

**SS Enriching Knowledge for the Geography  
Curriculum: (45)  
Seminar on " Sustainable transport development:  
Planning and Policy"**

**高中地理課程知識增益系列：(45)  
「可持續運輸發展：規劃和政策」講座**

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# *Contents*

## **Sustainable transport development: Planning and policy**

This sharing will cover:

- 1) the concepts of sustainability transport development, relevant planning and policies
- 2) the interaction of transport and urban land use
- 3) a brief introduction of transit-oriented development and some learning materials

## **可持續運輸發展：規劃和政策**

是次分享將涵蓋

- 1) 可持續運輸發展的概念、相關規劃和政策
- 2) 交通與城市土地利用的相互作用
- 3) 簡介公共運輸導向城市發展(TOD)及相關學習資源

***The concepts of  
sustainability transport  
development, relevant  
planning and policies***

可持續運輸發展的概念、相關規  
劃和政策

# *Car use and environmental impacts*

**statista** 

**Annual transportation sector carbon dioxide emissions worldwide from 1970 to 2020**  
*(in billion metric tons)*

Increasing trends from 1970 – 2019, drop sharply from 2019 to 2020

National Geographic's Greendex 2014  
Consumer choices and the environment,

International survey on Transportation,  
p.102-120

([globescan.com/wp-content/uploads/2017/07/Greendex\\_2014\\_Full\\_Report\\_NationalGeographic\\_GlobeScan.pdf](https://globescan.com/wp-content/uploads/2017/07/Greendex_2014_Full_Report_NationalGeographic_GlobeScan.pdf))



Transportation's share of global CO2 emissions (2018)  
20.1%

Global transportation CO2 emission (2018)  
7.29 GtCO2



National Geographic's Greendex 2014  
 Consumer choices and the  
 environment,  
 International survey on Transportation,  
 p.102-120

([globescan.com/wp-content/uploads/2017/07/Greendex\\_2014\\_Full\\_Report\\_NationalGeographic\\_GlobeScan.pdf](http://globescan.com/wp-content/uploads/2017/07/Greendex_2014_Full_Report_NationalGeographic_GlobeScan.pdf))



National Geographic's Greendex 2014  
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([globescan.com/wp-content/uploads/2017/07/Greendex\\_2014\\_Full\\_Report\\_NationalGeographic\\_GlobeScan.pdf](http://globescan.com/wp-content/uploads/2017/07/Greendex_2014_Full_Report_NationalGeographic_GlobeScan.pdf))



227 times of the  
 equatorial  
 circumference of Earth



Top 10 Country	Total Road Length(km)
United States	790,000
Russian Federation	590,000
China	510,000
Australia	460,000
India	340,000
Brazil	330,000
South Africa	290,000
United Kingdom	240,000
Argentina	200,000
Kazakhstan	200,000
<b>World Total (in km)</b>	<b>9,100,000</b>

- Pollution
- Energy consumption and emissions
- Land consumption
- Nature conservation
- Suburbanization

# *Transport and sustainable development*

- Sustainable Development Goals (SDGs) and transport policies

## FIGURE 1

Percentage of voluntary national reviews connecting transport with different SDGs (2021)

- 3 Good health and well-being – *Road safety*
- 9 Industry, innovation and infrastructure – *Rural access, passenger & freight*
- 11 Sustainable cities and communities – *Public transport*
- 13 Climate action – *transport energy / emissions*



# *Is Hong Kong a sustainable transport city?*

- Hong Kong ranked 1<sup>st</sup>
  - Overall – 1<sup>st</sup>
  - People – 1<sup>st</sup>
  - Planet – 53<sup>th</sup>
  - Profit – 6<sup>th</sup>

# *Is Hong Kong a sustainable transport city?*

Hong Kong ranked 8<sup>th</sup>  
among 60 major cities

<https://www.oliverwymanforum.com/mobility/urban-mobility-readiness-index/rankings.html#Hong%20Kong>

- Air quality
- Noise and light pollution restraint
- Walkability
- Car-free zones
- Cycling infrastructure
- Cycling adoption
- Rail network
- Strength of multimodal network
- Car ownership moderation
- Government investment in charging stations
- Direct EV incentivization
- Electric charging station density
- Electric vehicle market share in sales
- Public transit utilization
- Disaster-risk informed development
- Climate-related losses

Source:

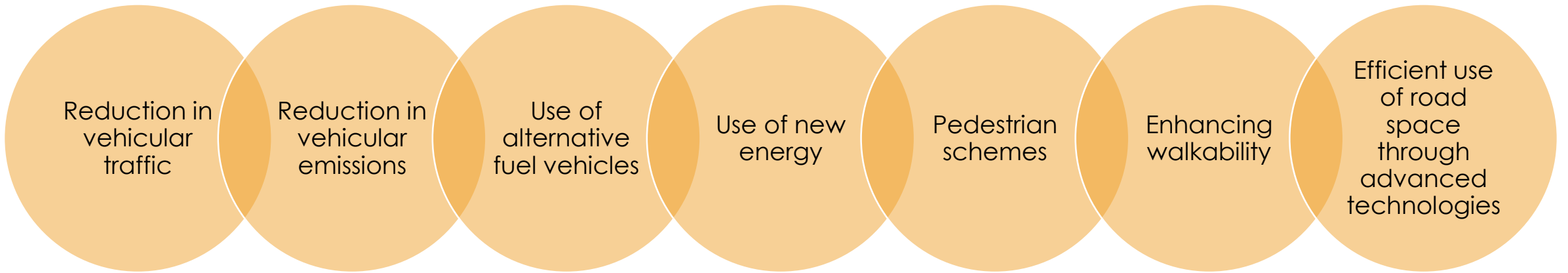
Urban Mobility Readiness Index 2021

The Oliver Wyman Forum, in partnership with the University of California, Berkeley



- Environmental Report 2020 of Transport Department, Hong Kong: to provide a transport system in an **environmentally acceptable manner to align with the sustainable development** of Hong Kong.

- Selected environmental objectives:



- Examples of policies:

- Bus-rail and GMB-rail **interchange** schemes
  - Bus route rationalization
  - Park-and-ride schemes
- ([https://www.mtr.com.hk/ch/customer/tickets/scheme\\_index.html](https://www.mtr.com.hk/ch/customer/tickets/scheme_index.html))



- **EURO VI emission standards** for first registered light buses, phasing out of Euro IV diesel commercial vehicles

- Diesel public light buses converted to **LPG, Euro V or above, or electric ones**

- Facilitate **electric bus** projects
- **Hybrid ferries**

- **Traffic calming** scheme / measures

- **Covers to walkway**
- Escalator and **walkway system**
- Lift and pedestrian **walkway system**

- Dissemination of **real-time traffic information**
- **HKeMobility** application



漢口道的悠閒式街道



羅素街的減速平台



樂道的過路口收窄



在北區保平路設置的有蓋行人通道



Photos from Environmental Report 2020 of Transport Department

- Sustainable transport – **social indicators**

Source: Litman, 2021 Well Measured Developing Indicators for Sustainable and Livable Transport Planning

<https://www.vtpi.org/wellmeas.pdf>



Social indicators:

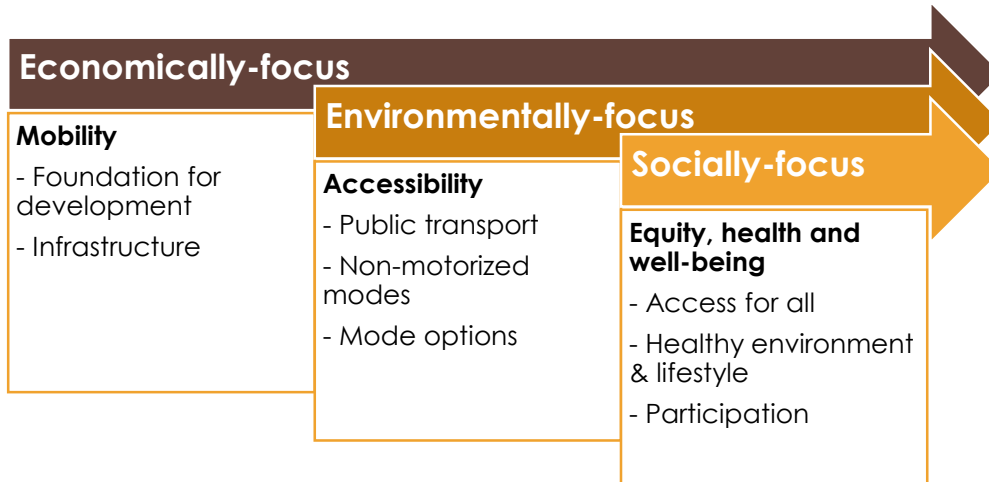
e.g.

**Equity / fairness** - Transport system diversity

**Safety, security and health** - per capita traffic casualty, exposure to harmful pollutants

**Community development** – land use mix, walkability, bikability, quality of streets

**Cultural heritage preservation** – responsiveness to traditional communities



**Affordability, health and well-being**

**Ageing and Transport**

MOBILITY NEEDS AND SAFETY ISSUES



**\$2 政府長者及合資格殘疾人士公共交通票價優惠計劃**



2022年2月27日起

2元優惠計劃的合資格年齡，由65歲降至**60歲**



樂悠咭網頁





## **The Sustainable Travel Hierarchy**

Source:

<https://twitter.com/brenttoderian/status/870358616183844864>



- A paradigm shift?
- Are we/cities ready yet?

# *Major principals to handle transport problems*

- **Supply-fix approach**
  - e.g. more transport infrastructure (road, parking, etc.)
- **Financial instrument**
  - e.g. license fee, road pricing, non-peak hours discounts
- **Accessibility approach** (rather than mobility approach)
  - e.g. public transport strategies (more PT service, bike-friendly environment)
  - e.g. urban planning approach (e.g. coordination of workplace and residence, TOD)
- **Non-transportation initiatives**
  - e.g. flexible working hours
- **Technology approach**
  - e.g. online shopping, dissimulation of traffic information, smart mobility

Overall expected outcomes:

- **Substitution** (Reduce the need of travel)
- **Modal shift** (transport policies)
- **Distance reduction** (land use policies)
- **Efficiency increase** (technological innovation)

## The conventional...

- Mobility
- Focus on cars
- Large in scale
- Street as a road
- Segregation of traffic and people
- Demand-based policies

Picture - **Urban Highways vs. Complete Streets**  
<https://www.itdp.org/multimedia/urban-highways-vs-complete-streets/>

## The sustainable...

- Accessibility
- Focus on people
- Small in scale
- Street as a place
- Integration of people and traffic
- Management-based policies



***The interaction of transport  
and urban land use***

交通與城市土地利用的相互作用

# *The eight urban sub-system*

Urban /  
spatial /  
regional  
planning

- Very slow changes (a decade or more)

**Networks**

**Land use**

- Slow changes

**Workplaces**

**Housing**

- Fast changes

**Employment**

**Population**

- Immediate changes (in minutes / hours)

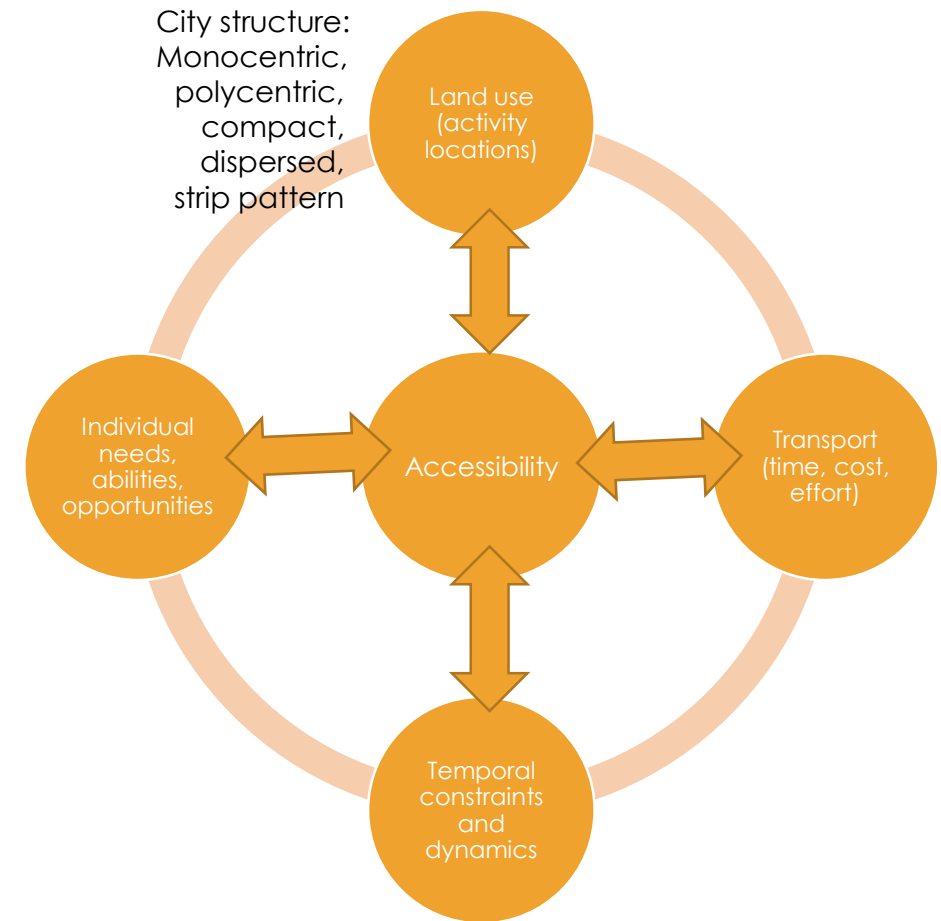
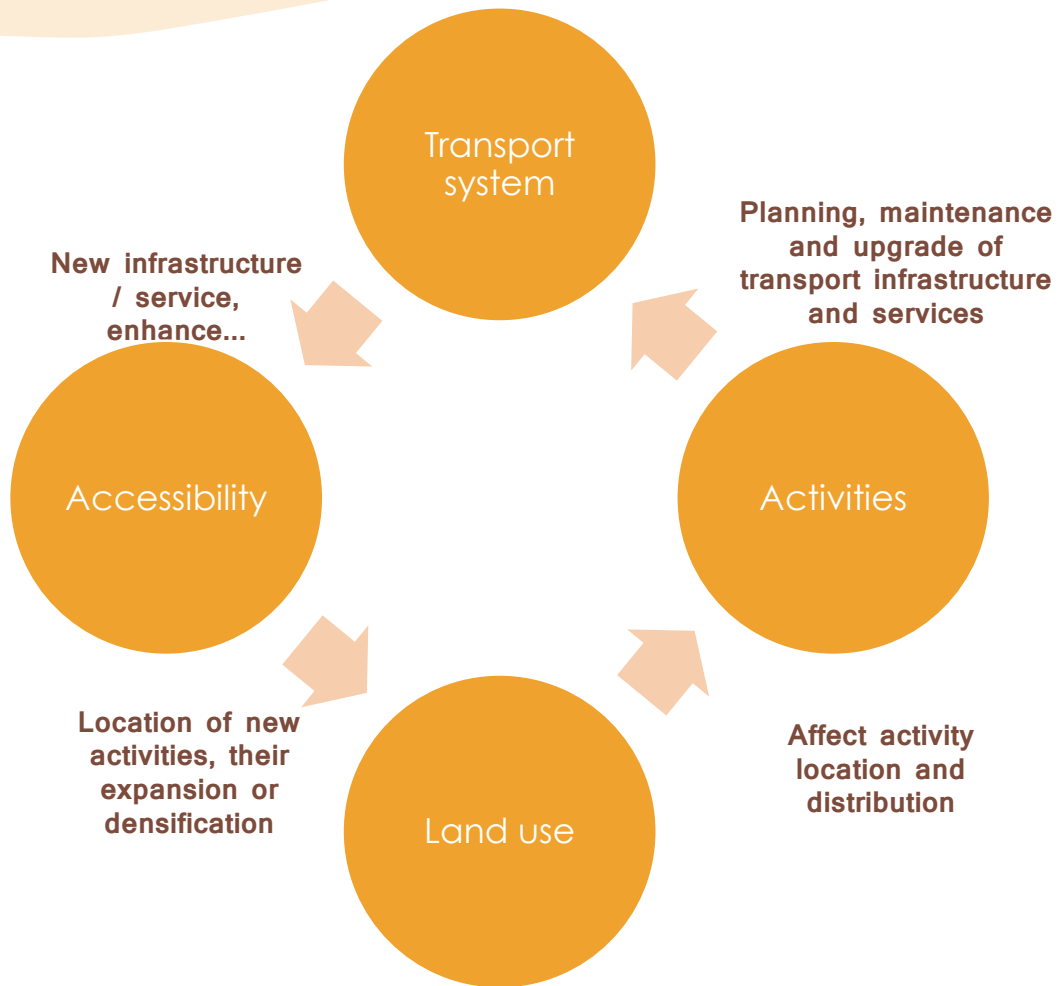
**Goods transport**

**Travel**

- Travel distance / time
- Trip frequency
- Time of travel
- Mode choice
- Destination choice

Traffic  
demand  
management

# *Transport and land use interactions*





## Macro scale – Structure of the city



What would be the aggregated travel patterns in different urban forms?

Diagram showing different the city structure of Hong Kong, New York, London, Mexico City, etc., produced by the LSE Cities – Urban Age Project.

Diagram in Rodrigue's book "The Geography of Transport System" (2020) showing possible urban mobility patterns, under monocentric and polycentric forms, in organized and disorganized patterns.

Flow  
and  
structure

# What is the aggregated travel pattern in Hong Kong?

**Table A.2 Daily Person Trip Productions and Attractions by Broad District and Trip Purpose**  
(in '000)

District	HBW		HBS		HBO		NHB		EB		ALL Purposes	
	Prod	Att	Prod	Att	Prod	Att	Prod	Att	Prod	Att	Prod	Att
Central & Western	221	696	38	64	238	315	130	88	45	65	672	1,226
Wan Chai	125	487	32	78	210	464	90	131	41	31	498	1,191
Eastern	431	340	126	105	417	251	58	42	26	19	1,058	757
Southern	222	119	59	46	227	163	47	25	14	9	569	362
Yau Ma Tei	96	410	24	42	114	378	87	138	36	34	357	1,002
Mong Kok	72	229	17	25	66	374	57	110	25	23	237	761
Sham Shui Po	254	270	70	101	277	252	84	93	19	24	704	740
Kowloon City	242	226	62	161	326	235	86	74	10	17	726	713
Kwun Tong	430	488	129	93	381	318	78	69	46	34	1,064	1,001
Wong Tai Sin	279	118	73	53	266	164	37	29	7	18	663	383
Tsuen Wan	197	208	56	37	147	191	46	44	8	13	454	494
Kwai Chung	201	251	48	46	160	105	53	33	18	11	479	445
Tsing Yi	145	50	36	24	124	36	15	20	6	1	326	131
Tuen Mun	367	166	92	87	268	214	37	30	5	4	769	502
Yuen Long	98	105	20	41	78	183	25	34	2	1	224	364
Tin Shui Wai	170	27	58	28	174	29	13	11	2	1	417	96
Tai Po	174	117	43	40	153	127	35	25	6	5	411	313
Fanling/ Sheung Shui	164	79	53	38	154	101	14	20	3	3	387	240
Sha Tin	310	237	86	123	310	223	89	65	12	9	808	657
Ma On Shan	159	24	46	23	137	81	10	11	1	1	354	140
Tseung Kwan O	280	93	74	58	178	119	29	32	1	2	562	304
North Lantau	78	123	20	12	28	63	16	7	5	5	147	210
Rural NWNT	137	78	40	14	153	146	19	21	3	7	352	266
Rural NENT	58	31	21	1	46	138	9	14	2	3	137	186
Rural SENT	64	35	18	12	58	34	9	8	7	10	157	98
Rural SWNT	45	16	10	0	17	3	0	0	2	0	74	20
<b>Whole Territory</b>	<b>5,022</b>	<b>5,022</b>	<b>1,351</b>	<b>1,351</b>	<b>4,706</b>	<b>4,706</b>	<b>1,174</b>	<b>1,174</b>	<b>352</b>	<b>352</b>	<b>12,606</b>	<b>12,606</b>

Travel Characteristics Survey 2011  
Final Report

- Trip attractions
- Trip generation / production

Trip nature ~  
 HBW: Home-Based Work  
 HBS: Home-Based School  
 HBO: Home-Based Others  
 EB: Employers' Business

Source:  
 Travel Characteristics  
 Survey 2011 Final  
 Report (Appendix)

# ***What is the aggregated travel pattern in Hong Kong? (commuting)***



Source:

Kenneth Wong, The great migration of workers,

<https://kenneth-12.shinyapps.io/place-of-work-od/>

OD matrix showing the flow of workers in Hong Kong across different districts

A Sankey diagram the flow of workers in Hong Kong

2016 Population by-censuses data

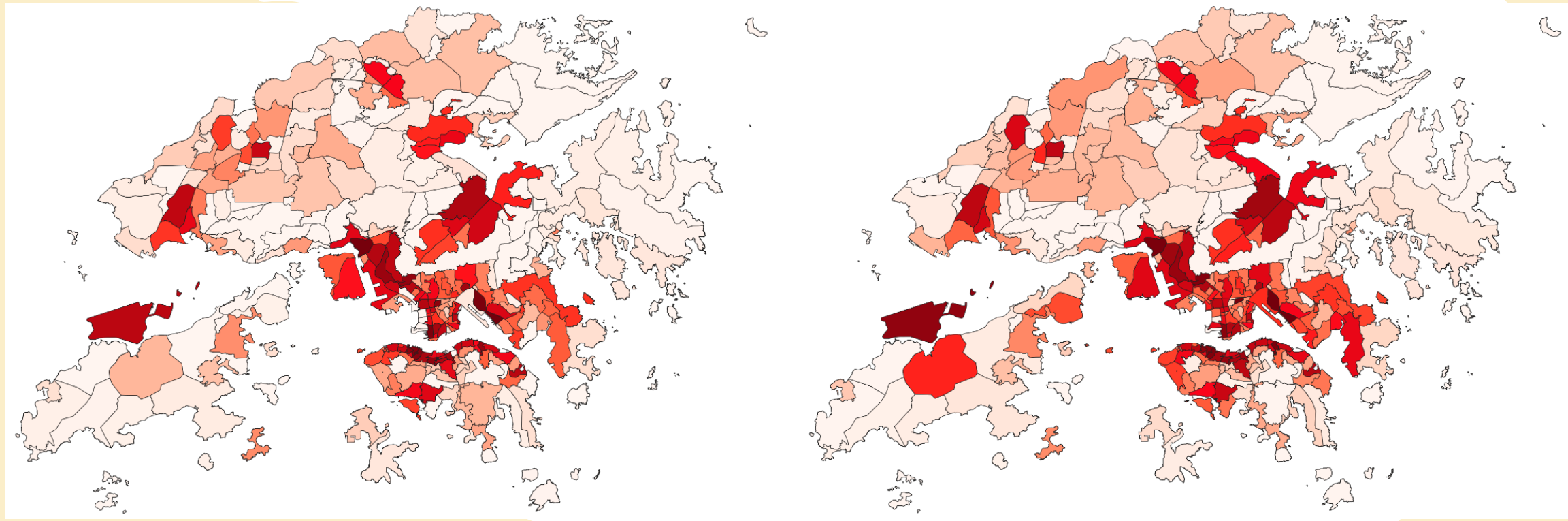
# *What is the aggregated travel pattern in Hong Kong? (commuting)*

## Employment location

Source: Number of persons engaged (other than those in the Civil Service) analysed by industry section and Tertiary Planning Unit (TPU)

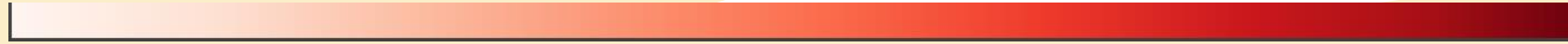
2000

2020



Lowest concentration of job

Highest concentration of job

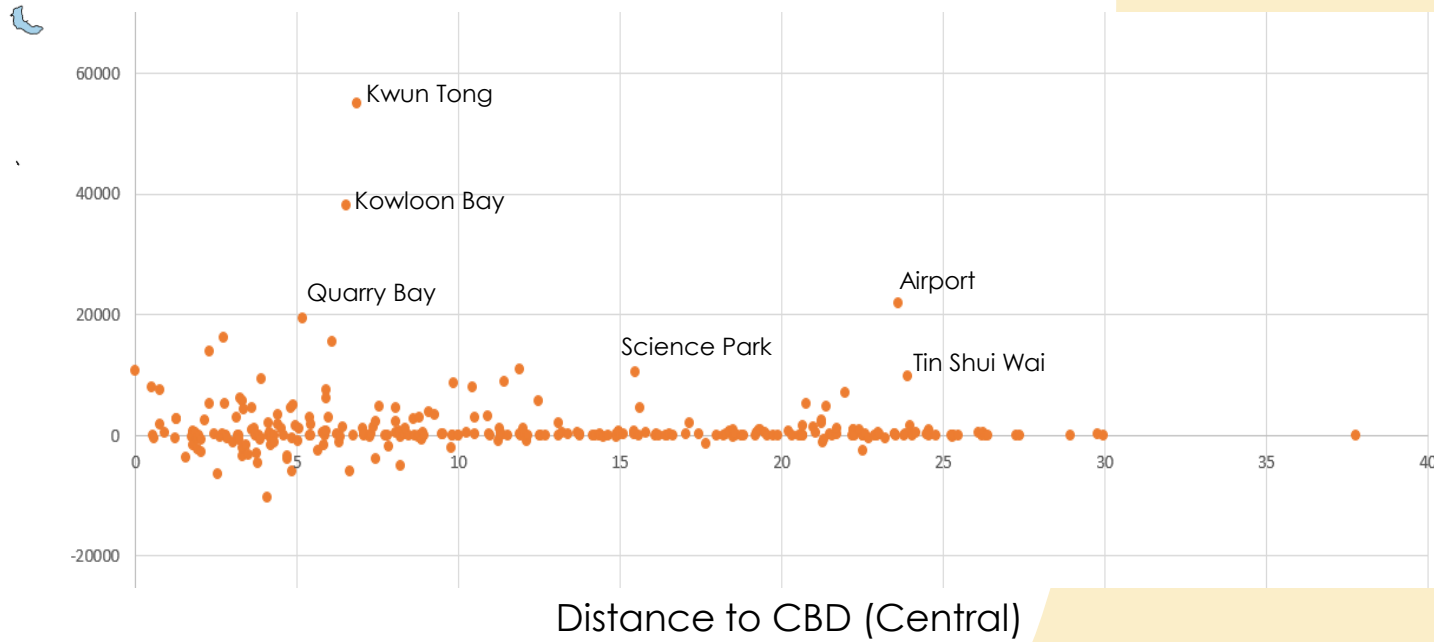
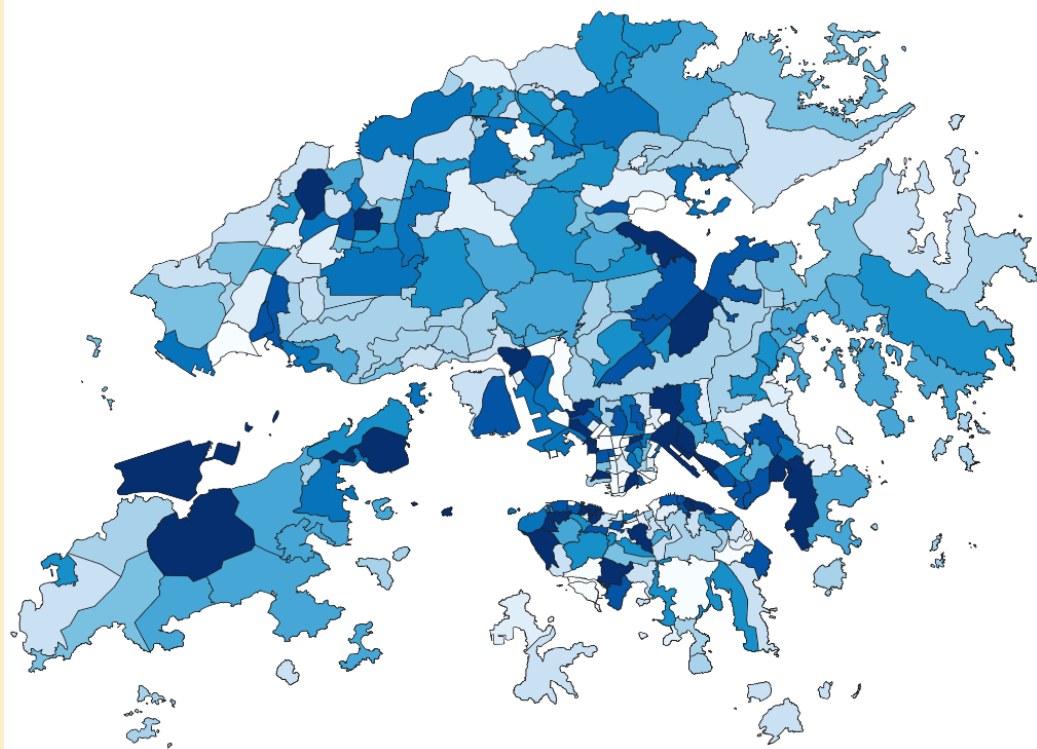


# *What is the aggregated travel pattern in Hong Kong? (commuting)*

## Increase in employment

Source: Number of persons engaged (other than those in the Civil Service) analysed by industry section and Tertiary Planning Unit (TPU)

Period: 2000 – 2020  
(20-year change)



Greatest reduction in job

Greatest increase in job



Source: Alice Chow 2022

# Micro scale – street patterns



How the street pattern affects our travel?

網格式路網

Conventional grid pattern  
(c1900)

人車分離式路網

Curvilinear loop pattern  
(1930-1950)

Conventional Cul-de-Sac  
(since 1950)

Pros and cons of different street patterns:

- Direct / indirect route?
- Higher / lower connectivity? (more road intersections provide different directional paths)
- Slowing down of car traffic (too many road intersections)
- Cul-de-Sac discourage walking
- Security?

*The transport systems will affect the urban systems, or the reverse*

**Maximal urban function scenario**

**Minimal urban function scenario**

Impacts of planning

- Land use types, site coverage, plot ratio, development density
- Traffic intensity

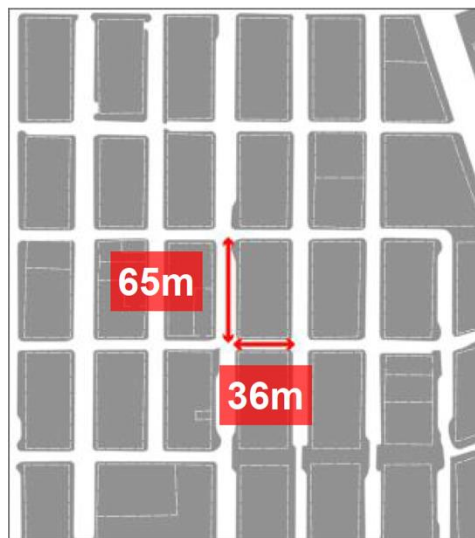
# Grid patterns in Hong Kong

The study area is characterized by its intimate urban grid form which represents a key heritage asset and is functional in facilitating pedestrian movement, visual and air permeability. Nonetheless, the small urban grid also translates into high road percentage which induces inefficient vehicular circulation, and air and noise pollution generated from vehicular traffic.

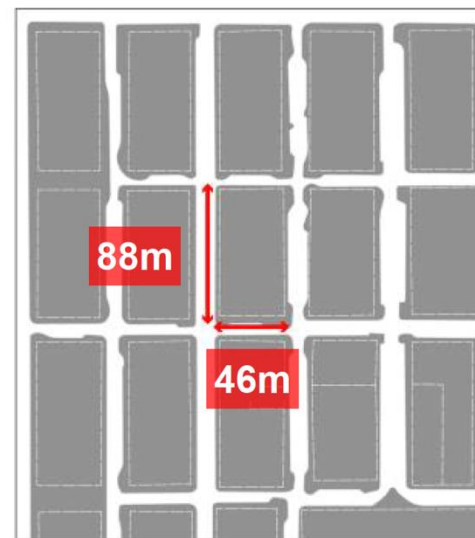
The Study proposed to retain the grid pattern to reflect the heritage value and associated benefits (e.g. for open space, air ventilation corridors or non-building areas after re-planning), while road closure opportunities will be sought for site amalgamation to facilitate redevelopment and promote better and more efficient land utilisation.

區內由較窄的街道分隔成網格式街區 (urban grid) 的格局，為區內的特色。這個格局雖然方便人流及增加空氣的流通及視覺上的通透，但是較小的街區佔據了不少區內的土地作道路用途，引致低效率的交通網絡，並加劇來自交通的空氣和噪音污染。

Illustration of Intimate Grid Form by Narrow Streets  
由較窄街道組成棋盤式格局的示意



Yau Ma Tei  
油麻地



Mong Kok  
旺角

研究建議保留網格式街區的格局，反映其歷史文化價值及相關好處（例如重新規劃作為休憩空間、空氣流通走廊或非建築用地）。同時，研究亦會把握透過封閉道路以合併地塊的機遇，以促進重建及更有效的土地利用。

Source:  
URA, 2022, The District Study for Yau Ma Tei and Mong Kok Information Booklet 油麻地及旺角地區研究資料手冊



***A brief introduction of  
transit-oriented  
development (TOD) and  
some learning materials***

簡介公共運輸導向城市發展  
(**TOD**)及相關學習資源

# *Land use mix and transport*

## **Figure 1**

Source: Jiao, J.; Rollo, J.; Fu, B. The Hidden Characteristics of Land-Use Mix Indices: An Overview and Validity Analysis Based on the Land Use in Melbourne, Australia. Sustainability 2021, 13, 1898.

Chronological sequence of nine urban planning philosophies and design principles relating to the land use mix principle, from 1973-2005.

Nine principles: Compact city, eco city, new urbanism, sustainable city, cycling friendly, TOD, smart growth, car-free city, walkable urbanism.

Their connections with “land use mix”.

## **CITY POPULATIONS IN WALKING DISTANCE OF RAIL AND METRO STATIONS (2012)**

<https://urbanage.lsecities.net/data/city-populations-in-walking-distance-of-rail-and-metro-stations-2012>

# ***Transit-oriented development (TOD)***

An example of transport and land use interactions (meso-scale)

*Peter Calthorpe codified the concept of Transit-Oriented Development (TOD) in the late 1980's and, while others had promoted similar concepts and contributed to the design, TOD became a fixture of modern planning when Calthorpe published "The New American Metropolis" in 1993. **TOD has been defined generally as "a mixed-use community that encourages people to live near transit services and to decrease their dependence on driving."** Calthorpe saw it as a **neo-traditional guide** to sustainable community design.*

Source:

Carlton, Ian (2009) : Histories of Transit-Oriented Development: Perspectives on the Development of the TOD Concept, Working Paper, No. 2009,02, University of California, Institute of Urban and Regional Development (IURD), Berkeley, CA



網上教學片段

Geography

公共運輸導向發展 (一) :  
公共運輸導向發展的特徵  
Transit-oriented Development I -  
Characteristics of Transit-oriented  
Development (TOD)

地理·粵語

公共運輸導向發展 (一) : 公共運輸導向發展的特徵

鄧倩賢博士, 徐佩盈小姐

影片介紹了公共運輸導向發展 (TOD) 的基本概念和特點。短片以將軍澳的發展為例, 指出將軍澳不同的城市形態和交通設計, 以闡述TOD的特點。TOD發展模式共有五個特點, 它們是 (1) 高質量的集體運輸系統, (2) 在集體運輸車站的步行範圍內發展, (3) 土地高度混合利用, (4) 密集式發展, (5) 有利行人和單車使用者的設計。結合將軍澳的城市結構和TOD的主要特點, 學生可以深入了解TOD的發展模式。

<https://eocp2.eduhk.hk/zh/video/geography/Transit-oriented-Development-I.html>



網上教學片段

Geography

公共運輸導向發展 (二) :  
城市發展的新與舊  
Transit-oriented Development II:  
New vs Old Urban Development

地理·粵語

公共運輸導向發展 (二) : 城市發展的新與舊

鄧倩賢博士, 李麗潔小姐

此網上教學片段繼續闡述公共運輸導向發展的概念及特徵。老師以旺角及將軍澳作例子, 解說香港的舊城區及新市鎮在城市規劃上的異同。老師運用電子白板軟件 Explain Everything 及地圖工具MapBox 製作的2D及3D地圖, 具體地比較新市鎮及舊城區的城市規劃的不同及共通點。這種可視化的闡述有助學生提升空間感及加強對有關地理概念的認識。

<https://eocp2.eduhk.hk/zh/video/geography/Transit-oriented-Development-II.html>



網上教學片段

Geography

公共運輸導向發展 (三) :  
公共運輸導向發展與可持續發展  
Transit-oriented Development III :  
Transit-oriented Development and  
Sustainable Development

地理·粵語

公共運輸導向發展 (三) : 公共運輸導向發展與可持續發展

鄧倩賢博士, 李麗潔小姐

此網上教學片段是透過一個網上教學活動來闡述公共運輸導向發展概念與可持續發展的關係。學生需運用TOD概念, 透過網上平台Icongram設計他們的理想城市。這個實作活動讓學生在建構作品時能應用相關知識, 並促進學生自主學習及參與度。

<https://eocp2.eduhk.hk/zh/video/geography/Transit-oriented-Development-III.html>



# Geography

## 網上教學片段

公共運輸導向發展 (一)  
公共運輸導向發展的特徵  
Transit-oriented Development I -  
Characteristics of Transit-oriented  
Development (TOD)

地理、專題  
公共運輸導向發展 (一)：公共運輸導向發展的特徵

### Transit-Oriented Development (TOD)

#### TSEUNG KWAN O

### 1. High quality mass transit system

(高質素的集體運輸系統)  
- Fast and reliable mass transit service

- 60 mins ←
- 40-45mins
- 30-45 mins
- 20-30mins
- 10-12mins
- 5-7mins
- 0 mins

Tseung Kwan O

- Neighbourhood for Shopping, Job, Leisure / Fun Time
- Employment opportunities (就業機會)
- North Point, Quarry Bay, Kowloon, Kowloon East
- Higher accessibility (可達度) to reach different transport modes (交通網絡)
- Eastern Hong Kong, Tung Shue, Causeway Bay
- Central Hong Kong, North Point, Kowloon East
- West Hong Kong, New Territories, Kowloon East
- Highly accessible (可達度) to reach different transport modes (交通網絡)
- Central Hong Kong, North Point, Kowloon East
- West Hong Kong, New Territories, Kowloon East

### 2. Development within the walking distance of the transit station

(在集體運輸車站的步行距離內發展)  
- 400-800 radius  
- 5-10mins walking distance (步行距離)

Es Footbridge connects most of the blocks in TSO city centre

→ The shop 商店 → Public Housing 公共房屋 → Park Centre 公園中心 → Public Service Centre 公共服務中心 → Shopping Plaza 購物廣場

400m  
600m  
800m

### 3. High Land Use Mix

(土地高度混合利用)

- Residential (Bauhinia Garden, Yee Ming Estate, Tong Ming Court, Sheung Tak Estate)
- Commercial (Park Central, Tseung Kwan O Plaza, PopCora)
- Government (Sports Centre, Government Offices, Schools)
- Open Space (Waterfront Park, Po Hong Park, Velodrome Park)

Living needs:  
1. Residential (住宅)  
2. Commercial (商業)  
3. Institutional (社區)  
4. Recreational (康樂)

- Residential
- Other Specified Uses
- Government, Institution or Community
- Commercial/Residential
- Green Belt (綠化帶)
- Open Space (休憩用地)

(Town Planning Board, 2021)

### 4. Compact Development

(密集式發展)  
- High intensity and density around city centre;  
Decrease outwards from the station

- The development area centralise at the MTR station.

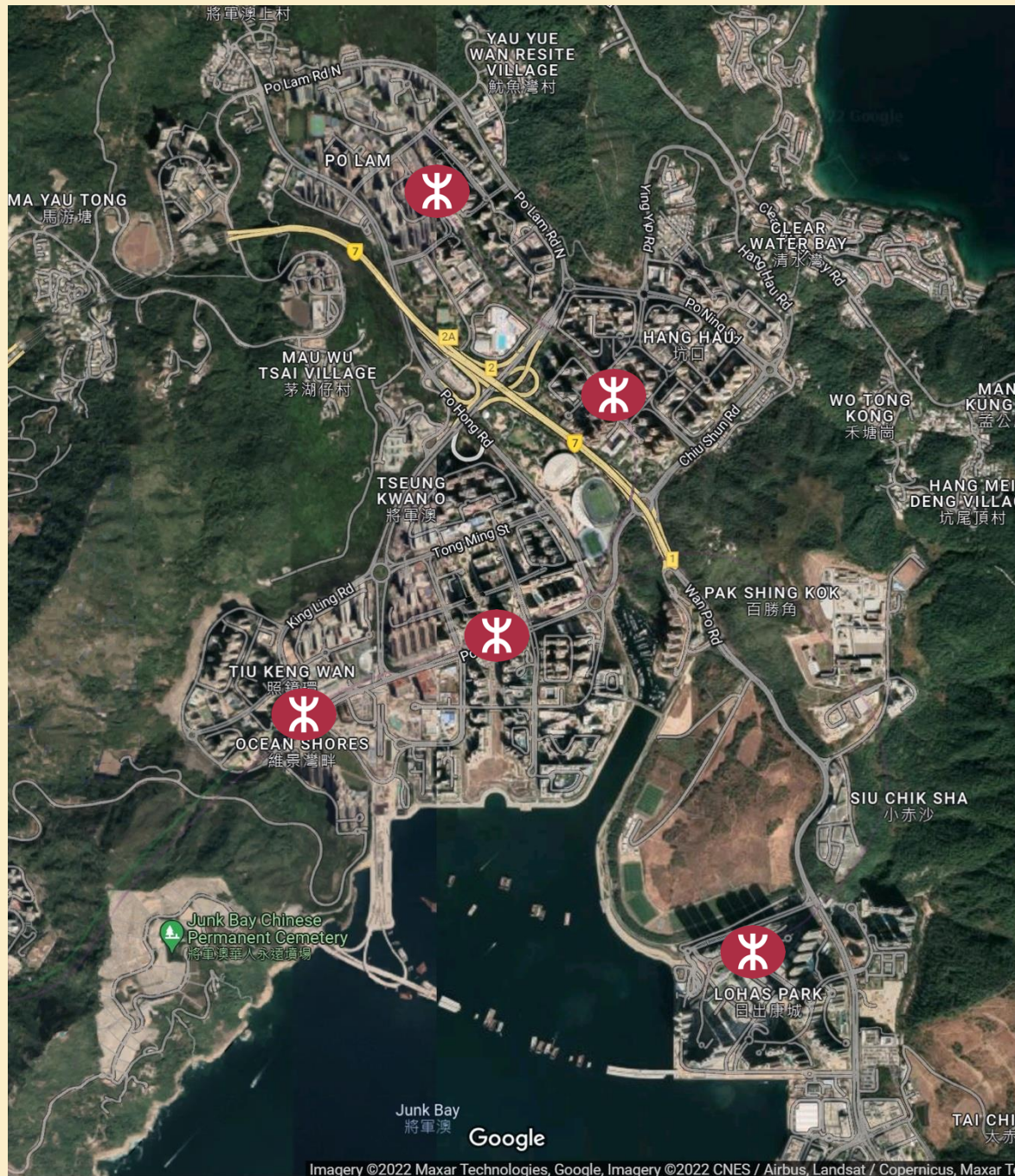
VS

- Less development at the periphery area (邊陲地帶), such as the vegetation (植被) cover area and the green belt (綠化帶)

### 5. Pedestrian- and bicycle - friendly design

(有利行人和單車使用者的設計)  
- Separate from vehicular traffic  
- Set bicycle parking and track near residential areas and transit station

(Transport Department, 2021)



*“Network TOD” is viewed, under the right conditions, as offering the potential not only to create attractive places in station catchment areas, but in a broader geographical scale, also to shape polycentric cities and regions, mitigate urban sprawl and boost public transport ridership (Newman & Jennings, 2008; Curtis et al., 2009; Geurs et al. 2012). While the North American TOD born in an “urban design” context and started from the single station area development, in the Europe this principle has been drawn-out at the regional scale.*

Source:

Papa et al. 2013. An accessibility planning tool for Network Transit Oriented Development: SNAP, Planum. Journal of Urbanism, vol. 27

### ***Rail + Property Model***

- *E.g Tin Hau residential tower, Tsing Yi residential package, Kowloon International Commerce Centre*
- *Financially sustainable approach*
- *Market-driven approach*

# *Useful materials - TOD*



Robert Cervero - Transforming Cities with Transit

## TRANSFORMING CITIES WITH TRANSIT

稍後觀看

**ROBERT CERVERO**

UNIVERSITY OF CALIFORNIA, BERKELEY

到以下平台觀看： YouTube

- HK's rail and property model
- Guangzhou's BRT



<https://www.youtube.com/watch?v=rgd8tWIMhbs>



# Useful materials – The expansion of MTR

## ✳ Evolution of the MTR



Source: MTR, MTR archive



Source: MTR

 South China Morning Post

Source:  
<https://www.scmp.com/news/hong-kong/community/article/2160875/hong-kong-tops-global-report-public-transport-loses-out>



# Useful materials – Geo-tagging tool

<https://geodata.gov.hk/gt/index.html>

The screenshot displays the Geo-tagging Tool interface. At the top, the browser address bar shows the URL <https://geodata.gov.hk/gt/index.html>. The page title is "Geo-tagging Tool". The interface includes a search bar, a map of Chai Wan, and a list of MTR stations. The map shows several MTR stations marked with red pins: MTR University Station, MTR Fanling Station, MTR Whampoa Station, and MTR Chai Wan Station. The list of stations is as follows:

- MTR University Station  
港鐵大學站  
Ma Liu Shui, Sha Tin, NT  
新界沙田馬料水
- MTR Fanling Station  
港鐵粉嶺站  
Mass Transit Railway Fanling Station, Fanling, NT  
新界粉嶺香港鐵路粉嶺站
- MTR Whampoa Station  
港鐵黃埔站  
Hung Hom, KLN  
九龍紅磡
- MTR Chai Wan Station  
港鐵柴灣站  
Mass Transit Railway Chai Wan Station, Chai Wan, HK  
香港柴灣香港鐵路柴灣站
- MTR Fortress Hill Station  
港鐵炮台山站

The map interface includes a search bar, a list of MTR stations, and a list of records. The records list includes the following information:

Station
MTR University Station
MTR Fanling Station
MTR Whampoa Station

The interface also includes a "Filter Records" section and a "Selected Record(No): #4" section. The "Selected Record(No): #4" section includes a "CLEAR" button. The interface also includes a "Filter Records" section and a "Selected Record(No): #4" section. The "Selected Record(No): #4" section includes a "CLEAR" button. The interface also includes a "Filter Records" section and a "Selected Record(No): #4" section. The "Selected Record(No): #4" section includes a "CLEAR" button.

# Useful materials – Road network GIS data



HOME DATA LEARN COMMUNITY



ENG

Home > Datasets > Road Network (2nd Generation) > Road Network (2nd Generation)

## Road Network (2nd Generation)

TRANSPORT DEPARTMENT | Transport | FGDB

LAST UPDATED ON: 14/05/2022

UPDATE FREQUENCY: MONTHLY

Road Network (2nd Generation).

URL: [https://static.data.gov.hk/td/road-network-v2/RdNet\\_IRNP.gdb.zip](https://static.data.gov.hk/td/road-network-v2/RdNet_IRNP.gdb.zip)

Download

Add to Queue

### DOWNLOAD HISTORICAL DATA

We have gathered historical data for your convenience. Historical data is the previous version in the download queue.

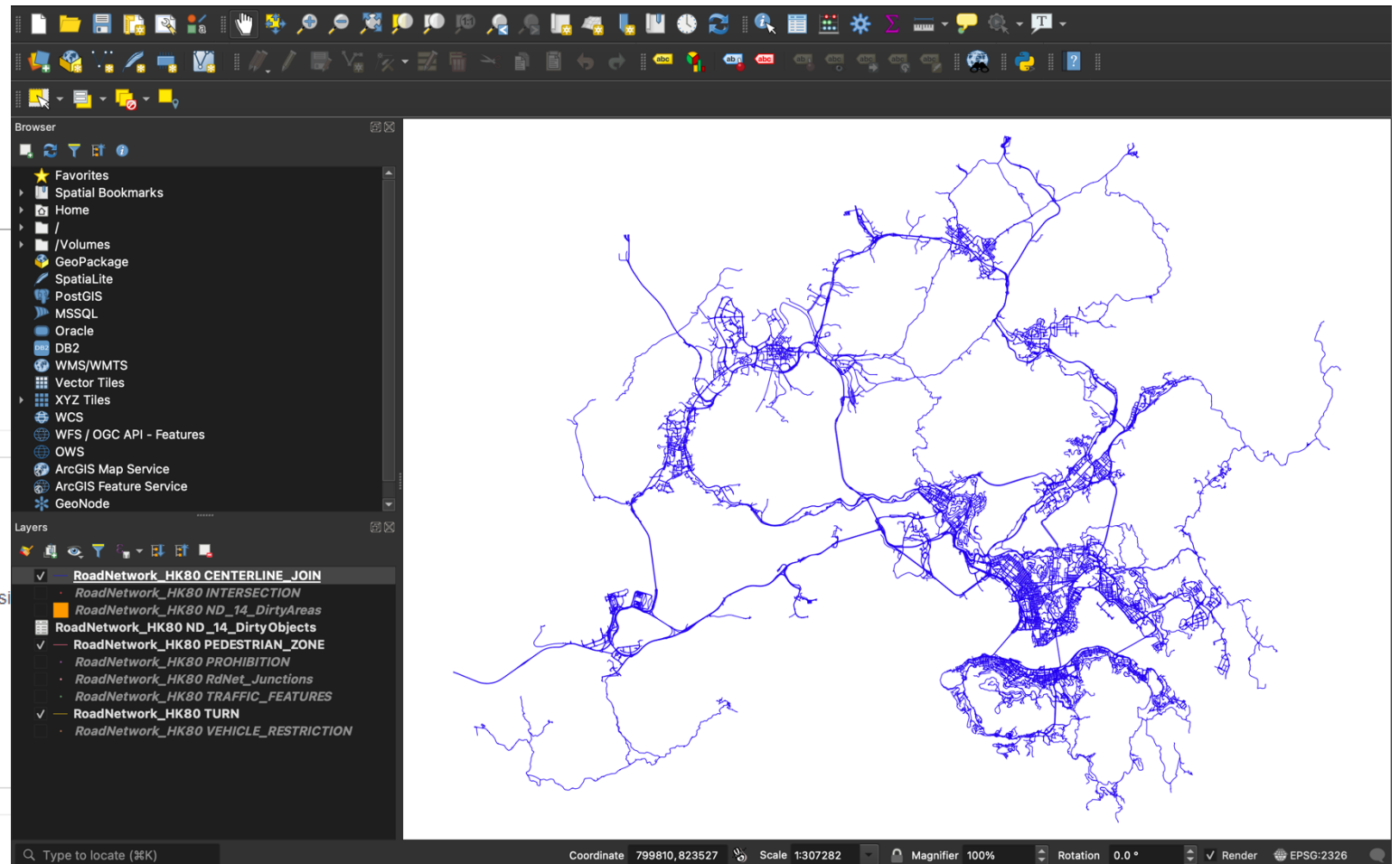
17/05/2022



17/05/2022



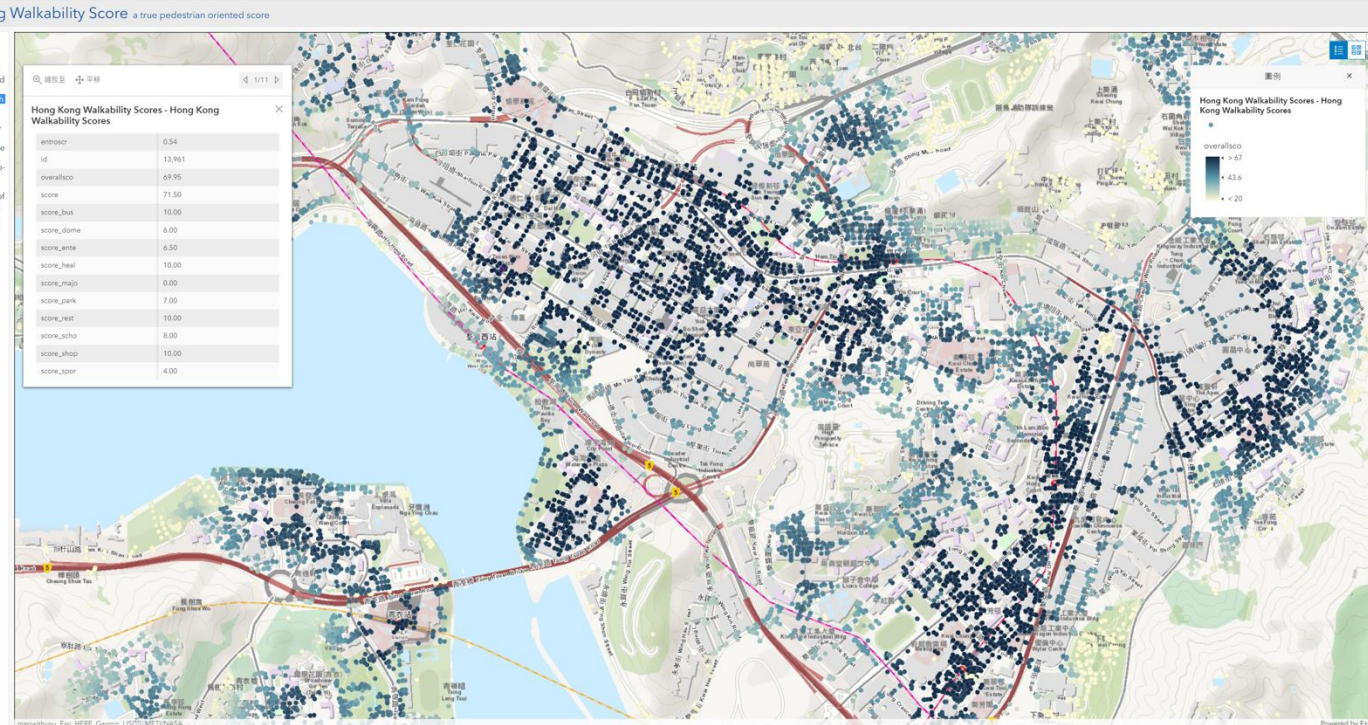
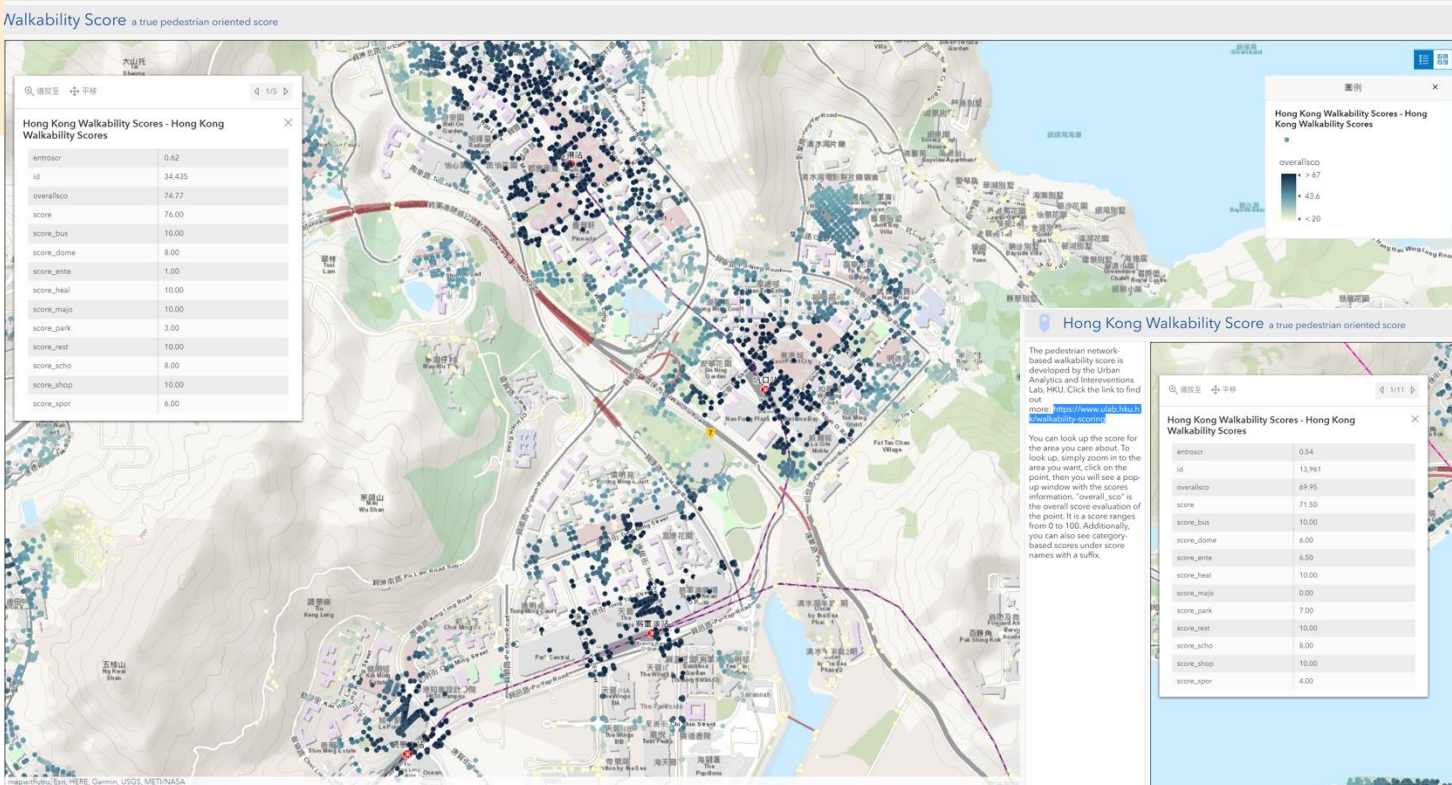
Next



Additional Information of Data Resource

# Useful materials – HK walkability study

**Amenities** – Location and type  
**Networks** - Pedestrian/road



Faculty of Architecture, The University of Hong Kong

<https://www.arcgis.com/apps/dashboards/c00f56908d6b408b8da42a6804abe8d2>

# Useful materials – Government sources

The screenshot shows the Transport Department website with the following elements:

- Header:** Logo of the Transport Department, slogan '路路暢通' (Smooth Roads), and navigation menu including '最新消息', '關於我們', '刊物及新聞公報', '公開資料', '香港運輸', '公共服務', '公用表格', '電子服務', '招標資料', '交通通告', '招聘事宜', '相關網址', and '聯絡我們'.
- Sub-headers:** '駕駛者', '乘客', '行人', '學生/家長', and '殘疾人士'.
- Breadcrumbs:** '首頁 / 刊物及新聞公報 / 刊物 / 免費刊物'.
- Left Sidebar:** A vertical menu with items: '刊物', '立法會事務', '諮詢文件', '新聞公報', '回應傳媒報道', '演辭', and '電視宣傳短片及電台宣傳聲帶 / 網上短片'.
- Main Content:**
  - Section:** 免費刊物
  - Navigation:** | 報告 | 傳單/小冊子 | 通訊 | 空則 | 申請須知/考試指引
  - Table:** A table listing various reports and publications with their respective file sizes.

Transport  
Department  
運輸署



[https://www.td.gov.hk/tc/publications\\_and\\_press\\_releases/publications/free\\_publications/index.html](https://www.td.gov.hk/tc/publications_and_press_releases/publications/free_publications/index.html)

# Useful materials – Government sources

CEDD

What's New About Us Topics in Focus Our Major Services Publications Public Services & Forms **Our Projects** Events & Publicity Tender Notices

Home A Link Email Share

Our Projects > Major Projects

## Major Projects

Completed Under Planning Under Construction

All

Central reclamation phase III – engineering works

Development at Anderson Road

Kai Tak development – stage 1 advance infrastructure works for developments at the southern part of the former runway

Kai Tak development – stage 1 infrastructure works at north apron area of Kai Tak Airport

Kai Tak development – stage 2 infrastructure at north apron area of Kai Tak Airport

Kai Tak development –

Civil Engineering and Development Department  
土木工程拓展署

<https://www.cedd.gov.hk/eng/our-projects/major-projects/index.html>



# Useful materials – Government sources



## Panel on Transport (Papers)

- List of outstanding items for discussion

- List of follow-up actions

- Papers

- Policy agenda
- Cross-boundary traffic
- Development of transport infrastructure
  - Central Kowloon Route
  - Highway infrastructure in the North West New Territories and North
  - Tseung Kwan O - Lam Tin Tunnel
  - Others
- Government Fees
- Private driving instructor's licences
- Provision of escalator link/elevator system
- Public transport services
  - Public transport fares
    - Concessionary public transport fares for persons with disabilities
  - Bus
  - Ferry
  - Public light bus
  - Railway
  - MTR
    - Tung Chung Line and Airport Express Line
    - MTR fares
    - Railway incidents
  - Former KCR Railway
    - Shatin to Central Link
    - West Rail

2015 Statistics (per hour per direction during morning peak for critical links)

Annex 1

		East Rail Line	West Rail Line	Ma On Shan Line	Tseung Kwan O Line	Island Line	Kwun Tong Line	Tsuen Wan Line	Disneyland Resort Line	Tracks sharing at some sections	
										Tung Chung Line	Airport Express
1.	Design Capacity (6 ppsm) (a)	101,000	64,000	32,000	85,000	85,000	85,000	85,000	10,800	66,000 (Note 1)	10,000 (Note 1)
2.	Maximum carrying capacity when train frequency is maximised (6 ppsm) (b)	90,000	49,200 (Note 2)	30,500	67,500	80,000	71,400	75,000	9,600	45,000	4,800
3.	Existing carrying capacity (6 ppsm) (c)	86,200	49,200	26,800	67,500	80,000	71,400	75,000	9,600	37,500	4,800
4.	Difference between (a) and (b) (Note 3)	11,000	14,800	1,500	17,500	5,000	13,600	10,000	1,200	21,000	5,200
5.	Difference between (b) and (c) (Note 4)	3,800	0	3,700	0	0	0	0	0	7,500	0
6.	Current passenger throughput (d)	57,200	36,400	15,300	46,400	54,900	47,000	54,500	2,200	22,700	1,900
	Changes as compared with 2014	-1,500	-200	+100	+1,200	+1,200	-1,100	+2,200	+400	-100	-600
7.	Current loading (1) (6 ppsm) [(d)/(c)] { } critical link	66% {Tai Wai to Kowloon Tong}	74% {Kam Sheung Road to Tsuen Wan West}	57% {Che Kung Temple to Tai Wai}	69% {Yau Tong to Quarry Bay}	69% {Tin Hau to Causeway Bay}	66% {Shek Kip Mei to Prince Edward}	73% {Tsim Sha Tsui to Admiralty}	23% {Sunny Bay to Disneyland}	61% {Olympic to Kowloon}	40% {Airport to Tsing Yi}
	8.	Current loading (2) (4 ppsm) [(d)/(c)÷71.2% (Note 5)] (For the critical links mentioned in item (7)) <b>Changes as compared with 2014 (percentage point)</b>	93%	104% (Note 8)	80%	97%	96%	92%	102%	32%	85%
9.	Current loading (3) (6 ppsm) [(d)/(a)] (For the critical links mentioned in item (7))	57%	57%	48%	55%	65%	55%	64%	20%	34%	19%
10.	Can additional train trips be provided (with the existing signalling system)? (Note 6)	Yes	No	Yes	No	No	No	No	No	Yes (Note 7)	No (Note 7)
11.	Any plans to upgrade the signalling system? If yes, when will the upgrading exercises be completed?	Yes (to be completed by 2021 when the North South Corridor of Shatin to Central Link ("SCL") opens)	Not applicable	Yes (to be completed by 2019 when the East West Corridor of SCL opens)	Yes (to be completed by 2021)	Yes (to be completed by 2019)	Yes (to be completed by 2020)	Yes (to be completed by 2018)	Yes (to be completed by 2026)	Yes (to be completed by 2026)	Yes (to be completed by 2026)

Capacity and Loading of trains in the MTR Network (LC Paper No. CB(4)854/15-16(07))

Legislative Council  
Committee –  
Panel on Transport  
交通事務委員會



# *Useful materials – New agencies / organizations*

- SCMP – TRANSPORT

<https://www.scmp.com/news/hong-kong/transport>



- TRANSITJAM

<https://transitjam.com/>



- Civic Exchange – Mobility and transport

<https://civic-exchange.org/mobility-transport/>



Hong Kong

- Global BRT data
- (with videos of Guangzhou BRT)

<https://brtdata.org/>



- Sustainable Urban Transport Project

<https://sutp.org/>



International



# *Useful materials – Fieldwork investigation*

- **Aim**
  - To investigate how traffic flows change during peak and non-peak hours during a month
- **Questions**
  - Do traffic flows show similar patterns throughout the days of investigation?
  - How do flows of traffic affect the environment?
- **Date collection**
  - To record the amount of traffic observed at the investigation site
    - For junior students, decide how often and how long they should take the counting
    - For senior students, also design a data collection sheet to record the counting
  - To collect environmental quality data
- **Sampling**
  - To decide how often to observe the traffic:
    - Which dates to observe within a month time?
    - Use a random number generator to pick the observed dates (**random**), observe every three days (**systematic**), apply one of the sampling methods for weekdays and weekends (**stratified**) ?



Similar fieldwork can be carried out at different sites, with possibilities for a comparison of traffic flow characteristics between **district distributor roads (outside MTR station) and local distributor roads (outside school)** [e.g. volume, car types, share of motorized and non-motorized modes, environmental quality]



## *Useful materials – fieldwork investigation*

### **Central to Mid-Levels Escalator and Walkway System**

What to observe?

- Terrain and walking experience
- Directions and volume of pedestrian flow
- Types of business nearest to the walkway
- Traffic safety
- Road space used by car users, pedestrians, and businesses



教大網上教育平台  
EdUHK Online Classes Platform

# Trial lessons for secondary school students

- ~ Videos
- ~ Online map (GEOINFO Map)
- ~ EdPuzzle
- ~ Icograms

**網上教學片段**

Geography

公共運輸導向發展 (一) :  
公共運輸導向發展的特徵  
Transit-oriented Development I -  
Characteristics of Transit-oriented  
Development (TOD)

地理·粵語

公共運輸導向發展 (一) : 公共運輸導向發展的特徵

鄧倩賢博士, 徐佩盈小姐

影片介紹了公共運輸導向發展 (TOD) 的基本概念和特點。短片以將軍澳的發展為例, 指出將軍澳不同的城市形態和交通設計, 以闡述TOD的特點。TOD發展模式共有五個特點, 它們是 (1) 高質量的集體運輸系統, (2) 在集體運輸車站的步行範圍內發展, (3) 土地高度混合利用, (4) 密集式發展, (5) 有利行人和單車使用者的設計。結合將軍澳的城市結構和TOD的主要特點, 學生可以深入了解TOD的發展模式。

**網上教學片段**

Geography

公共運輸導向發展 (二) :  
城市發展的新與舊  
Transit-oriented Development II:  
New vs Old Urban Development

地理·粵語

公共運輸導向發展 (二) : 城市發展的新與舊

鄧倩賢博士, 李麗漫小姐

此網上教學片段繼續闡述公共運輸導向發展的概念及特徵。老師以旺角及將軍澳作例子, 解說香港的舊城區及新市鎮在城市規劃上的異同。老師運用電子白板軟件 Explain Everything 及地圖工具MapBox 製作的2D及3D地圖, 具體地比較新市鎮及舊城區的城市規劃的不同及共通點。這種可視化的闡述有助學生提升空間感及加強對有關地理概念的認識。

**網上教學片段**

Geography

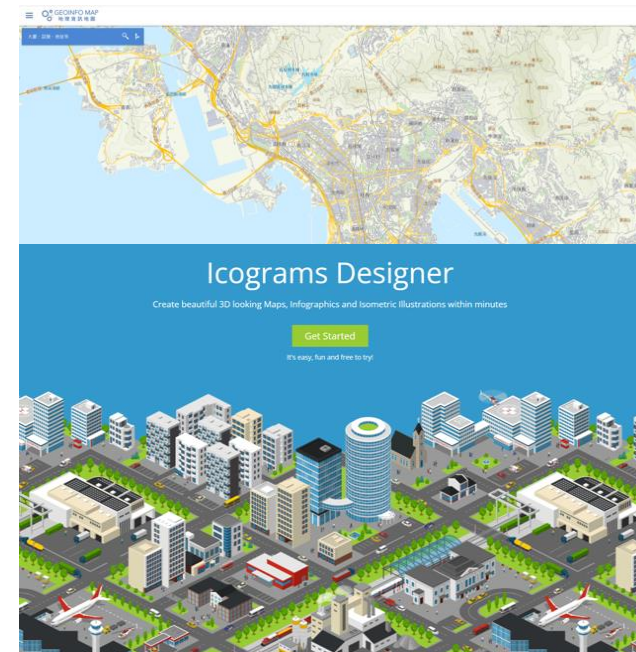
公共運輸導向發展 (三) :  
公共運輸導向發展與可持續發展  
Transit-oriented Development III :  
Transit-oriented Development and  
Sustainable Development

地理·粵語

公共運輸導向發展 (三) : 公共運輸導向發展與可持續發展

鄧倩賢博士, 李麗漫小姐

此網上教學片段是透過一個網上教學活動來闡述公共運輸導向發展概念與可持續發展的關係。學生需運用TOD概念, 透過網上平台Icogram設計他們的理想城市。這個實作活動讓學生在建構作品時能應用相關知識, 並促進學生自主學習及參與度。



Could contact Dr Alice Chow  
asychow@eduhk.hk for more info  
of running these trial lessons in your  
school.

<https://eocp2.eduhk.hk/zh/video/geography/Transit-oriented-Development-I.html>



<https://eocp2.eduhk.hk/zh/video/geography/Transit-oriented-Development-II.html>



<https://eocp2.eduhk.hk/zh/video/geography/Transit-oriented-Development-III.html>





# *Thank you*

Dr Alice Chow

Department of Social Sciences

The Education University of Hong Kong

鄒倩賢博士

香港教育大學社會科學系

[asychow@eduhk.hk](mailto:asychow@eduhk.hk)