Brainstorming Activity
(3 persons per group)

On Google Jamboard

Group 1: Please click this link.

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Group 2: Please click this link.

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Group 3: Please click this link.

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Brainstorm the following topics.

- What types of areas/zones does urban environment have?
- Put example pictures that represent those types of areas in urban environment.
- Indicate people activities, possible expectations from public services and behavior they may have.

Unit 4 Concept of Transport and Urban Space

Topic

- Public transport and mass transit and its influence on urban physical environment
- The concepts of site and situation
- Public transport and urban forms
- How transport- related urban zones are divided?
- Urban space consumption
- Economics induced from public transport or mass transit

Objectives

Students should be able to:

- Explain how public transport development shapes urban space development.
- Discuss impacts of public transport development on society.
- Explain the concepts of site and situation.
- Indicate transport- related urban zones categories
- Discuss potential urban space consumption and implication in tourism.
- Discuss problems and limitation of public transportation.

Public Transport and Mass Transit


MRT


HORSE
TAXI
TAXI


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What is public transport?

Shared passenger transport service which is available for use by the general public

Most public transport runs to a scheduled timetable with the most frequent services.

The operation management of public transport includes the management of:

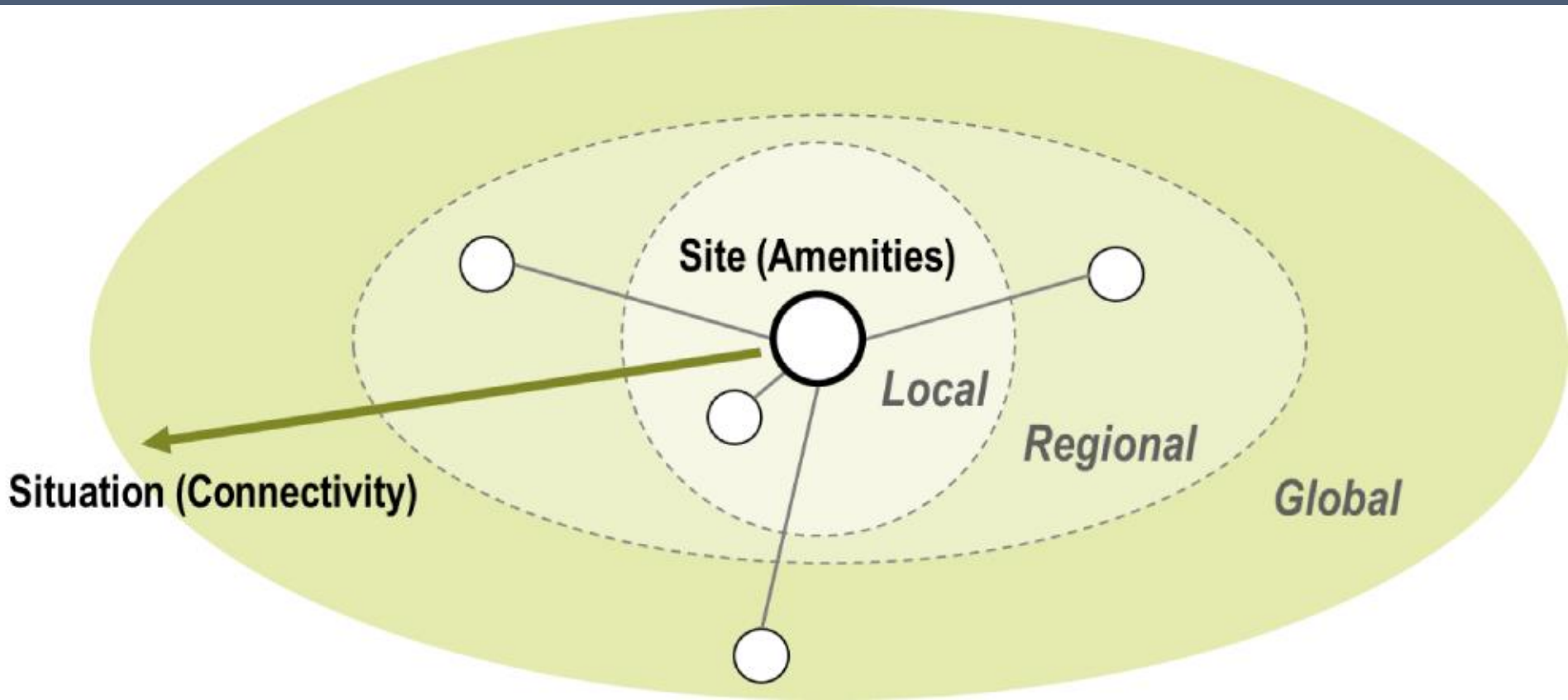
- Infrastructure
- Interchanges
- Timetables
- Financing (fare and ticketing, revenue, profit and subsidies)
- Safety and security
- Impacts (environment, land use social, economic)
- Regulations (food and drink, smoking, noise, banned items, other regulations, sleeping).

Public Transport and Its Influence on Urban Physical Environment

The Concepts of Site and Situation

The concepts of site and situation are fundamental to geography and transportation.

Two Core Dimensions



What is site concept?

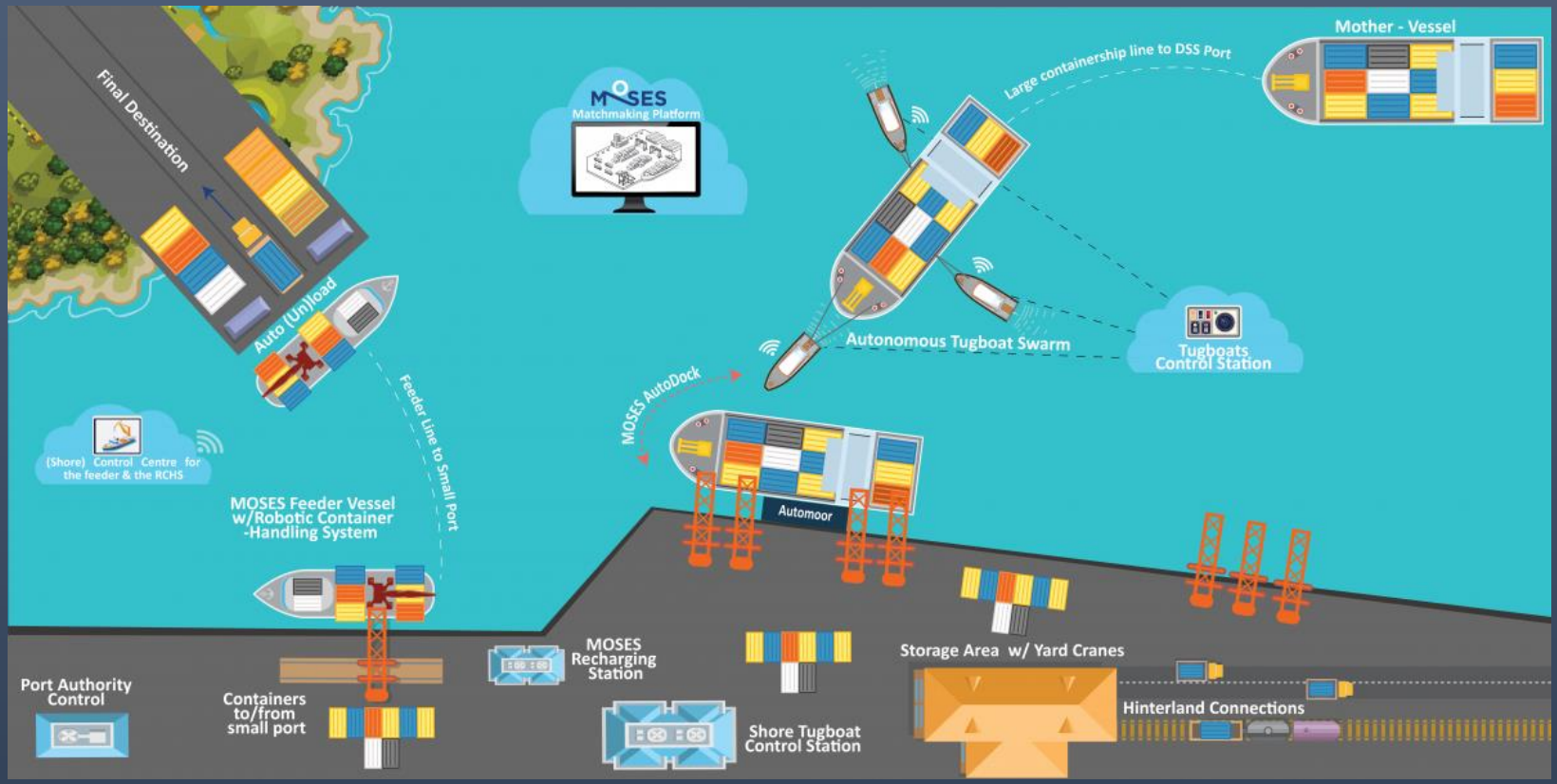
The site is mostly related to the attributes of a location, which mainly fall within physical, infrastructure and economic characteristics. They are usually amenities that make a location attractive to specific activities (e.g. commercial, residential, manufacturing).

What is situation concept?

The situation is related to the relationships with other locations at the local, regional or global scale. It reflects the connectivity of a location to other locations.

For instance

A port site relates to attribute such as the suitability of its harbor. In contrast, a port situation relates to its connectivity with its foreland (other ports) and hinterland (the inland market it serves).



Space and Transportation

site

situation

The development of a location reflects the cumulative relationships between transport infrastructure, economic activities and the built- environment.

Transport- related factors that shape urban environment

Costs: The spatial distribution of activities is related to factors of distance, namely its friction. Locational decisions are taken to minimize costs, often related to transportation.

Accessibility: All locations have a level of accessibility, but some are more accessible than others. Thus, because of transportation, some locations are perceived as more valuable than others.

Agglomeration: There is a tendency for activities to agglomerate to take advantage of the value of specific locations. The more valuable a location, the more likely agglomeration will take place. The organization of activities is essentially hierarchical, resulting from the relationships between agglomeration and accessibility at the local, regional, and global levels.

Let's think what may be the supporting factors to decide to build a public transport in particular areas in urban zone/ city.

Go to Padlet.

https://padlet.com/siripenyi/qtumrc5jv3hkc5q3

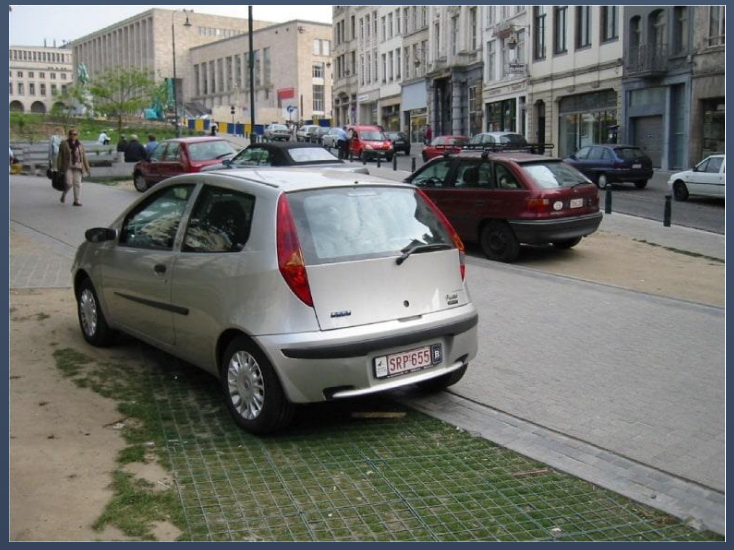
Let's think what may be the constraints or limitations not to build public transport in particular areas in urban zone/ city.

Go to Padlet.

https://padlet.com/siripenyi/7qjk5nabiara333y

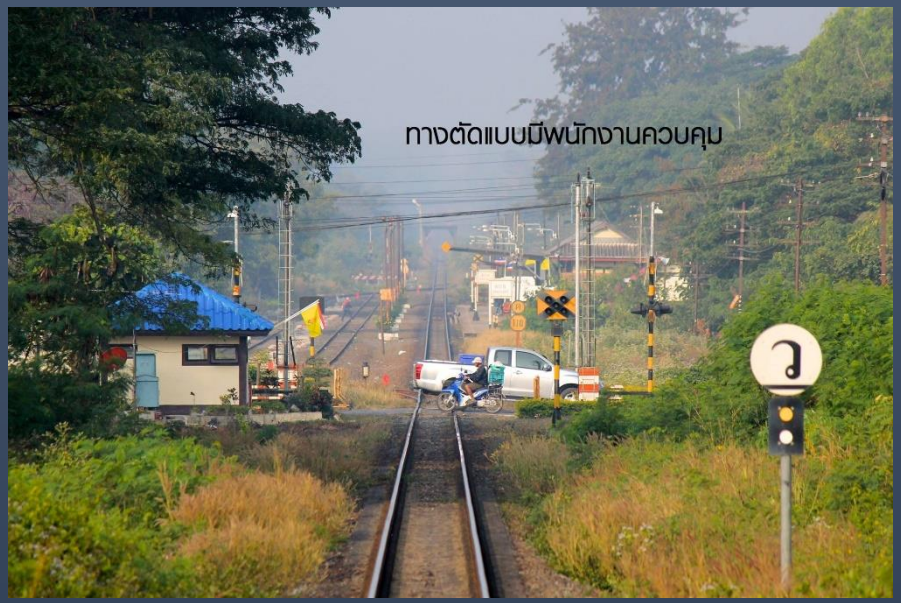
***Physical attributes*:**

Some natural conditions have very difficult constraint, especially for land transportation. It is therefore not surprising to find that most networks still are those along the easiest (least cost) paths, such as valleys and plains (rather than mountains and islands).

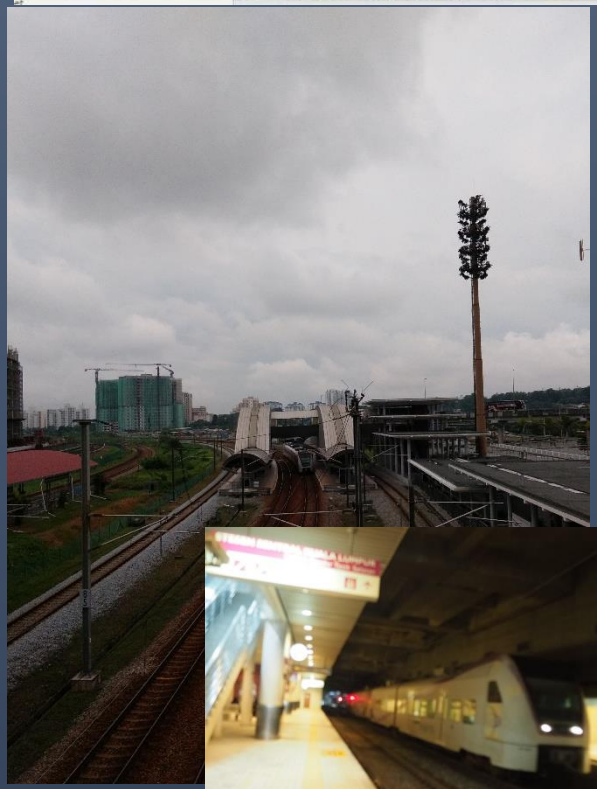


***Historical considerations*:**

Old patterns of transportation infrastructure have influence on nowadays development of transport infrastructure. In many areas, new transportation modes and carrying units cannot replace the old one, due to the fact that changing costs too high cost.




BALHAM, HIGH ROAD.



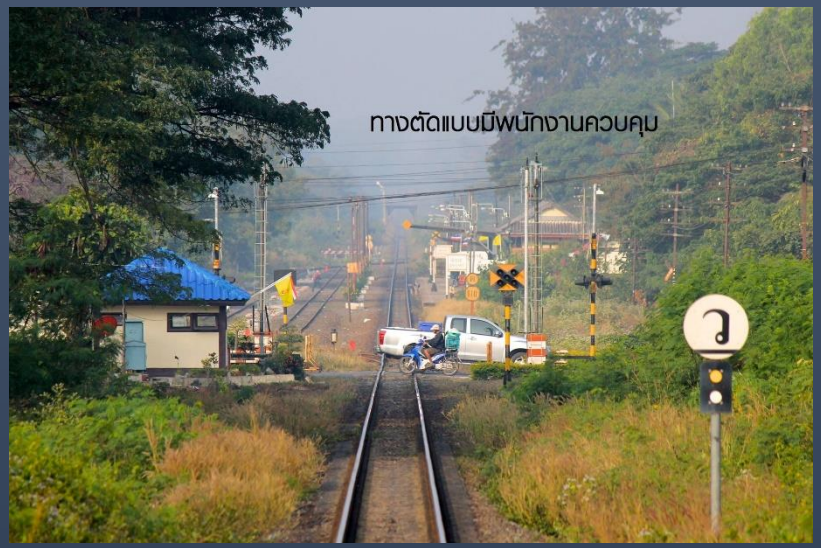
Using the case of Bangkok, even though it is called a metropolis, it is still facing with a limitation of spaces, that affect its less capability to expand the number of roads for very high traffic today (18 million commutes/ ridership per day).

Only 10% of the whole space in Bangkok is for road transport, comparing to Tokyo having 23% and New York 38%. This affects Bangkok become a metropolis that has a lower standard of being a metropolis with convenient travel.


Tokyo


New York

Most travelers use private car and many others also have a high level of need for car ownership, *whereas public transport (i.e. bus) and personal vehicles are still operated on the same lanes*, and *mass transit with rail system occupies only 3% of all transport modes in Bangkok* due to the fact that the network is not completed yet and the problem of integrated planning (no integrated transport planning at the beginning)s




ยูนิค
UNIQUE
5

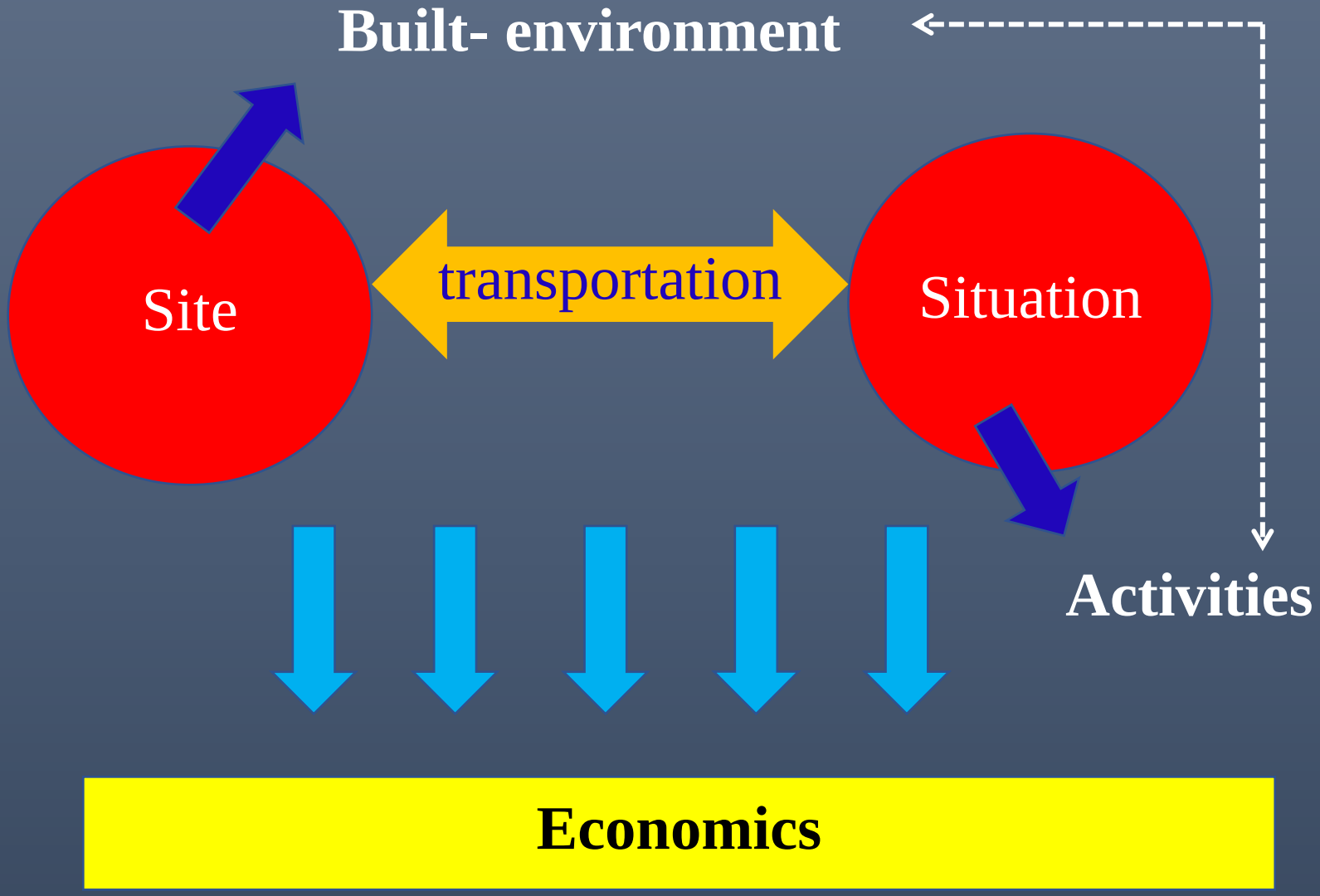

SU JOINT VENTURE

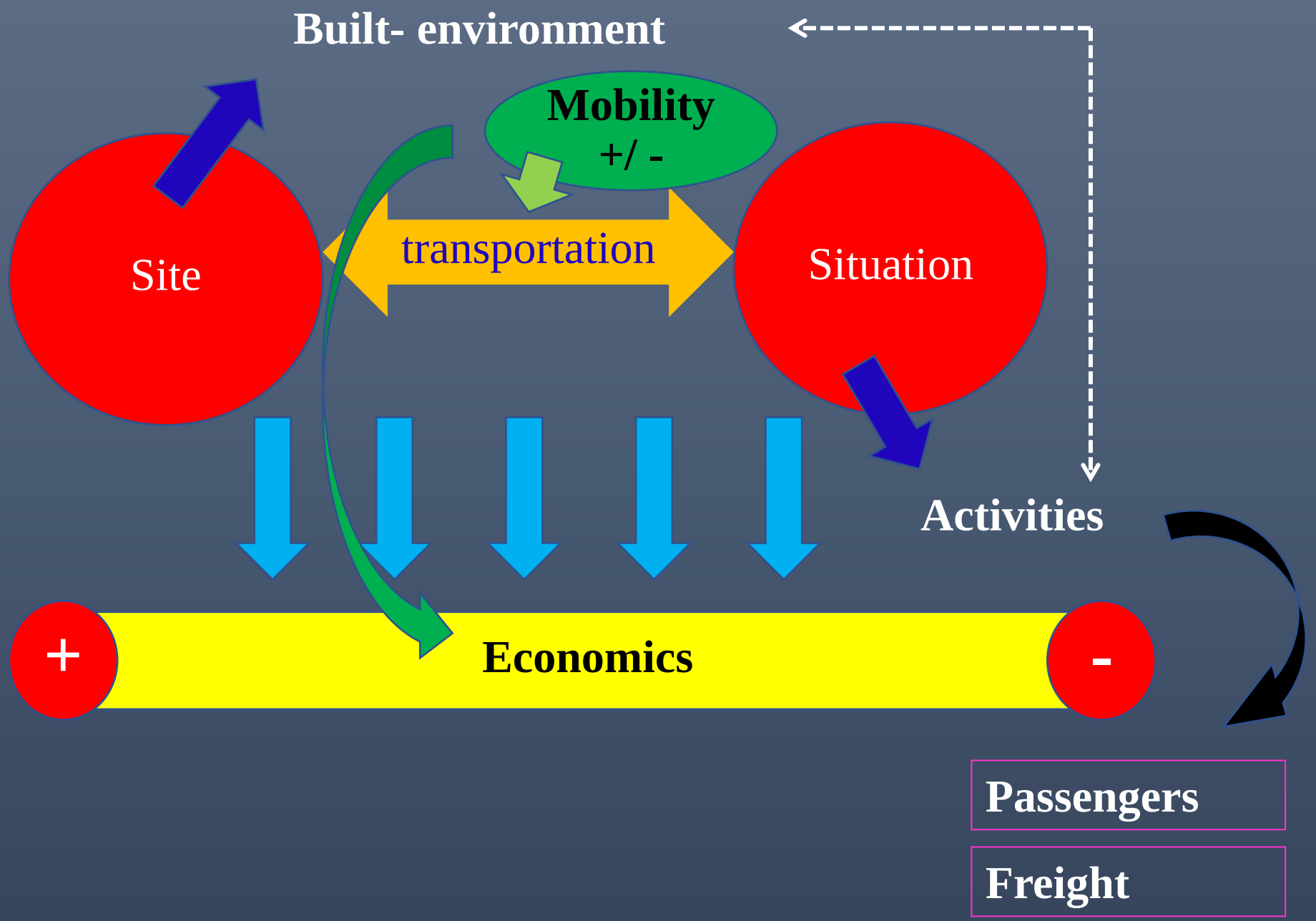
Good public transport
Effective / productive land use
Higher spread of economics impact

VS

Bad public transport
Ineffective / not productive land use
Less spread of economics impact

Good public transport will allow the creation of centers around the transport hubs, serving passengers' daily commercial needs and public services.


Built- environment
Site
transportation
Situation
Activities
Economics


Built- environment
Mobility
+/ -
Site
transportation
Situation
Activities
+
Economics
-
Passengers
Freight

Public Transport and Urban Forms

Global Urbanization

- Urbanization has been one of the dominant economic and social changes of the 20th century, especially in the developing world. After the industrial revolution, a network of large cities started to emerge in the most economically advanced parts of the world.

- Since 1950, the world's urban population has more than doubled and there has been a growing size of cities and the increasing proportion of the urbanized population.

- By 2050, 70% of the global population could be urbanized, representing 6.4 billion urban residents. Cities also dominate the national economic output as they account for the bulk of the production, distribution, and consumption.

Urbanization is the transition from a rural to an urban society. Statistically, urbanization reflects an increasing proportion of the population living in settlements defined as urban, primarily through net rural to urban migration. The level of urbanization is the percentage of the total population living in towns and cities, while urbanization is the rate at which it grows.

(UNFPA, 2007).

Global urbanization is the outcome of three main demographic trends.

Natural Increase

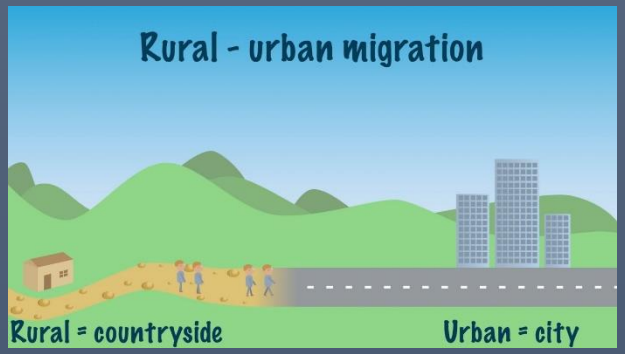
Rural to Urban Migrations

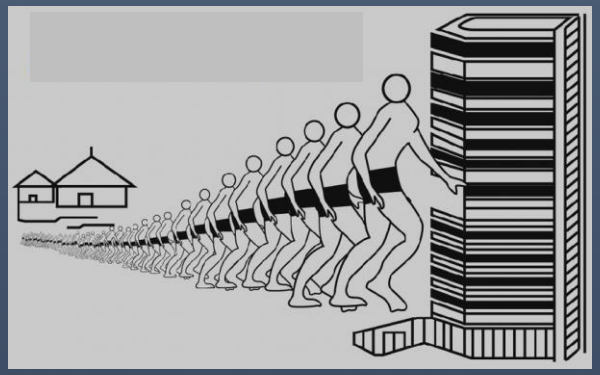
International Migration

Natural Increase

The outcome of more births than deaths in urban areas, a direct function of the fertility rate as well as the quality of healthcare systems (lower mortality rates, particularly for infants).

Rural to Urban Migrations





This has been a strong urbanization factor, particularly in the developing world, where migration accounted for between 40 and 60% of urban growth. Migration endured since the beginning of the industrial revolution in the 19th century. It first took place massively in the developed world in the first half of the 20th century and then in the developing world since the second half of the 20th century. The factors behind rural to urban migrations may involve the expectation to find employment, improved agricultural productivity, which frees rural labor or even political and environmental problems where populations are constrained to leave the countryside.

International Migration

The growth in international migration has been an important factor in the urbanization of major gateway cities, such as Los Angeles, Miami, New York, London, and Paris, as well as gradually in cities of smaller sizes.

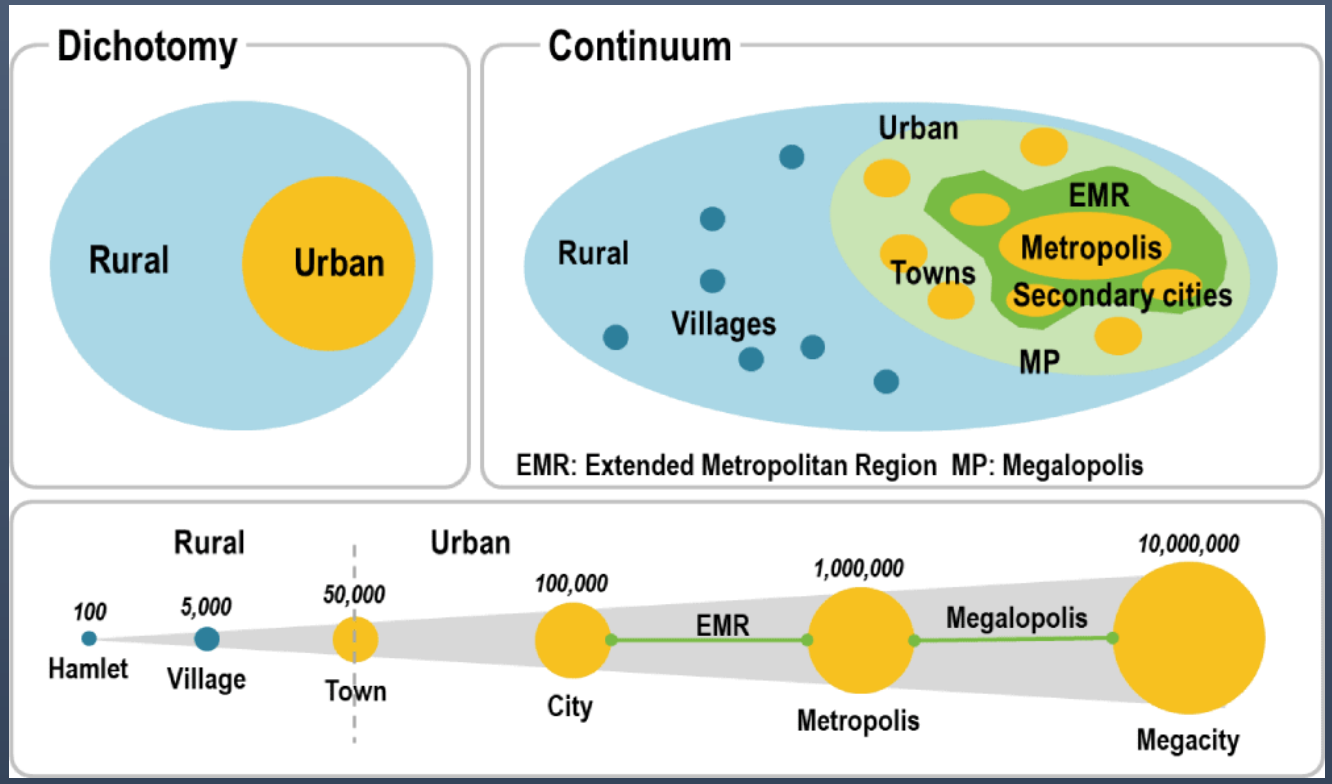
Through urbanization, fundamental changes in the socio-economic environment of human activities have been observed.

What drives urbanization is a complex mix of economic, demographic, and technological factors.

The growth in GDP per capita is a dominant driver of urbanization, but this is supported by developments in transportation systems.

Urbanization involves new forms of employment, economic activity, and lifestyle.

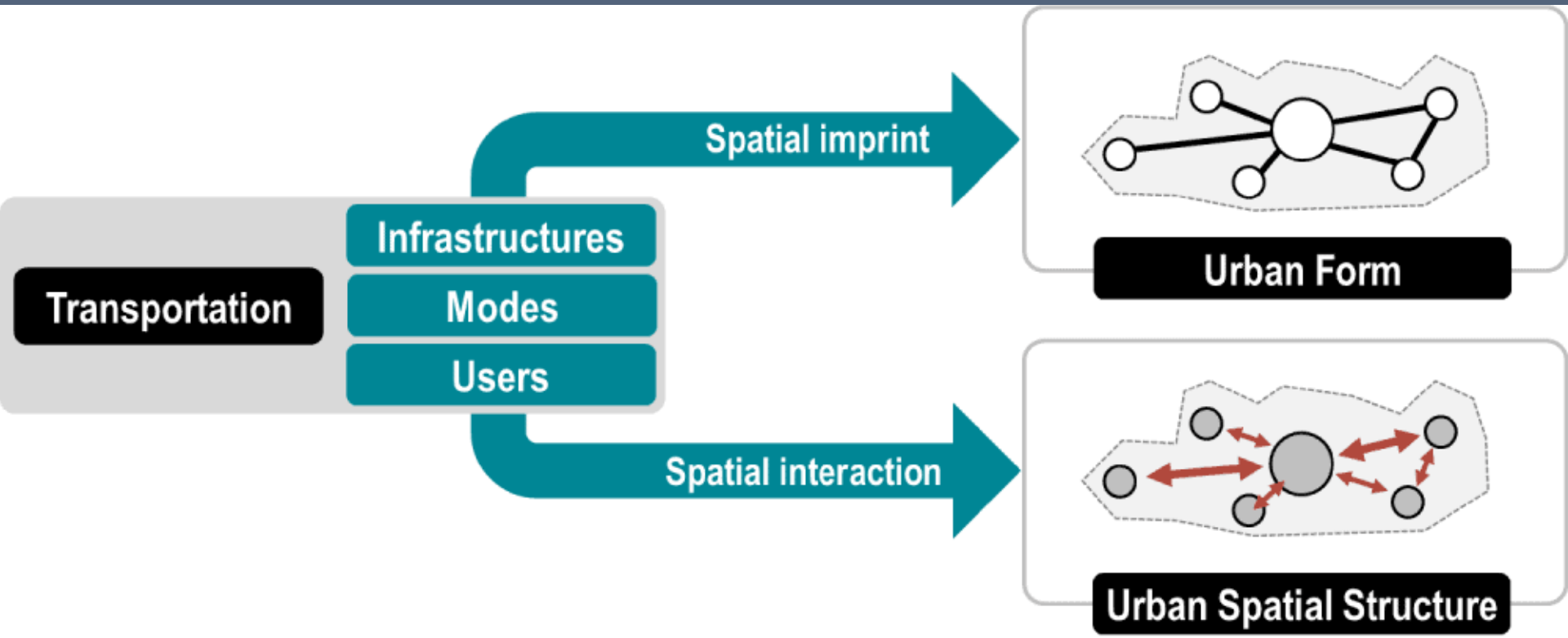
Urban mobility problems have increased proportionally, and in some cases, exponentially, with urbanization. This is associated with two outcomes. First is the emergence of a network of megacities that account for the most salient urban mobility challenges. Second, mobility demands tend to be concentrated over specific urban areas, such as central business districts.



The Urban Form

Urbanization has been shaped by transport infrastructures, such as roads, transit systems, or even walkways. Consequently, there is a wide variety of urban forms, spatial structures, and associated urban transportation systems.

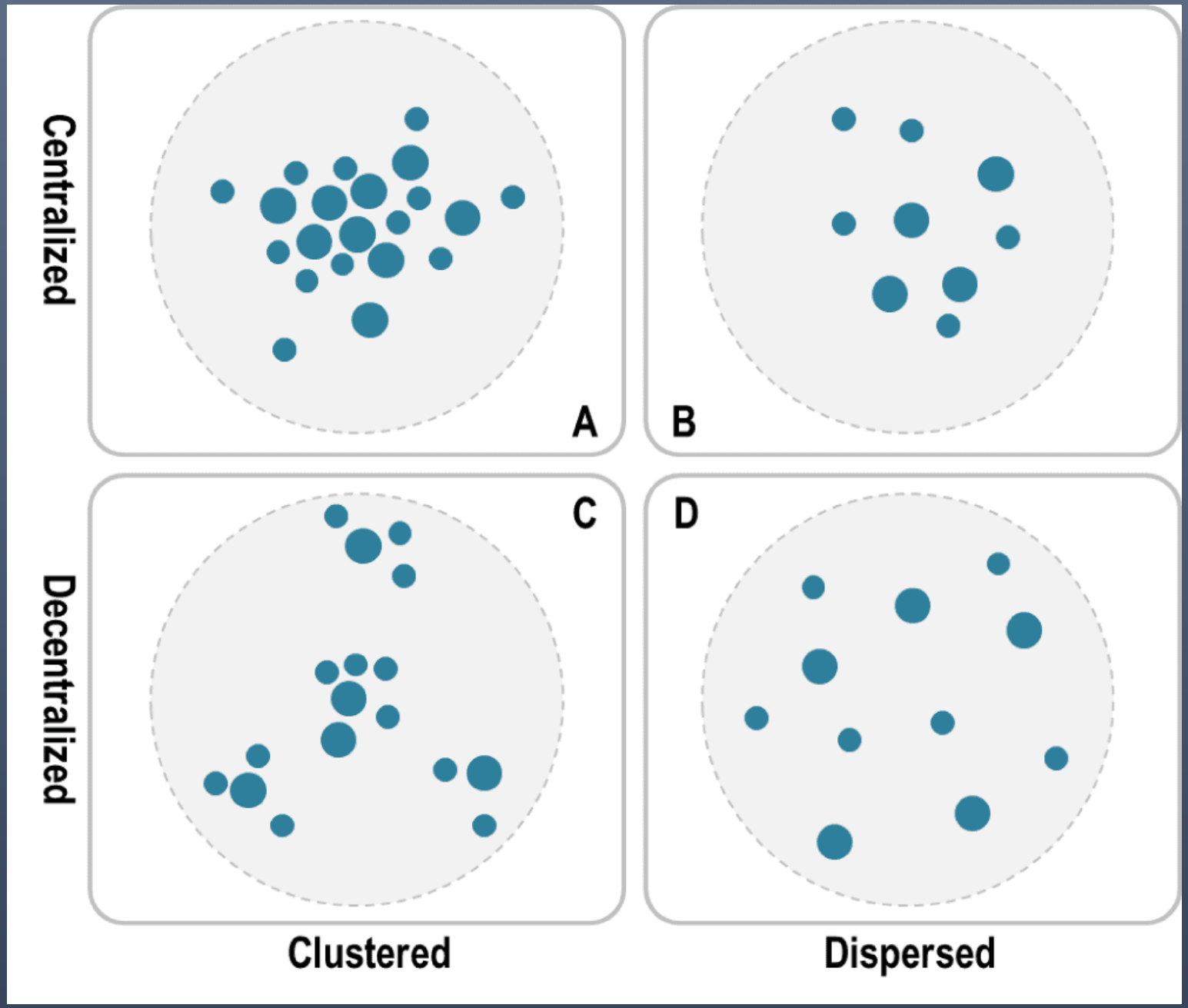
**Another word of “urban form” is “spatial imprint”.


Transportation
Infrastructures
Modes
Users
Spatial imprint
Spatial interaction
Urban Form
Urban Spatial Structure

Considering transport developments, the urban spatial structure (urban space structure) can be categorized by its level of centralization and clustering:

Centralization: Refers to the locational setting of activities in relation to the whole urban area. A centralized city has a significant share of its activities within a defined center, while a decentralized city does not. Large employers such as financial institutions are the main drivers of centralization.

Clustering: Refers to the locational setting of activities in relation to a specific part of the urban area. A cluster of activities is, therefore, a concentration around a specific focal point, which tends to be transport infrastructures such as a highway interchange, a transit terminal, or a smaller town that has been absorbed by the expansion of the metropolis.

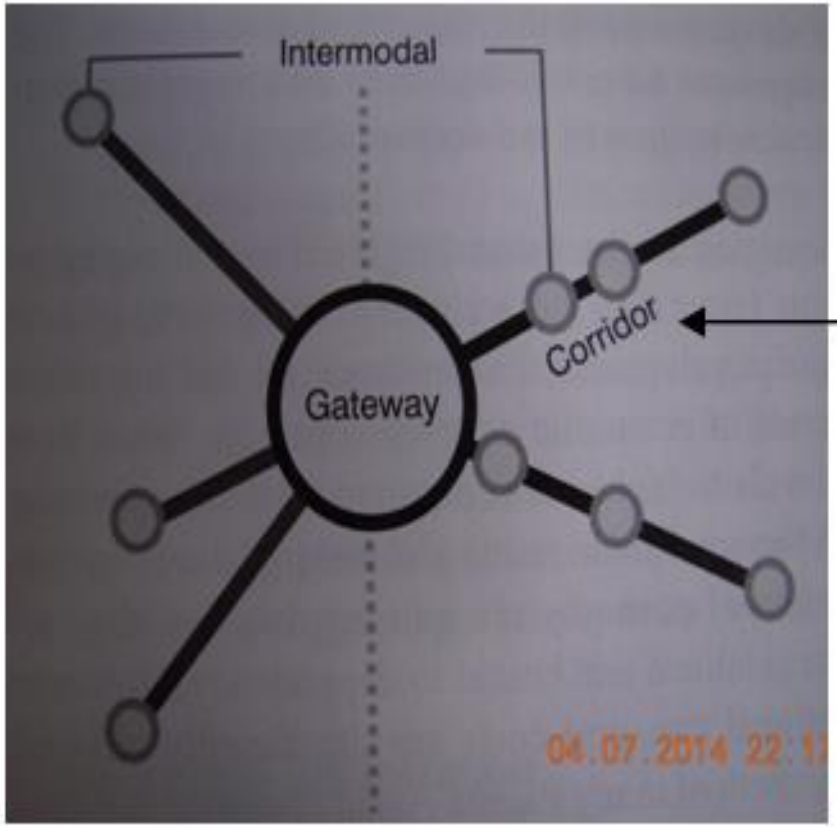

Centralized
Decentralized
A
B
C
D
Clustered
Dispersed

The urban form and its spatial structure are shaped by two structural elements:

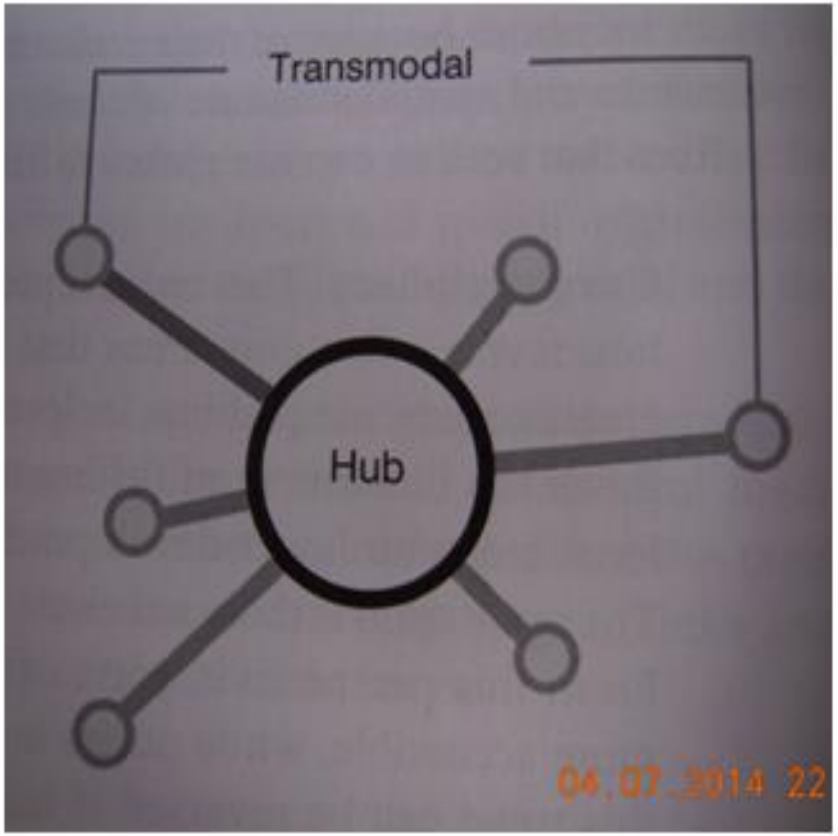
Nodes (urban nodes): Urban areas where the transport infrastructure such as ports including passenger terminals, airports, railway stations, logistic platforms and freight terminals located in and around an urban area, is connected with other parts of that infrastructure and with the infrastructure for regional and local traffic. There are concentrated activities in the nodes. Terminals, such as ports, train stations, railyards, and airports, are important nodes around which activities agglomerate at the local or regional level. Nodes have a hierarchy related to their importance and contribution to urban functions, with high order nodes such as management and retailing and lower order nodes such as production and distribution.

Linkages (urban linkages): These are the infrastructures supporting mobility from, to, and between nodes. The lowest level of linkages includes streets. There is a hierarchy of linkages moving up to regional roads and railways and international connections by air and maritime transport systems.

Performing an intermodal function (between modes)

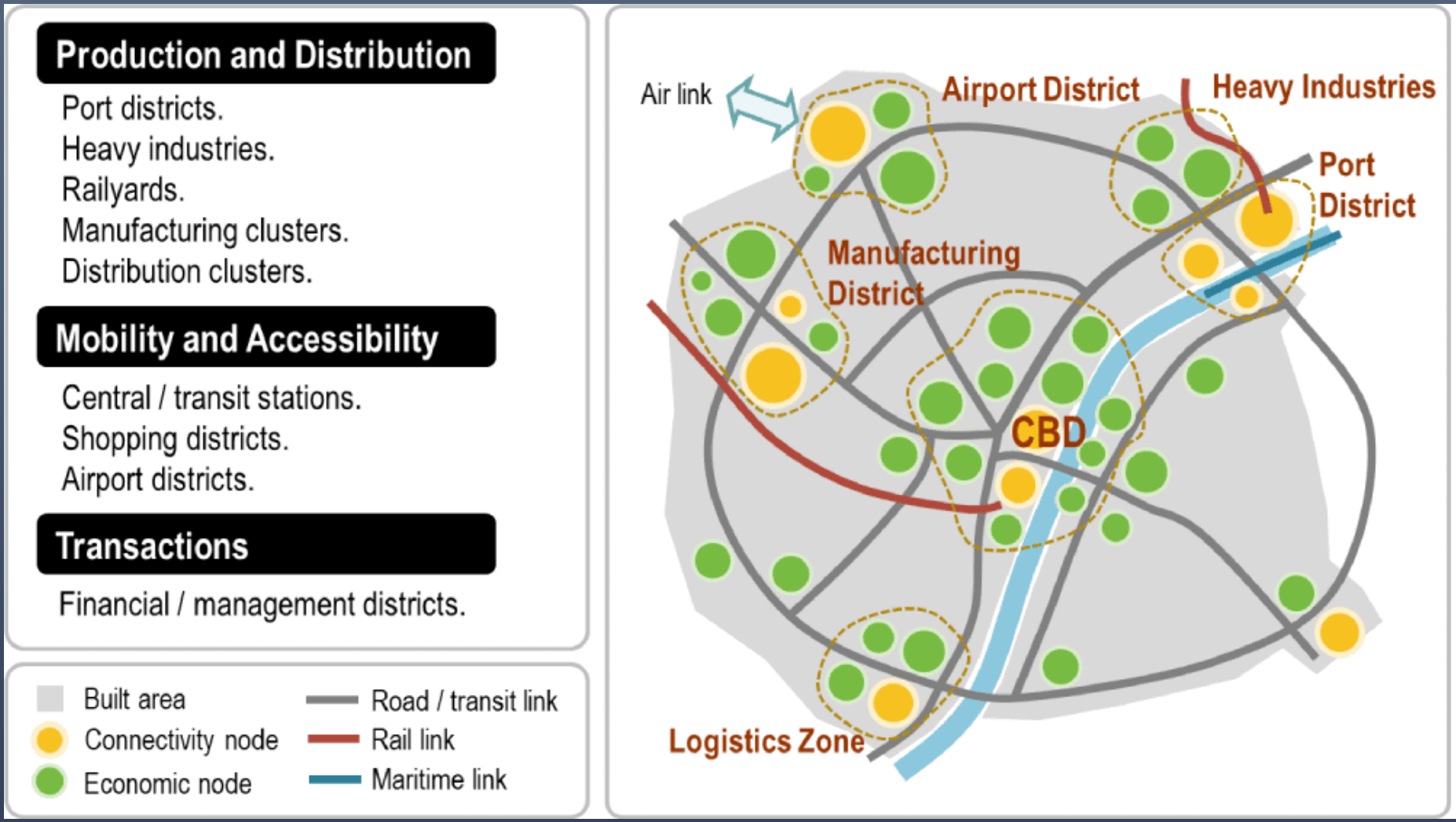


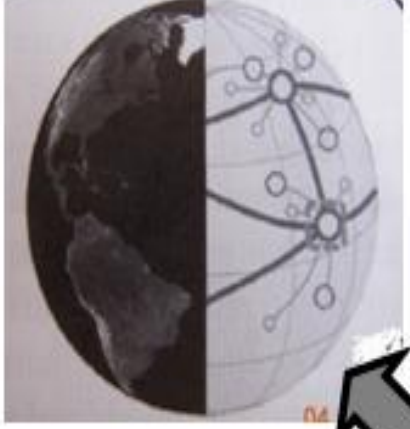
Performing an transmodal function (within a mode)



Transport corridors are commonly linking gateways to the hinterland.

Urban nodes and linkages provide for functional connectivity, implying interdependent urban functions related to trade, management, and production.

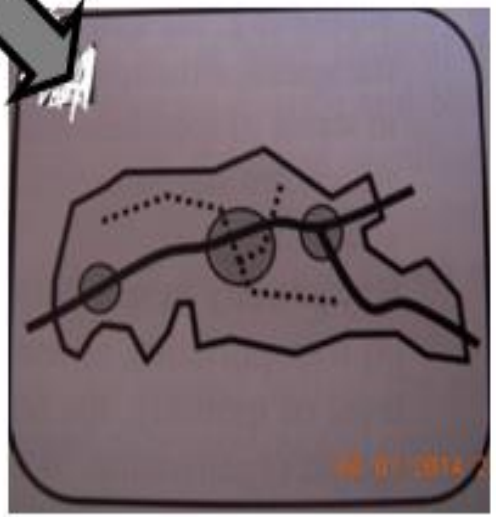




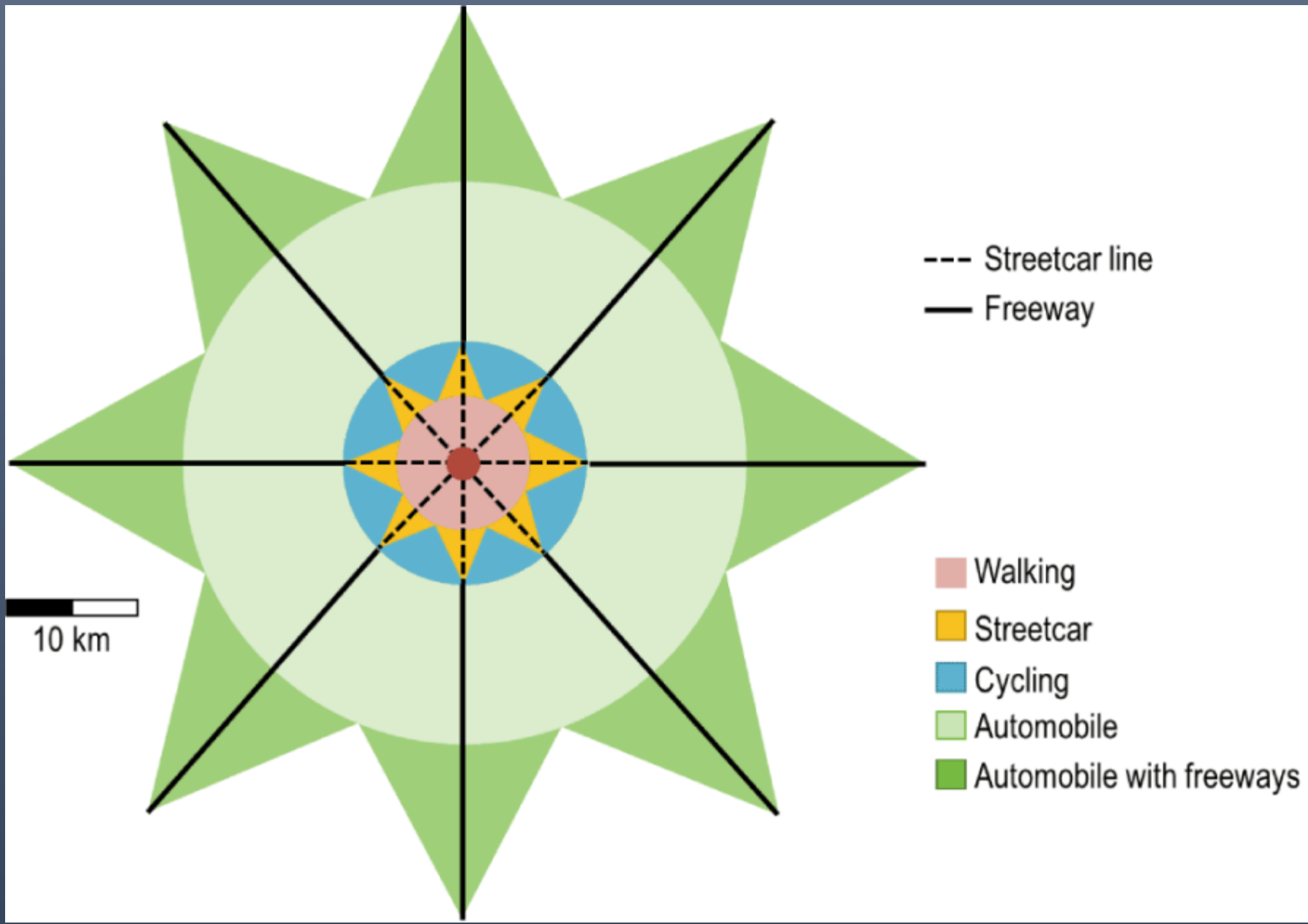
Global
1) Gateways and hubs (airports and ports)
2) Air and maritime routes
3) Investment, trade and production

Regional
1) Metropolitan areas
2) Corridors (rail lines, highways, canals)
3) Urban system and hinterland

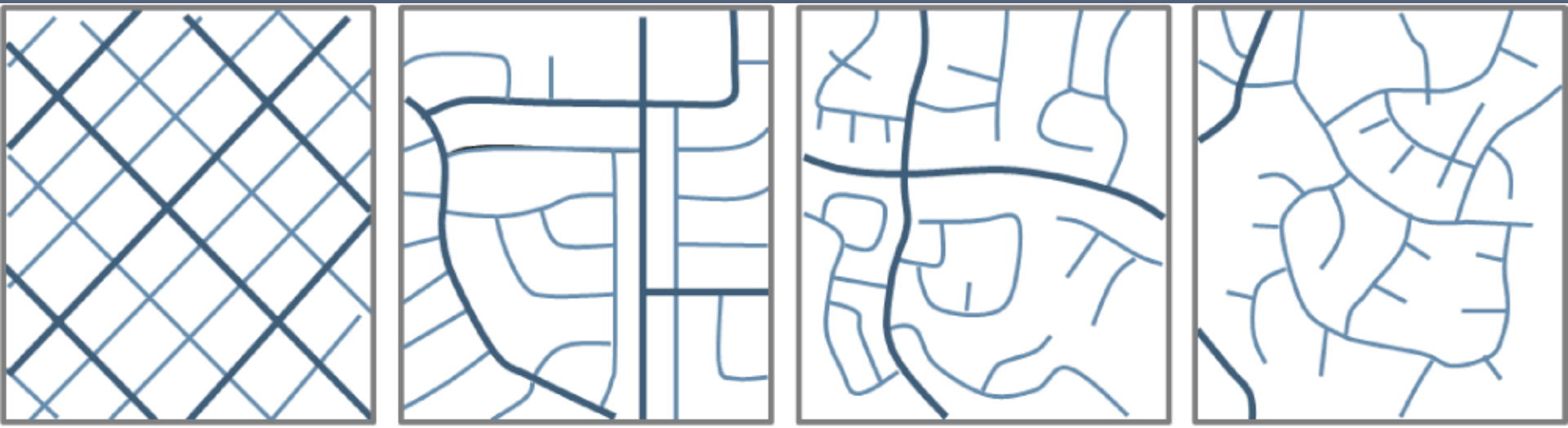
1) Nodes
2) Links
3) Relations



Local
1) Employment and commercial activities
2) Roads and transit systems
3) Commuting and distribution


Streetcar line
Freeway
Walking
Streetcar
Cycling
Automobile
Automobile with freeways
10 km

Street Patterns



Conventional Grid Pattern (c 1900)

Curvilinear Loop Pattern & Beginning of Cul-de-Sacs (1930-1950)

Conventional Cul-de-Sac Pattern (since 1950)

Arterial road

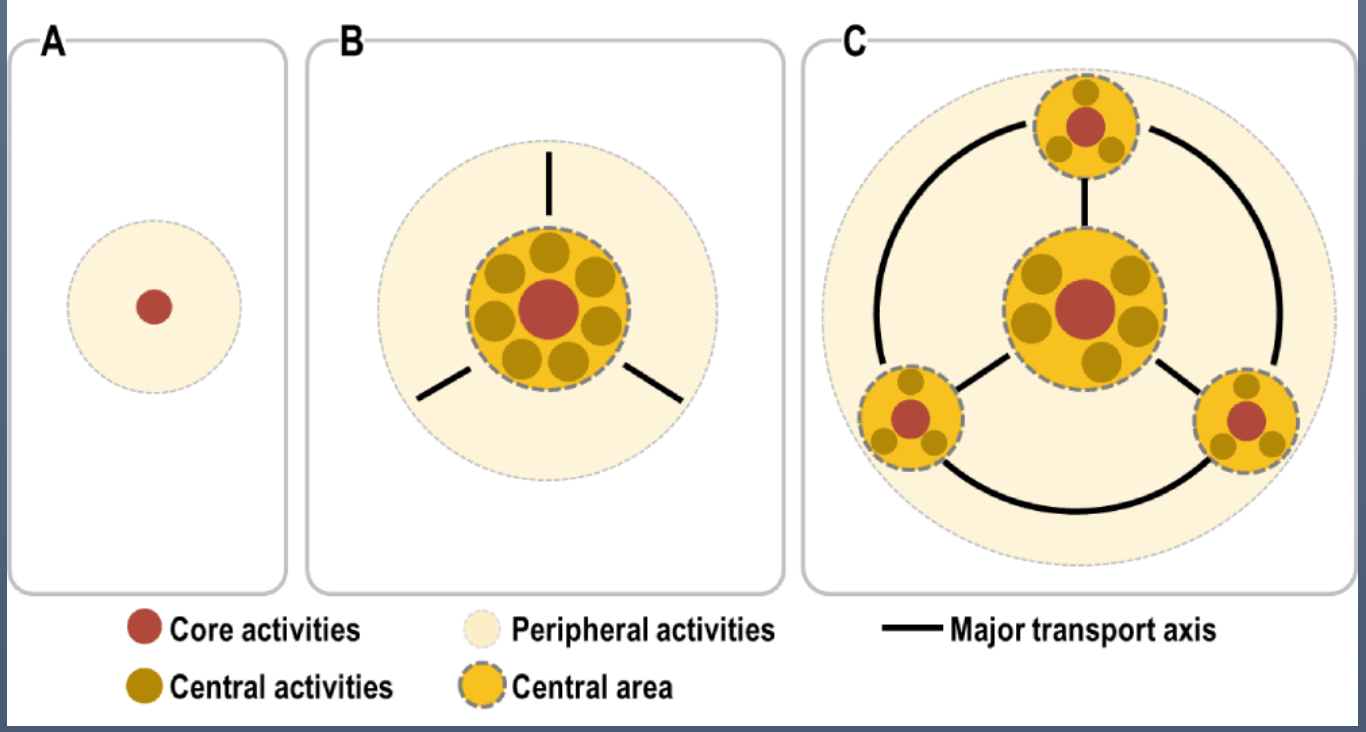
Local street

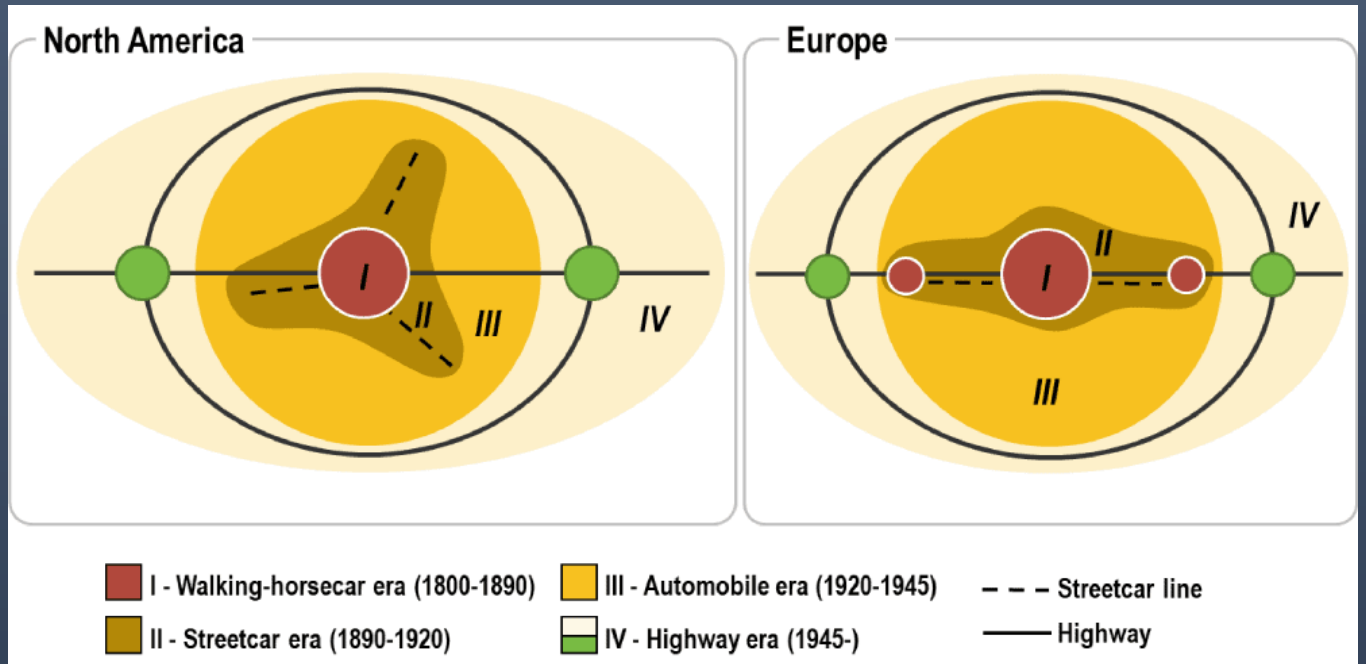
In the 20th century, cities developed a unique spatial structure relying on motorized transportation, particularly the privately owned automobile.

There has been a shift from a grid pattern towards curvilinear and cul-de-sac patterns that are commonly found in suburban areas.

What is happening is "dispersion, or urban sprawl", in many different types of cities, from dense, centralized European metropolises such as Madrid, Paris, and London, to rapidly industrializing metropolises such as Seoul, Shanghai, and Mexico City, to those experiencing recent, fast and uncontrolled urban growth, such as Mumbai and Jakarta.

Recent urban expansion is almost all geared towards road transportation as the support for mobility.


A
B
C
Core activities
Central activities
Peripheral activities
Central area
Major transport axis


North America
Europe
I
II
III
IV
I - Walking-horsecar era (1800-1890)
II - Streetcar era (1890-1920)
III - Automobile era (1920-1945)
IV - Highway era (1945-)
Streetcar line
Highway

How transport- related urban zones are divided?

Different cities or even different parts of a city are varied in terms of spatiality imprint of transportation. The major components of the spatiality imprint of urban transportation are:

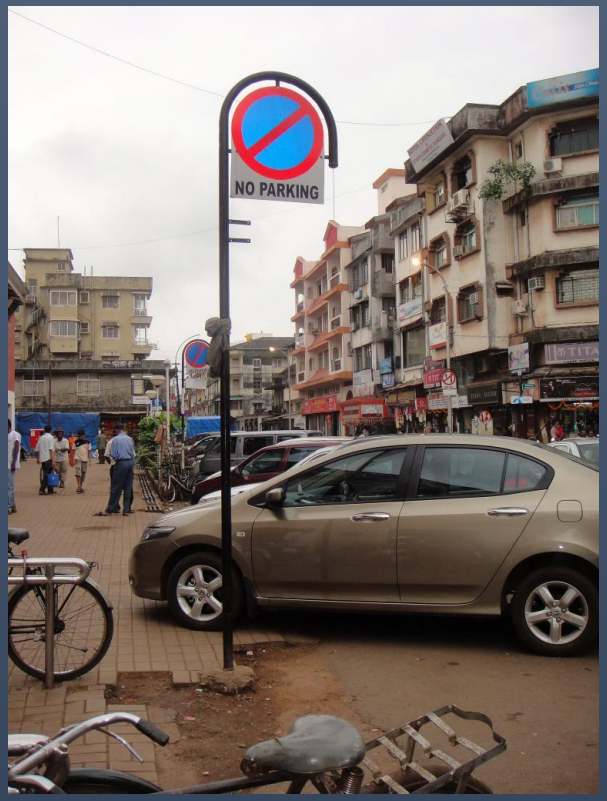
Pedestrian areas: refer to the amount of space devoted to walking. This space is often shared with roads as sidewalks may use between 10% and 20% of a road's right of way. In central areas, pedestrian areas tend to use a greater share of the right of way and in some instances whole areas are reserved for pedestrians.

However, in the context where motorized or automobile era, most pedestrian areas are for servicing people's access to transport modes such as parked automobiles.

Roads and parking areas: refer to the amount of space devoted to road transportation.

This type of area has 2 states of activity: moving or parked.

In a motorized city (high automobile travel dependency city), on average 30% of the surface is devoted to roads while another 20% in required for off- street parking



Off- street parking


On- street parking

Cycling areas: cycling simply shares access to pedestrian and road space.

However, many attempts have been made to create spaces specifically for bicycles in urban areas, with reserved lanes and parking facilities.

The Netherlands has been particularly proactive over this issue making biking paths part of the urban transport system: 27% of the total amount of commuting is by cycling.

“Velib” – Velo Libre

Bicycle pool, Paris, France

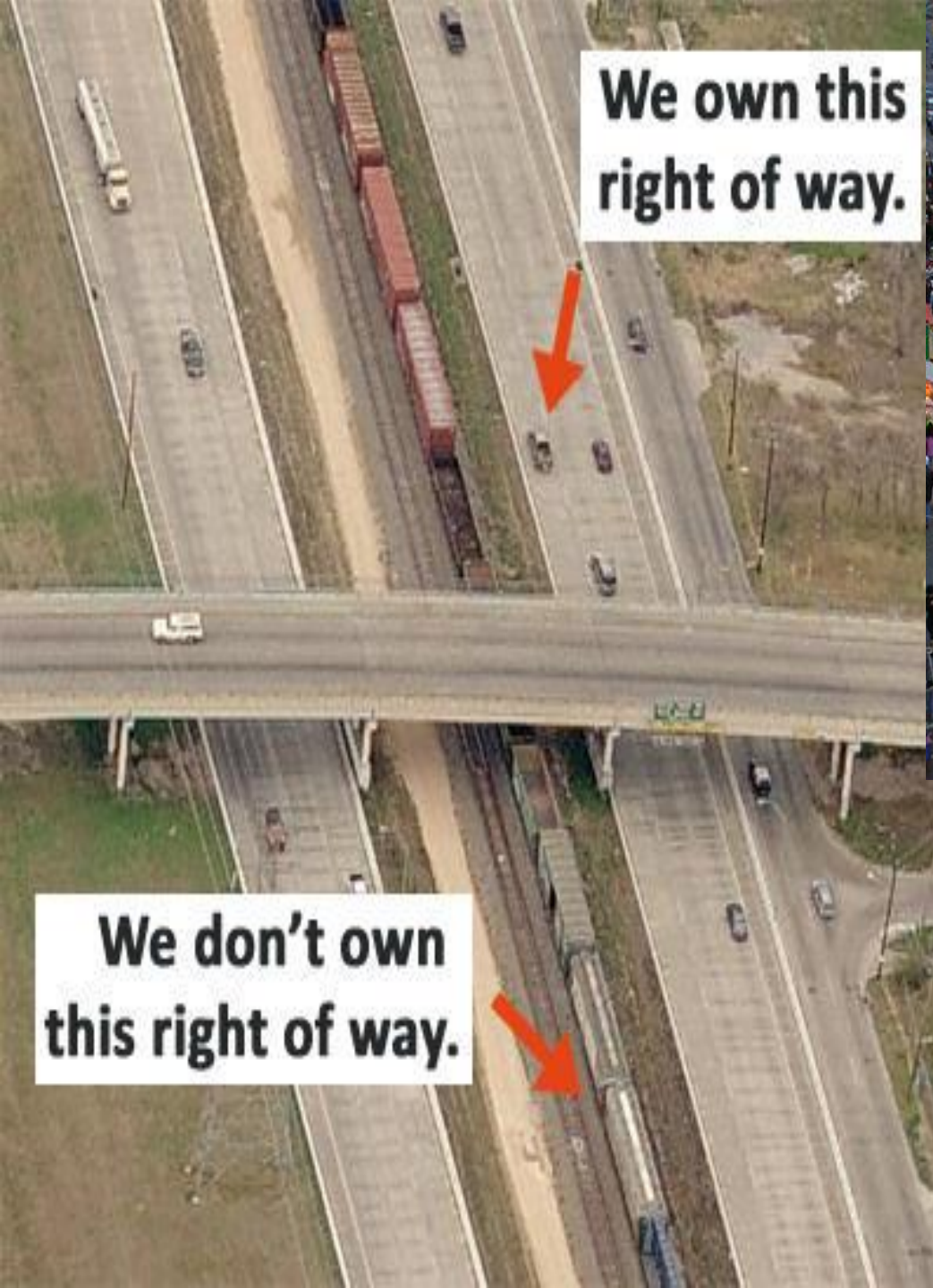
The pooling of vehicles for short- term rent is an option that is increasingly being considered and applied. This photo shows the “Velib” (Velo Libre--*freedom or liberty of wheel*) initiative in Paris, France, where bicycles are offered for rental for less than 24 hours, and ideally for less than 2 hours. The system is composed of 1,450 bicycle rental stations that have an average separation of 300 meters with a pool of 20,000 bicycles. The pooling system turned out to be very popular but also had some problems, notably a high level of vandalism and the need to reposition bicycles every night because of commuting patterns.

Transit systems: many transit systems, such as buses and tramways, share road space with automobiles, which often reduce their respective efficiency.

Attempts to mitigate congestion have resulted in the creation of road lanes reserved for buses either on a permanent or temporary (during rush hour) basis.

Other transport systems such as subways and rail have their own infrastructures and, consequently, their own rights of way.

Thailand (esp. the case of Bangkok metropolitan) has been developing transit system connecting rail and road modes


We own this right of way.
We don't own this right of way.


© DYLAN PASSMORE


OFO

Whose right of way?

Transport terminals: refer to the amount of space devoted to terminal facilities such as ports, airports, transit stations rail yards* and distribution centers.

Globalization has increased the mobility of people and freight, both in relative and absolute terms, and consequently the amount of urban space required to support those activities. Many major terminals are located in the peripheral areas of cities, which are the only locations where sufficient amounts of land are available

(peripheral areas have more spaces for transport terminals that are usually large and thus require large areas – e.g. Suvannabhumi Airport, Mochit Bus Terminal)


E5
E7
E6
E8
ทางออกขึ้นเครื่อง
Gates
E1,E1A
ทางออกขึ้นเครื่อง
Gates
E2,E2A
ทางออกขึ้นเครื่อง
Gates
E3,5,7,9


ANGKOK BUS TERMINAL (CHATUCHAK)
TRANSPORT CO.,LTD.


HOME
BUYERS
GROUP
Home Update
สถานีกลางบางซื่อ
"สถานีกลางบางซื่อ"
ศูนย์รวมระบบรางใหญ่ที่สุดในอาเซียน


Rail yard

Urban Space Consumption

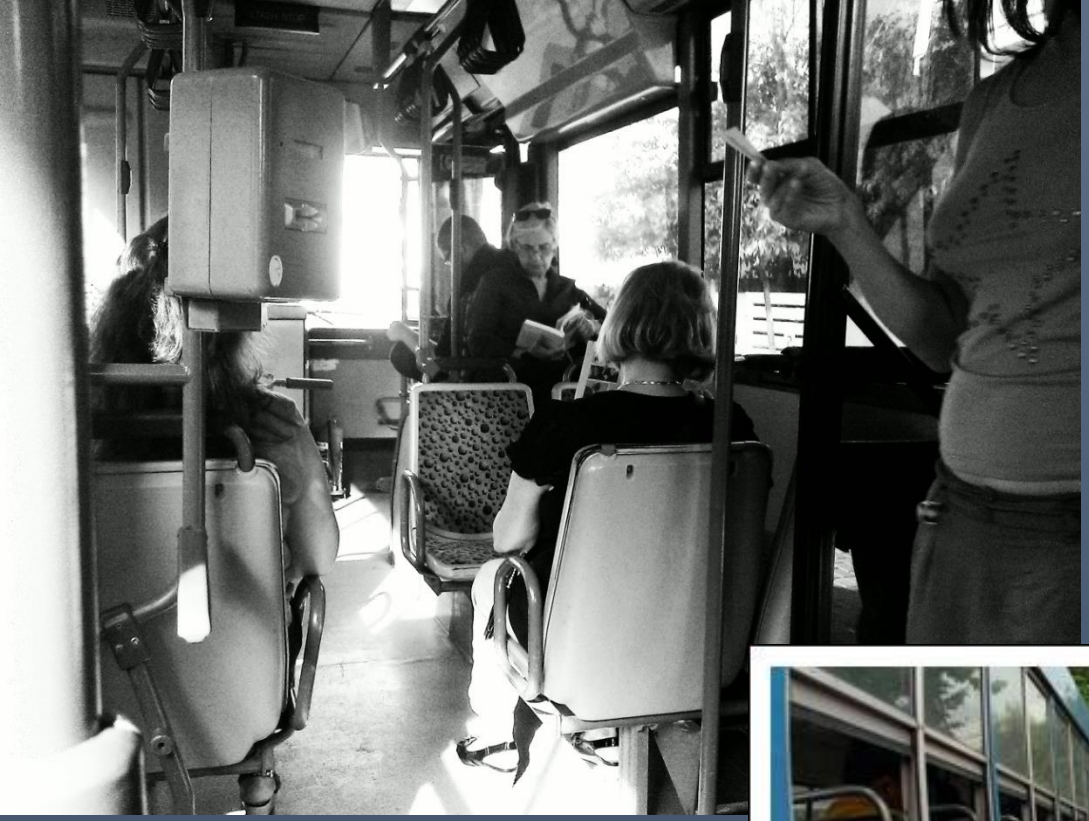
Each transport mode has “unique performance” and “(urban) space consumption characteristics”.

What does this mean?

What is space consumption?

- How people use spaces around different transport modes?
- How they spend their time at spaces around different transport modes? / What they do?/ When?/ Why?
- How people make use of spaces?
- How people act or behave when they are passing or staying at places around different transport modes?


SAJAN TEMPO SERVICE
M:9899688412
CNG




dhaniz


ouise in UK
photo by ouise
http://ouise.bloggang.com


2012
REPÚBLICA
ARGENTINA




MRT
3 mins
Aljunied MRT station

MRT
4 mins
Mountbatten MRT station

6 mins
Sport Hub

15 mins
East Coast Park

MRT
1 MRT Stop
Paya Lebar Business Hub

8 Mins
Parkway Parade Shopping Mall




5 mins
Nicoll Highway

7 mins
East Coast Parkway

8 mins
Singapore Flyer

10 mins
Gardens By the Bay

Within 1km
Kong Hwa School

MRT
4 MRT Stops
City Hall Interchange

MRT
5 MRT Stops
Central Business District

TransitScreen
TransitScreen
Graphic Design by Brennen Vasquez


STARBUCKS COFFEE
H
i
J


Blair jo
the
on
superstock.com


EXIT


APEX
mar
StickmanBangkok.com

Why do we need to know passengers behaviour?

Where they go?

When they go?

How they go?

What they do?

How long they spend at each place?

All link with transport and logistics planning, management and development, as well as urban development.

Economics Induced from Public Transport or Mass Transit

Public transport allows transport at an economy of scale that is not available through private transport.

Investment of public transport or mass transit is claimed to ultimately reduce the total transport cost for the public.

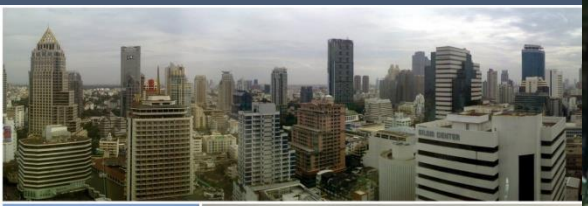
Time saved can also be significant, for both those who use public transport and those who still use private vehicle.

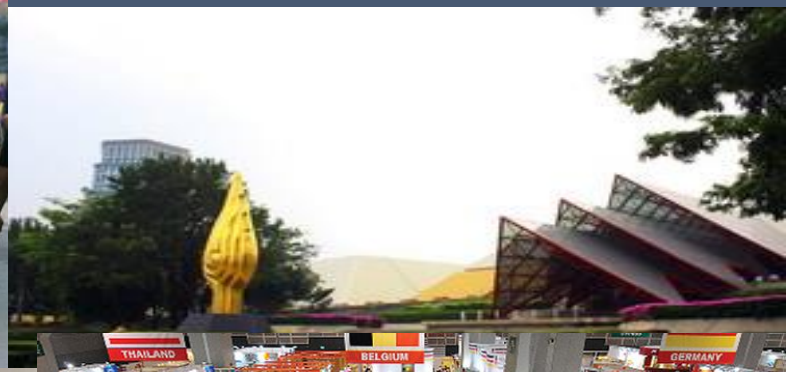
Transit-Oriented Development (TOD) concept can both improve the usefulness and efficiency of the public transit system as well as result in increased business for commercial developments.

Because of the increased traffic and access to transit systems, putting in public transit frequently has a positive effect on real estate prices.

Investment in public transport also has secondary positive effects on the local economy. Many businesses rely on access to a transit system, in particular in cities and countries where people's access to cars is less widespread (*less automobile dependent*).

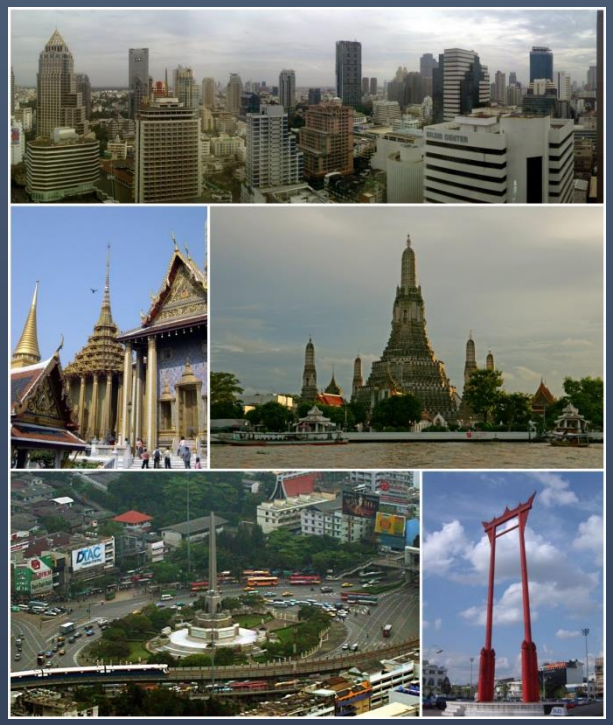
With public transport, especially in cities, businesses that require large amounts of people going to a same place (such as concert or expo venues, sport stadium, airports, exhibition centers, etc.) may not be able to accommodate a large number of cars, or service units where people are not able to use a car (bars, hospitals, or industries in the tourism sector whose customers may not have their cars (tourists)).

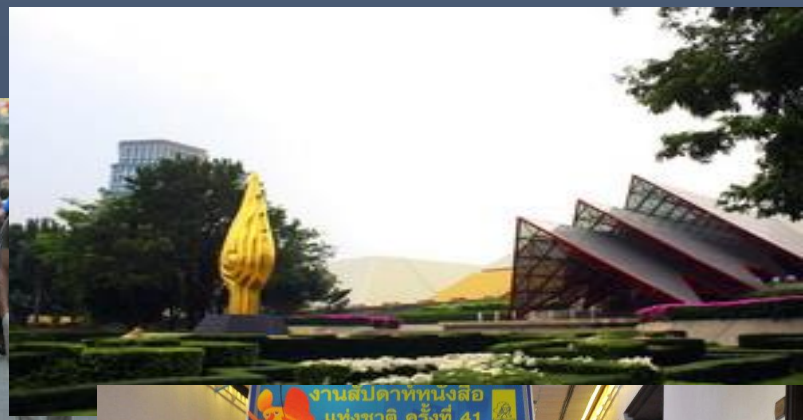






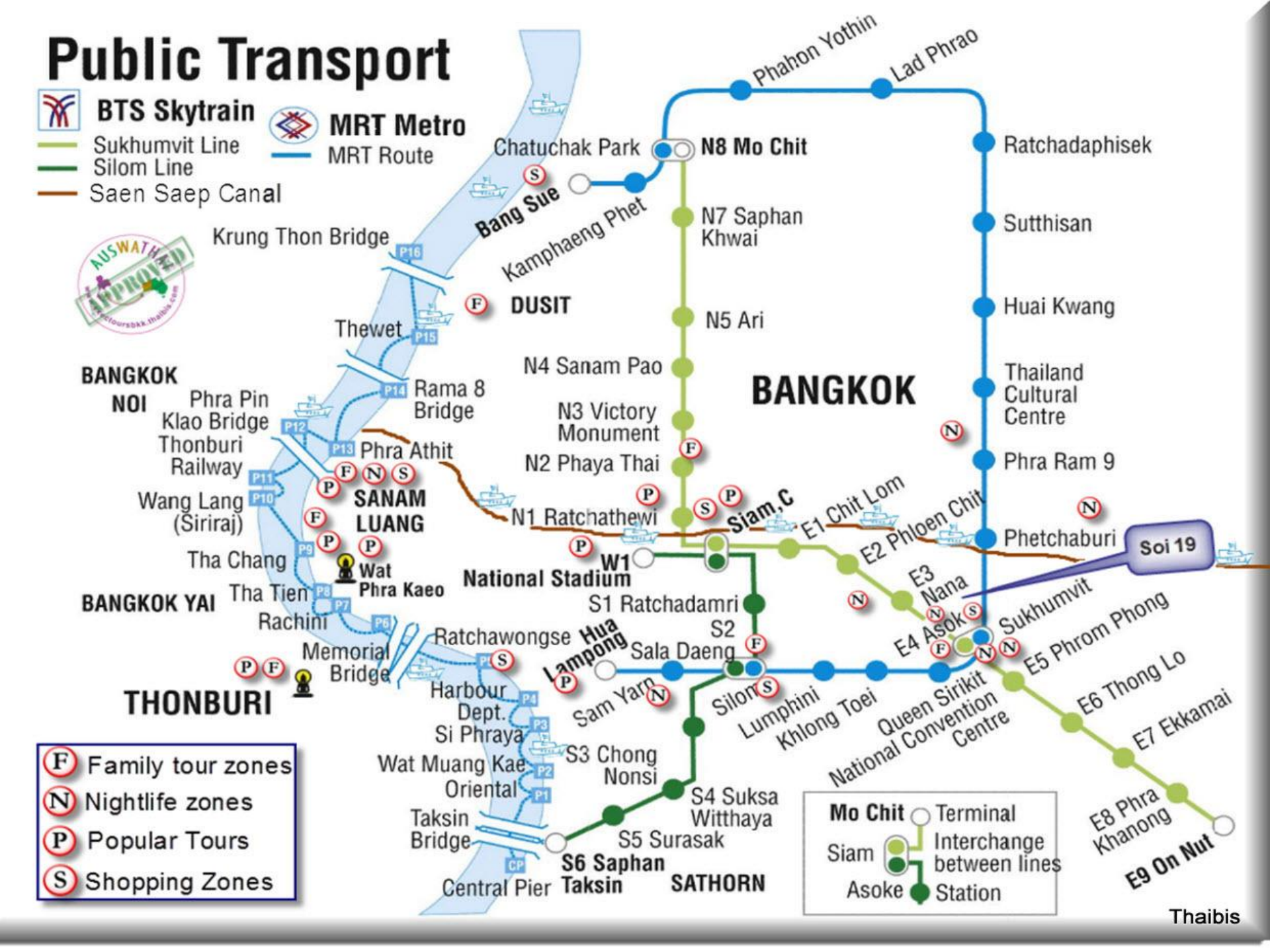

Attractions in Bangkok that are typically located in the inner and business districts whose space is not spacious enough to travel to by car with convenience (limited car park areas), or some exhibition or convention centers cannot well facilitate visitors traveling with personal car, such as Queen Sirikit National Convention Center which can accommodate large number of people but very limited space for car parking.





SKYTRAIN, METRO & AIRPORT RAIL LINK

- BTS Skytrain Central Station (Siam)
- BTS Skytrain Stations (Onnut-Mochit)
- BTS Skytrain Stations (National Stadium-Taksin Bridge)
- Metro (Bangkok Railway Stn.-Bang Sue Railway Stn.)
- Interchange BTS with MRT
- Airport Rail Link - City Line
- Airport Rail Link - Express Line (Non-Stop to Suvarnabhumi Airport)


Public Transport
BTS Skytrain
Sukhumvit Line
Silom Line
Saen Saep Canal
MRT Metro
MRT Route
Phahon Yothin
Lad Phrao
Chatuchak Park
N8 Mo Chit
Ratchadaphisek
Bang Sue
Kamphaeng Phet
N7 Saphan Khwai
Sutthisan
Krung Thon Bridge
DUSIT
N5 Ari
Huai Kwang
Thewet
N4 Sanam Pao
Thailand Cultural Centre
BANGKOK NOI
Rama 8 Bridge
Phra Pin Klao Bridge
N3 Victory Monument
BANGKOK
Thonburi Railway
Phra Athit
N2 Phaya Thai
Phra Ram 9
Wang Lang (Siriraj)
SANAM LUANG
N1 Ratchathewi
Siam
E1 Chit Lom
E2 Phloen Chit
Phetchaburi
Soi 19
Tha Chang
Wat Phra Kaeo
W1
National Stadium
E3 Nana
Tha Tien
BANGKOK YAI
S1 Ratchadamri
E4 Asok
Sukhumvit
Rachini
S2
Ratchawongse
Hua Lampong
Sala Daeng
E5 Phrom Phong
Memorial Bridge
Harbour Dept.
Sam Yan
Silom
Lumphini
Khlong Toei
Queen Sirikit National Convention Centre
E6 Thong Lo
THONBURI
Si Phraya
S3 Chong Nonsi
E7 Ekkamai
Wat Muang Kae
Oriental
S4 Suksa Witthaya
Taksin Bridge
S5 Surasak
E8 Phra Khanong
S6 Saphan Taksin
SATHORN
Central Pier
E9 On Nut
F Family tour zones
N Nightlife zones
P Popular Tours
S Shopping Zones
Mo Chit
Terminal
Siam
Interchange between lines
Asoke
Station
Thaibis


Bang Son
To Don Muang
Bang Khen
พหลโยธิน
Phahon Yothin
ลาดพร้าว
Lat Phrao
Nikhom Rotphai Khomo Sio-et
บางซื่อ
Bang Sue Station
สวนจตุจักร
Chatuchak Park
หมอชิต
Mochit
Kamphaeng Phet
กำแพงเพชร
Pradiphat
สะพานควาย
Saphan Khwai
รัชดาภิเษก
Ratchadapisek
Th. Lat Phrao
สุทธิสาร
Sutthisan
Suthisan
Sam Sen
Bang Bamru
BAMRU
DUSIT
Chao Phraya
Krung Thon Br
Krung Thon Br
อารีย์
Ari
PHAYA THAI
Th. Phaya Thai
Sanam Pao
สนามเป้า
ห้วยขวาง
Huai Khawang
Set Siri
Thewet Flower Market
Thewet
Chitralada Palace
Chitlada
Ratchawit
Rama 8 Br.
Th.. Sri Ayuthaya
Thailand Cultural Centre
ศูนย์วัฒนธรรมแห่งประเทศไทย
Victory Monument
Th. Saoke Din Dae
Phra Pin Klao Br
Banglumpoo
Th. Nakhon Sawan
พญาไท
Phaya Thai
DIN DAENG
ดินแดง
Jaran Sanitwong
Bangkok No (Thonburi)
Thonburi Railway
Democracy Monument
Th. Lan Luang
Yomarat
Urupong
Th. Petchaburi
Ratchaprarop
City Air Terminal
Makkasan
มักกะสัน
พระราม 9
Phra Ram 9
To New Airport
Tha Chang
Grand Palace
Th. Bamrung Muang
Ratchthewi
ราชเทวี
Makkasan Stn
Sirirat
Wat Pho
Th. Luang
World Trade Ctr
Phetchaburi
เพชรบุรี
Khlong Tan
To New Airport
Ranjinee
สนามกีฬาแห่งชาติ
National Stadium
Siam
สยาม
Chit Lom
นานา
Nana
BANGKOK YAI
THONBURI
Mem. Br.
Palatat Market
耀華力
Yaowarat (Chinatown)
หัวลำโพง
Hua Lampong Station
Phloen Chit
เพลินจิต
Ratchadamri
ราชดำริ
อโศก
Asoke
Sukhumvit
สุขุมวิท
Memorial Bridge
Ratchawongse
Hbr. Dpt.
Chao Praya
Si Phraya
Sam Yan
สามย่าน
สีลม
Si Lom
พร้อมพงศ์
Phrom Phong
Th. Lad
King Taksin Monument
Wongwian Yai Station
Muang Kae
Oriental
Krung Thonburi
Saphan Taksin
Chong Nonsi
ช่องนนทรี
Sala Daeng
ศาลาแดง
Rama IV
Sathorn Tai
ลุมพินี
Lumphini
Queen Sirikit Convention Centre
ศูนย์การประชุมแห่งชาติสิริกิติ์
ทองหล่อ
Thong Lo
Talad Phlu
สะพานตากสิน
กรุงธนบุรี
Surasak สุรศักดิ์
Saphan Taksin
สะพานตากสิน
SATHORN
Klong Toei
คลองเตย
เอกมัย
Ekkamai
Phra Khanong
พระโขนง
Khlong Ton Sai
Wat Sai
Th. Chan
Wat Phoman
Mahanakhon Expwy
Chao Phraya
On Nu
อ่อนนุ
N
Bangkok BTS (Skytrain)
Sukhumvit Line
Silom Line
Bangkok MRTA (Subway)
Intercity Railway Network
Thai Railway
Suvarnabhumi Airport Link (City Line)
Suvarnabhumi Airport Link (Aiport Express)
Intercity Rail Stations
Intercity Bus Stations
Thaibis

BIKE ROUTE : RATTANAKOSIN LINE

Wat Arun Ratchawararam
Ratchaworadit Pier
Chao Phraya River
Wat Dusitaram
Phra Racha Wang Derm Palace
Silapakorn University
Bangkok Tourism Division
Wat Kanlayanamit
Wichaiprasith Fortress
Grand Palace
The Temple of the Emerald Buddha
Thammasat University
National Museum
National Theater
UNICEF
Kiang Un Keng Shrine
The National Gallery
Wat Phra Chetuphon (Wat Pho)
The City Pillar Shrine
Sanam Luang (Royal Field)
Santa Cruz Church
Royal Thai Survey Department
Defence Ministry
Memorial of Expeditionary Force
Ban Phra Athit
Phrasumeru Fortress
Phraratchawang Police Station
Saranrom Park
The Supreme Court
Wat Ratchapradit
Flower Market
Chakkraphong Mosque
Interior Ministry
Chao Pho Seo Shrine
Khuru Sapha Printing House
Bang Lamphu Market
King Rama I Monument
Wat Sangwet
13 October 73 Memorial
Deva Stan
Wat Bowonnivet
The Giant Swing
Democracy Monument
Bangkok City Hall
Wat Ratchanatdaram
Lohaprasada
Mahakan Fortress
Golden Mountain

Symbolic For Getting Around Rattanakosin

- Bike Route
- Rattanakosin Bike Station
- Pier
- Tourist Information Center
- Temple

https://www.youtube.com/watch?v=qy4VwN8l3cw

Watch outside the class for next class sharing.

Tomorrow Activity:
Sharing and discussion from watching the VDO,
on Google Jamboard