的測試位置
Locations of PoC on "Illegal Parking Monitoring System"

## 短期
## SHORT TERM

- 進行概念驗證測試以研究利用科技打擊交通違法行為的可行性。
  Conduct proof of concept trials to explore the feasibility of using technologies to combat traffic contraventions.
- 透過「我的九龍東」分享路旁上落貨區的使用狀況，以善用道路空間。
  Share the occupancy status of loading/unloading bays through MyKE to optimise usage of road spaces.
- 設立路線圖包括有關私隱課題的研究，以便利用相關科技（如証實可行）協助執法。
  Devise a roadmap including studying privacy-related matters to enable adopting such technologies, if proven, in taking enforcement actions.

## 中 - 長期
## MEDIUM TO LONG-TERM

- 將從概念驗證測試獲得的經驗分享予有關人士，以期進行必要的法例修訂，將有關系統加入執法過程中。
  Share the experiences gained from the proof of concept trials with the relevant parties for pursuing with necessary legislative amendments to enable the adoption of such systems in law enforcement.
- 將類似系統應用到九龍東和新蒲崗商貿區內的違例泊車黑點。
  Re-deploy similar systems in illegal parking blackspots in KE and SPKBA.

# 流動及易行
# MOBILITY & WALKABILITY

## 實時道路工程資訊
## REAL-TIME ROAD WORKS INFORMATION

道路工程引致的封路和交通改道無可避免會影響交通，提供實時道路工程資訊可讓駕駛者預早計劃行程。

在九龍東正進行一項概念驗證測試，以期向公眾提供更準確的道路工程位置。參與的部門將會使用設有擴增實境定位功能的手提裝置，為道路工程的範圍釐定地理參考數據。這些資訊將會透過「我的九龍東」發放。

Road closure and traffic diversion due to road works inevitably affect traffic flow. Providing real-time road works information to drivers enables them to plan their routes ahead.

A PoC trial on providing more accurate roadworks locations to the public is being tested in KE. The participating works departments will use a mobile device, equipped with AR positioning technology, to geo-reference the works boundary on roads. The geo-referenced information will be promulgated via MyKE.

▼ 參與是次概念驗證的部門
Departments participanting in this PoC trial

渠務署 DRAINAGE SERVICES DEPARTMENT
路政署 HIGHWAYS DEPARTMENT
水務署 WATER SUPPLIES DEPARTMENT

▼ 使用擴增實境定位功能為道路工程定位
Using AR to locate work site

## 短期
## SHORT TERM

- 進行概念驗證測試讓持分者對道路工程報告系統更為熟悉，及收集用家意見以精簡運作程序。
  Conduct proof of concept trial to allow stakeholders' to familiarise themselves with the roadworks reporting system and to provide users' feedback for streamlining the operational procedures.

- 於「我的九龍東」提供更準確的道路工程資訊，協助駕駛者和行人計劃行程。
  Provide more accurate roadworks information in MyKE to facilitate drivers and pedestrians to plan their journeys.

- 透過「我的九龍東」及政府公共資料網站「資料一線通」<www.data.gov.hk>向公眾發放所收集的數據，促進第三方發展手機應用程式。
  Disseminate the collected data to the public through MyKE and Government's PSI Portal to facilitate third-party development of mobile apps.

## 中 - 長期
## MEDIUM TO LONG-TERM

- 研究將收集到的資訊經由運輸署的「香港出行易」手機應用程式發放的可行性。
  Explore the feasibility of disseminating the collected information via TD's HKeMobility app.

- 擴大實時道路工程資訊的覆蓋範圍，包括因公用事業公司的道路工程而引致的交通改道。
  Extend the spatial coverage of real-time roadworks information and including traffic diversions due to road works by other parties, such as utility companies.

# 流動及易行
# MOBILITY & WALKABILITY

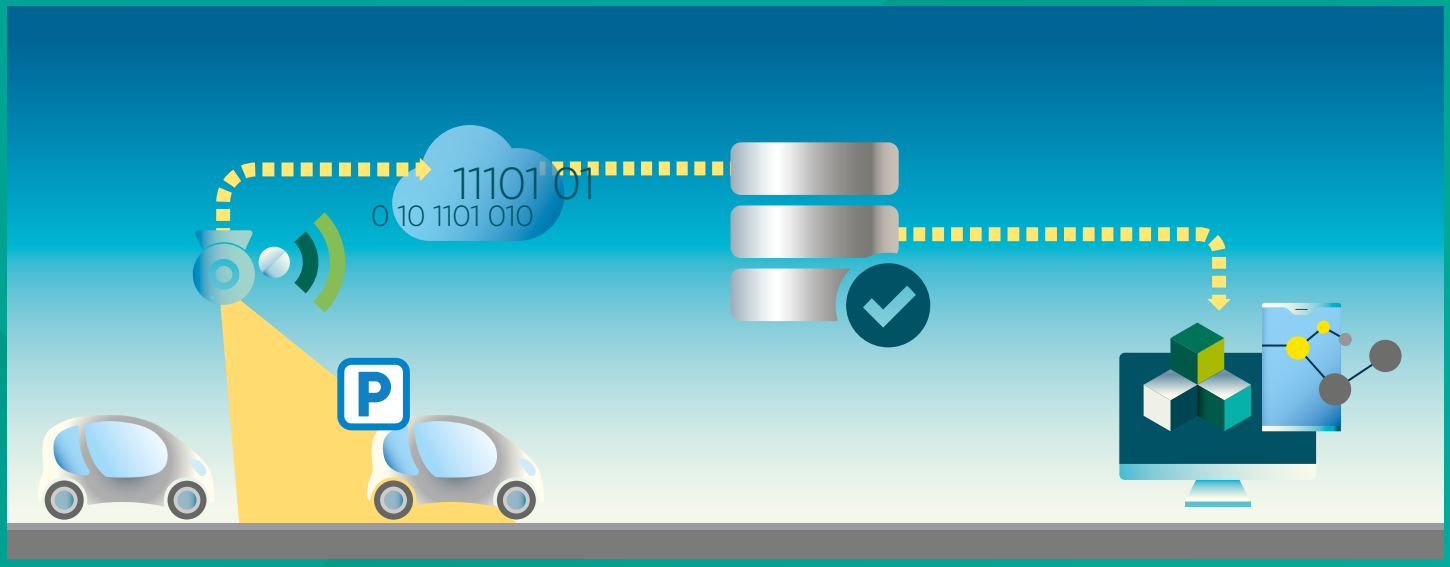
## 「易泊車」
## EASY PARKING

「我的九龍東」的「易泊車」功能提供非路旁停車場的實時空置車位資訊、前往停車場入口的最短駕車路線建議及停車場其他資料，例如高度限制、時租車位收費、開放時間、傷健人士泊車和電動汽車充電設施等。

為參與者提供一個安全的平台管理及分享他們於「易泊車」及其他渠道的實時和靜態資訊。

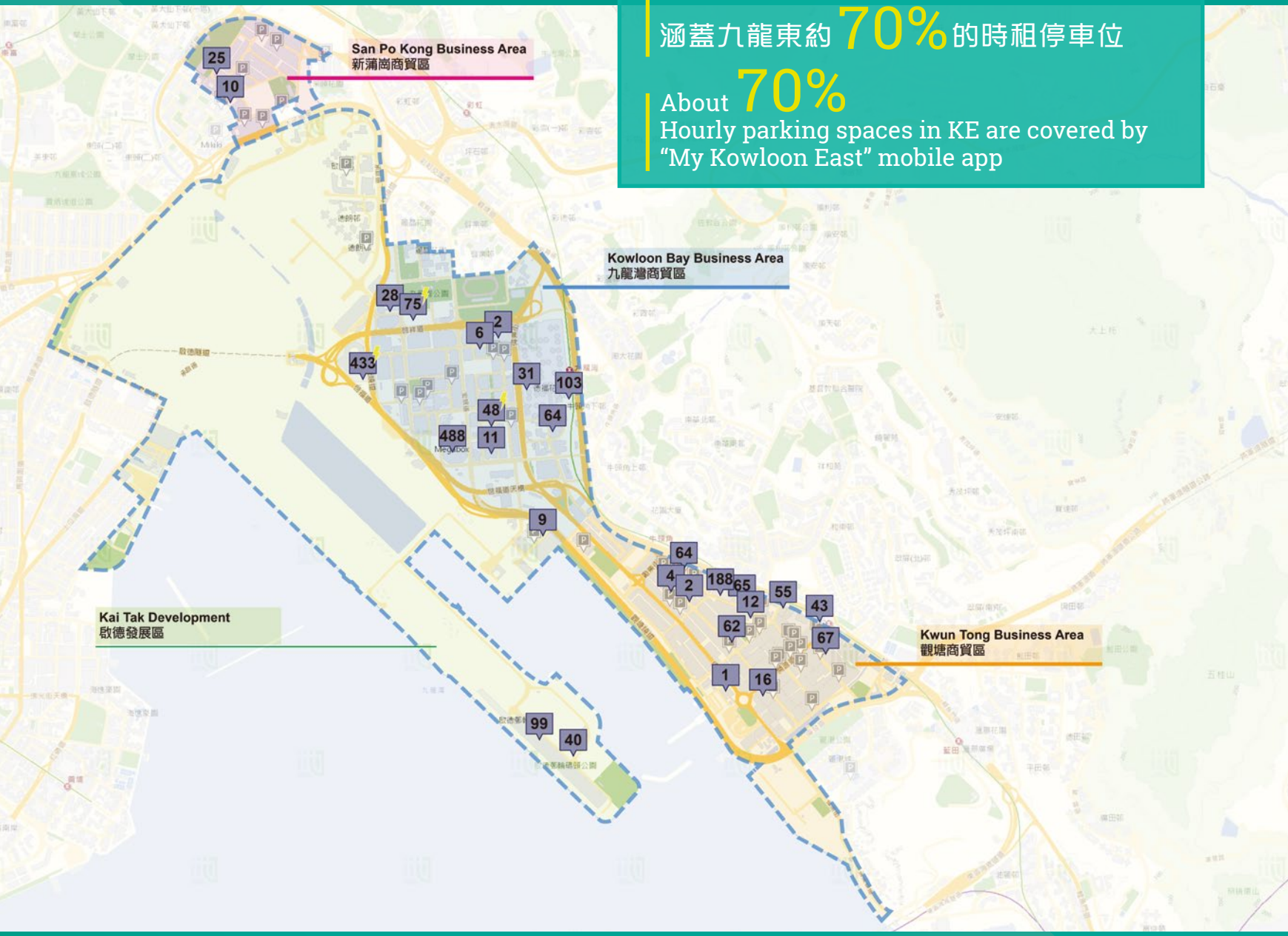
The "Easy Parking" function of MyKE provides real-time parking vacancy information at off-street car parks, shortest driving route suggestion leading the driver exactly to the entrance of the car park and other car park information, such as headroom restrictions, hourly parking fees, opening hours, disabled parking and electric vehicle (EV) charging facilities, etc.

Participants are provided with a secured portal for managing and sharing their real-time and static information in "Easy Parking" and other channels.



「我的九龍東」手機應用程式
涵蓋九龍東約 70% 的時租停車位

About 70%
Hourly parking spaces in KE are covered by "My Kowloon East" mobile app




◀ 檢視應用程式介面規格的二維條碼
QR Code for viewing API standard

## 短期
## SHORT TERM

- 為實時空置車位資訊提供數據標準和一個用户友好的管理平台，方便上載實時數據。
  Provide data standardisation for real-time parking vacancy information and a user-friendly management portal for uploading real-time data.

- 透過倡議及提供技術支援，鼓勵九龍東和新蒲崗商貿區的停車場業主和營運者分享他們的實時空置車位資訊。
  Encourage owners and operators of car parks to share their real-time parking vacancy data in KE and SPKBA through advocacy and providing technical assistance.

- 以應用程式介面格式，在政府公共資料網站以開放數據分享實時空置車位資訊。
  Share the parking vacancy information as open data in Government's PSI Portal in application programming interface (API) format.

- 為不同泊車傳感器的測試提供試點，包括機電工程署試驗利用低功率廣域網絡(LPWAN)傳輸數據的電磁泊車傳感器，以及運輸署試驗配備汽車傳感器以監測車位佔用狀態的新一代停車收費錶。
  Provide trial sites for testing various types of parking sensors, such as for EMSD's trial on electro-magnetic parking sensors using Low Power Wide Area Network (LPWAN) as a means of data transmission and TD's trial of new generation of parking meters equipped with vehicle sensors to detect occupation of parking spaces.

## 中 - 長期
## MEDIUM TO LONG-TERM

- 通過新一代停車收費錶，提供九龍東和新蒲崗商貿區的實時空置車位資訊。
  Provide parking vacancy information using the new generation parking meters in KE and SPKBA.

- 探討結合「易泊車」系統和運輸署的「香港出行易」的可行性。
  Explore the feasibility of integrating the Easy Parking System with TD's HKeMobility.

▲ 利用低功率廣域網絡(LPWAN)傳輸數據的電磁泊車傳感器
Electro-magnetic parking sensors using LPWAN as a means of data transmission

# 流動及易行
# MOBILITY & WALKABILITY

## 鼓勵使用公共交通工具
## ENCOURAGE THE USE OF PUBLIC TRANSPORT

**為了盡量減少交通擠塞，鼓勵公眾使用公共交通工具多於自駕。應提供有關公共交通服務的資訊，協助瞬時路程決定和旅程規劃。**

To minimise traffic congestion, travellers are encouraged to use public transport over self-driving. Relevant public transport services information should be provided to allow well-informed instantaneous travel decisions and journey planning.

## 公共交通資料
## PUBLIC TRANSPORT INFORMATION

開放更多公共交通服務的實時資訊給公眾。

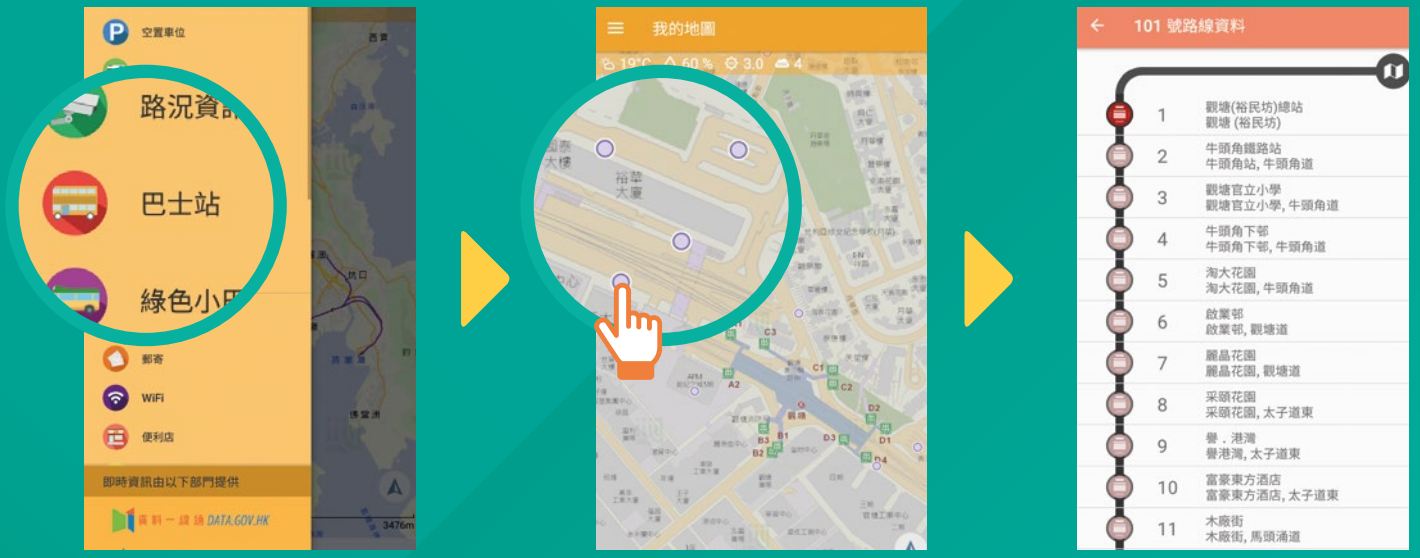
More real-time information on public transport services should be made available to the public.

## 短期
## SHORT TERM

- 於巴士站逐步進行安裝資訊顯示屏，提供巴士預計到達時間。
  Information display panels providing estimated arrival time of buses are installed progressively at bus stops.
- 提供長途巴士線的空位數量。
  Provide bus occupancy information for long-haul routes.
- 透過「我的九龍東」提供九龍東公共交通服務的資訊，例如巴士站地點和專線小巴終點站及路線表。
  Provide public transport information in KE such as locations of bus stops and green minibus termini and route lists on MyKE.
- 透過「香港出行易」提供綜合多式聯運公共交通資訊。
  Provide integrated multi-modal public transport information on HKeMobility.

## 中 - 長期
## MEDIUM TO LONG-TERM

- 繼續在九龍東合適的巴士站安裝實時資訊顯示屏及免費公眾Wi-Fi。
  Continue to install real-time information display panels and free public Wi-Fi at suitable bus stops in KE.
- 在九龍東建立智慧公共運輸交匯處，提供實時資訊顯示屏、免費公眾Wi-Fi服務、電動汽車充電設施和有空調系統的等候區域。
  Provide Smart public transport interchanges (PTIs) in KE with real-time information display panels, free public Wi-Fi services, electric vehicle charging facilities and air-conditioned waiting area.
- 提供其餘長途巴士線的空位數量。
  Provide bus occupancy information for remaining long-haul routes.




▲ 透過「我的九龍東」提供九龍東公共交通服務的資訊
Provide public transport information in KE on MyKE

# 流動及易行
# MOBILITY & WALKABILITY

## 環保的運輸方式
## GREEN MODE OF TRANSPORT

**低碳公共交通模式提供一個極好的另類選擇使旅程暢順以及改善空氣質素。**

Low-carbon public transport modes provide an excellent alternative for smooth travel as well as to improve air quality.

## 電動及無人駕駛巴士
## ELECTRIC AND AUTONOMOUS BUSES

九龍東可作為電動及無人駕駛巴士的試驗場。

KE can be a testing ground for electric and autonomous buses.

### 短期
### SHORT TERM

- 促進特許經營巴士公司進行電動巴士試驗。
  Facilitate franchised bus companies to conduct trial on electric buses.

### 中 - 長期
### MEDIUM TO LONG-TERM

- 促進在九龍東使用無人駕駛巴士。
  Facilitate the deployment of autonomous buses in KE.

# 騎單車
# CYCLING

在九龍東規劃了共13公里長的單車徑網絡以共融車道形式供行人及公園使用者共同使用。它亦可用作短途代步。

A 13km cycle track network in the form of Greenway for shared use with pedestrians and park users is planned in KE. It can also serve short-distance commuting.

## 短期
## SHORT TERM

- 在觀塘海濱花園的1公里路徑進行單車人士和公園使用者的共用測試。測試採用影像分析技術監測事故並能提供警報，以便操作員即時採取應行動。
  Conduct trial on 1km pathway at Kwun Tong Promenade for shared use by cyclists and park users. A video analytic system was used to detect incidents and provide alerts to an operator for immediate action.

## 中 - 長期
## MEDIUM TO LONG-TERM

- 從測試獲得的經驗，將共用概念延伸到九龍東的單車徑網絡。
  Extend the shared-use concept to the cycle track network in KE taking into account the experience gained in the trial.

▼ 於觀塘海濱花園內的共融通道試驗計劃
GreenWay pilot project at Kwun Tong Promenade

04 九龍東智慧城市發展
SMART CITY DEVELOPMENT IN KOWLOON EAST

# 資源管理及城市環境
# RESOURCES MANAGEMENT & URBAN ENVIRONMENT

在九龍東轉型為第二個核心商業區的過程中，經常面對減少能源消耗、環境污染和碳足跡的挑戰，並需保持就業和增長的競爭力，以及兼顧市民在該區工作或生活的福祉。要創造和維持高質量的環境，不僅需要現代化的公共基礎設施，還需要充份利用私人機構的參與。本研究建議推行符合下列目標的智慧措施：

- 通過引入最新科技實現**具資源效益的基礎設施**;以及
- 透過結合水文和生態價值於城市景觀設計中，引入**藍綠基礎設施**。

During the transformation of KE into CBD2, it is always a challenge to reduce energy use, environmental impacts and carbon footprint while entailing its competitiveness for jobs and growth as well as the well-being of people working or livingthere. In creating and sustaining a high quality environment, it requires not only modernised public infrastructures but also capitalising private initiatives. The Study proposes to take forward smart measures which are in line with the following objectives:

- Implement **resource-efficient infrastructures** by introducing latest technologies; and
- Incorporate **blue-green infrastructures** by integrating the hydrological and ecological values in urban landscape design.

計劃中 Planned　已完成/進行中 Completed / On-going

# 具資源效率的基建
# RESOURCE-EFFICIENT INFRASTRUCTURE

**智慧基建在區域及住戶層面包含具備資源效率的方式。**

Smart infrastructures comprise of resource-efficient methods at district and household levels.

## 區域供冷系統
## DISTRICT COOLING SYSTEM

啟德發展區在早期規劃階段已納入區域層面的智慧基建。區域供冷系統是一種節能水冷式空調系統，比傳統空調系統的能源消耗低約20-35%。

KTD Area has incorporated smart infrastructures at a district level at the early planning stage. The district cooling system is an energy-efficient water-cooled air-conditioning system that can reduce energy consumption to approximately 20-35% comparing to conventional air-conditioning systems.

### 短期
### SHORT TERM

- [x] 分階段將區域冷卻系統延伸至啟德發展區非住用發展項目。
  Extend the district cooling system to serve non-domestic developments in KTD by phases.

### 中 - 長期
### MEDIUM TO LONG-TERM

- [ ] 將區域冷卻系統應用到其他新發展區。
  Extend the district cooling strategy to other new development areas.

# 資源管理及城市環境
# RESOURCES MANAGEMENT & URBAN ENVIRONMENT

## 廢物和回收物料處理
## WASTE AND RECYCLABLES HANDLING

一個智慧及綠色社區涉及使用有效管理和將廢物轉化為有用資源。

A smart and green community involves effective management and conversion of wastes to useful resources.

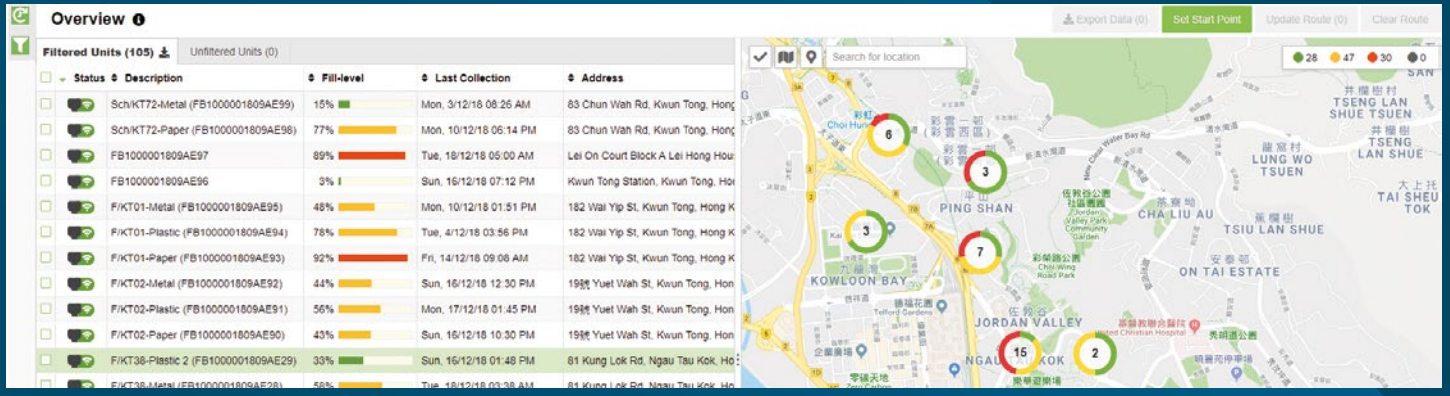
### 短期
### SHORT TERM

- [x] 在觀塘的33個回收箱安裝傳感器，以進行“智能回收箱系統”概念驗證測試，監測回收箱的滿載程度。此系統能夠透過人工智能技術估算分類回收桶下次滿載時間，並建議最佳收集路線。
  Conduct proof of concept trial on “Smart Recycling Bin System” by installing fill-level sensors at 33 recyclable collection bins (RCBs) in Kwun Tong to monitor the fill levels at the RCBs. The system can estimate the next fill-up time and recommend an optimised collection route using AI.

### 中 - 長期
### MEDIUM TO LONG-TERM

- 與有關方面探討將智能回收箱系統在其他收集路線使用。
  Explore with relevant parties in deploying the Smart Recycling Bin System to other collection routes.

- 於九龍灣商貿區提供有機資源回收中心，將在九龍東源頭分類的有機廢物轉換成可重用物料及能源。
  Provide an organic resources recovery centre in KBAA for recovery of reusable materials and energy from source-separated organic waste generated within KE.




▲「智能回收箱系統」網上管理平台
“Smart Recycling Bin System” Management Portal

# 家居能源監察系統
# ENERGY MONITORING SYSTEM AT HOUSEHOLD LEVEL

改善能源效率及減低用電量是應對氣候變化的關鍵。透過監察個別家用電器的用電量，提高節約能源及資源使用的意識，並提供能源消耗估算數據以協助培養良好的能源消耗習慣。

Energy efficiency improvements and electricity consumption reduction are keys to combat climate change. Increase awareness of energy conservation and resource usage through monitoring of individual household appliances, providing consumption data can assist in cultivating good energy consumption habits.

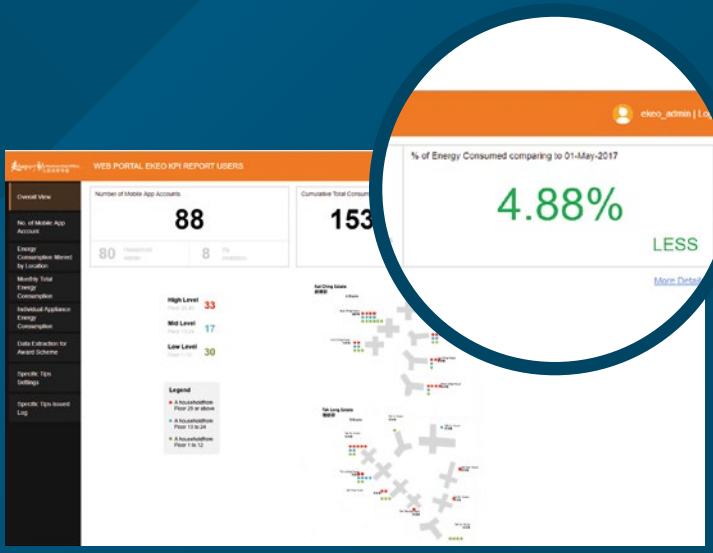
## 短期
## SHORT TERM

- 舉行智慧節能計劃，讓啟晴邨及德朗邨參與計劃的住戶可以專用的“智慧能源@九龍東”手機應用程式追踪他們的實時能源消耗。每月舉辦一次工作坊提供節能貼士，加強參加者的節能意識。
  Conduct Smart Energy Saving Scheme, allowing participating households in Kai Ching Estate and Tak Long Estate to track their real-time energy consumption using a dedicated mobile app “Smart Energy @ KE”. Monthly workshops providing energy saving tips are conducted to increase participants’ energy saving awareness.

- 與電力公司分享於計劃內的整合結果，建立有效的家居節能措施。
  Share the aggregated results from the Scheme with electricity companies with a view to establishing effective measures in energy saving for households.

## 中 - 長期
## MEDIUM TO LONG-TERM

- 在新的發展項目安裝智能電錶，並在其他發展逐步將傳統電錶升級至智能電錶。
  Install smart electricity meters in new developments, and progressively upgrade conventional meters to smart meters in other developments.




▲「能源效率數據系統」網上管理平台
“Energy Efficiency Data System” Management Portal

# 資源管理及城市環境
# RESOURCES MANAGEMENT & URBAN ENVIRONMENT

## 藍綠基礎設施
## BLUE-GREEN INFRASTRUCTURES

**活化水體除了可以推廣綠化、生物多樣性、美化及近水活動，同時亦可實現有效排水能力。**

Revitalising water bodies promotes greening, biodiversity, beautification and water-friendly activities and at the same time achieves effective drainage capability.

## 活化明渠
## REVITALISATION OF NULLAHS

為使九龍東成為一個更可持續發展的綠色核心商貿區，政府實施了各種綠化和環保措施，提升環境表現及使用資源的效益。

To make KE into a more sustainable Green CBD, the Government implements various greening and environmental initiatives to enhance environmental performance and efficiency in the use of resources.

### 短期
### SHORT TERM

- 通過改善啟德明渠的工程，將明渠變成一條具吸引力的綠色走廊 – 啟德河。
  Upgrading Kai Tak Nullah with an aim to turn the nullah into an attractive green corridor – Kai Tak River.

### 中 - 長期
### MEDIUM TO LONG-TERM

- 利用環境、生態和園境美化等改善工程，將敬業街明渠活化成翠屏河，促進具活力的公共空間及改善連繫，並同時減低周邊的水浸風險。
  Revitalise the nullah at Kai Yip Street into Tsui Ping River with environmental, ecological and landscape upgrading works to foster vibrant public spaces and improve connectivity while reducing flood risk in the surroundings.

04 九龍東智慧城市發展
SMART CITY DEVELOPMENT IN KOWLOON EAST

# 治理及社會經濟活力
# GOVERNANCE & SOCIO-ECONOMIC VIBRANCY

透過創新科技持續改善城市效率和公共資產的管理，提升城市應變能力、推廣社區共融和提升社會經濟活力。本研究建議推行符合下列目標的智慧措施：

- 加強於大型活動或惡劣天氣期間的**城市應變能力**;
- 新的**實施模式**以鼓勵各界別在智慧城市發展方面進行合作;
- 推動良好的**資產管理**以提升治理; 以及
- 促進**社區共融**，使所有人都能享受不同方面的生活。

Continuous improvement of urban efficiency and management of public assets through innovative technologies can improve city resilience, promote social inclusion and enhance socio-economic vibrancy. The Study proposes to take forward smart measures which are in line with the following objectives:

- Enhance **city resilience** especially during mega events or adverse weather;
- New **implementation models** to encourage various sectors to collaborate in smart city development;
- Promote good **asset management** to uplift the governance; and
- Embrace **social inclusion** so that all individuals can enjoy in different aspects of life.

# 治理及社會經濟活力
# GOVERNANCE & SOCIO-ECONOMIC VIBRANCY

## 城市應變能力
## CITY RESILIENCE

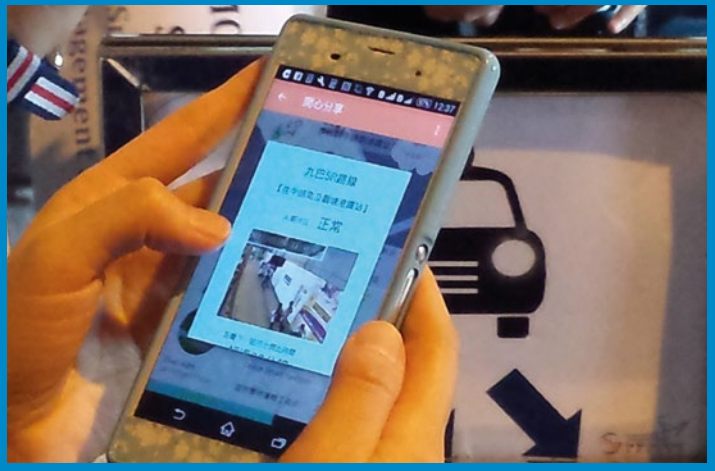
**通過創新科技改善城市效率和資產管理，以加強城市應變能力，推廣社區共融和提升社會經濟活力。**

Through innovative technologies, improvements for urban efficiency and asset management can be made to strengthen city resilience, promote social inclusion, and enhance socio-economic vibrancy.

## 智慧人流管理系統
## SMART CROWD MANAGEMENT SYSTEM

為加強對將來在九龍東舉辦活動時的應變，可採用科技協助管理人流及車流，從而增加活動參加者的適應力和安全。

To enhance response to future events that will take place in KE, technologies can be applied to help management of people and traffic flows in enhancing adaptiveness and safety for event-goers.



計劃中
Planned

已完成/進行中
Completed / On-going

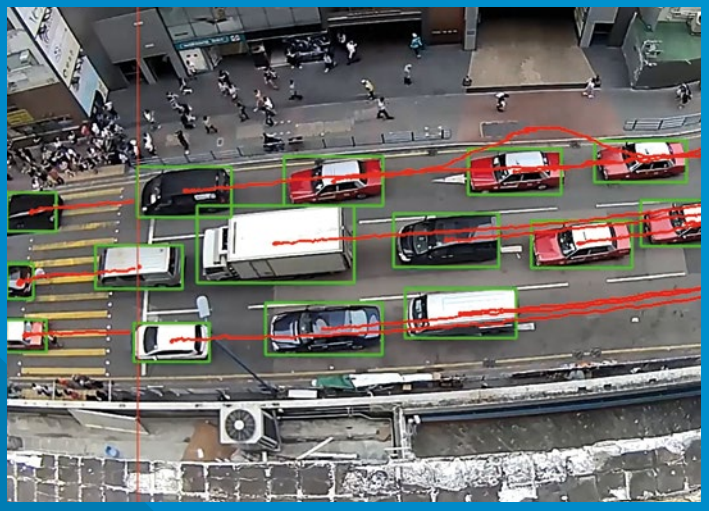
## 短期
## SHORT TERM

於九龍東舉辦的馬拉松活動進行智慧人流管理系統測試。透過利用監察攝影機和影像分析，系統可以監察沿跑步路線的樽頸位以及公共交通輪候點，並透過「我的九龍東」和設置於會場的大型顯示屏，發放穿梭巴士和渡輪的預計輪候時間及其他運輸工具的排隊情況。

Conduct a trial on Smart Crowd Management System in a marathon event in KE. With the use of surveillance cameras and VA, the system monitors bottleneck areas along the running routes and public transport queuing points and provides information on estimated waiting time for shuttle buses and ferries as well as queueing conditions of other transport modes through MyKE and on-site display boards.

將此系統重新調配到開源道，測試監測人流及車流。

Re-deploy the system at Hoi Yuen Road to conduct a trial on monitoring pedestrian and traffic flows.



▲ 重新調配此系統到開源道監測人流及車流
Re-deployment of the system at Hoi Yuen Road to monitor pedestrian and traffic flows

## 中 - 長期
## MEDIUM TO LONG-TERM

探討在將來的啟德體育園及合適的位置安裝類似系統協助人流管理。

Explore deploying similar system at the future Kai Tak Sports Park or appropriate locations to assist in crowd management.

## 治理及社會經濟活力
## GOVERNANCE & SOCIO-ECONOMIC VIBRANCY

### 實施模式
### IMPLEMENTATION MODELS

**為使各界別參與智慧城市發展，已建議透過加入新賣地條款和進行概念驗證測試等措施，展示智慧城市發展帶來的好處。**

To involve various sectors in smart city development, measures such as through new land sale requirements and implementation of PoC trials have been proposed to showcase the benefits of Smart City development.

### 賣地條款
### LAND SALE CONDITIONS

為提倡低碳及環保設計建築，我們已把一些特定要求納入九龍東新發展的賣地條款，其中包括綠建環評暫定金級或以上的認證、較高的綠化率、提供智能水錶系統及電動汽車充電設施。

要求於合適的出售用地上的發展分享實時空置泊車位資訊。

To advocate low-carbon and environmentally-friendly design in buildings, specific requirements are included in land sales conditions for new developments within KE such as adoption of green building design of BEAM Plus Provisional Gold rating or above, higher greening ratio, provision of smart water meter system and EV charging facilities.

Require sharing of real-time parking vacancy information for developments at appropriate land sale sites.

## 概念驗證測試
## PROOF OF CONCEPT TRIALS

在九龍東進行不同的概念驗證測試，以示範智慧城市發展的好處和了解更廣泛應用的可行性。

分享於概念驗證測試中獲得的經驗和知識。

Implement different proof of concept trials in KE to demonstrate the benefits of smart city development and understand the feasibility of wider application.

Share the experiences and knowledge gained in proof of concept trials.

智慧人流管理系統
Smart Crowd Management System

按個人特性及喜好提供的行人導向
Persona and Preference-based Way-finding for Pedestrians

多功能路燈
Multi-purpose Lamp Post

能源效率數據系統
Energy Efficiency Data System

智慧回收箱系統
Smart Recycling Bin System

實時道路工程資訊
Real-time Road Works Information

路旁上落貨區監察系統
Kerbside Loading And Unloading Bay Monitoring System

違例泊車監察系統
Illegal Parking Monitoring System

# 治理及社會經濟活力
# GOVERNANCE & SOCIO-ECONOMIC VIBRANCY

## 資產管理
## ASSET MANAGEMENT

**發展創新科技方案以更妥善地管理大量的政府資產和更有效率及有效地安排保養。**

To better manage the vast amount of government assets, and schedule maintenance in a more efficient and effective manner, innovative technology solutions are developed.

### 智慧路燈
### SMART ROAD LIGHTS

智慧路燈可透過無線網絡傳送實時數據來遙距監測運作。除了開關路燈外，前線人員還可以收到通知而及時維修故障路燈，縮短停頓時間和保障道路安全。

The smart road lights can transfer real-time data through the wireless network for remote monitoring of their operation. In addition to switching on and off the road lights, frontline staff can be notified through the system to promptly repair faulty lights, shorten their downtime and ensure road safety.

#### 短期
#### SHORT TERM

- 提升超過220支位於新蒲崗及啟德發展區的路燈，使用LoRaWAN無線傳送網絡。
  Upgrade over 220 road lights with wireless network in San Po Kong and KTD Area using LoRaWAN.
- 探討其他低功率廣域(LPWA)技術。
  Explore other Low-Power Wide-Area (LPWA) technologies.

#### 中 - 長期
#### MEDIUM TO LONG-TERM

- 探討應用到其他地區的可能性。
  Explore the feasibility of wider application in other districts.

▲ 在新蒲崗的智慧路燈
Smart road light in San Po Kong

## 智慧排水系統
## SMART DRAINAGE SYSTEM

透過創新科技管理排水和污水系統，可減低管道系統故障和提升對災害的應變。

The management of drainage and sewerage systems through innovative technologies can reduce the risk of pipe system failures and improve response to hazards.

### 短期
### SHORT TERM

- 在九龍灣的雨水和污水系統的沙井內安裝無線地下裝置，組成一個全面的系統以監測特定地區的水位和氣體濃度。透過無線信號傳輸和大數據分析，智慧排水系統讓前線人員對危險氣體排放、非法污水排放及管道堵塞能適當和及時地採取相應行動。

  Install wireless underground devices in manholes of both stormwater drainage and sewerage systems in Kowloon Bay, forming a comprehensive system to monitor the water level and gas concentration of designated zones. Through wireless signal transmission and big data analysis, the smart drainage system enables frontline staff to take proper and timely actions on dangerous gas emission, illegal wastewater discharge, and pipe blockage.

### 中 - 長期
### MEDIUM TO LONG-TERM

- 將相類似系統應用到其他雨水排水和污水系統，以提升整體管理效率。

  Apply similar monitoring system to other stormwater drainage and sewerage systems to enhance the overall management efficiency.

## 智管網
## WATER INTELLIGENT NETWORK

將於供水管網安裝傳感設備及設立一套智能管網管理電腦系統，用以分析收集到的數據，從而持續監測管網狀況。

Sensing equipment will be installed in water distribution network and an intelligent network management computer system will be established for analysing the collected data for continuous monitoring of the condition of the network.

### 中 - 長期
### MEDIUM TO LONG-TERM

- 為九龍東的食水分配系統裝置水壓管理及區域監測系統。

  Implement pressure management and district metering system for the fresh water distribution system in KE.

# 治理及社會經濟活力
# GOVERNANCE & SOCIO-ECONOMIC VIBRANCY

## 社區共融
## SOCIAL INCLUSION

**人口老化除了為社會帶來挑戰，更提供創新方案的機遇，促進社區共融。**

The growth of ageing population not only brings challenges to the society, but also opportunities for innovation solutions to embrace social inclusion.

### 智慧行人過路處
### SMART PEDESTRIAN CROSSING

長者或傷健人士使用長者或傷健人士個人八達通卡於智慧過路處拍卡便可啓動智能裝置，延長稍後的閃動綠色人像燈時間。

Elderly or persons with disabilities can activate the smart device installed at traffic signal poles by tapping their Elder Octopus Card or Personalised Octopus Card when using smart pedestrian crossings. The subsequent pedestrian flashing green time will be extended.

#### 短期
#### SHORT TERM

- 於牛頭角道及宏照道進行測試，以檢討此系統的成效。
  Conduct trials at Ngau Tau Kok Road and Wang Chiu Road and review the effectiveness of such system.

#### 中 - 長期
#### MEDIUM TO LONG-TERM

- 根據測試結果，考慮將類似概念應用到其他合適的行人過路處。
  Subject to the trial results, consider applying similar concept to other suitable pedestrian crossings.
- 探討其他根據個別行人需要調節行人過路處的閃動綠色人像燈時間的方法。
  Explore alternative means of regulating flashing green time according to individual pedestrian needs.

04 九龍東智慧城市發展
SMART CITY DEVELOPMENT IN KOWLOON EAST

# 資訊及通訊科技
# INFORMATION & COMMUNICATIONS TECHNOLOGY

資訊及通訊科技能實現不同裝置之間的連接。通過使用傳感器和通訊網絡，可以輕易地收集和分享數據以支持智慧城市措施的發展。本研究建議推行符合下列目標的智慧措施：

- 通過**物聯網**收集城市數據，促進規劃和決策過程；
- 提供高速可靠的**通信網絡**；以及
- 為分享空間數據設立**空間數據共享平台**。

Information & Communications Technology (ICT) enables linkages between multiple devices. Through the use of sensors and communication network, data can be easily collected and shared to support smart city initiatives. The Study proposes to take forward smart measures which are in line with the following objectives:

- Collect city data through **Internet of Things** to facilitate planning and decision-making process;
- Provide high-speed and reliable **communication network**; and
- Set up **common spatial data infrastructure** for spatial data sharing.

# 資訊及通訊科技
# INFORMATION & COMMUNICATIONS TECHNOLOGY

## 物聯網
## INTERNET OF THINGS (IoT)

**一個為九龍東而設的物聯網生態系統，對開發各種可促進各方協作的方案至為重要，能提供更多機會和價值創造。**

An IoT ecosystem in Kowloon East is important to develop various solutions that will trigger collaboration across parties, offering more opportunities and value creation.

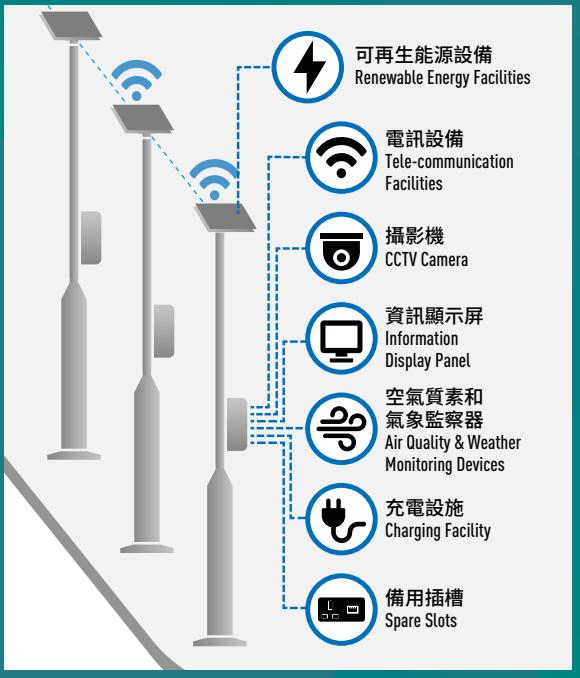
## 多功能路燈
## MULTI-PURPOSE LAMP POSTS

多功能路燈可為各種不同物聯網傳感器提供一個理想的安裝地點，並可配備不同的數據傳輸技術。一系列路燈可以形成地區傳感網絡，容許實時數據收集。

分析收集到的城市數據讓我們可以更有效率和有效地規劃和管理我們的城市。

Multi-purpose lamp posts provide the ideal locations to accommodate various IoT sensors and can be equipped with various data transmission technologies. A series of these will form a district-wide sensing network allowing real-time data collection.

Analysing the collected city data enables us to be more efficient and effective in planning and managing our city.



計劃中
Planned

已完成/進行中
Completed / On-going

## 短期
## SHORT TERM

- 在九龍東進行「多功能路燈」概念驗證測試，配置各種不同傳感器，例如空氣質素傳感器、天氣傳感器、監察攝影機、電動汽車充電設施、顯示屏、太陽能板和電訊通訊閘等。
  Conduct PoC trial on multi-purpose lamp posts of different configurations with various sensing devices such as air quality sensors, weather sensors, surveillance cameras, EV charging facilities, display panel, solar panels, telecommunications gateway, etc. in KE.

- 與相關部門分享從概念驗證測試中獲得的經驗。
  Share the experience gained in the PoC trial with relevant departments.

- 與相關部門共享收集到的城市數據，於街道層面進行趨勢研究。
  Share the collected city data with relevant departments for conducting trend studies at street level.

- 在政府資訊科技總監辦公室的先導項目中，於九龍東安裝約50枝多功能智能路燈。
  Install about 50 multi-functional smart lamp posts in KE under Office of the Government Chief Information Officer's pilot project.

## 中 - 長期
## MEDIUM TO LONG-TERM

- 在其他合適位置，例如九龍東和新蒲崗商貿區內的主要道路，安裝多功能智能路燈。
  Install multi-functional smart lamp posts at other suitable locations such as major road corridors in KE and SPKBA.

▲ 在起動九龍東辦事處外的多功能路燈
The multi-purpose lamp post outside EKEO Office

# 資訊及通訊科技
# INFORMATION & COMMUNICATIONS TECHNOLOGY

## 通訊網絡
## COMMUNICATION NETWORK

**多元的電訊方案，包括跨境連接、數據中心和雲端服務已發展起來。一個高速而覆蓋範圍大的通訊服務能夠促進傳感網絡和實時數據傳輸，加強城市管理。**

A wide range of telecommunications solutions, including cross-border connections, data centres and cloud services, have been developed. A high-speed and wide-coverage communication service can facilitate sensing network and transmission of data in real-time to enhance city management.

## 流動通訊的發展
## DEVELOPMENT OF MOBILE COMMUNICATIONS

提供高速、高容量和低延遲電訊，例如第五代流動網絡服務，令物聯網和更多的智慧城市應用能夠得到實現。

街道設施包括多功能路燈適合流動網絡營辦商安裝相關的基站，以支持智能系統的應用。

Provision of high-speed, high-capacity and low-latency telecommunications, for example 5G mobile services, makes IoT and more smart city applications a reality.

Street furniture, including multi-purpose lamp posts, are suitable for mobile network operators to install related cell stations to support application of intelligent systems.

可加設額外物聯網設備的多功能路燈
Multi-purpose lamp post that could house additional IoT devices

# Wi-Fi基建
# WI-FI INFRASTRUCTURE

提供可靠和持續的網絡服務對於落實智慧城市措施十分重要。擴展免費Wi-Fi服務的覆蓋範圍使市民可以隨時隨地接收和傳播信息。

九龍東已建立了80多個免費Wi-Fi熱點。

Provision of a reliable and continuous internet service is crucial in enabling smart city initiatives. Extension of coverage area of free Wi-Fi services allows people to receive and disseminate information anytime, anywhere.

Some 80 free Wi-Fi Hotspots have been set up in KE.

## 短期
## SHORT TERM

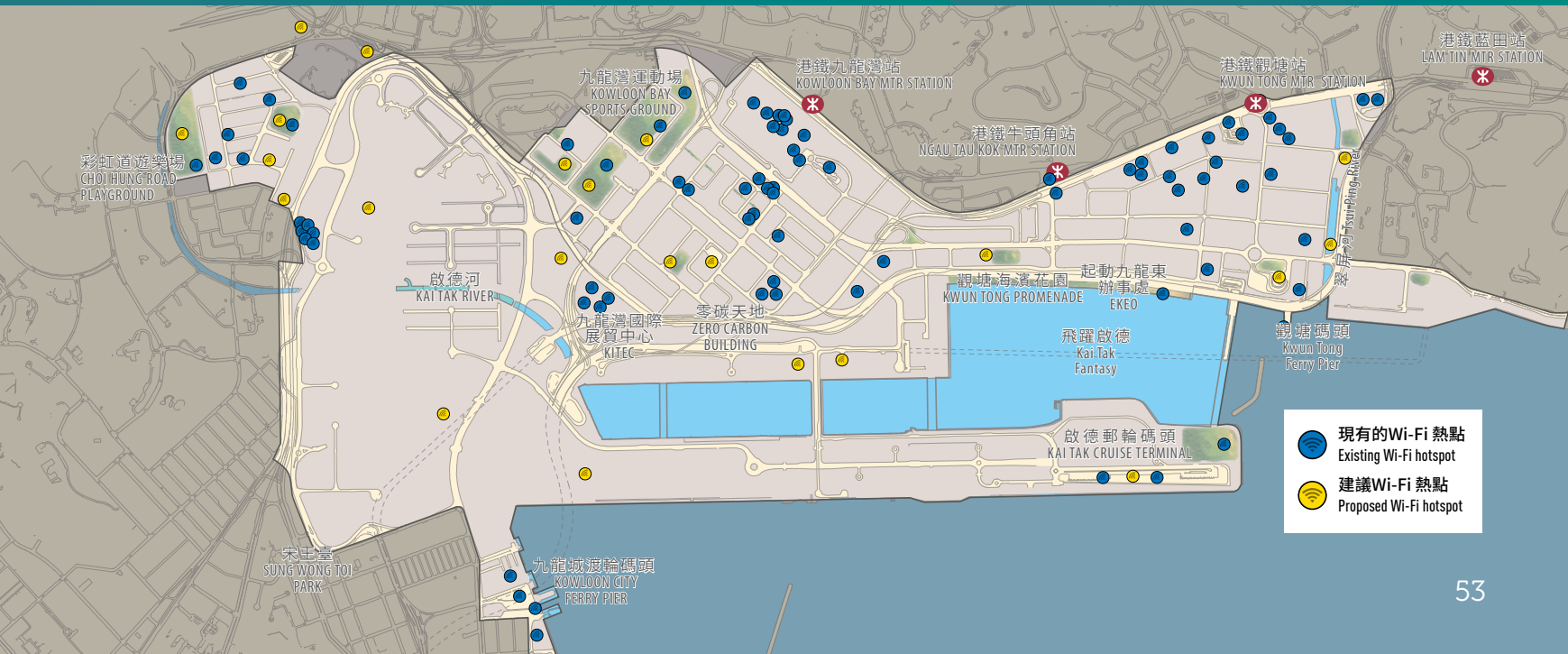
- 在九龍東及新蒲崗商貿區內更多的公共休憩用地和政府設施提供Wi-Fi服務，擴展覆蓋範圍。
  Provide Wi-Fi services at more public open spaces and government premises to increase the coverage in KE and SPKBA.

## 中 - 長期
## MEDIUM TO LONG-TERM

- 在未來公眾休憩用地和政府設施提供Wi-Fi服務為標準常規。
  Provide Wi-Fi services in future public open spaces and government facilities as a standard practice.

- 倡議私人發展商在發展項目內的公共地方提供Wi-Fi接入點。
  Advocate private developers to provide Wi-Fi access at public areas within their developments.

▼ 在九龍東及新蒲崗商貿區內提供Wi-Fi服務的公共空間和政府設施
Wi-Fi services at public open space and government premises in KE and SPKBA



# 資訊及通訊科技
# INFORMATION & COMMUNICATIONS TECHNOLOGY

## 空間數據共享平台
## COMMON SPATIAL DATA INFRASTRUCTURE (CSDI)

**空間數據已成為建設智慧城市不可或缺的一部分，需要建立一個空間數據共享平台，以分享和分析空間數據。**

Spatial data have become indispensable for building a smart city and hence a common spatial data infrastructure is essential to providing a platform for sharing and analysing spatial data.

## 數據標準化
## DATA STANDARDISATION

應用物聯網的系統在日常運作中產生大量及各種資訊。各界人士特別是科技初創公司可運用這些資訊富創意地發展更多創新及實用的應用及服務。

A vast quantity and variety of information is produced in day-to-day operations with application of IoT and intelligent systems. Different parties, especially technology startups, can creatively develop more innovative and practical applications and services using this information.

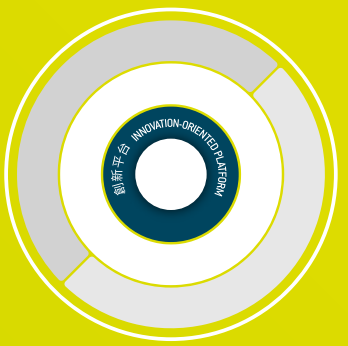
## 短期
## SHORT TERM

- 將共享實時空置泊車位資訊的內容、格式和頻率標準化。
  Standardise the contents, format and frequency of sharing real-time parking vacancy data.

## 中 - 長期
## MEDIUM TO LONG-TERM

- 隨著更多智慧城市措施推行，從這些措施收集和產生的實時及靜態數據，例如由實時道路工程、多功能路燈、三維行人地圖和電動汽車充電點等收集的實時資訊，可以通過網上平台或與其他手機應用程式結合，供公眾使用。
  As more smart city initiatives will be launched, both real-time and static data collected and generated by these initiatives, such as real-time information on road works, multi-purpose lamp posts, 3D pedestrian map and EV charging points, can be disseminated through online platforms or integrated into other mobile applications for public use.

# 創新平台
# INNOVATION-ORIENTED PLATFORM




建立創新平台能促進政府部門、業界、學術界、研究機構、其他持份者及公眾之間的共同創造及跨界別合作，以實現智慧九龍東的願景。

The establishment of an innovation-oriented platform fosters co-creation and cross-sector collaboration among the Government, the industry, academia, research institutes, other stakeholders and the general public to realise the vision of a Smart KE.

## 共同創造
## CO-CREATION

因應第一階段公眾參與收集到的意見及已制定的框架策略，概念驗證測試正展示智慧城市發展的好處；而各個合作項目也正促進智慧城市發展。愈來愈多單位正攜手共同創造一個智慧及可持續的城市，並以九龍東作為起點。

Taking into account the public views collected during Stage 1 PE and the formulated framework strategy, the PoC trials are demonstrating the benefits of smart city development, while various collaboration projects are contributing to smart city development. More and more parties are joining hands in the co-creation of a smart and sustainable city with KE as a starting point.

## 跨界別合作
## CROSS-SECTOR COLLABORATION

我們鼓勵各方利用九龍東作為試點，探索智慧城市發展，並於各項目中接觸不同的持份者，例如研究機構、學術機構、資訊及通信科技業界、公用事業和公共交通公司、專業團體、土地擁有人和發展商、物業管理界、建築物業主及停車場經營者。

發展智慧城市是一個持續的過程。為達到這個目的，我們支持與智慧城市相關的研究項目申請基金資助，並促進政府部門和研究人員之間的聯絡。通過我們的支持，研究課題包括九龍東的室內外地理信息系統、樹木風險預警系統、空氣質量預測系統、使用數據挖掘技術個性化出行體驗，及未來智慧城市的成本效益分析框架等項目已獲得經費。

通過我們的協助，中華電力有限公司亦正在建立一個智慧能源社區，涵蓋啟德發展區的部分私人發展。

We encourage all parties to use KE as a test bed for exploring Smart City development and engage with various stakeholders such as research institutes, academic institutions, the ICT sector, public utility and public transport companies, professional bodies, landowners and developers, property management sector, building owners and car park operators in various projects.

Developing a smart city is an ongoing process. To achieve this, we provided support for smart city-related research projects in their funding application and facilitate liaison between government departments and researchers. Through our support, research subjects including an indoor and outdoor geographic information system for KE, tree risk alert system, air quality prediction system, using data mining techniques to personalise travelling experience and cost benefit analysis framework for future smart city projects have secured funding for their projects in KE.

With our facilitation, CLP Hong Kong Ltd. is also fostering a smart energy community covering some private developments in the KTD Area.

# 創新平台
# INNOVATION-ORIENTED PLATFORM

**九龍東為智慧城市項目提供試點或示範場地，透過三方合作（即政府、私營機構和專業/學術機構）發揮最大的合作創造協同效應。我們繼續鼓勵大學和研究機構發展創新的智慧城市方案。一些例子包括：**

KE provides a test bed or demonstration ground for smart city projects to maximise the synergies created through tri-party (viz. government, private sectors and professional/ academic institutions) collaboration. We continue to encourage universities and research institutes to develop innovative smart city solutions. Some examples include:

### 個人化實時空污染風險信息系統 - 香港科技大學
### Personalised Real-Time Air Quality Informatics System for Exposure – Hong Kong (PRAISE-HK) by Hong Kong University of Science and Technology (HKUST)

此項目旨在提供網上平台，建議個人化的室內和室外路線，讓用戶自定步行路線，減少暴露於影響健康的污染物中。預測的街道空氣質素數據會透過「我的九龍東」發放。

The project aims to provide an online platform for suggesting personalised indoor and outdoor routes to let users make their own informed decisions of walking routes to reduce exposure to pollutants that affect health. The predicted air quality data at street level will be promulgated via MyKE.

### 智能室內和室外地理信息系統 - 香港應用科技研究院
### Smart Indoor and Outdoor Geographic Information System by Hong Kong Applied Science and Technology Research Institute Company Limited

已為九龍東開發可擴展且具有成本效益的室內和室外地理信息系統，可以實現大量物聯網裝置的實時數據收集和監測。起動九龍東辦事處所進行的概念驗證測試、「我的九龍東」的易泊車及室內定位功能的物聯網裝置數據交流，都在此平台運行。

A scalable and cost-effective indoor and outdoor geographic information system has been developed for Kowloon East, enabling real-time data capture and monitoring for a vast number of IoT devices. Data exchanges between the IoT devices under EKEO's proof of concept trials, Easy Parking and indoor navigation functions in MyKE are carried out on this platform.

### 智慧城市樹木管理計劃 - 香港理工大學、香港大學、香港科技大學及地球之友
### Smart City Tree Management Project by Hong Kong Polytechnic University (PolyU), University of Hong Kong, HKUST and Friends of the Earth

此項目旨在採用智能傳感技術監測樹木的傾斜角度及根基移位，建立潛在問題樹木的早期預警系統。此項目將於九龍東的脆弱樹種上將逐步安裝用於監測的傳感器。

The project aims to develop an early warning-system against potential tree failure by detecting changes in lower trunk tilt and root-plate displacement using sensors. Vulnerable trees species in KE will be progressively installed with sensors for monitoring under the project.

### 智慧用電社區 - 中華電力有限公司
### Smart Energy Community by CLP Hong Kong Ltd.

此項目旨在啟德發展區建造一個智慧節能社區，包括 (1) 於七個私人住宅發展內安裝智能電錶； (2) 在一個公共屋邨的停車場提供電動車充電設施； 及 (3) 發展商參與高峰用電需求管理獎勵計劃，減低私人住宅非住用部分(如會所) 在高峰時段的能源需求。

The project aims to foster a smart energy saving community in the KTD Area by (1) installing smart electricity meters at seven recently completed private residential developments; (2) provide EV charging facilities at a public housing estate car park; and (3) engage developers to participate in a peak demand management reward programme with an aim to minimise energy consumption during peak demand for non-domestic portion (such as clubhouses) of the residential developments.

### 人本感知的智能城市：以人為本的整合，挖掘和決策框架 - 香港科技大學
### People-Aware Smart City: A People-Centered Integration, Mining and Decision Framework by HKUST

此項目旨在通過將數據挖掘技術應用於個人化旅遊體驗，令城市體驗融合於個人層面。

The project aims to develop personalised travelling experience by applying data mining techniques for an integrated city experience at personal level.

### 智慧城市成本效益分析 - 香港理工大學
### Cost-Benefit Analysis Framework for Smart Development by PolyU

此項目旨在透過使用已建立的方式及從起動九龍東辦事處實行的智慧城市相關項目所得的經驗，訂立框架讓決策制定者為未來的智慧城市項目進行成本效益分析。

Through the use of established methods and experience from smart city related projects conducted by EKEO, the project aims to build up a framework for policy makers for carrying out cost-benefit analysis of future smart city projects.

# 創新平台
# INNOVATION-ORIENTED PLATFORM

## 知識型發展
## KNOWLEDGE BASED DEVELOPMENT

從本研究的概念階段開始，我們參與了各種探索和協作學習、經驗分享和聯繫網絡活動，包括參觀、討論、研討會、論壇和會議、作比賽評判，以建立跨界別及多層的協作和夥伴關係，涵蓋本地和海外持份者。

除了支持教育局進行科學、科技、工程及數學（STEM）教育，我們亦向小學、中學及大學學生分享九龍東智慧城市的經驗，參與本地大學和非牟利機構舉辦的STEM比賽、研討會及工作坊。

Since the conception of the Study, we have engaged in various exploratory and collaborative learning, experience-sharing and networking events, including visits, discussions, workshops, forums and conferences, competition judging to engender cross-sector and multi-level collaboration and partnerships involving both local and overseas stakeholders.

Apart from supporting the Education Bureau in their Science, Technology, Engineering and Mathematics (STEM) education, we have also shared the Kowloon East Smart City experiences with primary, secondary and university students' through STEM competitions, seminars and workshops organised by local universities and non-profit making organisations.

# 社區參與
# COMMUNITY ENGAGEMENT

我們重視在九龍東智慧城市發展過程中的社區參與和共同創造的重要性。我們舉辦了簡報會、會議、工作坊和其他活動，旨在提高各持份者（包括公眾）的認知及促進他們的參與，以確保社區的期望得到充分考慮。

We attach importance to community engagement and co-creation in the process of smart city development in KE. Briefings, meetings, workshops and other events have been organised aiming to increase awareness and facilitate participation among various stakeholders including the general public to ensure that the community's aspirations are duly taken into account.

# 05 你的意見 YOUR VIEWS

我們已設立網上互動公眾參與平台(http://mapping.arup.com/smartke/)，促進市民及持份者在網上表達意見。

歡迎你於**二零一九年三月九日或之前**透過郵寄、傳真、電郵或本研究網頁 www.smartke.hk 將意見交給我們。

We have established an online interactive public engagement platform (http://mapping.arup.com/smartke/) to facilitate the public and stakeholders to express their views online.

We welcome you to send your views to us by post, fax, email or through our Study website www.smartke.hk **on or before 9 March 2019**.

## 第二階段公眾參與 STAGE 2 PUBLIC ENGAGEMENT

### 公眾論壇及技術展覽 Public Forum and Technologies Showcase

請於2019年2月16日或之前於本研究網頁www.smartke.hk登記。
Please register via our website www.smartke.hk on or before 16 February 2019.

| | |
|---|---|
| 日期 Date | 23/2/2019 (星期六 SAT) |
| 時間 Time | 14:00 - 17:00 |
| 地點 Venue | **起動九龍東辦事處展覽廳 (觀塘海濱道122號)**<br>Exhibition Hall, Energizing Kowloon East Office<br>(122 Hoi Bun Road, Kwun Tong) |

### 網上互動公眾參與平台 Online Interactive Map

### 本研究網頁 Study Website

## 巡迴展覽
## Roving Exhibition

**1 起動九龍東辦事處**
Energizing Kowloon East Office
5/1 & 23/2/2019

**2 駿業街**
Tsun Yip Street
6 - 17/1/2019

**3 臨福街休憩處**
Lam Fook Street Sitting-out Area
18 - 29/1/2019

**4 沐翠街**
Muk Chui Street
30/1 - 10/2/2019

**5 東啟德體育館**
Kai Tak East Sports Centre
11 - 22/2/2019

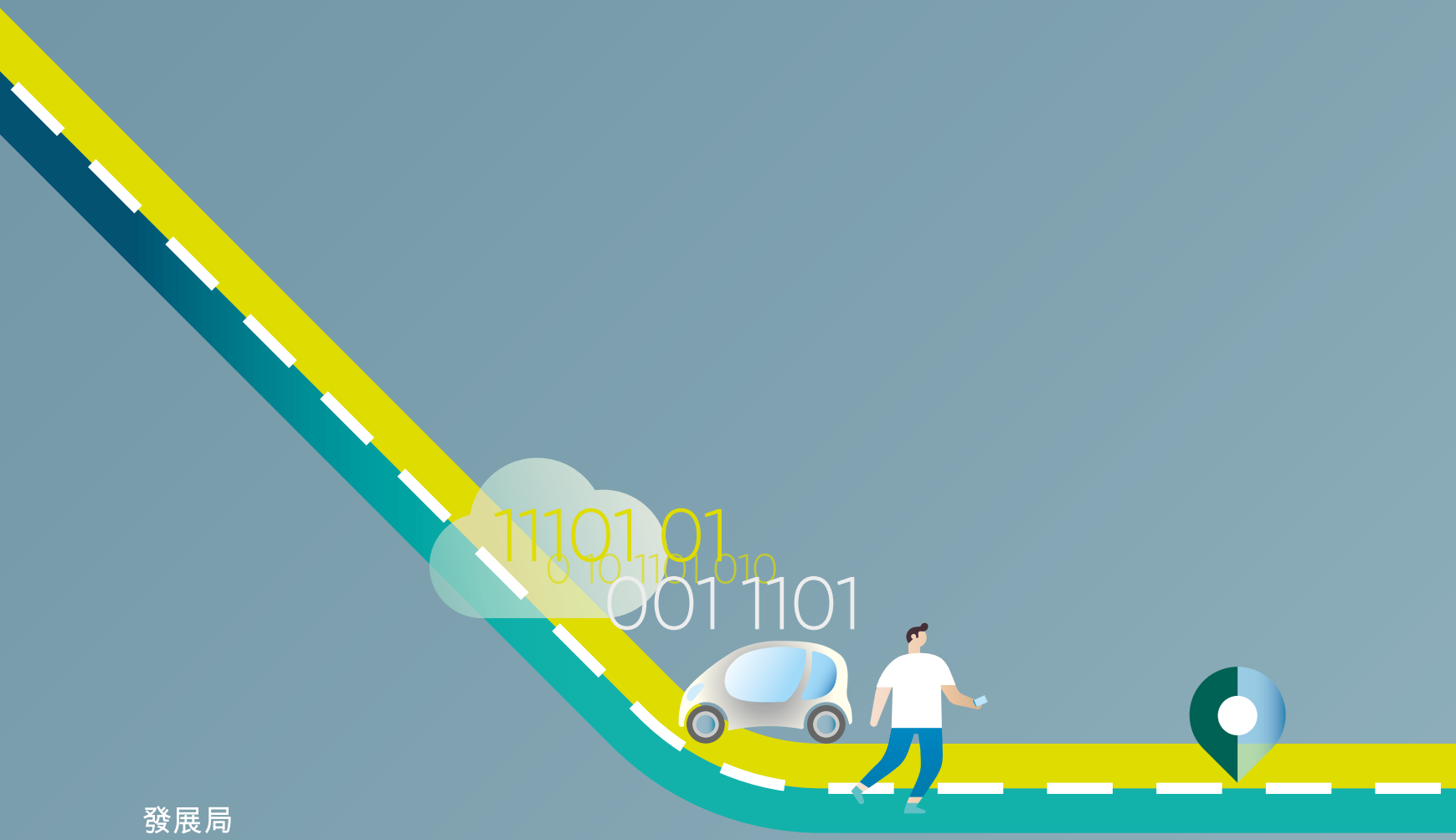
**6 港鐵牛頭角站對出空地**
Open Area Outside Ngau Tau Kok MTR Station
24/2 - 9/3/2019

註：展覽日期/地點或會作出更改。有關最新安排，請參閱本研究網頁。

Note: Date/venue of exhibitions are subject to change. Please refer to our Study Website for the latest arrangement.

聲明：凡在「發展九龍東成為智慧城市區域－可行性研究」中向起動九龍東辦事處提供意見的個人或團體，將被視作同意起動九龍東辦事處可公布部份或全部所提供的意見(包括個人姓名或團體名稱)。如你不同意有關安排，請於提出意見時作出聲明。

Disclaimer: A person or an organisation providing any comments to the Energizing Kowloon East Office on the "Developing Kowloon East into a Smart City District Feasibility Study" shall be deemed to have given consent to the Energizing Kowloon East Office partially or wholly publish the comments (including the names of the persons or organisations). If you do not agree to this arrangement, please state so when providing the comments.




發展局
Development Bureau

Kowloon East Office
九龍東辦事處

ARUP

SOYINK
TO BE INSERTED

FSC LOGO
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