

WCTRS Seminar on Green Urban Transport in China

**An Approach
from Urban Structure Reform to Transport
for A Sustainable City:
The Sendai Metropolitan Area Approach**

Kazuaki MIYAMOTO	(Tokyo City University)
Hiroshi KOJIMA	(The Institute of Behavioral Sciences)
Kazuyuki AKASHI	(The Institute of Behavioral Sciences)
Yoshiyuki TOKUNAGA	(Miyagi University)

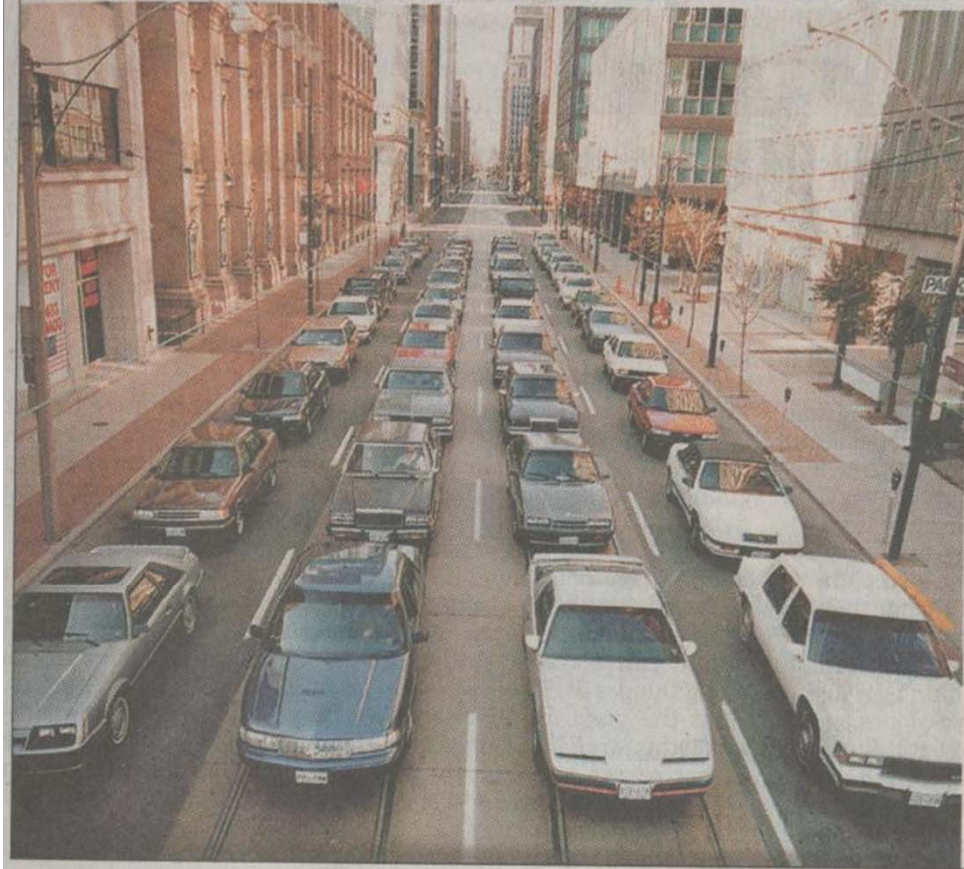
16 September 2010

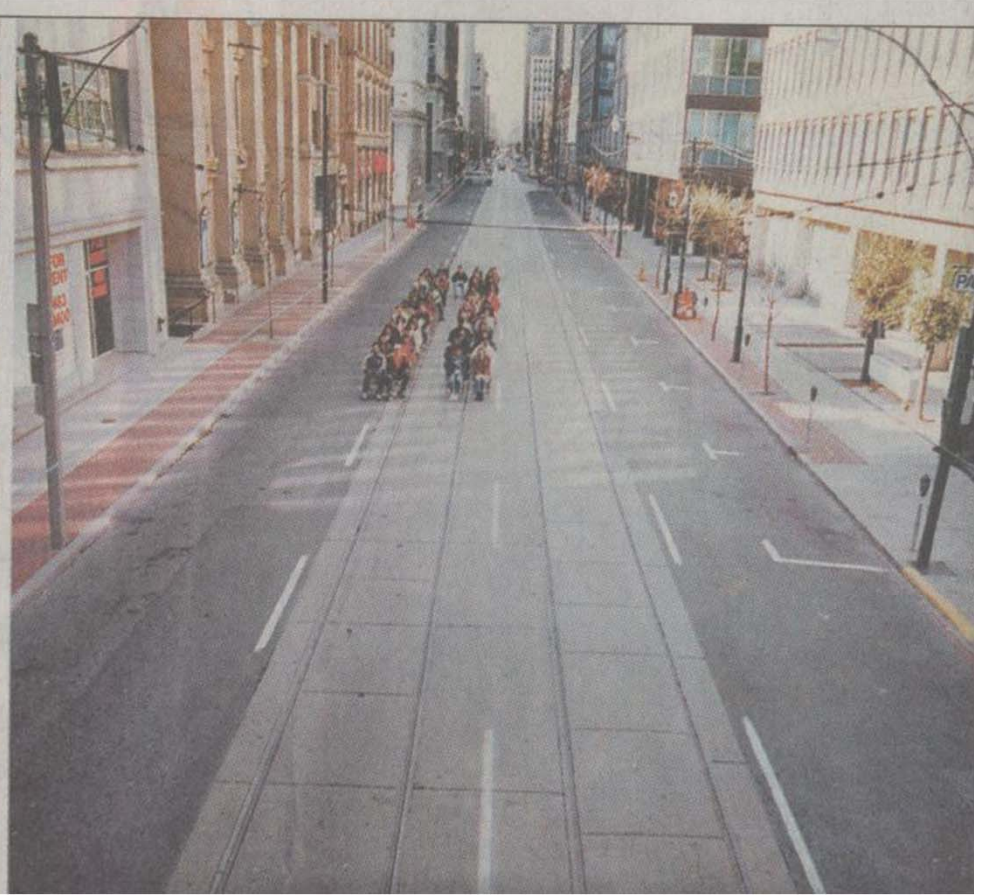
What policy measure (s) should be implemented to solve the problem?



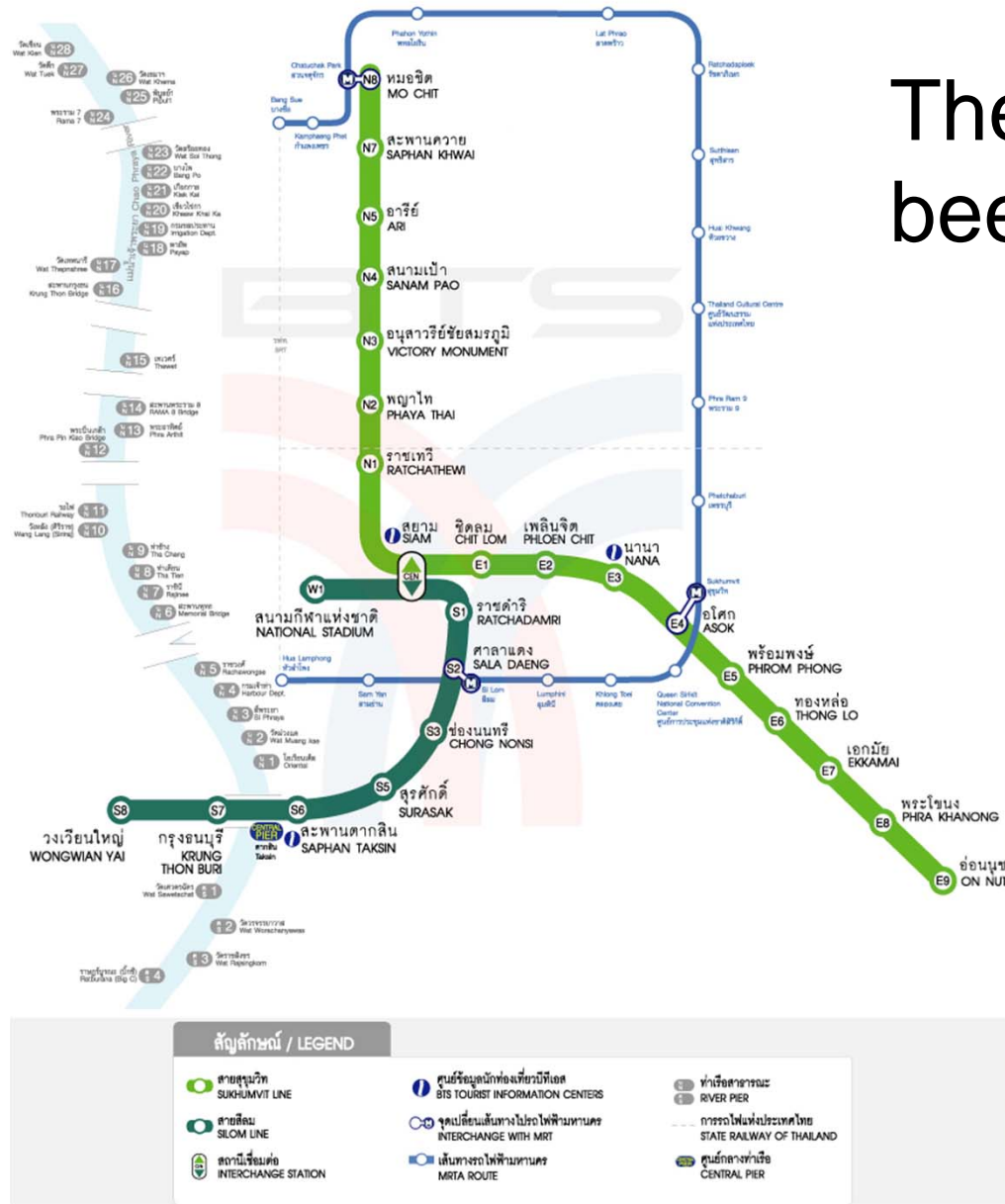
Policy Measures

- More roads
- Introduction of Rail Transits
- without.....





The BTS Skytrain has been constructed.



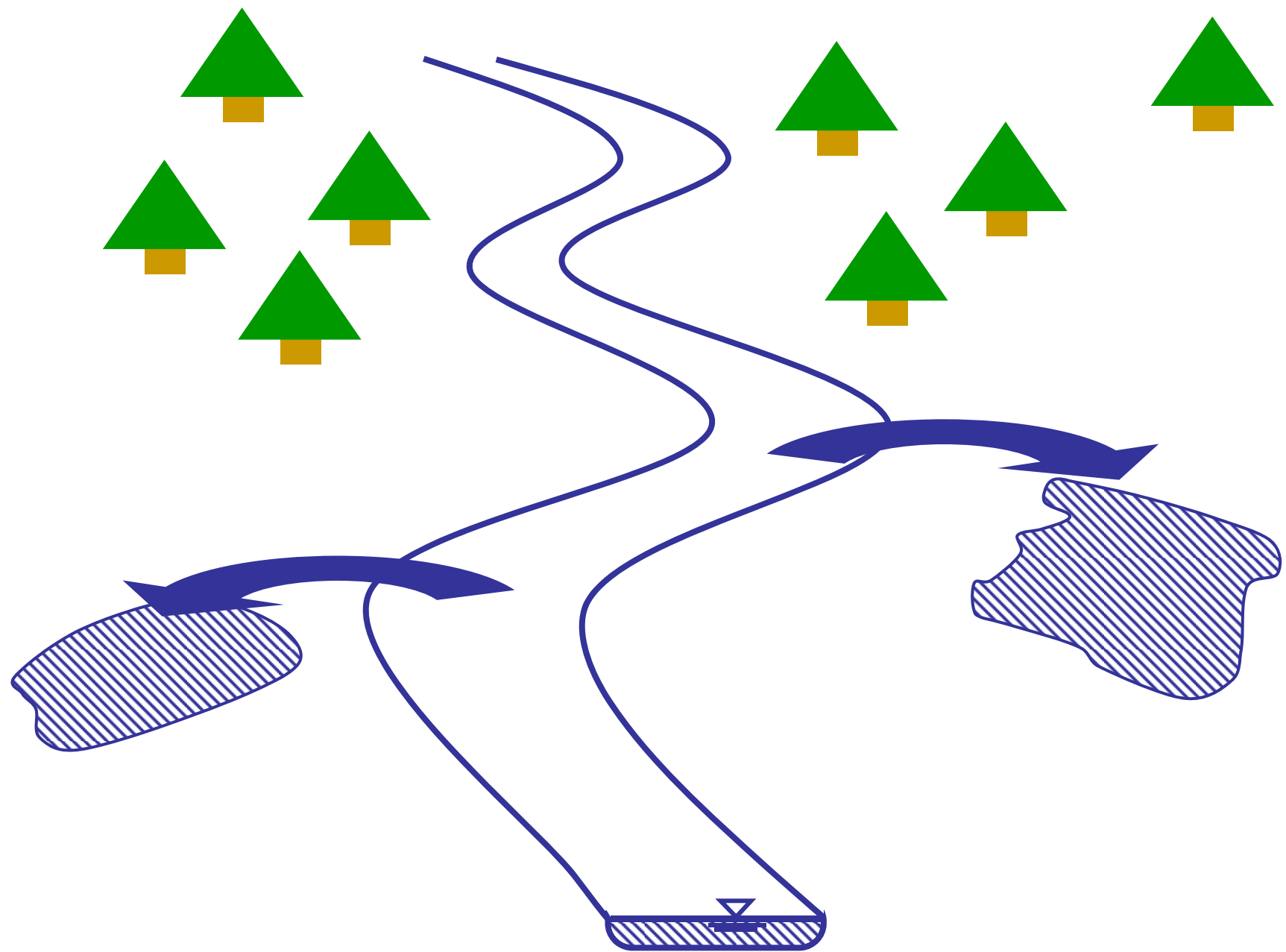


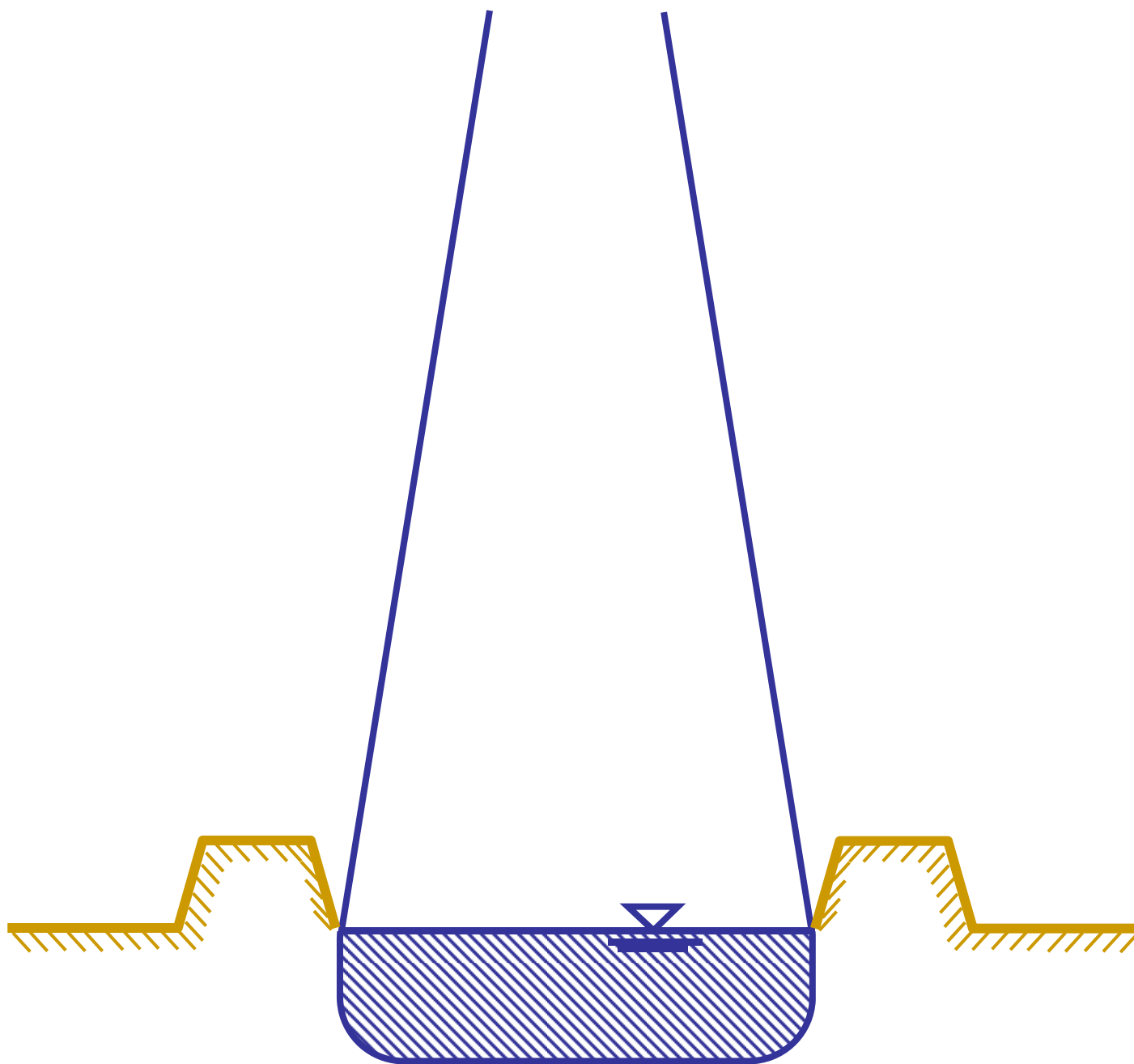
BTS has been build, but.....

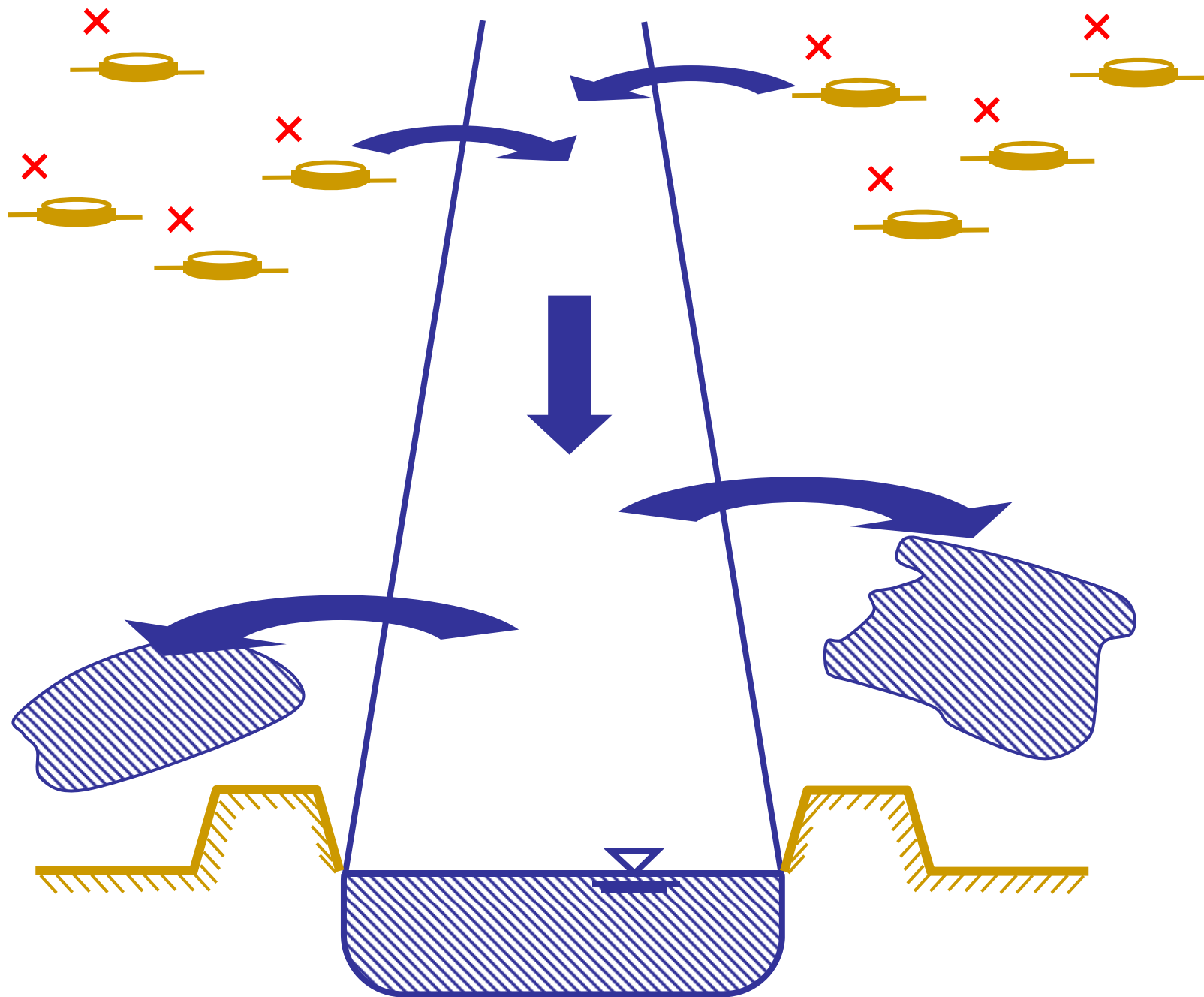


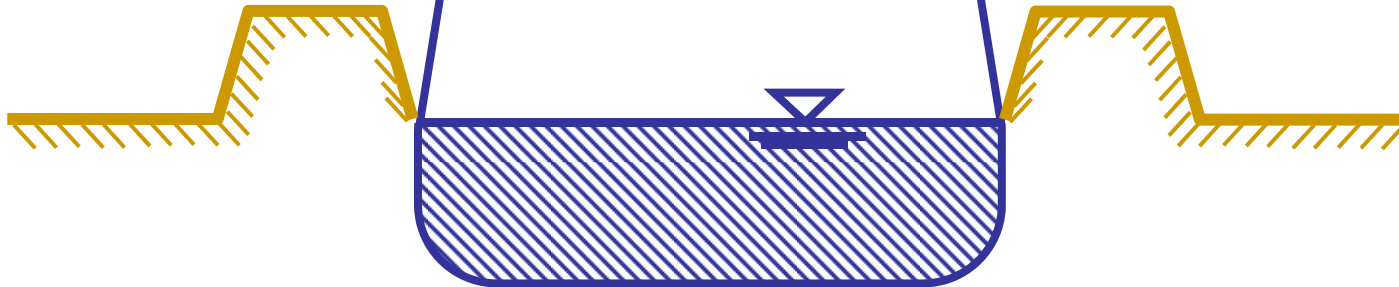
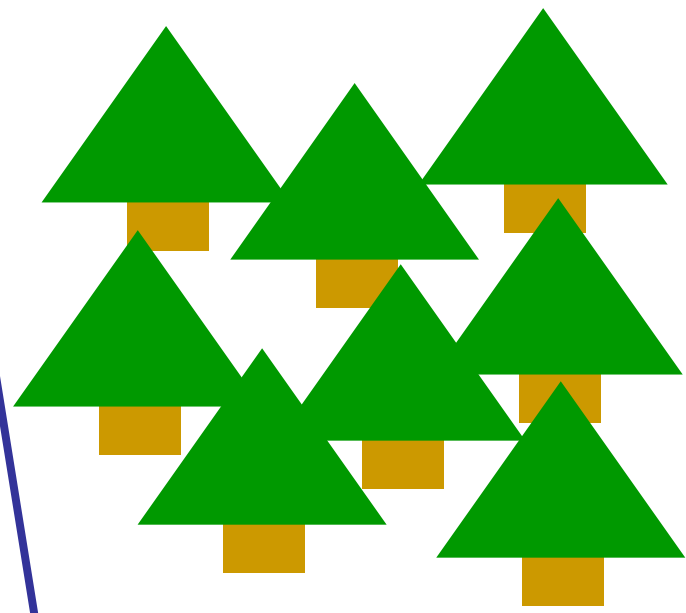
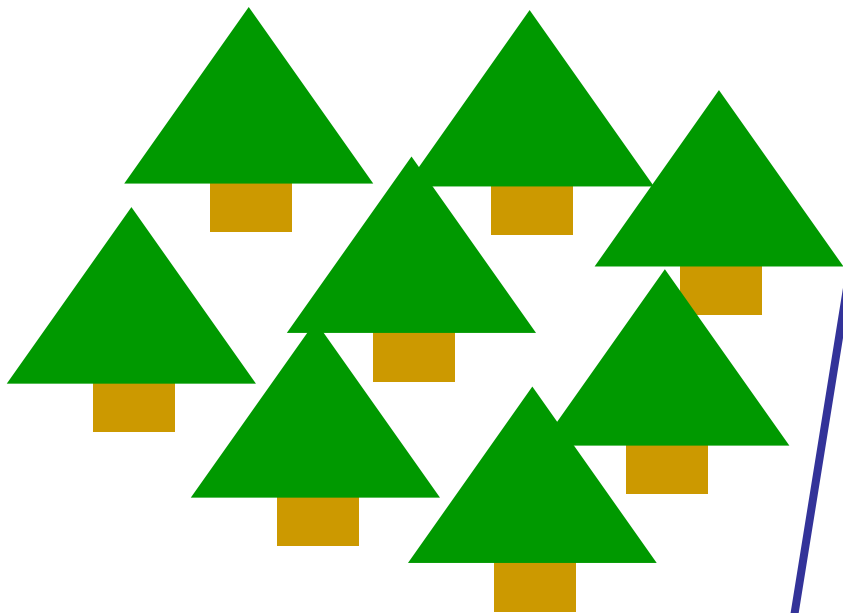
BTS has been build, but.....

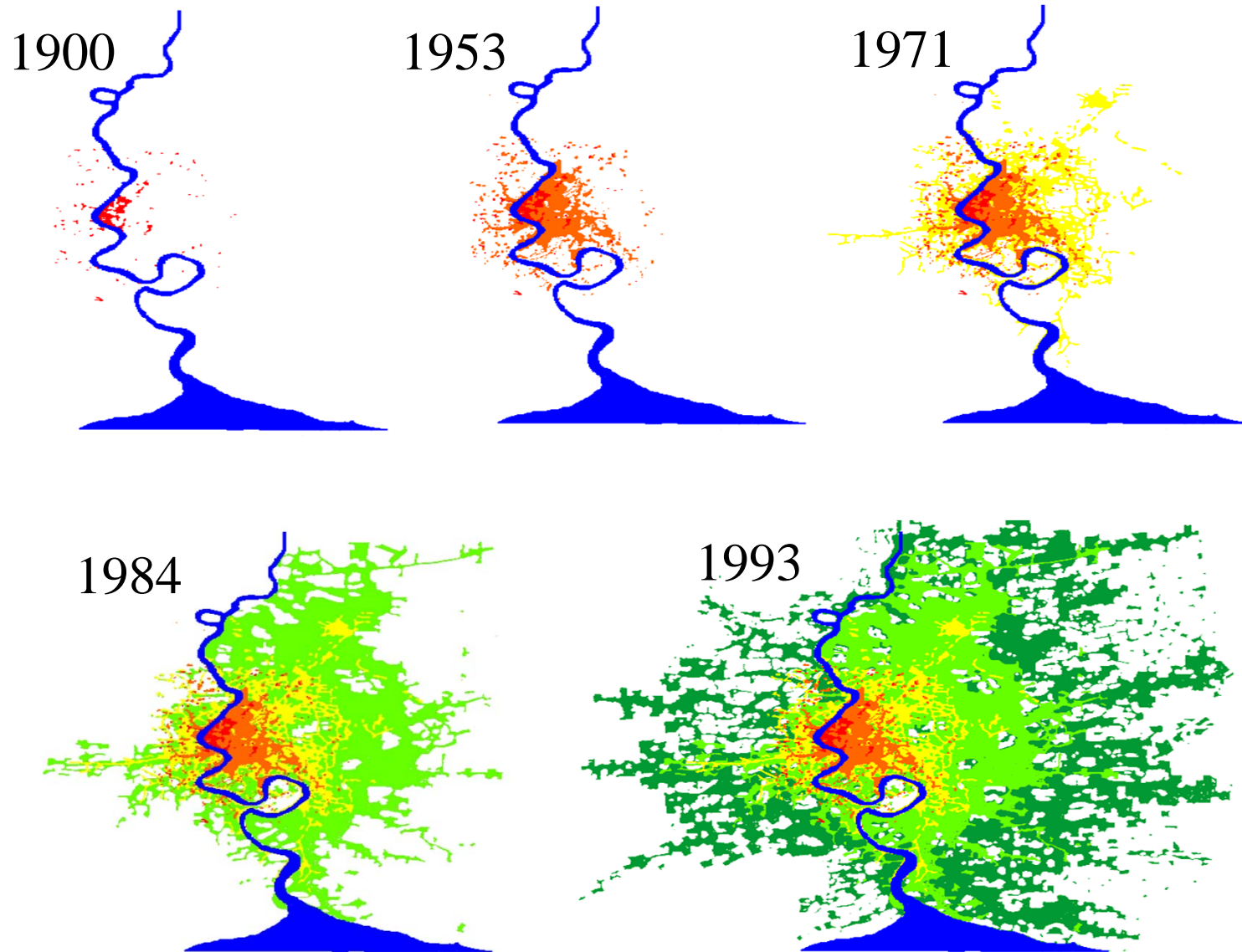




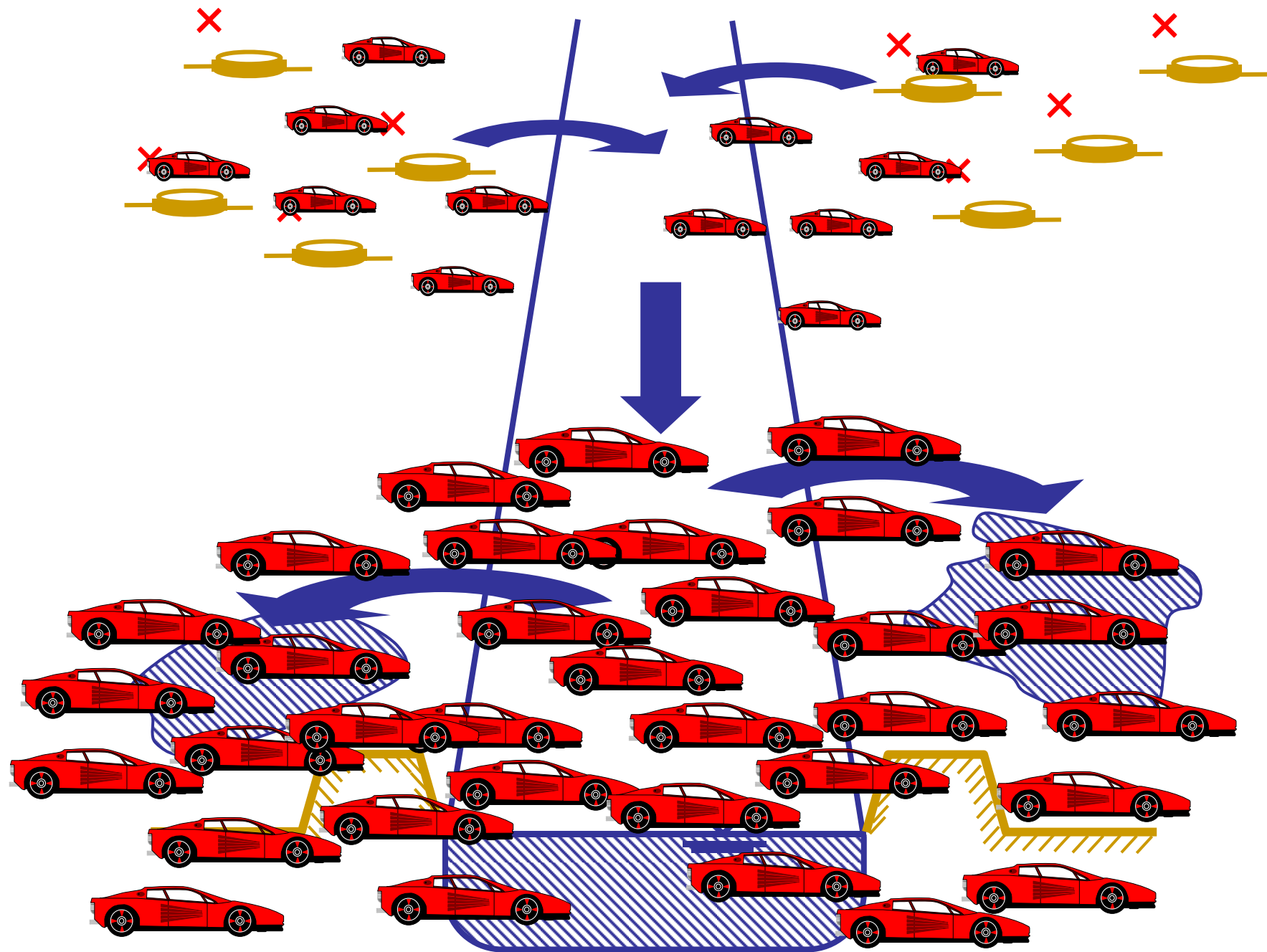






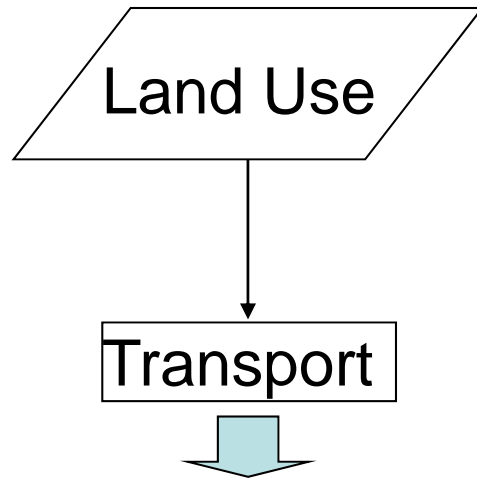


Urban Growth of Bangkok



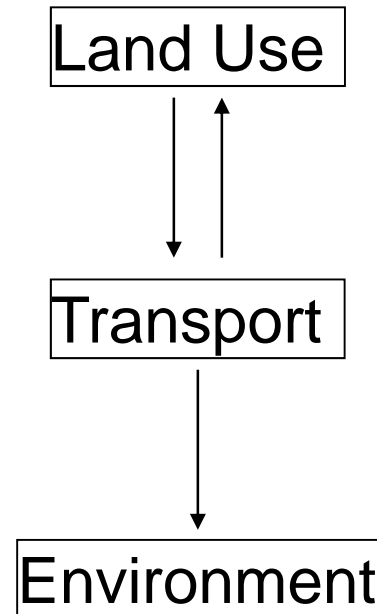
Land-Use/Transport Interactions

Traditional Approach



Policy Measures only
in the scope of
Transportation

Current Requirements



Background of the new approach

➤ Change of Transport **Mode** for Commuting After Location

Transport Mode Assumed Before Location	Number of Respondents	Percentage
Same	2,579	92
Different	220	8

➤ Change of Transport **Route** for Commuting After Location

Transport Route Assumed Before Location	Number of Respondents	Percentage
Same	2,369	94
Different	152	6

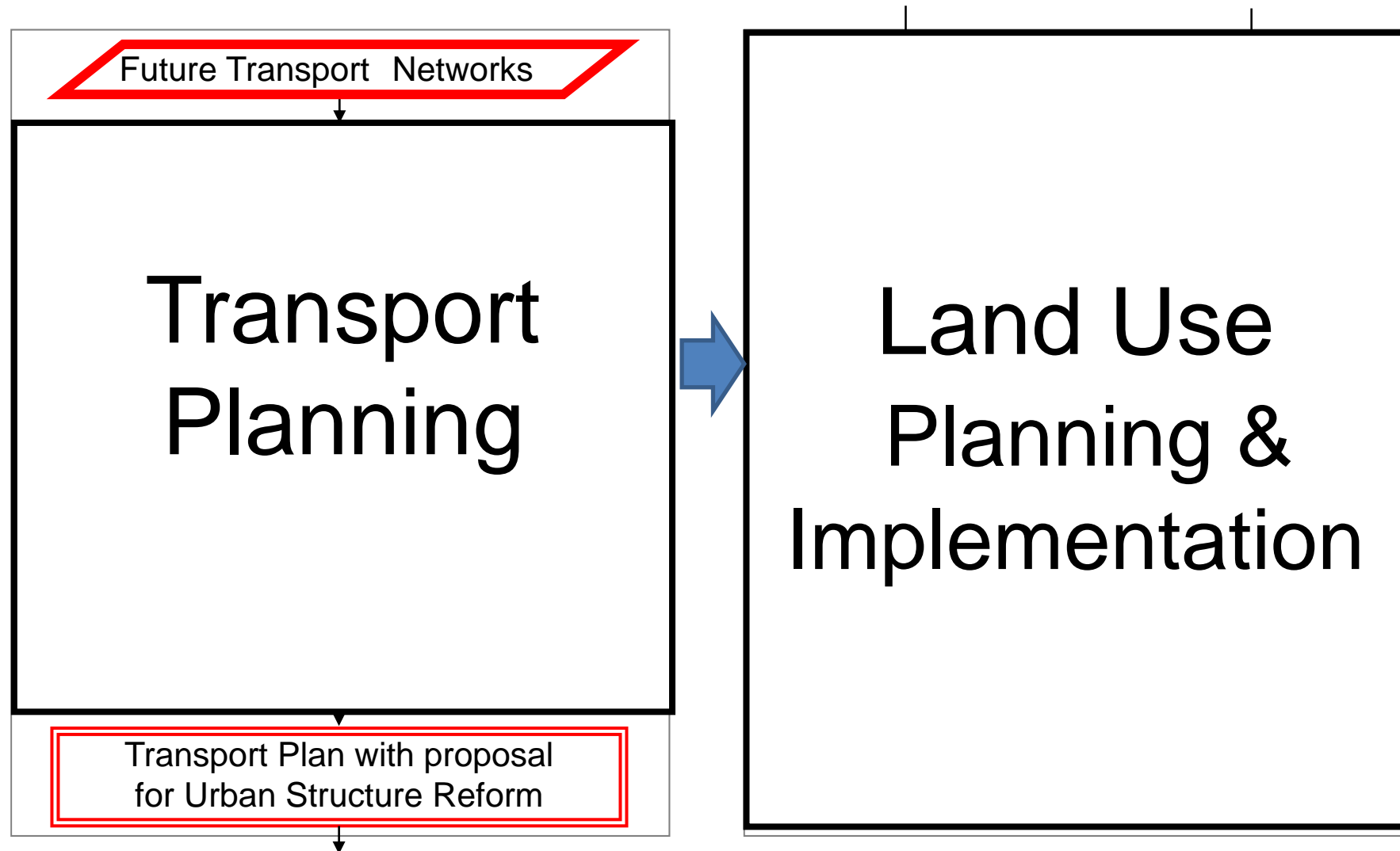
Background of the new approach

Transport mode and route of a person are determined when he/she makes location choice, and they can hardly be changed without relocation!

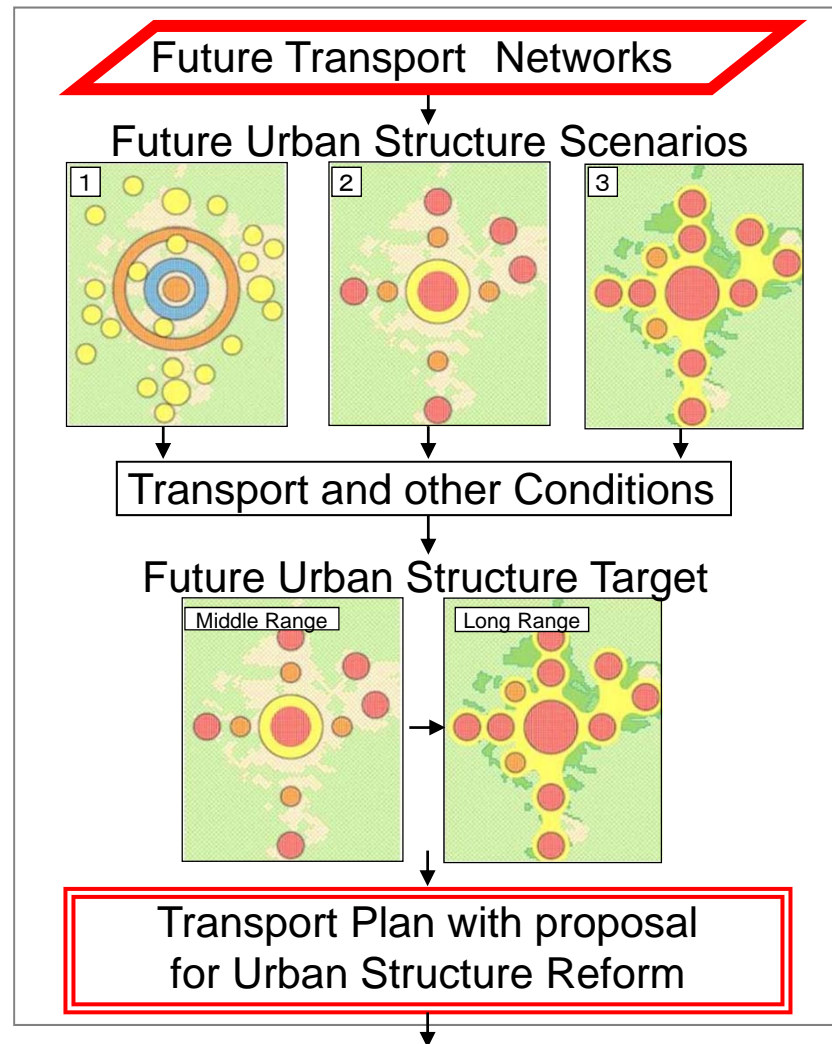
Purpose of the approach

- To propose feasible plan to integrate land use and transportation in Sendai MA
- To establish an organization to coordinate stakeholders with interest conflicts
- To provide the citizen with the information as a policy measure

Outline of the approach

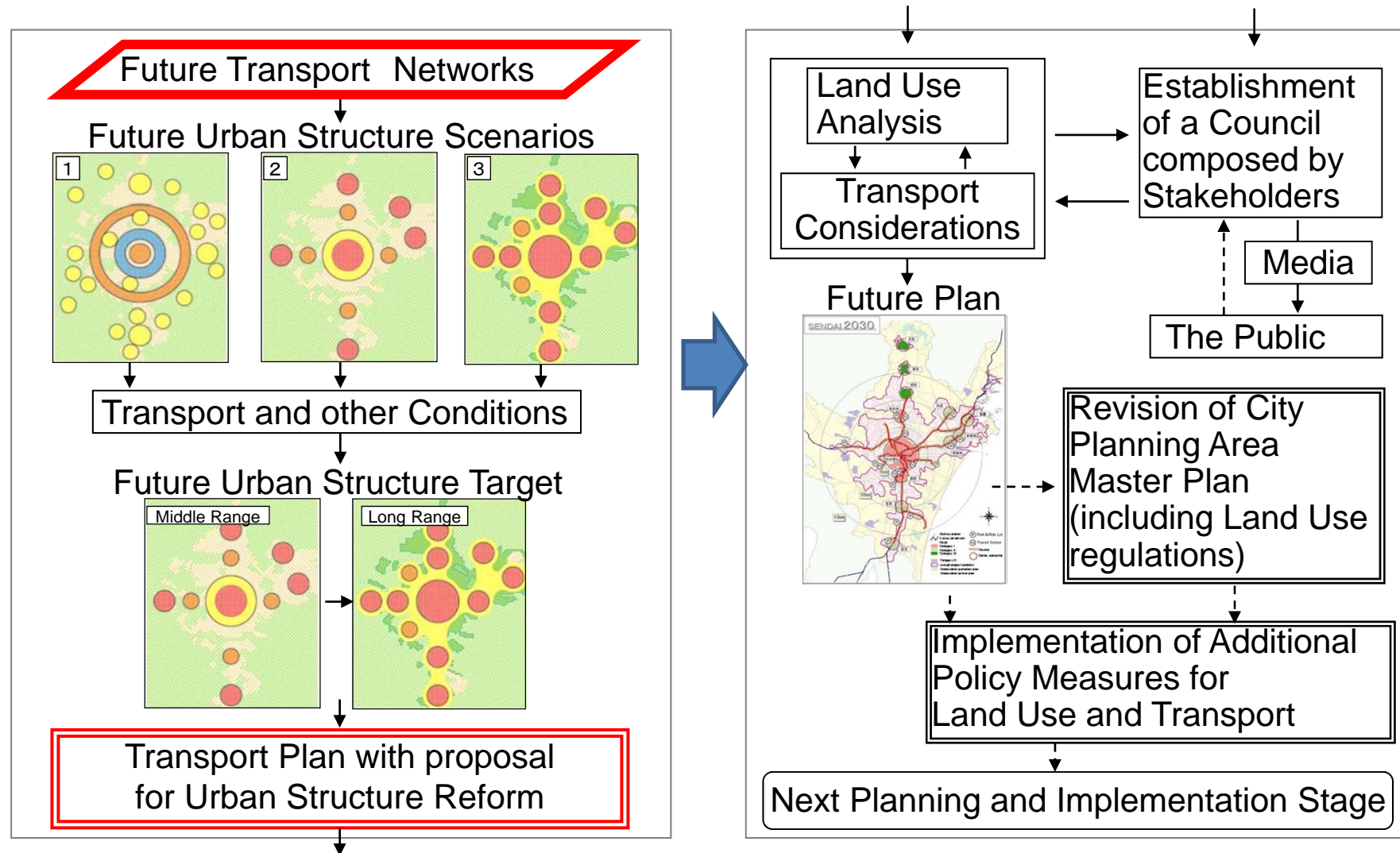


Outline of the approach

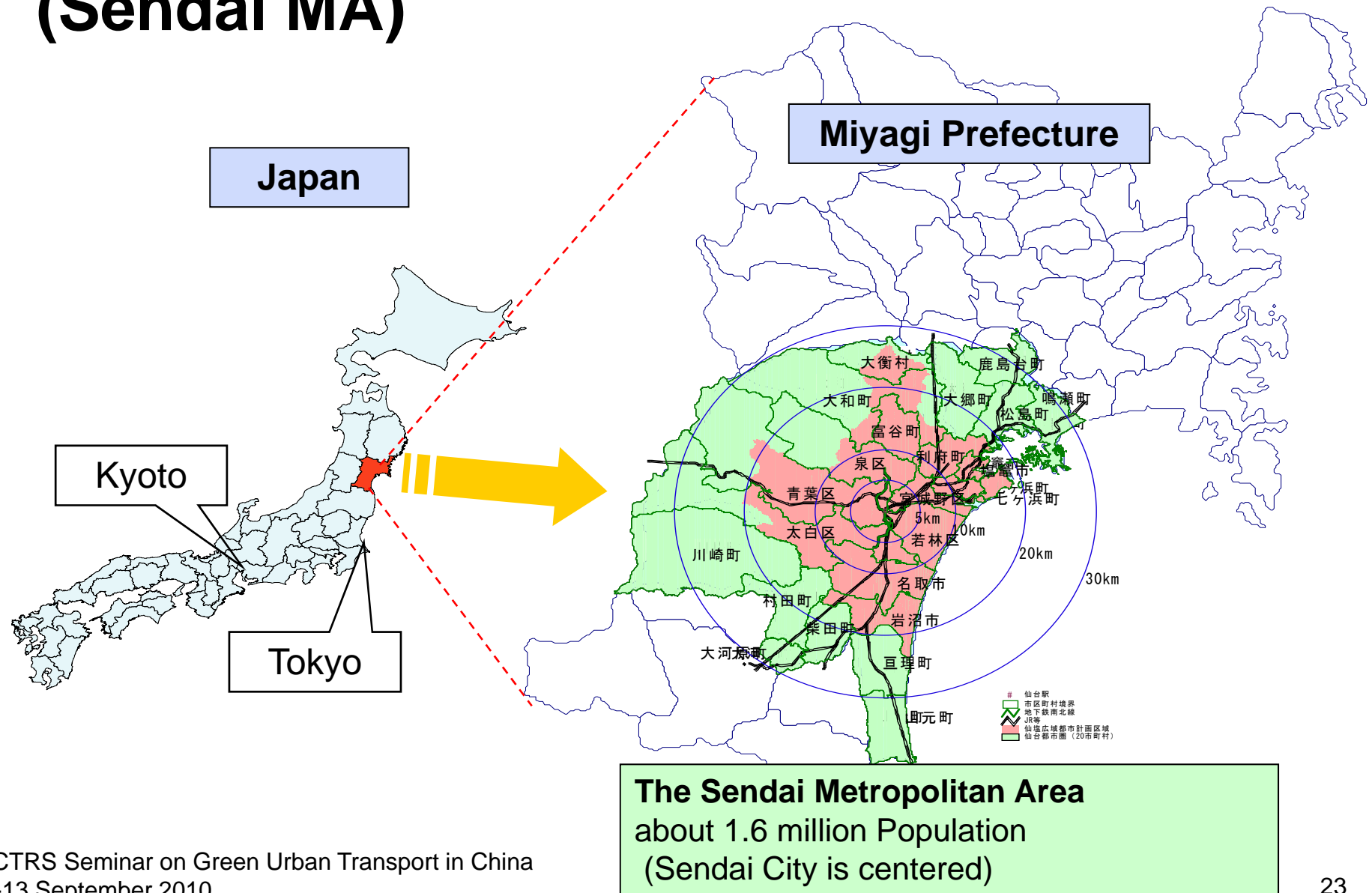


Land Use
Planning &
Implementation

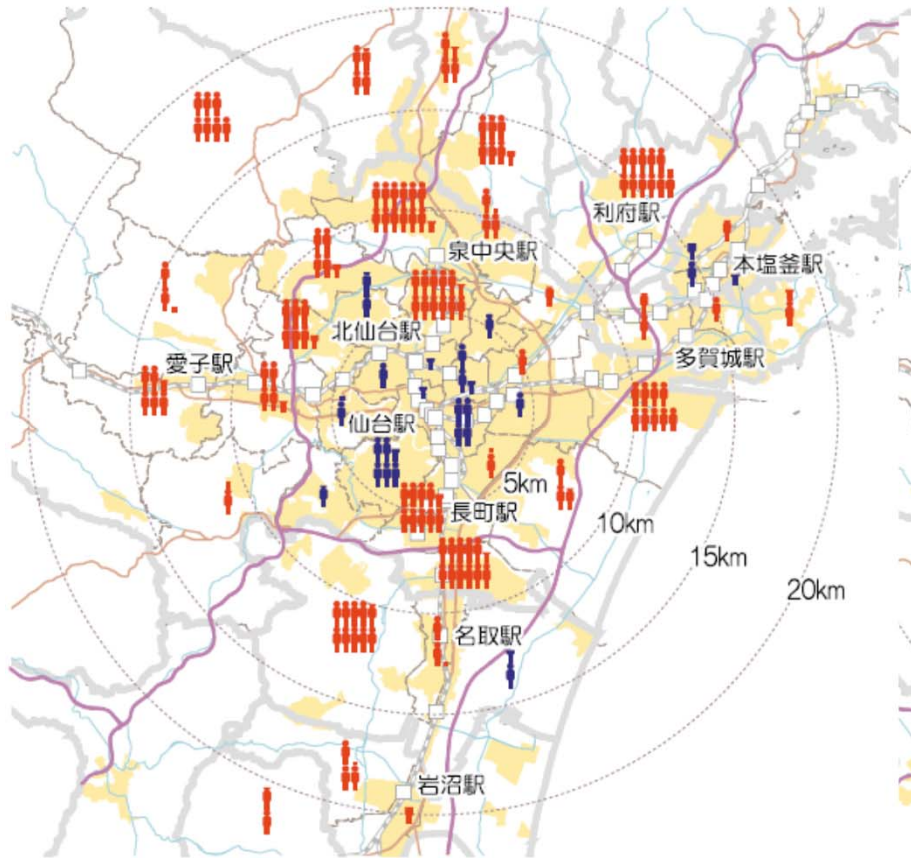
Outline of the approach



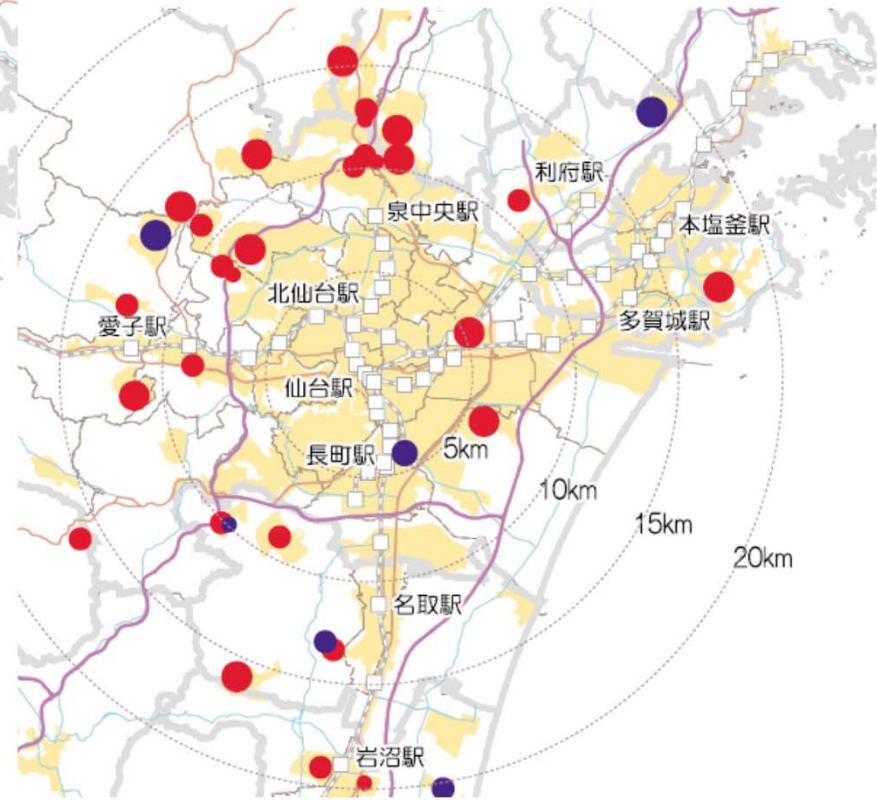
The Sendai Metropolitan Area (Sendai MA)



Suburbanization of Sendai MA



Population Changes
(1991-2001)



New Residential Complexes
being Constructed and Planned

A collage of 12 illustrations representing various lifestyle factors. The illustrations include: 1. Alcohol: A bottle of wine, a glass of wine, and several small cups. 2. Food: A bowl of sushi, a plate of roasted meat, and a plate of food with a red sauce. 3. Smoking: A lit cigarette with smoke rising from it. 4. Dessert: A cake with white frosting and red raspberries. 5. Exercise: A person's feet on a treadmill. 6. Medical Equipment: A blood pressure monitor with a cuff and a stethoscope. 7. Sedentary Work: A person sitting at a desk with a computer. 8. Stress: A person sitting at a desk with their head in their hands. 9. Salt Intake: A salt shaker with the word 'salt' on it. 10. A central illustration of a person's head with a large 'X' over it, indicating a negative health outcome or risk.

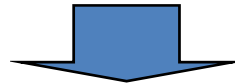




The 4th Sendai Transport Study (Person Trip Survey and Transport Planning)



Aiming at a better metropolitan area of Sendai

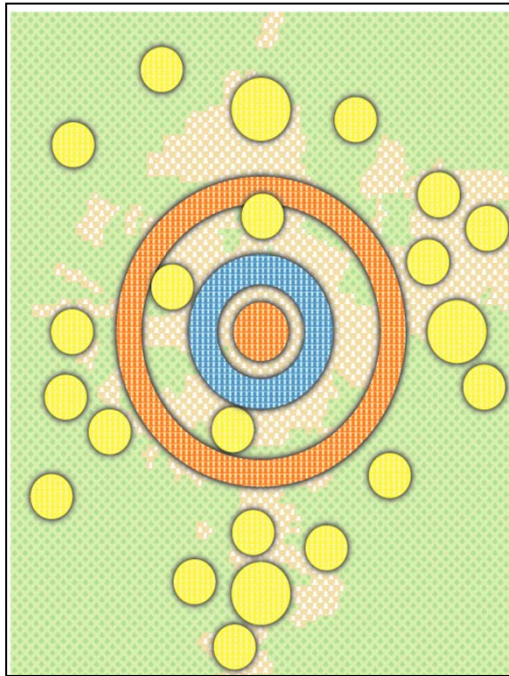


Enjoyable, Kind, Beautiful and Smart

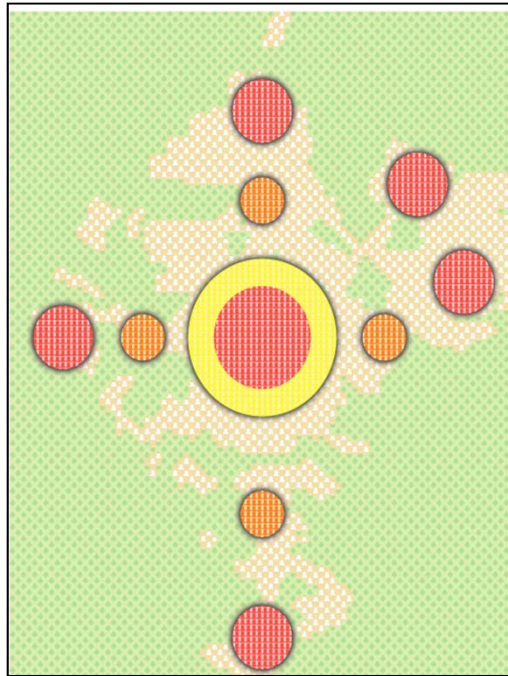
Urban Development and Transport

Which would invite more smiles

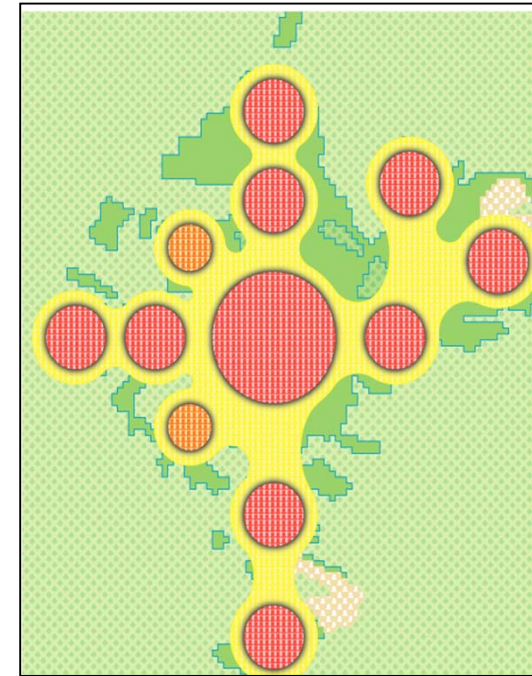
Future Scenarios



Scenario1:
Present Trend



Scenario 2:
Semi Controlled



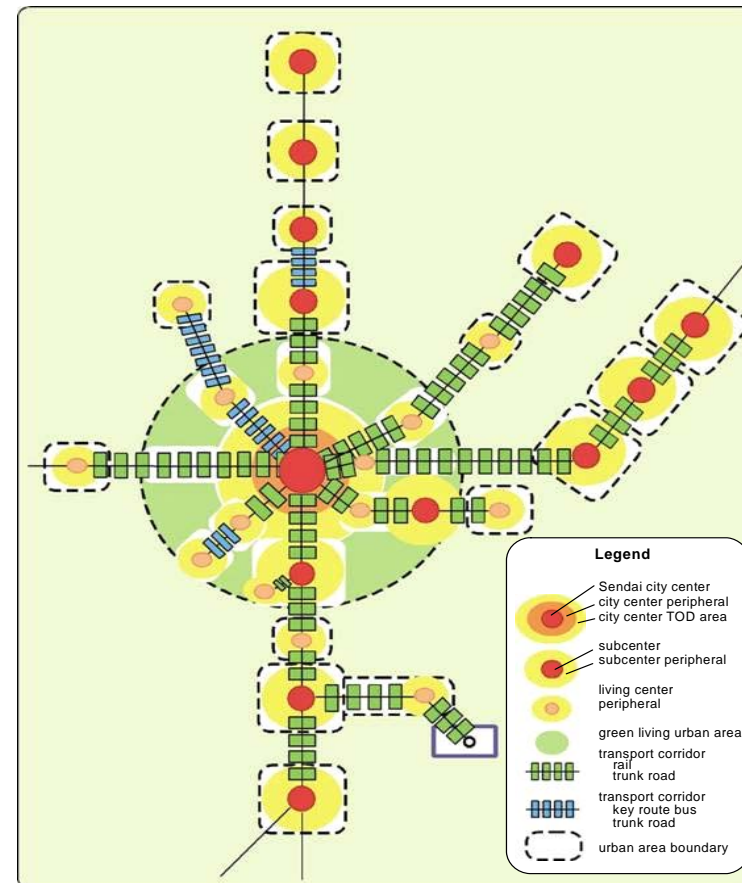
Scenario 3:
TOD

Sendai MA PT Survey

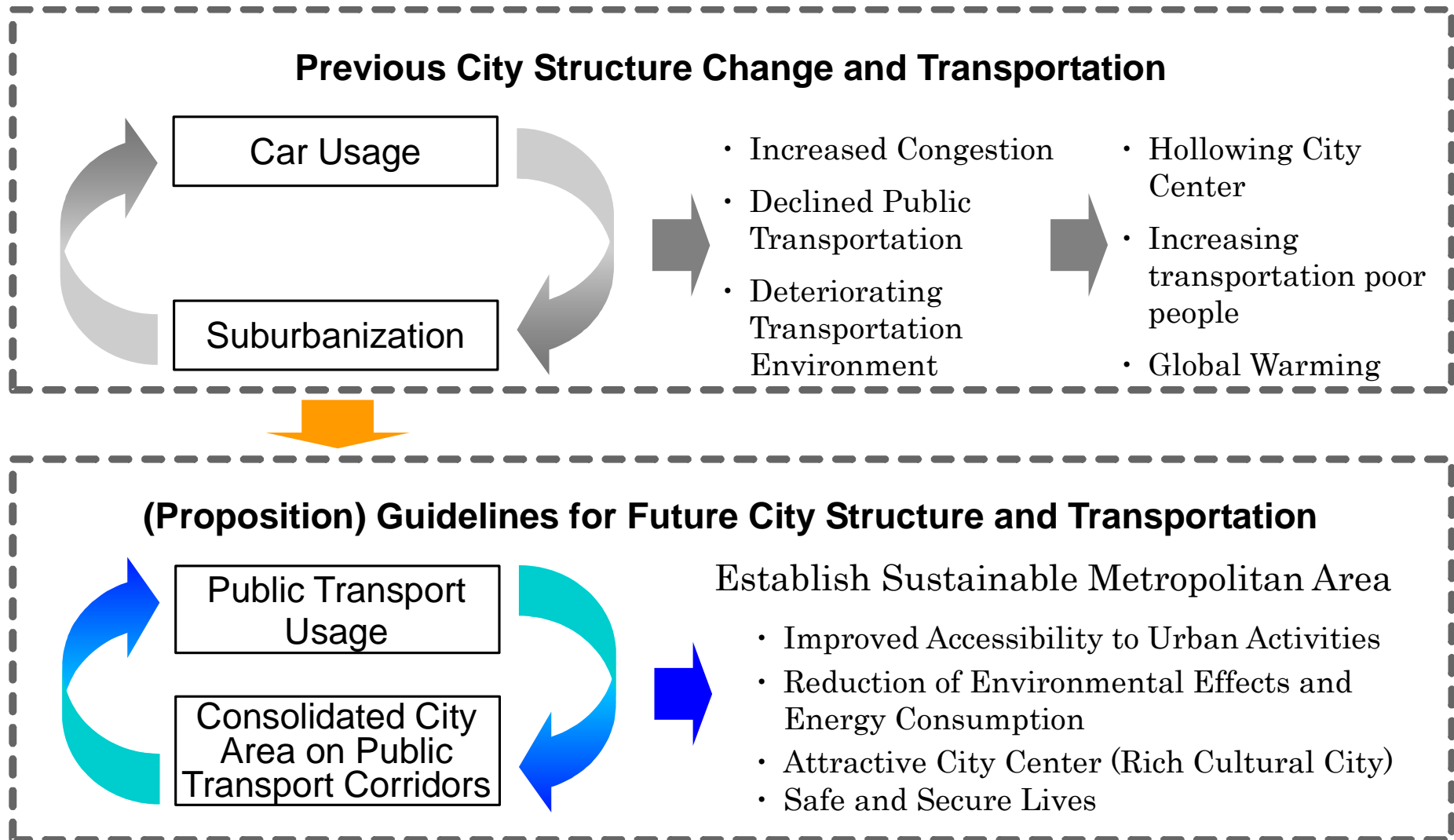
- Long-term Plan
 - No large-scale Projects



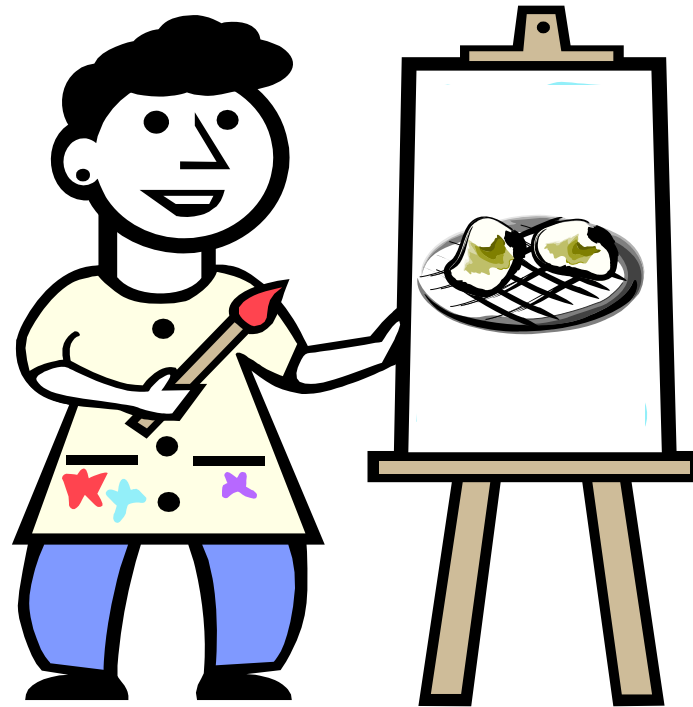
Only very limited and really feasible transport infrastructures are set as given condition



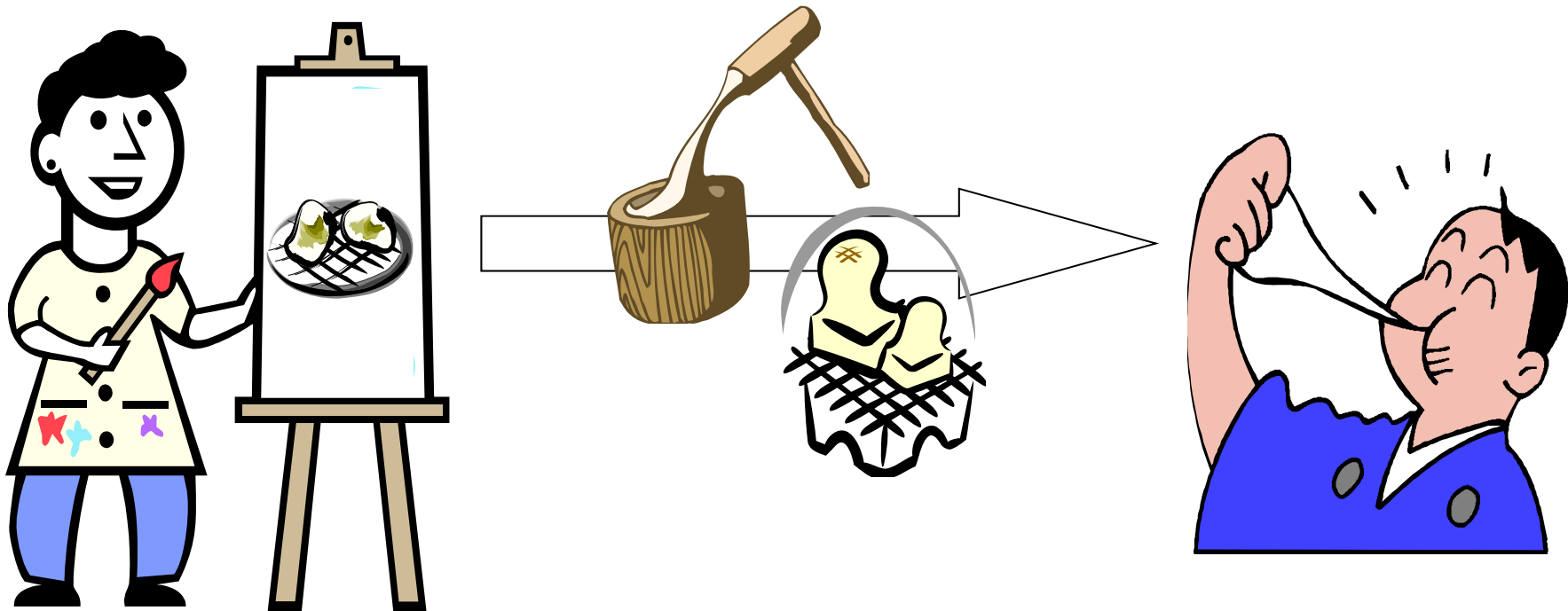
Present Vicious Circle and Proposed Positive Circle



A plan is a rice cake drawn in a painting.



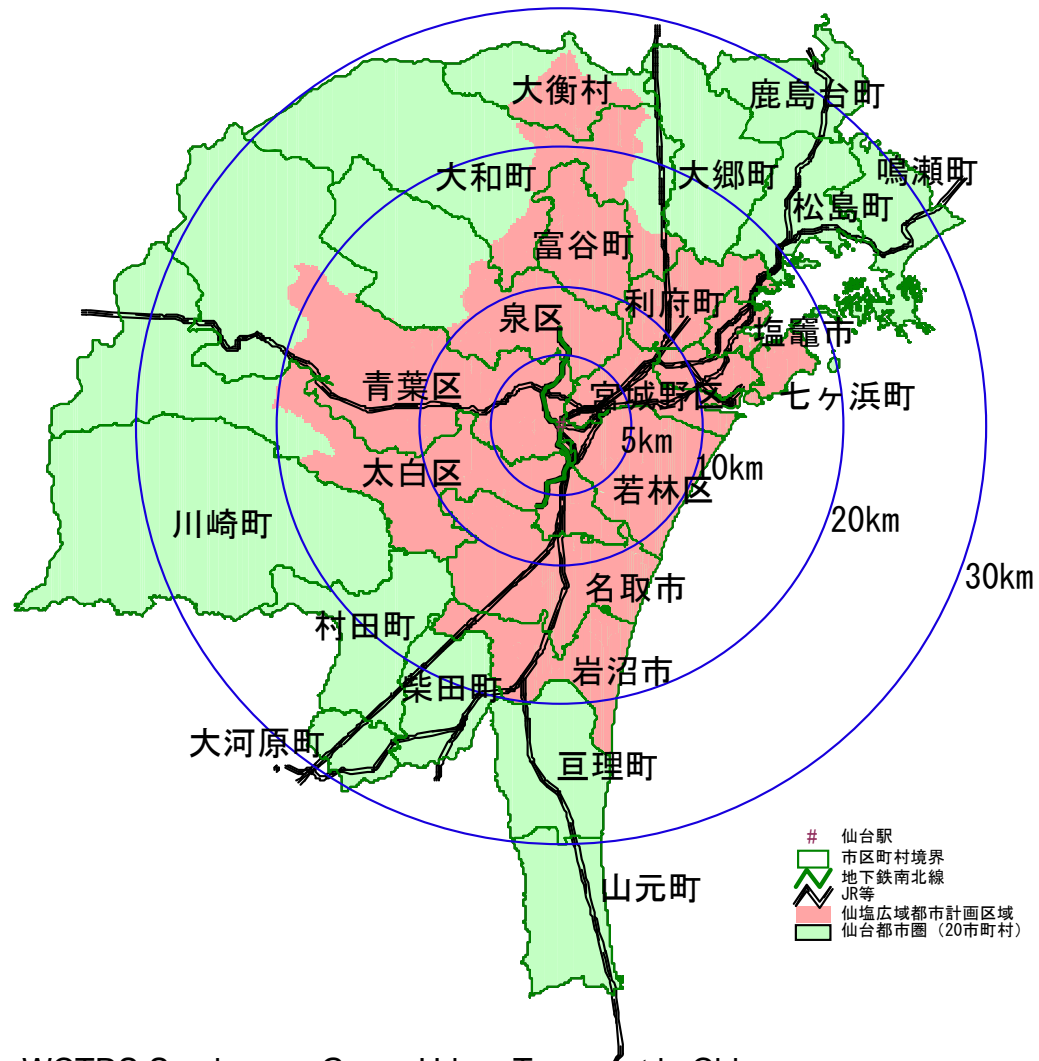
Making “a rice cake in a picture”
“a real and sweat cake”.



Establishment of a Council on Urban Development and Transport

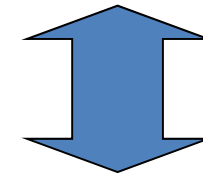
- Headed by Prefectural Government
 - Land Use and Transport Sections are both in a Division Implementation plans of Land Use and Transport
- Members
 - Municipalities
 - Ministry of Land, Infrastructure and Transport
 - Transport Operators
 - NGOs
 - University Professors

Municipalities



Sendai

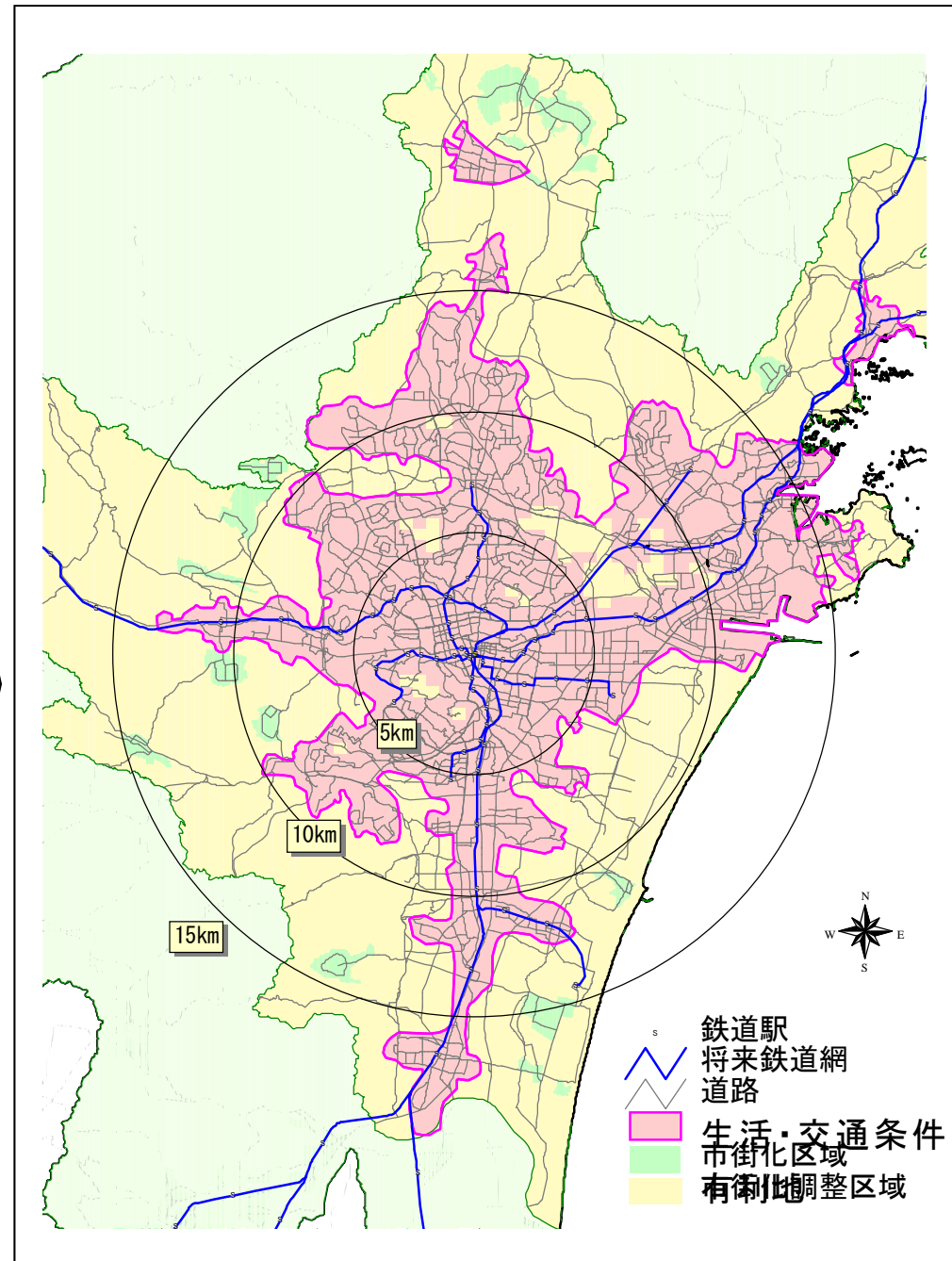
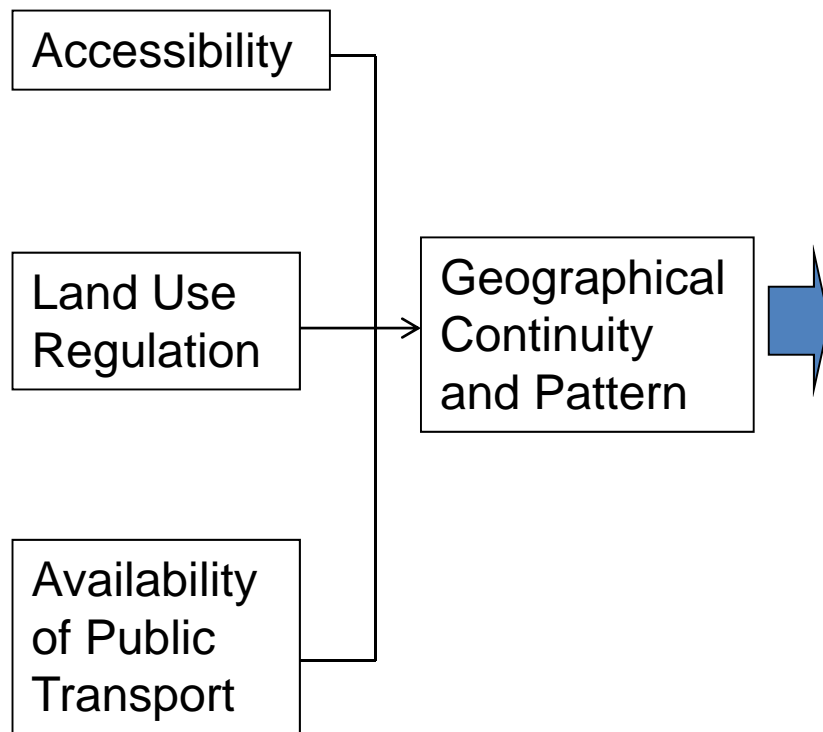
Trade
off



Incompatible

Surrounding
Municipalities

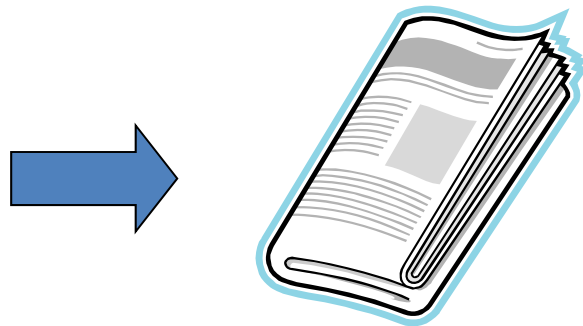
Viable Districts for Future



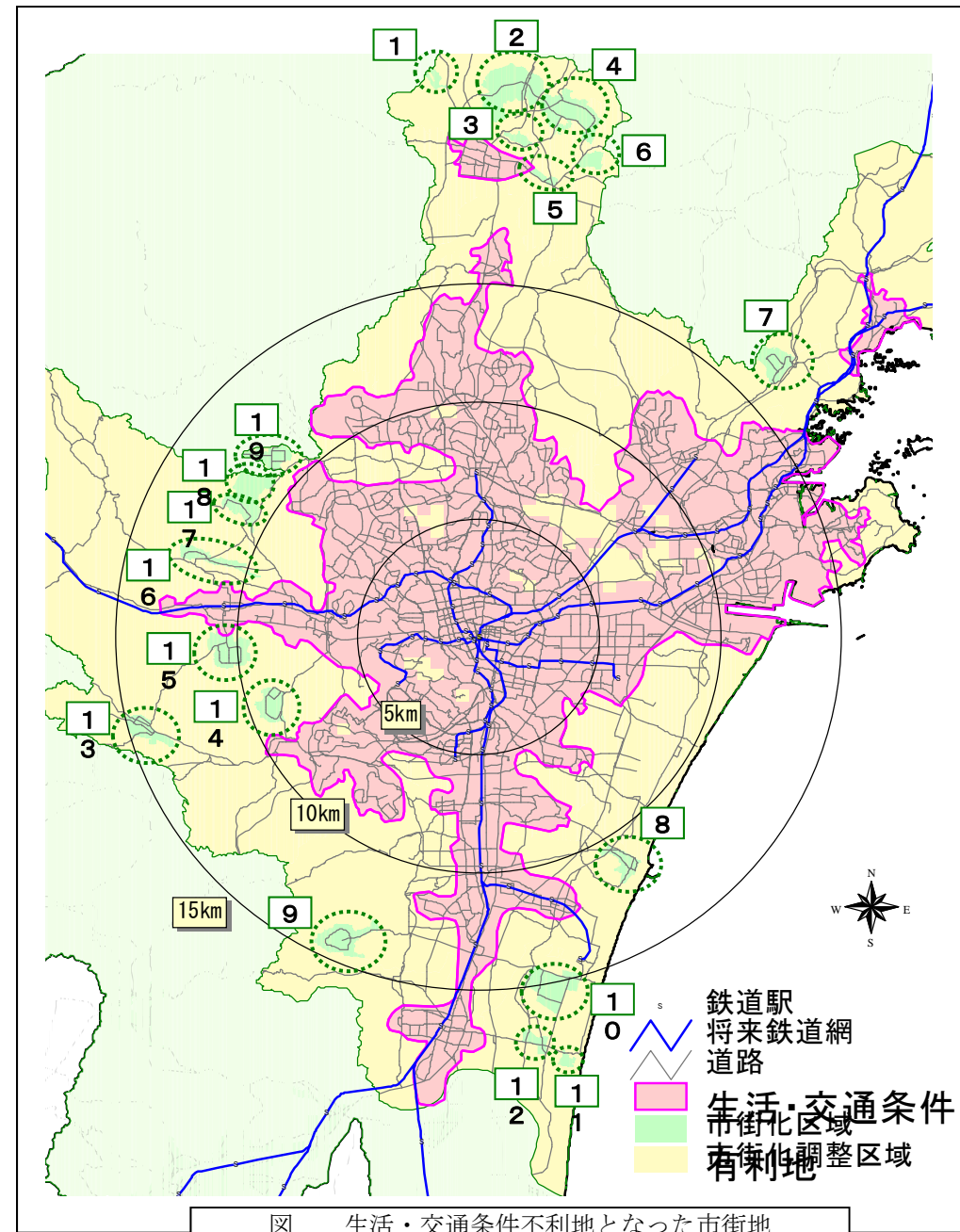
Unviable Districts?

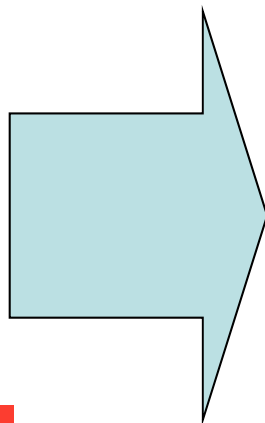
Rating the Districts

Recent Development
or Historical area?



Reported in a
major local
newspaper





Policy Implemented

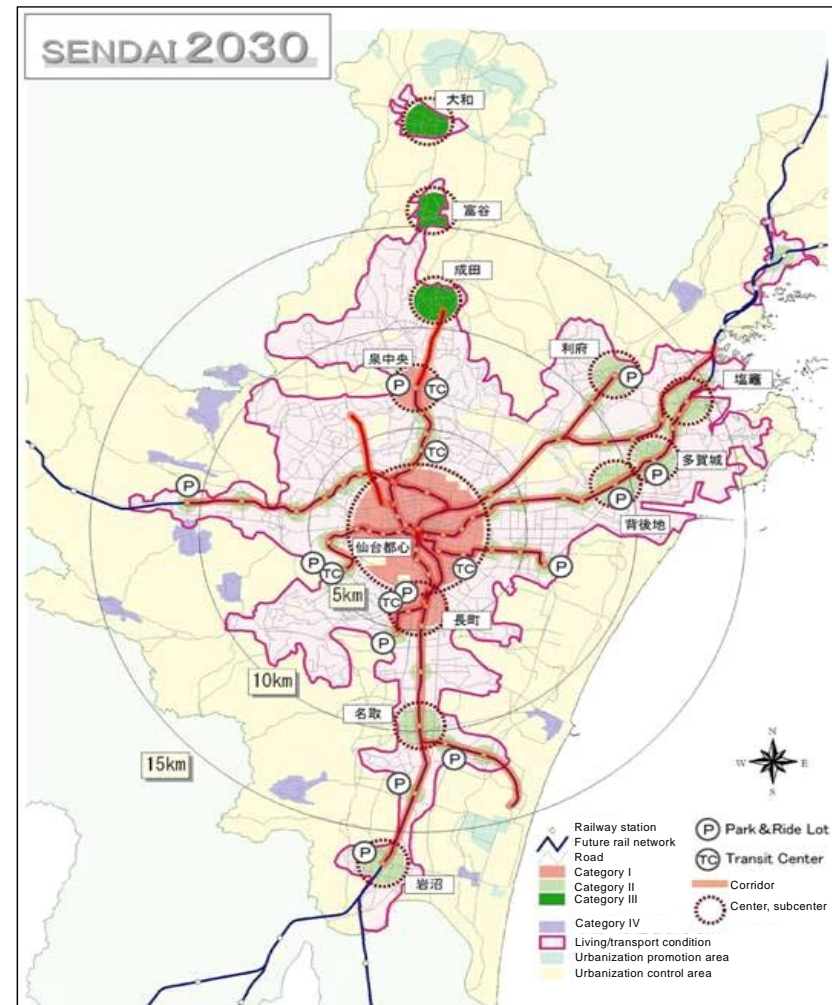
- Vision for Sendai MA

Revision of City
Planning Area Master
Plan (including Land
Use regulations)



Transport side approach
determined the Legal
Land Use Plan

➡ An Innovation in Japan



Revision of City Planning Area Master Plan (including Land Use regulations)

都市計画法第6条の2に規定する
都市計画区域の整備、開発及び保全の方針

仙塩広域都市計画区域の
整備、開発及び保全の方針

平成22年5月
宮城県

(1) 都市づくりの基本理念

持続可能な集約市街地の形成

多様な都市機能がコンパクトにまとまり、都市基盤施設の効率化や二酸化炭素排出量の削減に配慮され、人口減少社会にあっても持続可能な集約市街地の形成を目指す。

【集約市街地の形成】

シナリオ3：交通向上市街地再開発型

高層ビルが林立する市街地

交通向上市街地再開発

くらし環境TOC再開発

駅前・駅周辺TOC再開発

郊外TOC再開発

出處：H12 柏之野市國PT調査報告

東北圏の発展を先導する中核都市圏の形成

熟土全体及び東北地区の発展を牽引していく中核都市圏として、また、世界に開かれ、自立した都市圏として、国際交流、学術研究、さらには産業、観光等の多様な都市機能の集積、高度化を目指す。

⁸¹：東北圖
国土形成計画法に基づく「国土形成計画」において、青森県、青森県、岩手県、秋田県、山形県、福島県と東北地域の7県が「東北圏」と位置づけられている。

高度情報産業（人や企業などの能力単位）の発展、また、大学や研究開発機関、高度な病院等）を多
数有し、ポッドキャストの中心となる都市圏。

The Council will continue...

- Coordinating organization between Transport and Land Use in Sendai MA
 - Person Trip Survey by 10 years
 - Revision of City Planning Area Master Plan by 10 years
 - 5 years gap
- Incorporating more policy instruments
 - Pull and Push
 - More floor area ratio around the stations
 - Road Pricing
 - Fare
 - IC Card
 -

Examples of Recent Activities

➤ University Transport

with reduced season tickets, Universities and Sendai city have initiated to guide students and staff to live along public transit.

➤ Surrounding municipalities

To obtain their consensus, The council has started to demonstrate the future financial burden, if they don't accept the proposal.

Concluding Remarks

- Integration of land use and transport is easy to be refereed in a plan/report but hard to be activated in reality.
- Institutional set-up is most important to coordinate stake holders.
- Land use side approach is most important and essential in transport planning and implementation, although it takes a time.
- The Sendai Metropolitan Area Approach is one of the models to make a plan actually implemented.

Thank you very much