Loading / Unloading Survey in Tokyo Metropolitan Freight Survey and further advanced topics

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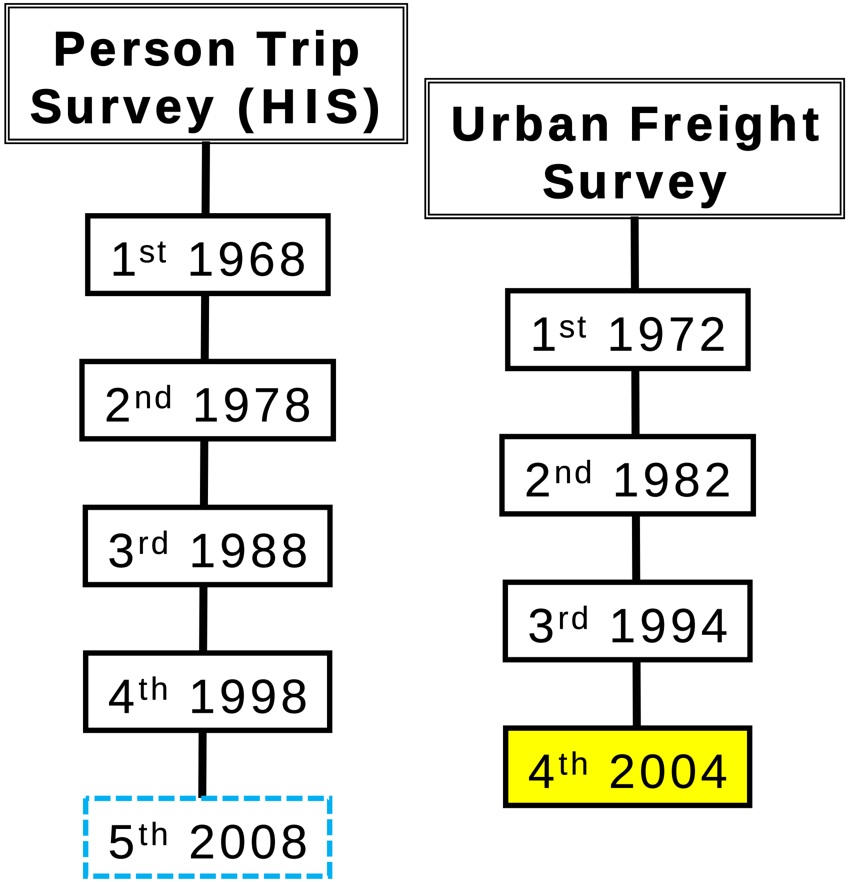
T-LOG, Tokoname seminar

1. Outline of Tokyo Metropolitan Freight Survey



Person Trip Survey (HIS)

- 1st 1968
- 2nd 1978
- 3rd 1988
- 4th 1998
- 5th 2008

Urban Freight Survey

- 1st 1972
- 2nd 1982
- 3rd 1994
- 4th 2004

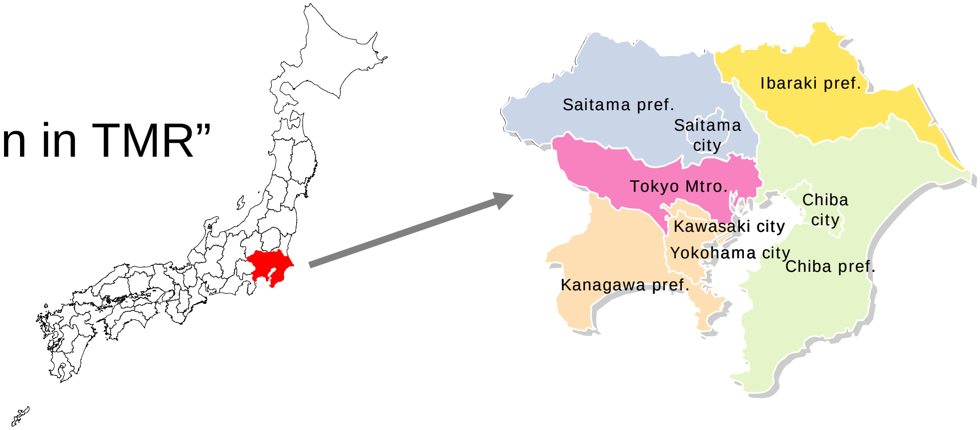
-Surveys for passengers and freight have been conducted alternately in Tokyo Metropolitan Region (TMR)

-This autumn, the 5th Person Trip Survey will be executed
→ POP: 34 million, 3% sampling,
mail-out & mail-back

-The 4th Urban Freight Survey was completed in 2006
→ It provided
+ logistics facility allocation info.
for city planners
+ road network plans
for transportation planners
+ land-use policy of logistics area
for local government

Abstract of the 4th Tokyo Metropolitan Freight Survey (TMFS) in 2003-05 (actual survey in 2004)

-Decennial urban freight survey
(1st 1972, 2nd 1982, 3rd 1994)
by “the Transport Planning Commission in TMR”

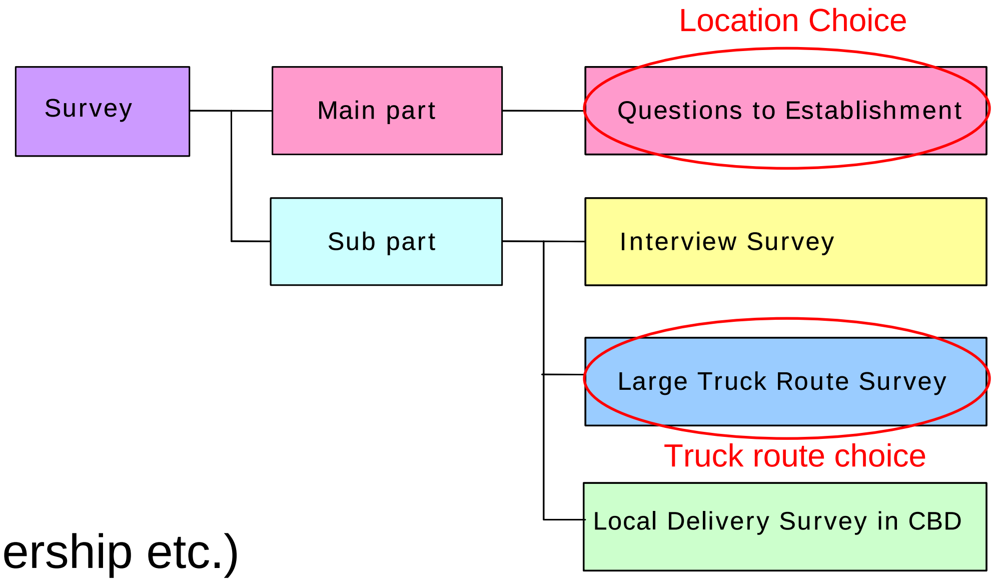

Saitama pref.
Ibaraki pref.
Saitama city
Tokyo Mtro.
Chiba city
Kawasaki city
Yokohama city
Chiba pref.
Kanagawa pref.

-Mainly mail survey. Interview survey
for large companies

-Number of parents (establishment)
is about 180,000 establishments

-Mail out 120,000 and 30,000 answers
(collection rate: 25%)

-Questionnaire in “Main part”:
1) Size & function of logistics facility
2) Attributions of goods movement
(weight, item etc.)
3) Attributions of mode
(freight mode, truck size, truck ownership etc.)



Survey

Main part

Sub part

Location Choice

Questions to Establishment

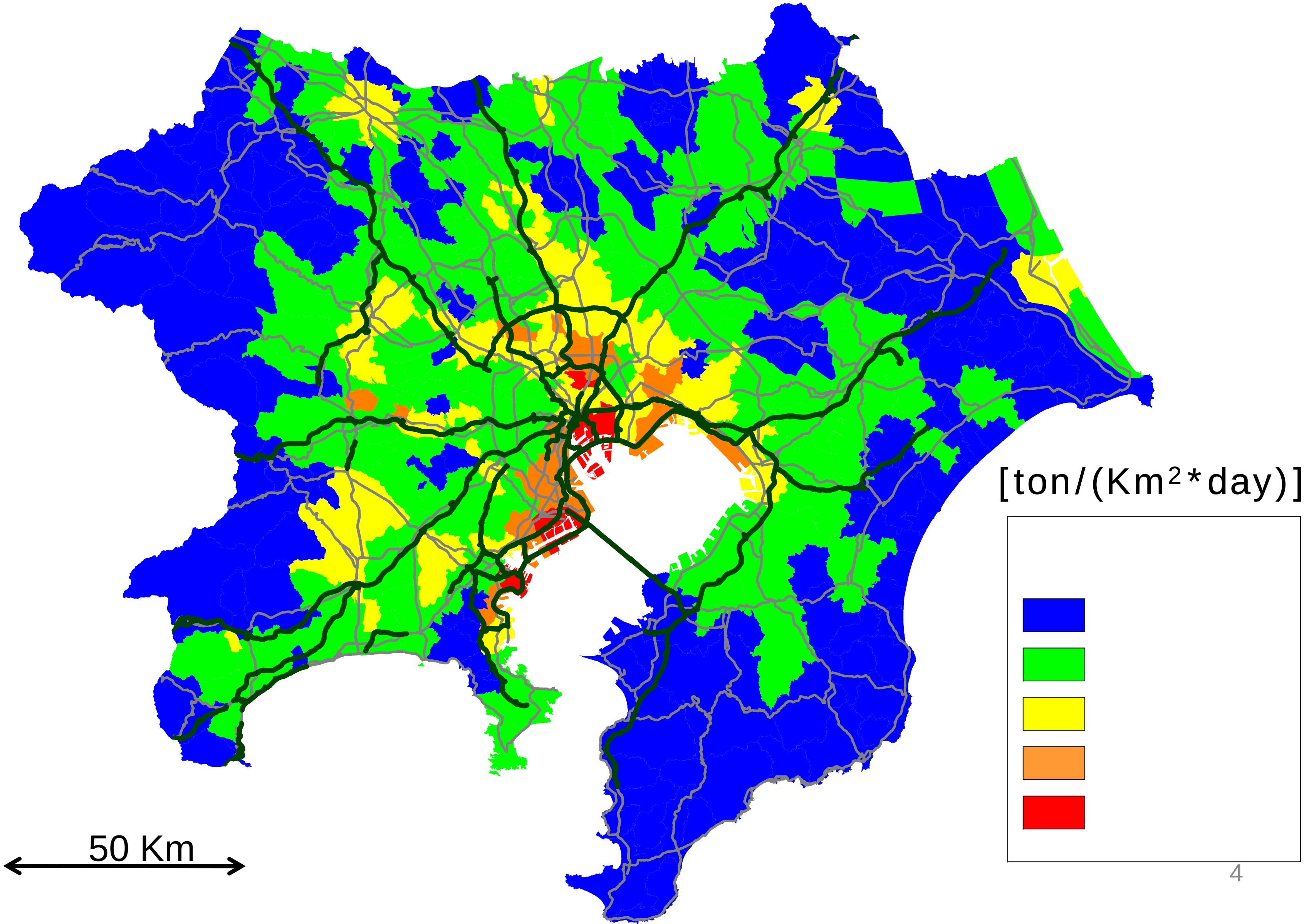
Interview Survey

Large Truck Route Survey

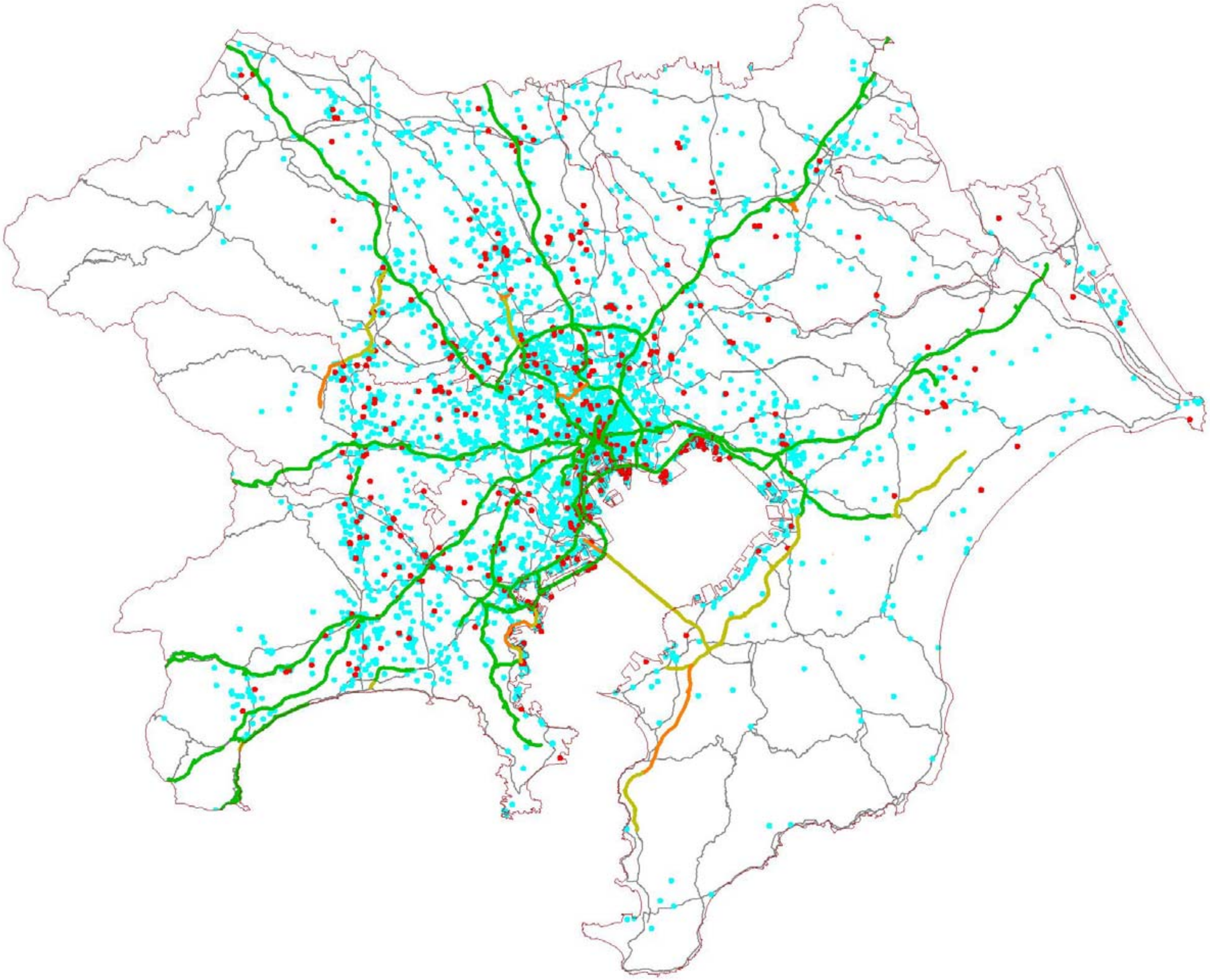
Truck route choice

Local Delivery Survey in CBD

Freight "Generation + Attraction weight" per area


[ton/(Km²*day)]
50 Km

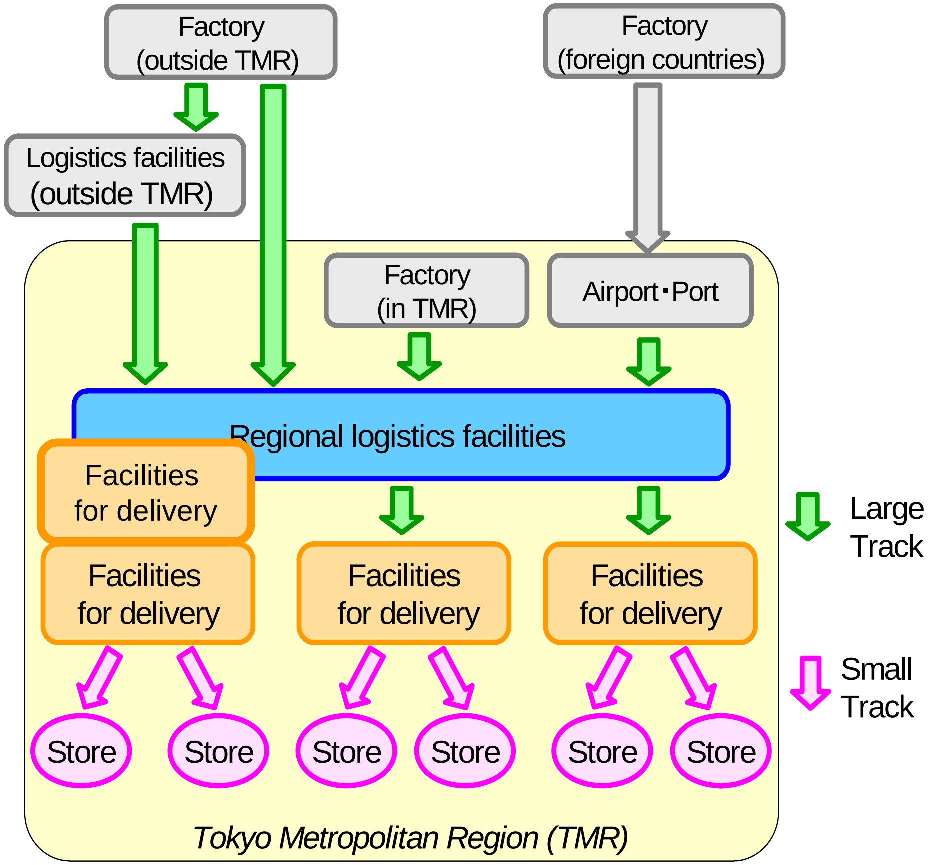
Historical transition of logistics location & expressway
(Result of TMFS 2004)



～1944年
1945～1949年
1950～1954年
1955～1959年
1960～1964年
1965～1969年
1970～1974年
1975～1979年
1980～1984年
1985～1989年
1990～1994年
1995～1999年
2000年～

The structure of freight in TMR

→ **“Distribution Channel” for understanding logistics activities and policy needs**



Factory
(outside TMR)

Factory
(foreign countries)

Logistics facilities
(outside TMR)

Factory
(in TMR)

Airport･Port

Regional logistics facilities

Facilities
for delivery

Facilities
for delivery

Facilities
for delivery

Facilities
for delivery

Store

Store

Store

Store

Store

Store

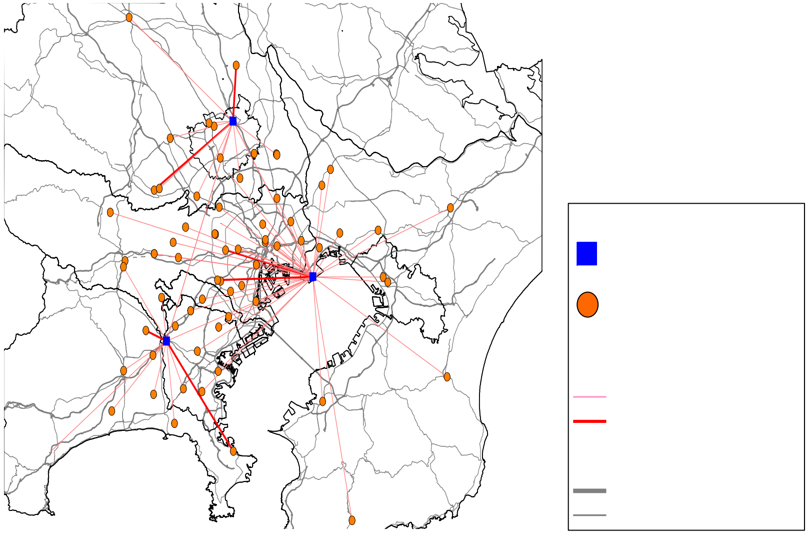
Tokyo Metropolitan Region (TMR)

Large
Track

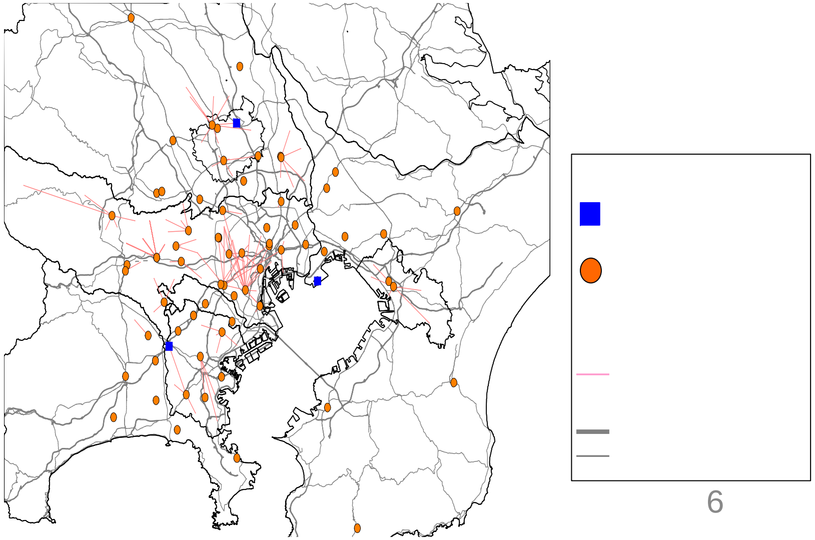
Small
Track

CF. an actual example of wholesale

◇Transportation from regional logistics facilities



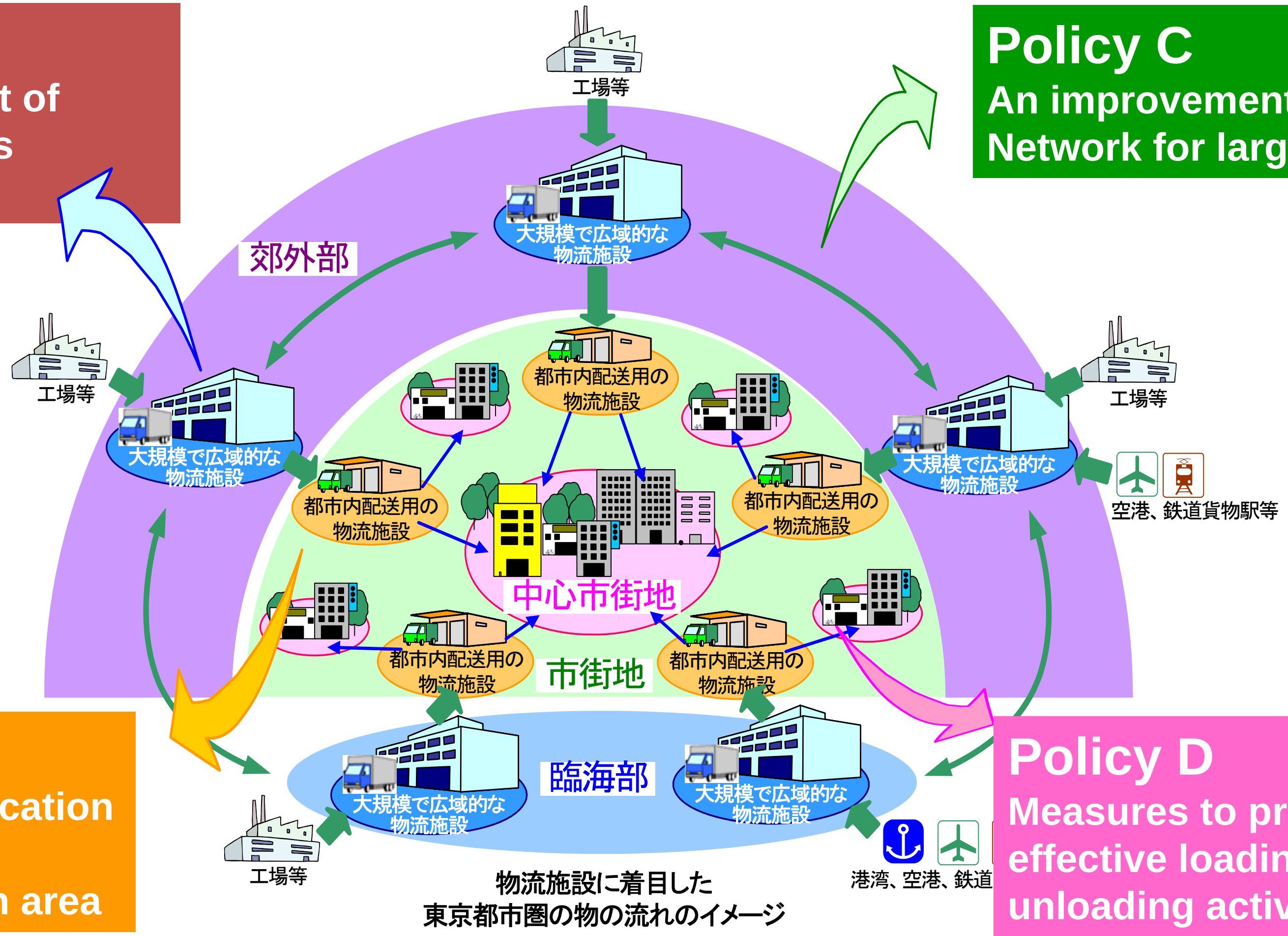
◇Transportation from facilities for delivery



Outline of policies urban logistics in TMR

Policy A
Location support of regional logistics facilities

Policy C
An improvement of road Network for large trucks


工場等
大規模で広域的な物流施設
郊外部
工場等
大規模で広域的な物流施設
都市内配送用の物流施設
工場等
大規模で広域的な物流施設
空港、鉄道貨物駅等
都市内配送用の物流施設
都市内配送用の物流施設
中心市街地
都市内配送用の物流施設
市街地
都市内配送用の物流施設
臨海部
大規模で広域的な物流施設
大規模で広域的な物流施設
工場等
港湾、空港、鉄道

物流施設に着目した
東京都市圏の物の流れのイメージ

Policy B
Control of the location of facilities for delivery in urban area

Policy D
Measures to promote effective loading / unloading activities in C.B.D

Four freight policies discussed in TMFS 2004

by “the Transport Planning Commission in TMR”

Policy A: support location of regional logistics facilities

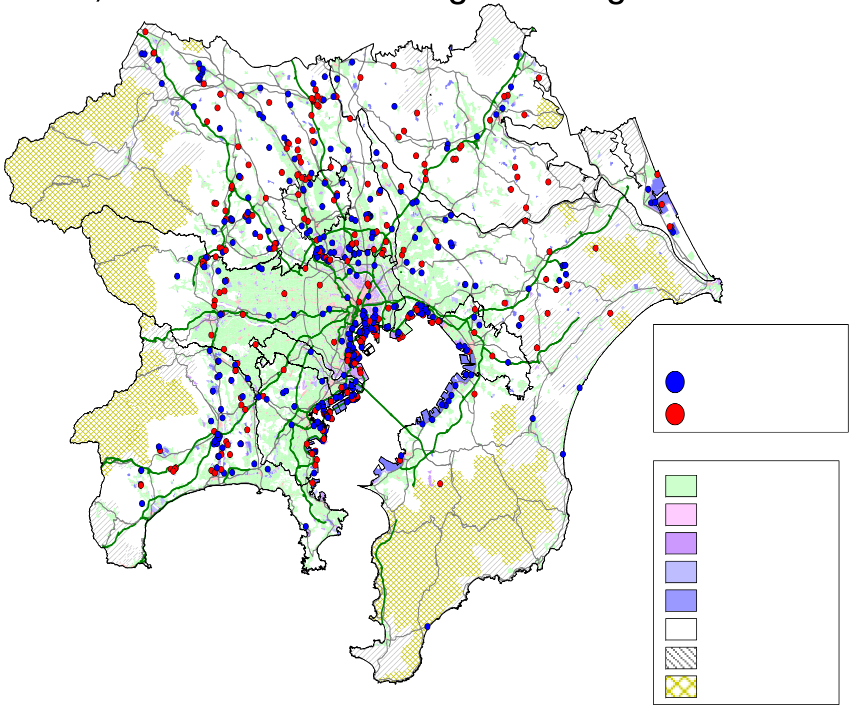
Policy B: control location of local delivery facilities in urban areas

Policy C: improve road network for large trucks

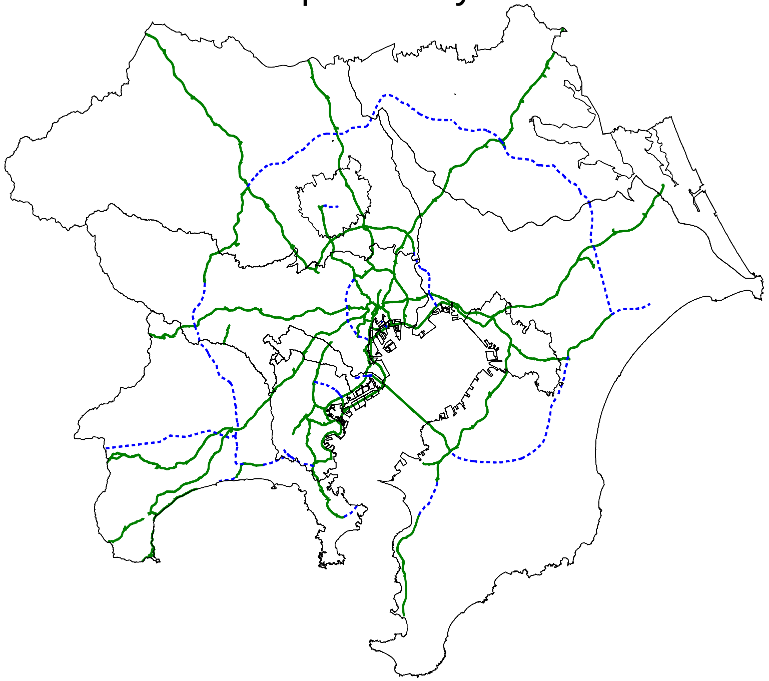
Policy D: promote effective loading/unloading activities in CBD

Policy A
Location support of regional logistics facilities

Land use, and location of regional logistics facilities



Plan of expressway in TMR



Issue & Policy

Issue

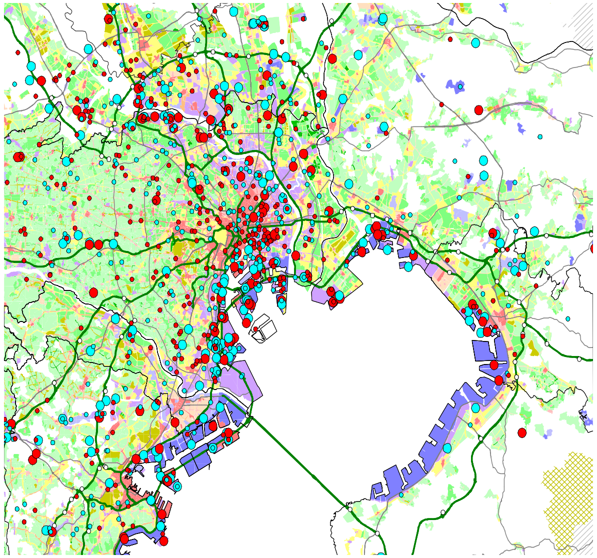
The demand for the logistics facilities grows in the undeveloped areas.

Outline of Policy

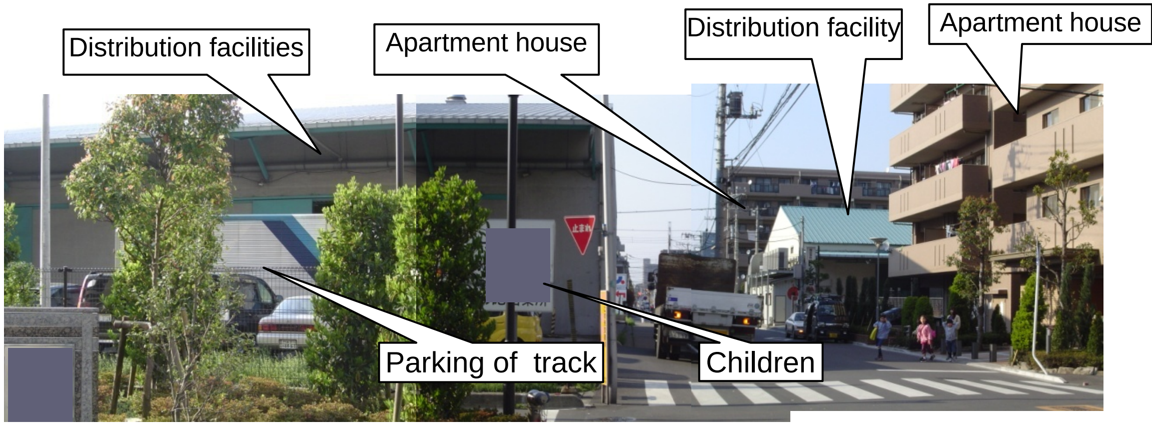
/ The location should be around the expressway interchange.
/ The location in other area is limited.

Policy B
Control of location of facilities for the delivery in urban area

Location of facilities for delivery from survey



Coexistence of distribution facilities and house


Distribution facilities
Apartment house
Distribution facility
Apartment house
Parking of track
Children

Issue & Policy

Issue

The efficiency of distribution decreases, and the living environment deteriorates.

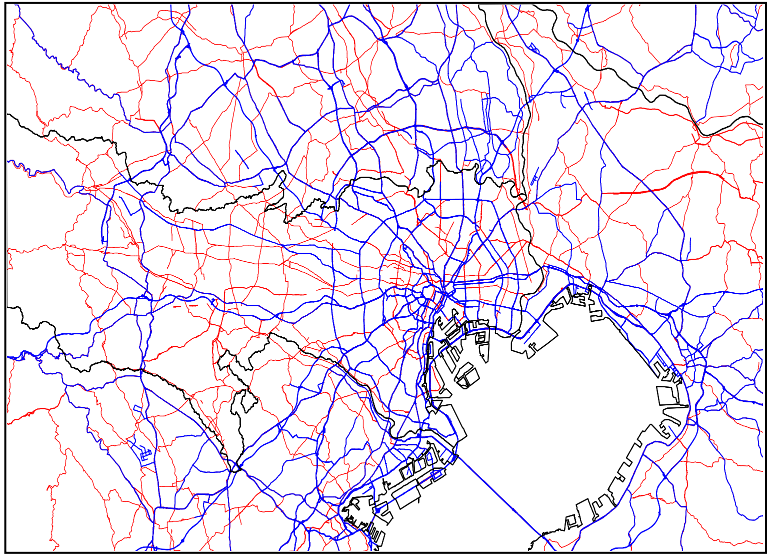
関越自動車道
東北自動車道
国道4号
東京外環自動車道
常磐自動車道
国道6号
国道16号

Outline of Policy

/ Separating distribution facilities and house are located

Policy C
An improvement of road Network for large trucks

Route where large-size freight car can run (blue line of figure)



Large truck in residential area

Large truck in CBD

Issue & Policy

Issue

The efficiency of distribution decreases, and city environment deteriorates.

Outline of Policy

/ Increase road-links for large trucks
/ Control of inflow to residential area and CBD

6号

東北自動車道

東京外

Policy D
Measures to promote effective loading / unloading activities in C.B.D

Traffic problem in C.B.D

Congestion is generated by Trucks in the streets.

The bus cannot run because of truck parked in the streets.

Trucks parked in the streets are obstructs for walking.

Issue & Policy

Issue

The amenity of C.B.D decreases by freight car.

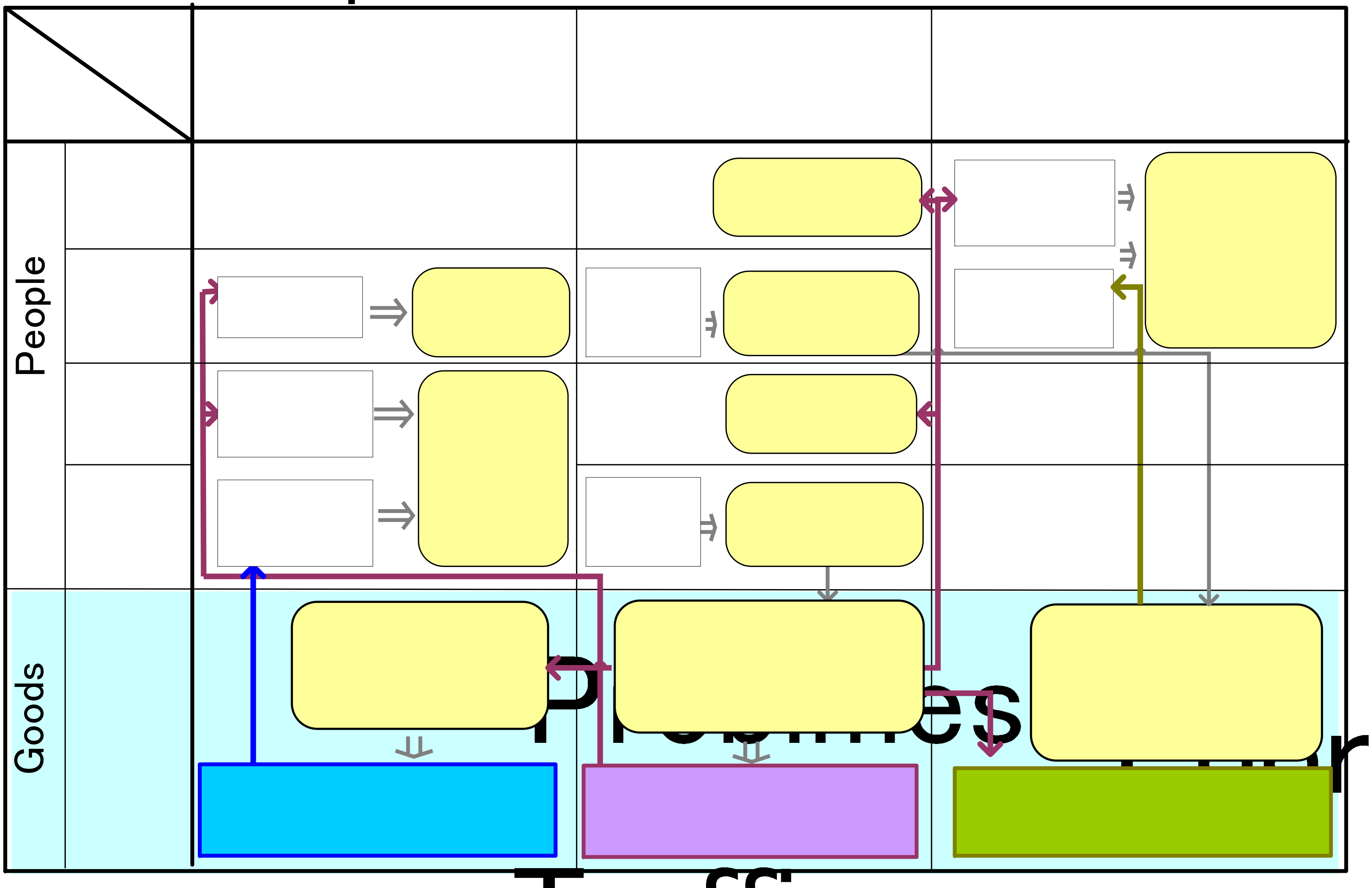
⇩

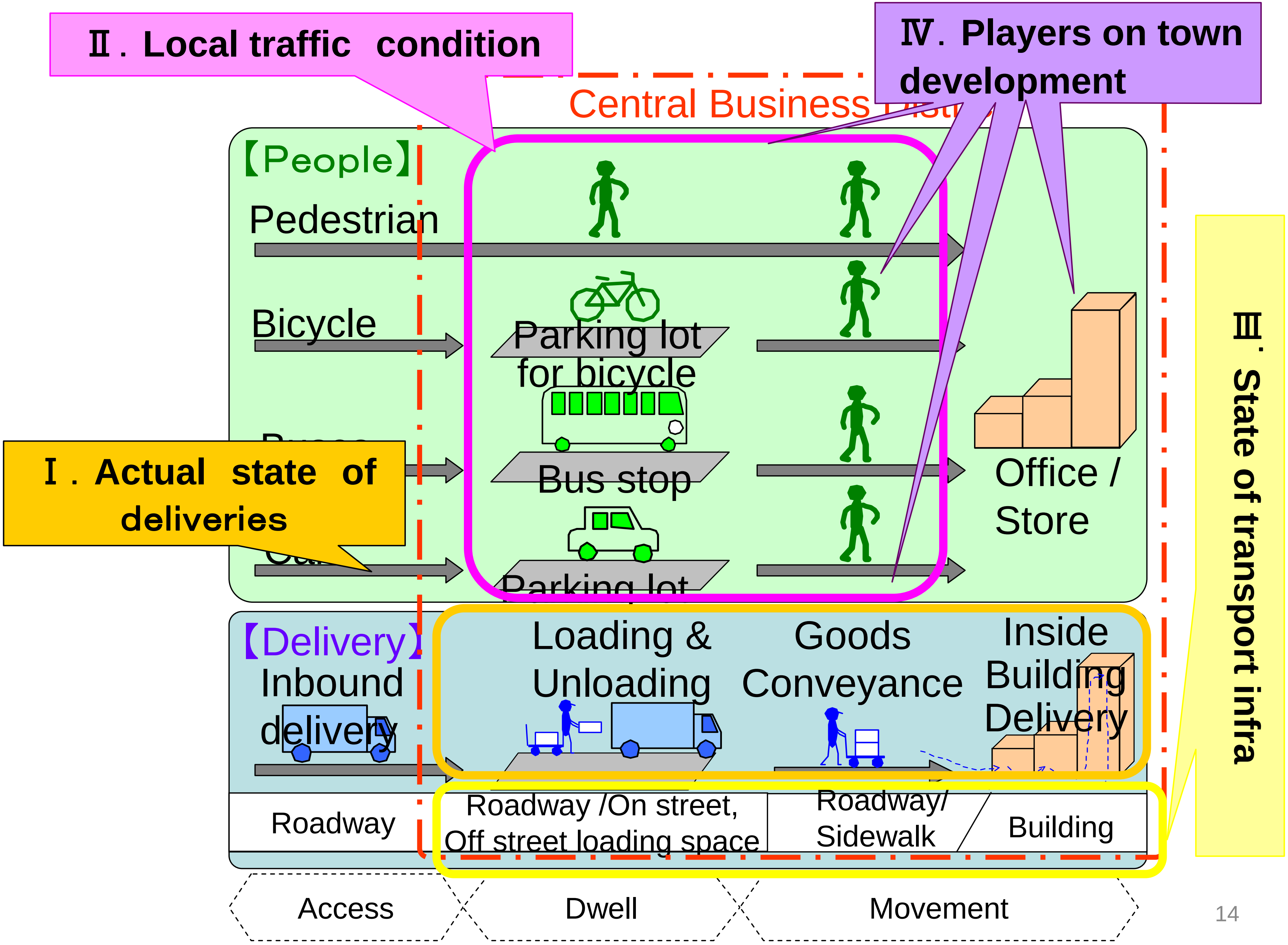
Outline of Policy

/ Consideration of freight at transport planning of C.B.D

2. Abstract of Loading / Unloading Survey for “Policy D”

Relationship between deliveries and local issues


People
Goods



Ⅱ. Local traffic condition

Ⅳ. Players on town development

Central Business

【People】

Pedestrian

Bicycle

Parking lot for bicycle

Bus stop

Parking lot

Office / Store

Ⅰ. Actual state of deliveries

【Delivery】

Inbound delivery

Loading & Unloading

Goods Conveyance

Inside Building Delivery

Roadway	Roadway /On street, Off street loading space	Roadway/ Sidewalk	Building

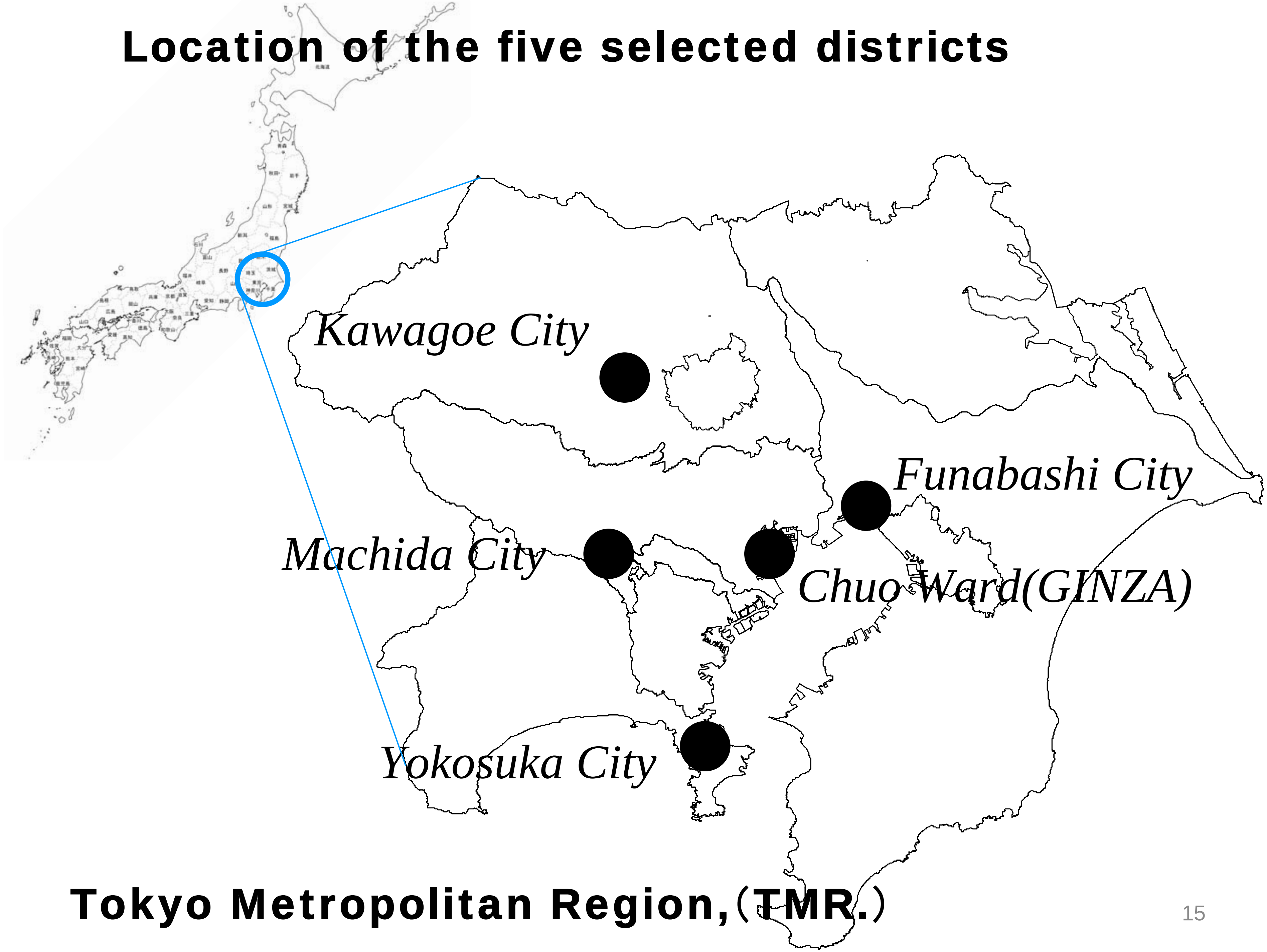
Access

Dwell

Movement

Ⅲ. State of transport infra

Location of the five selected districts


Kawagoe City
Funabashi City
Machida City
Chuo Ward(GINZA)
Yokosuka City

Tokyo Metropolitan Region,（TMR.）

GINZA

Sun Business Transportation

FUNABASHI

YOKOSUKA

大津屋
Shoes
OHTSUYA
NEW TOP
E3428

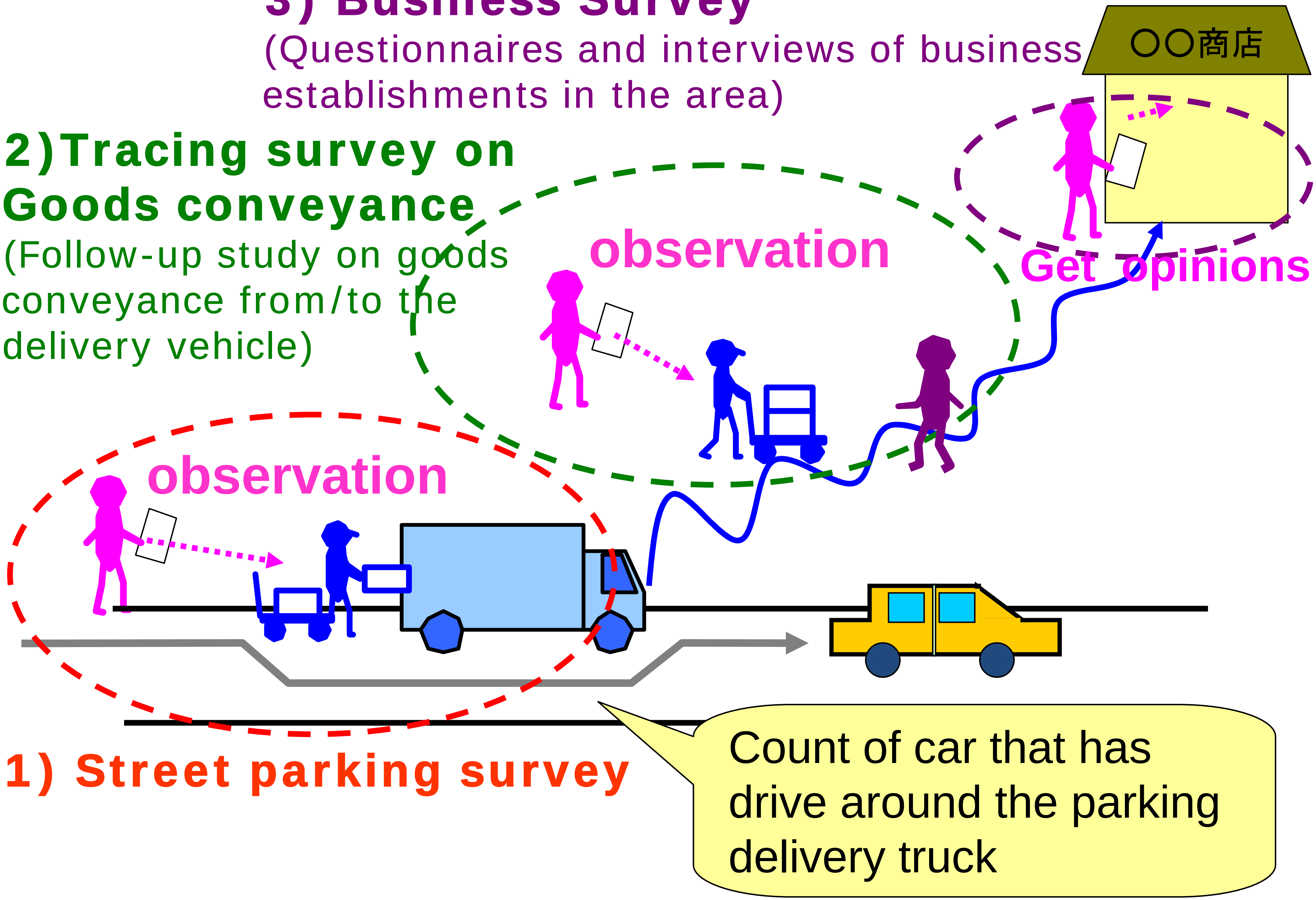
[redacted]

MACHIDA

[redacted]

KAWAGOE

Outline of “Loading/Unloading Survey


〇〇商店
observation
Get opinions
observation

3) Business Survey

(Questionnaires and interviews of business establishments in the area)

2)Tracing survey on Goods conveyance

(Follow-up study on goods conveyance from/to the delivery vehicle)

1) Street parking survey

Count of car that has drive around the parking delivery truck

1) Street parking survey

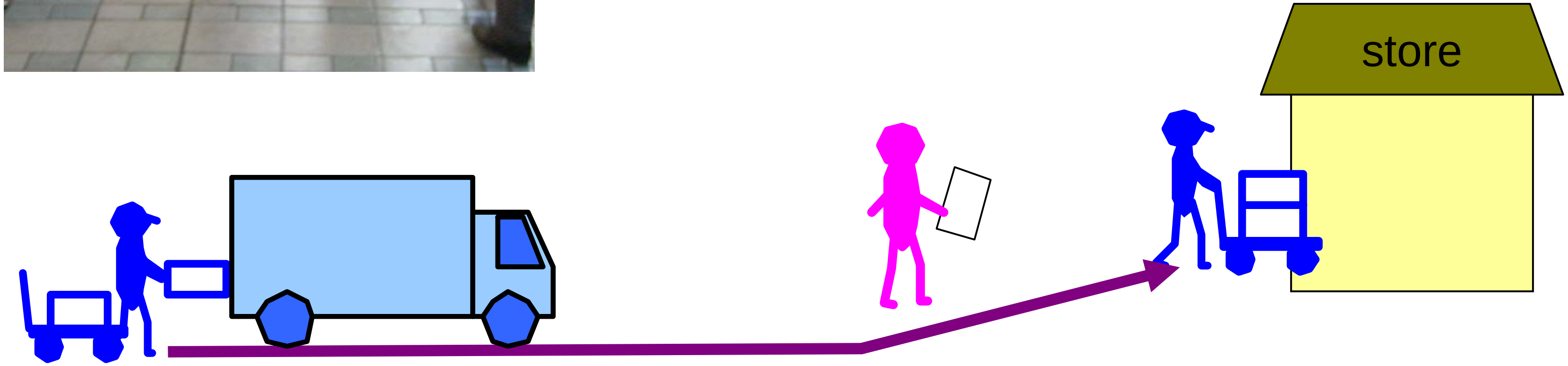
Survey Items

- Car type (passenger car, van, delivery truck, etc.)
- Parking location, parking start and finish time
- Park with unload or park without unload
- Parking conditions (on street, on the sidewalk in bus stops, etc)
- Influence to traffic congestion

2)Tracing Survey on Goods conveyance

Survey Items

- Car type (vehicle make and model, etc)
- Parking location, parking start and finish time
- Destination of goods conveyance (location, distance, type)
- Influence to pedestrian by goods conveyance
- Reason of choosing parking location

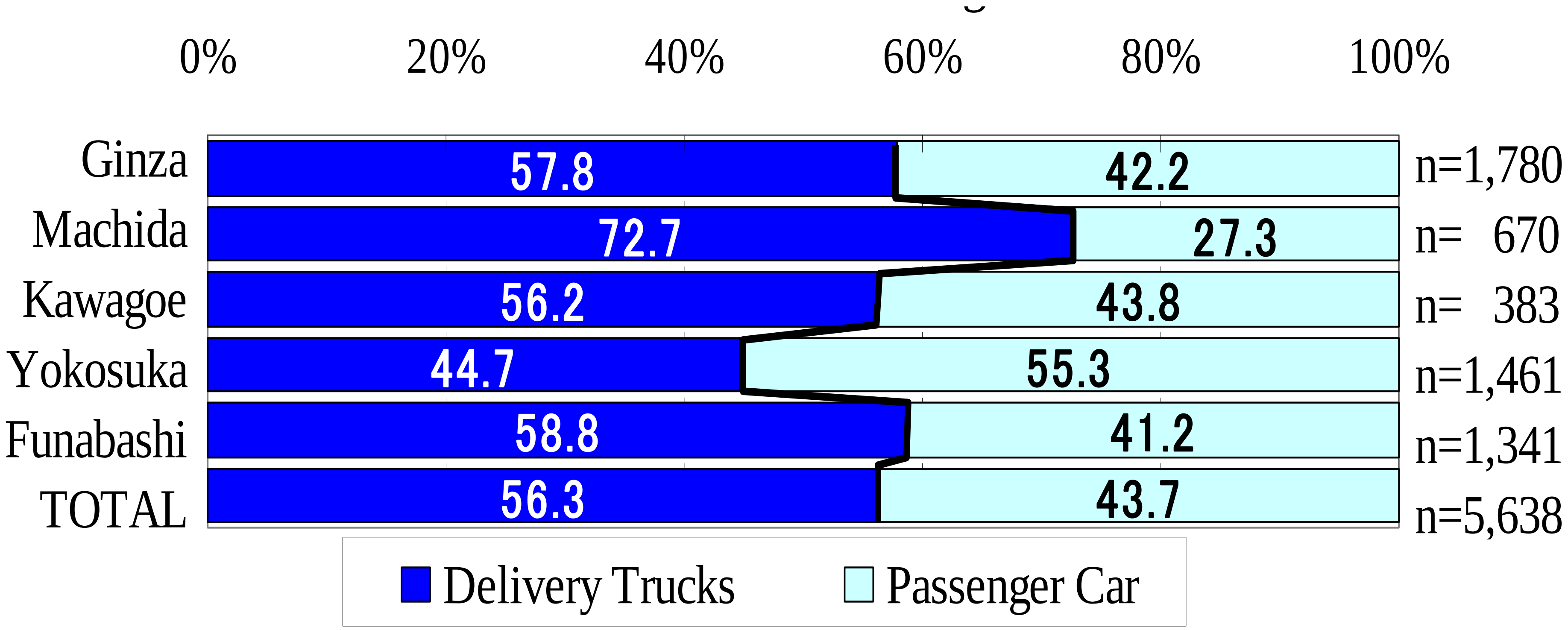


3) Business Survey

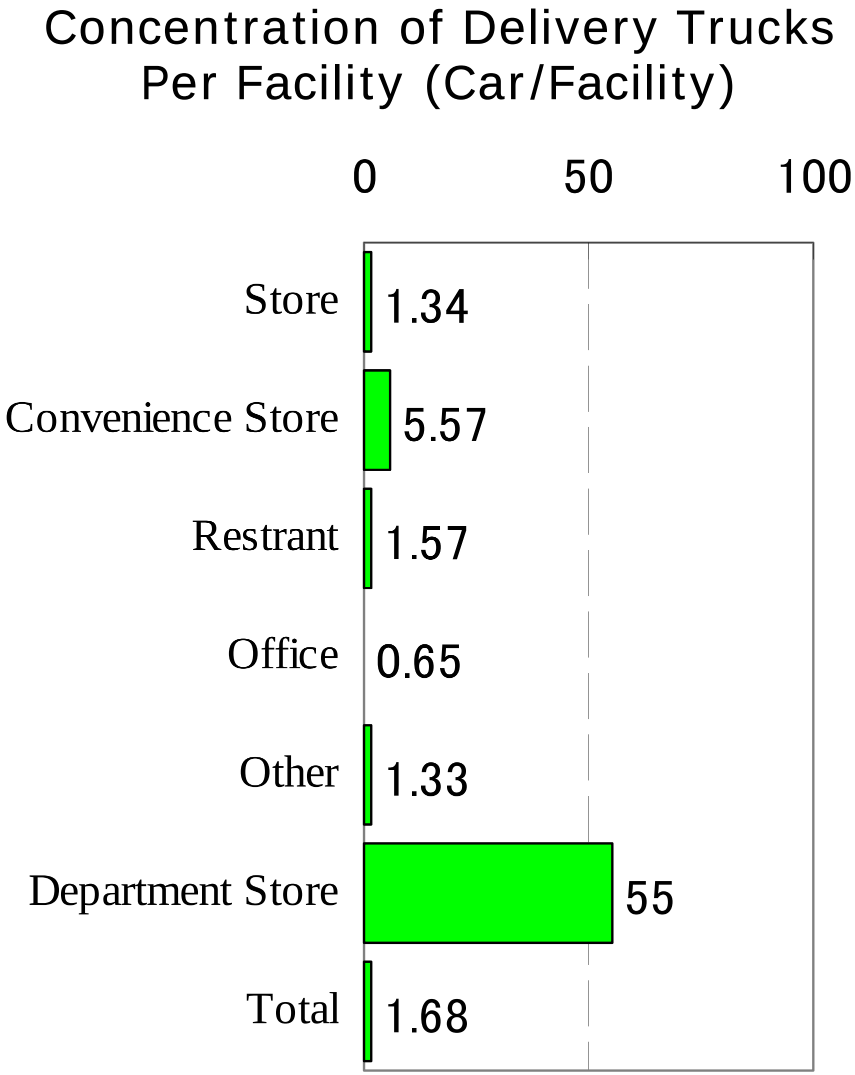
Survey Items

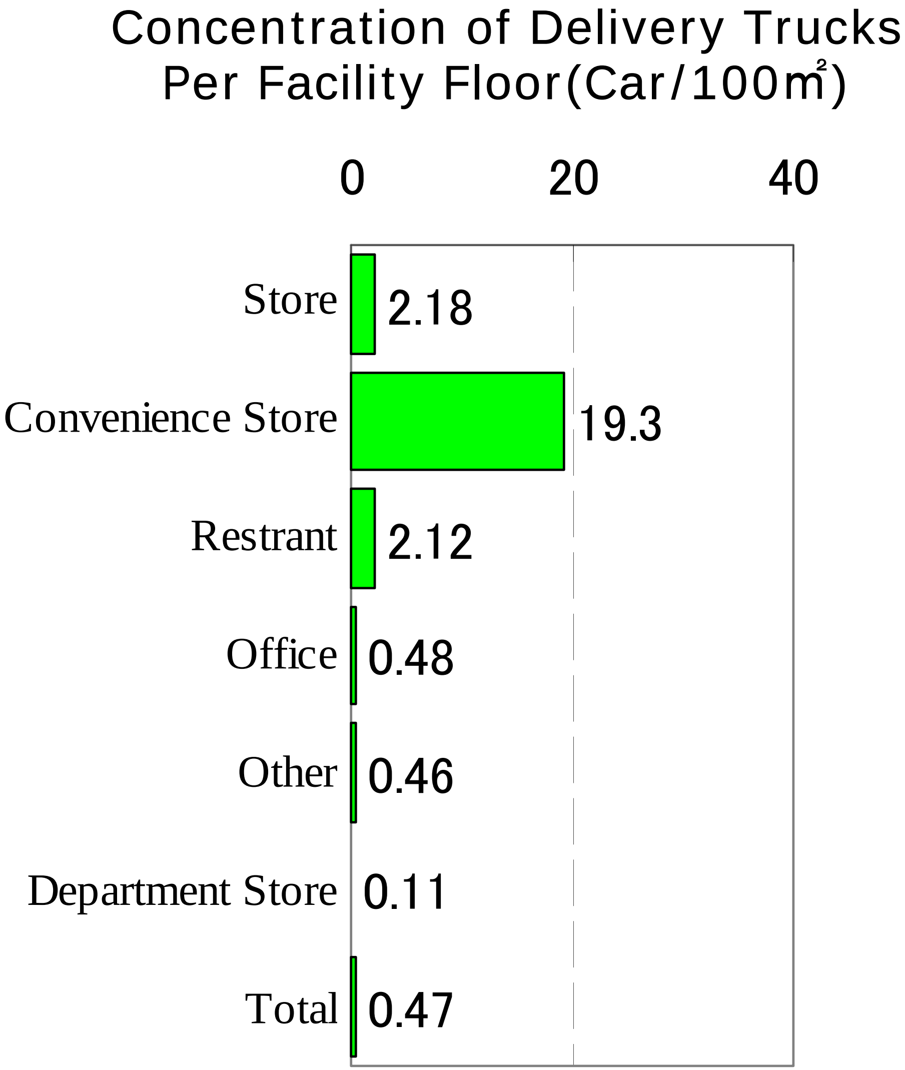
- Kind of Business actions (type of business, products, operating hours, floor space)
- Presence of loading space
- Main delivery hours, number & weight of goods
- Possibility of changing (delivery time, carrier)
- Free comments about the delivery of owner

Share of parked vehicles

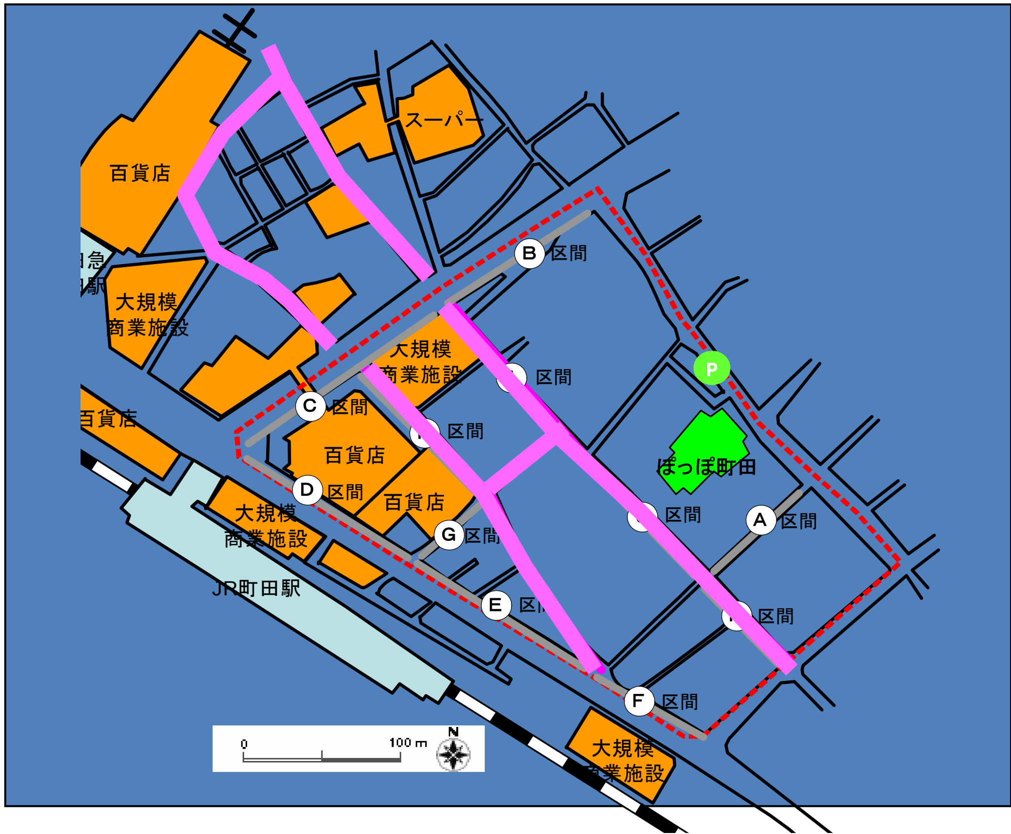


Concentration of delivery trucks



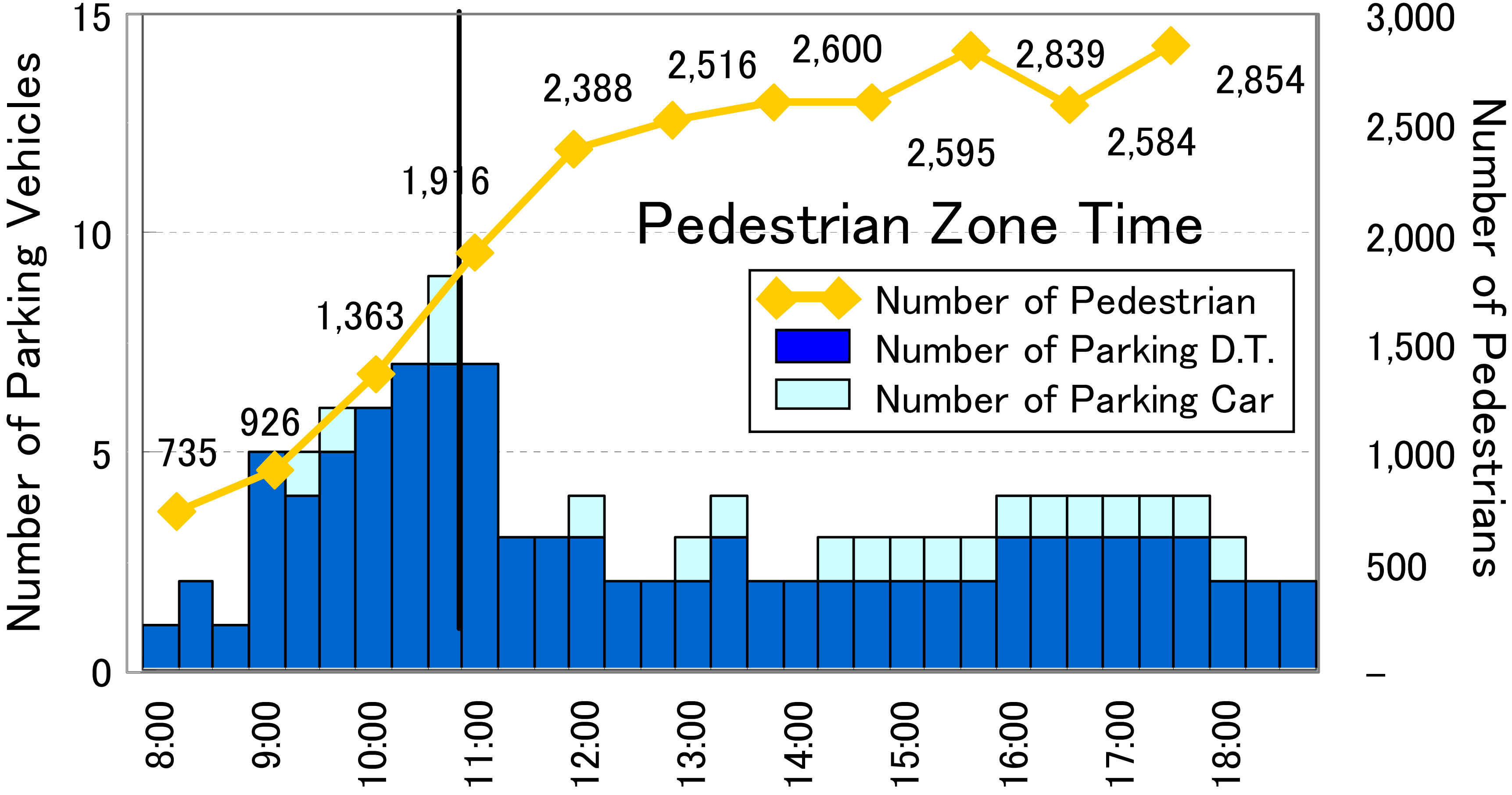


Result of Machida
(11am to 7pm)

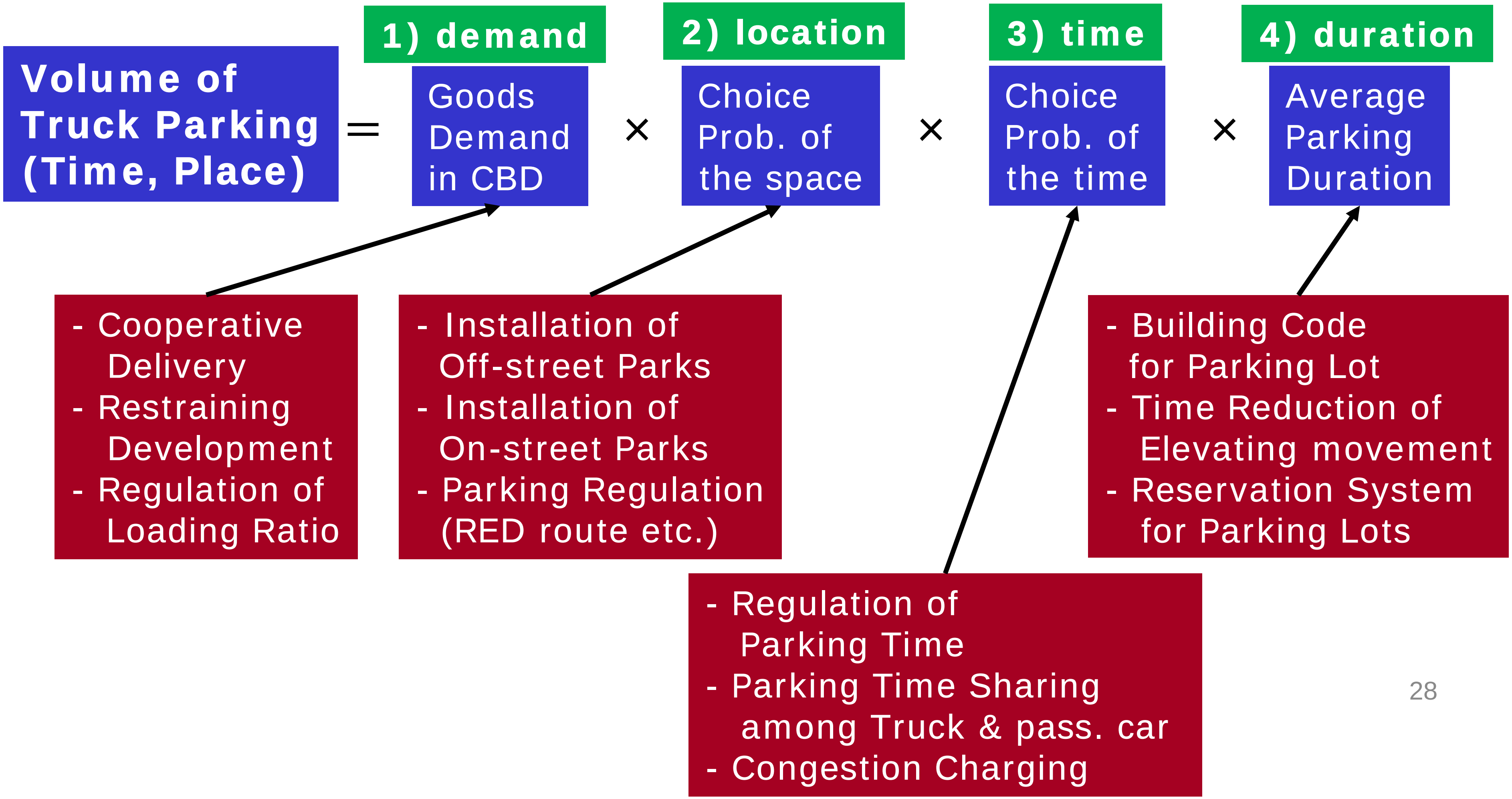


百貨店
スーパー
急
駅
大規模
商業施設
B 区間
大規模
商業施設
区間
C 区間
百貨店
区間
百貨店
P
ぽっぽ町田
D 区間
百貨店
大規模
商業施設
G 区間
区間
A 区間
JR町田駅
E 区
区間
F 区間
大規模
商業施設
0
100 m
N

Pedestrian volume and Number of parking delivery Trucks



Basic concept of Loading/Unloading TDM Measures



Volume of Truck Parking (Time, Place) = **1) demand** Goods Demand in CBD × **2) location** Choice Prob. of the space × **3) time** Choice Prob. of the time × **4) duration** Average Parking Duration

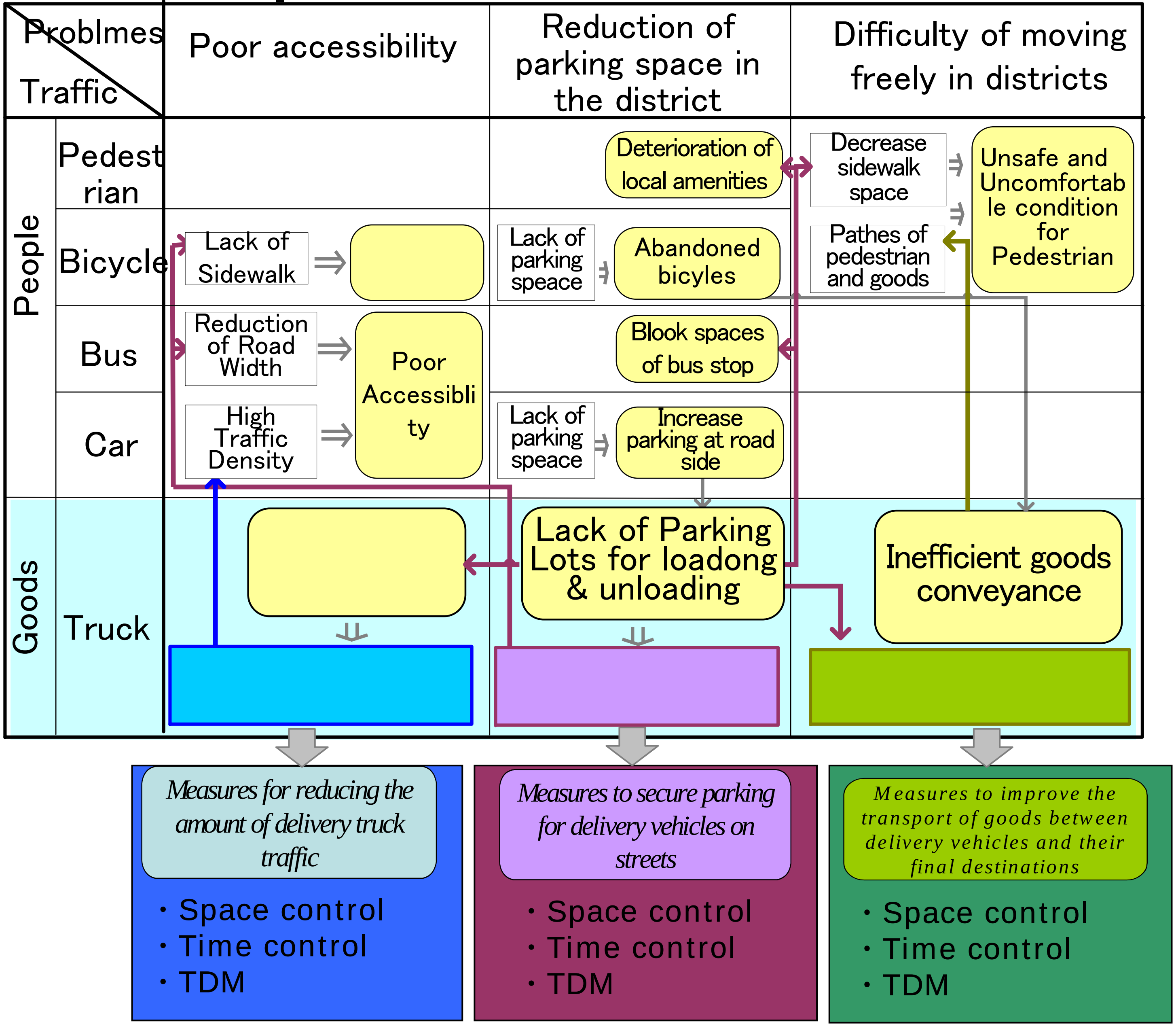
- Cooperative Delivery
- Restraining Development
- Regulation of Loading Ratio

- Installation of Off-street Parks
- Installation of On-street Parks
- Parking Regulation (RED route etc.)

- Regulation of Parking Time
- Parking Time Sharing among Truck & pass. car
- Congestion Charging

- Building Code for Parking Lot
- Time Reduction of Elevating movement
- Reservation System for Parking Lots

Types of measures for dealing with logistics problems in particular areas



Problmes

Traffic

Poor accessibility

Reduction of parking space in the district

Difficulty of moving freely in districts

People

Pedestrian

Bicycle

Bus

Car

Goods

Truck

Lack of Sidewalk

Reduction of Road Width

High Traffic Density

Poor Accessibility

Deterioration of local amenities

Lack of parking speace

Abandoned bicyles

Blook spaces of bus stop

Lack of parking speace

Increase parking at road side

Lack of Parking Lots for loadong & unloading

Decrease sidewalk space

Pathes of pedestrian and goods

Unsafe and Uncomfortable condition for Pedestrian

Inefficient goods conveyance

Measures for reducing the amount of delivery truck traffic

- Space control
- Time control
- TDM

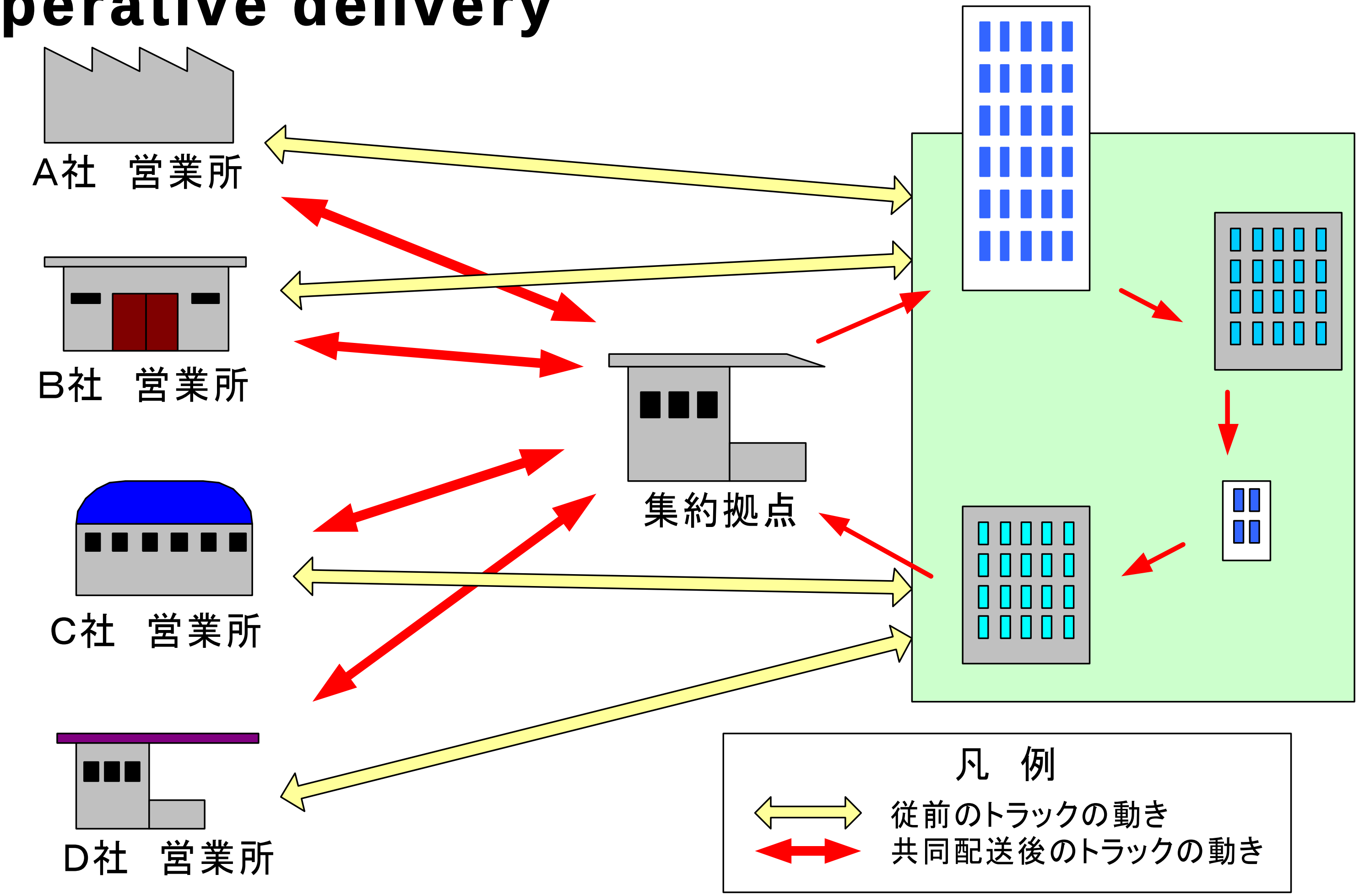
Measures to secure parking for delivery vehicles on streets

- Space control
- Time control
- TDM

Measures to improve the transport of goods between delivery vehicles and their final destinations

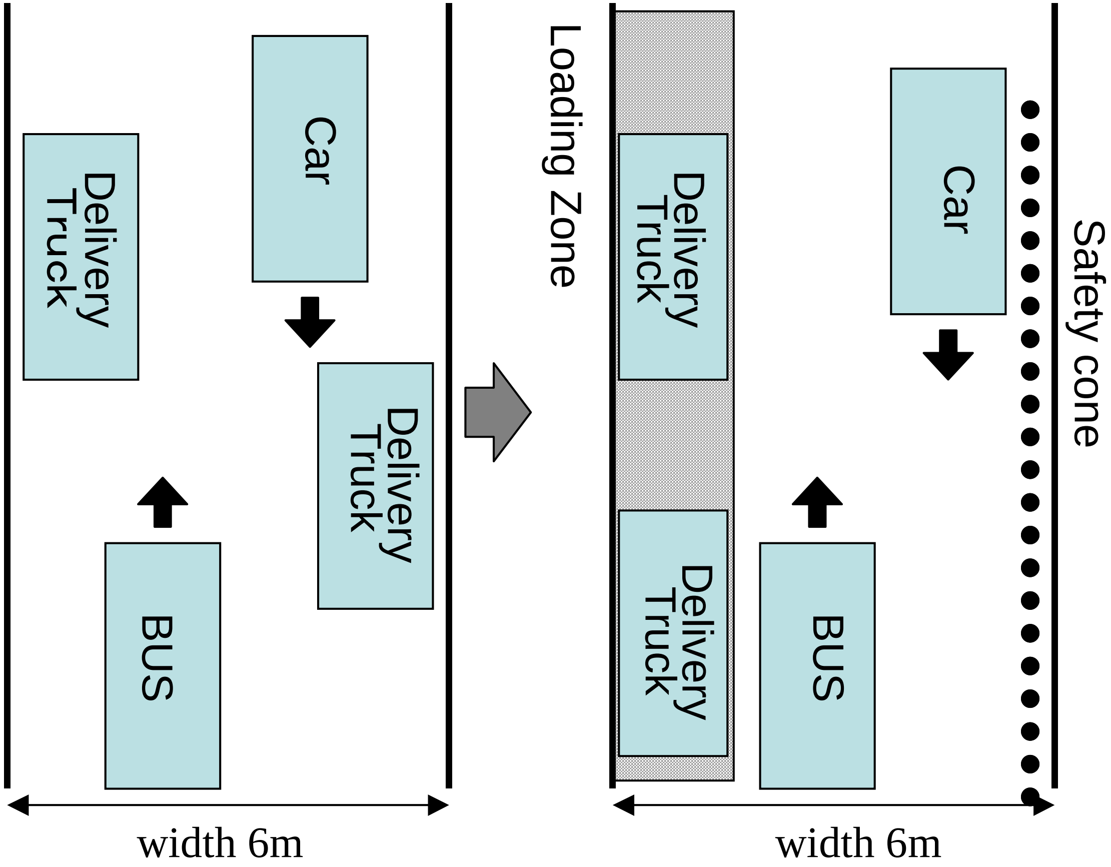
- Space control
- Time control
- TDM

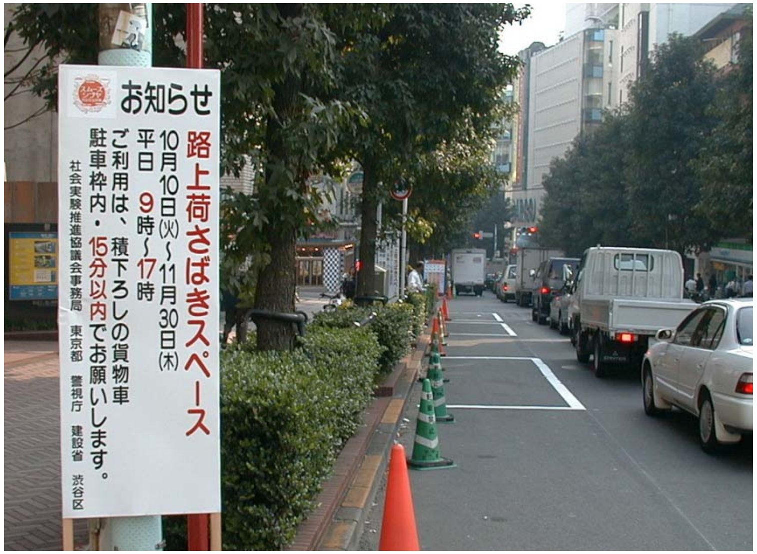
cooperative delivery


A社　営業所
B社　営業所
C社　営業所
D社　営業所
集約拠点
凡　例
従前のトラックの動き
共同配送後のトラックの動き

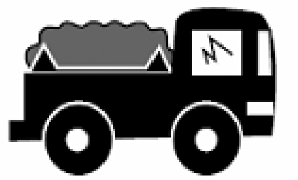
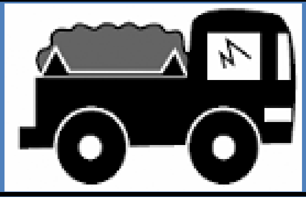
MOTOMACHI
www.motomachi.or.jp

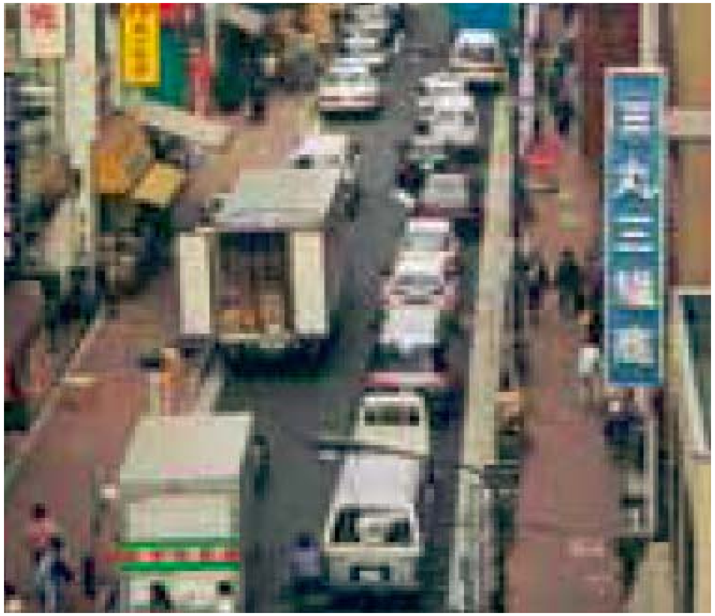
Securement of loading space on the streets


Delivery Truck
Car
Delivery Truck
BUS
width 6m
Loading Zone
Delivery Truck
Delivery Truck
Car
BUS
Safety cone
width 6m

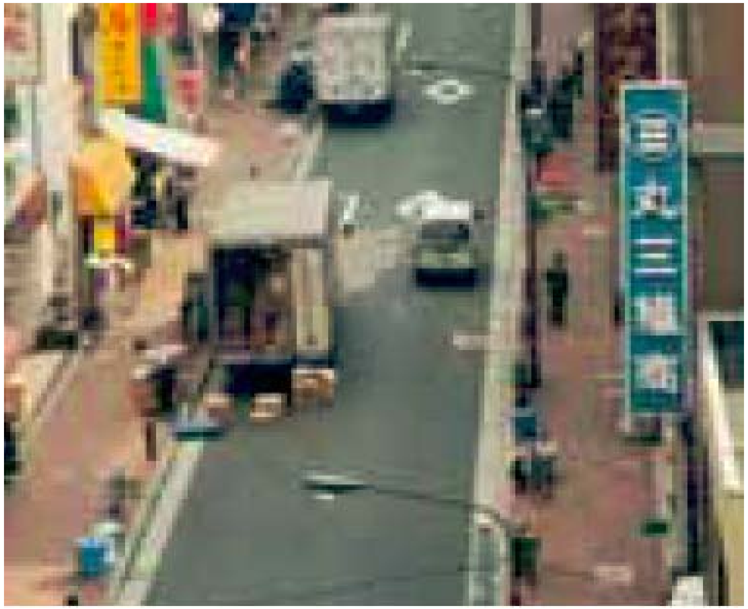

お知らせ
路上荷さばきスペース
10月10日(火)～11月30日(木)
平日 9時～17時
ご利用は、積下ろしの貨物車
駐車枠内・15分以内でお願いします。
社会実験推進協議会事務局 東京都 警視庁 建設省 渋谷区

The time sharing system between truck and passenger car

7:00～10:00 Delivery trucks	10:00～16:30 Passenger car	16:30～19:00 Delivery trucks
		



【before】



【after】

3. Advanced Surveys for Freight Transport

- Advanced SCM, growth of global companies request more efficient & effective transportation network.
  - → Not only suburban area (expressway, logistics park etc.), but also urban area (truck parking policy, urban logistics depot etc.)
  - → **Cooperation with public & private sectors !**

Deutsche Post
DHL
Goodman
UPS
ProLogis
AMB
AMB Property Corporation
Local partner to global trade.
NIPPON EXPRESS
GAZELEY
KWE 近鉄エクスプレス
Kintetsu World Express, Inc.
mapletree
logisticstrust

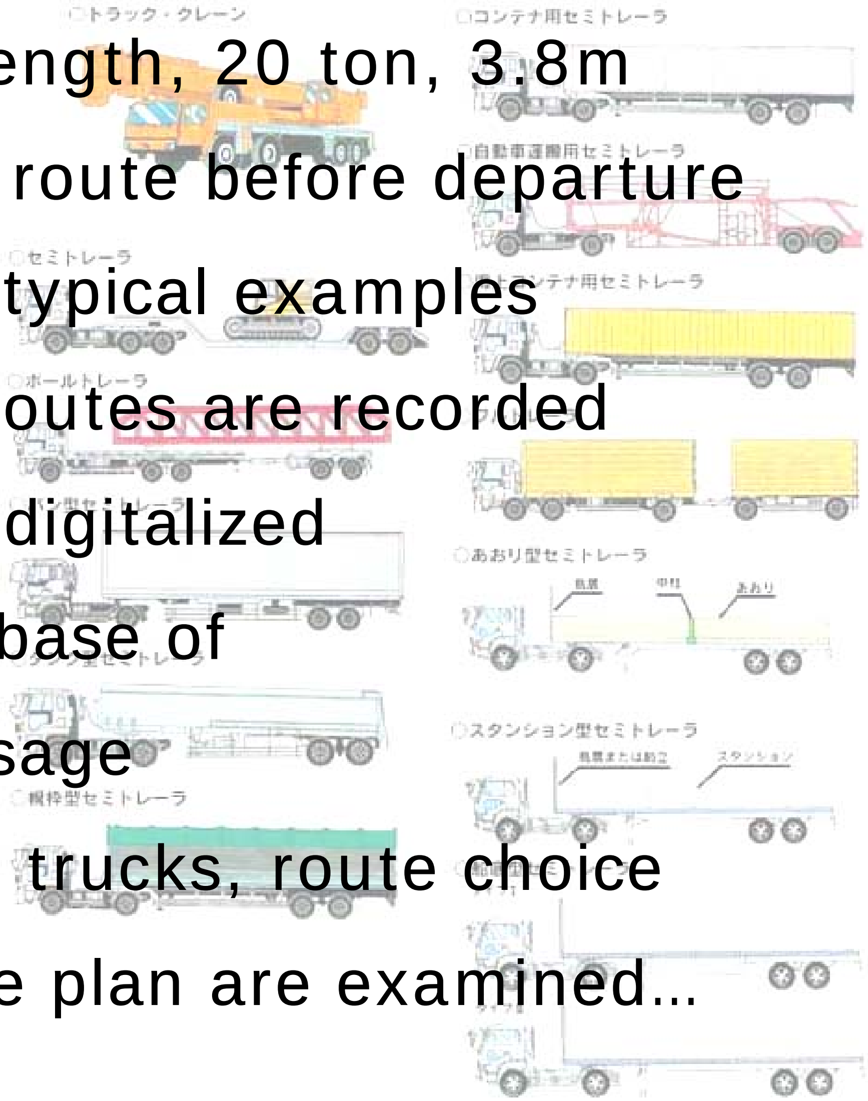
1) Truck Probe Database in Tokai Area

- Survey for measuring the effects of expressway fare discount in Tokai Area by MLIT
- Survey period: Oct. to Dec. in 2007
- 270 trucks were equipped GPS based recorder
  → Matching Digital Road Map in every few seconds

DEMONSTRATION for 5 weekdays

- Capturing characteristics of truck behavior
- Actual trip data for modeling (route choice etc.)
- Possibility for complementing conventional OD survey

2) Database of Digitalized Heavy Truck's Right of Passage


トラック・クレーン
コンテナ用セミトレーラ
自動車運搬用セミトレーラ
セミトレーラ
海上コンテナ用セミトレーラ
ポールトレーラ
あおり型セミトレーラ
鳥居
中柱
あおり
スタンション型セミトレーラ
スタンション
幌枠型セミトレーラ

- Every oversize trucks (12m length, 20 ton, 3.8m Height etc.) should apply the route before departure

  → 40 feet sea containers are typical examples
- Every year, over 1.2 million routes are recorded
- Recent application forms are digitalized

  → MLIT started to make database of the digitalized right of passage
- Bottleneck analysis for heavy trucks, route choice Analysis or road maintenance plan are examined...

Thank you for your attention

BIKES of
BURDEN
HANS KEMP
National Panasonic
Bach Viet
Electrolux