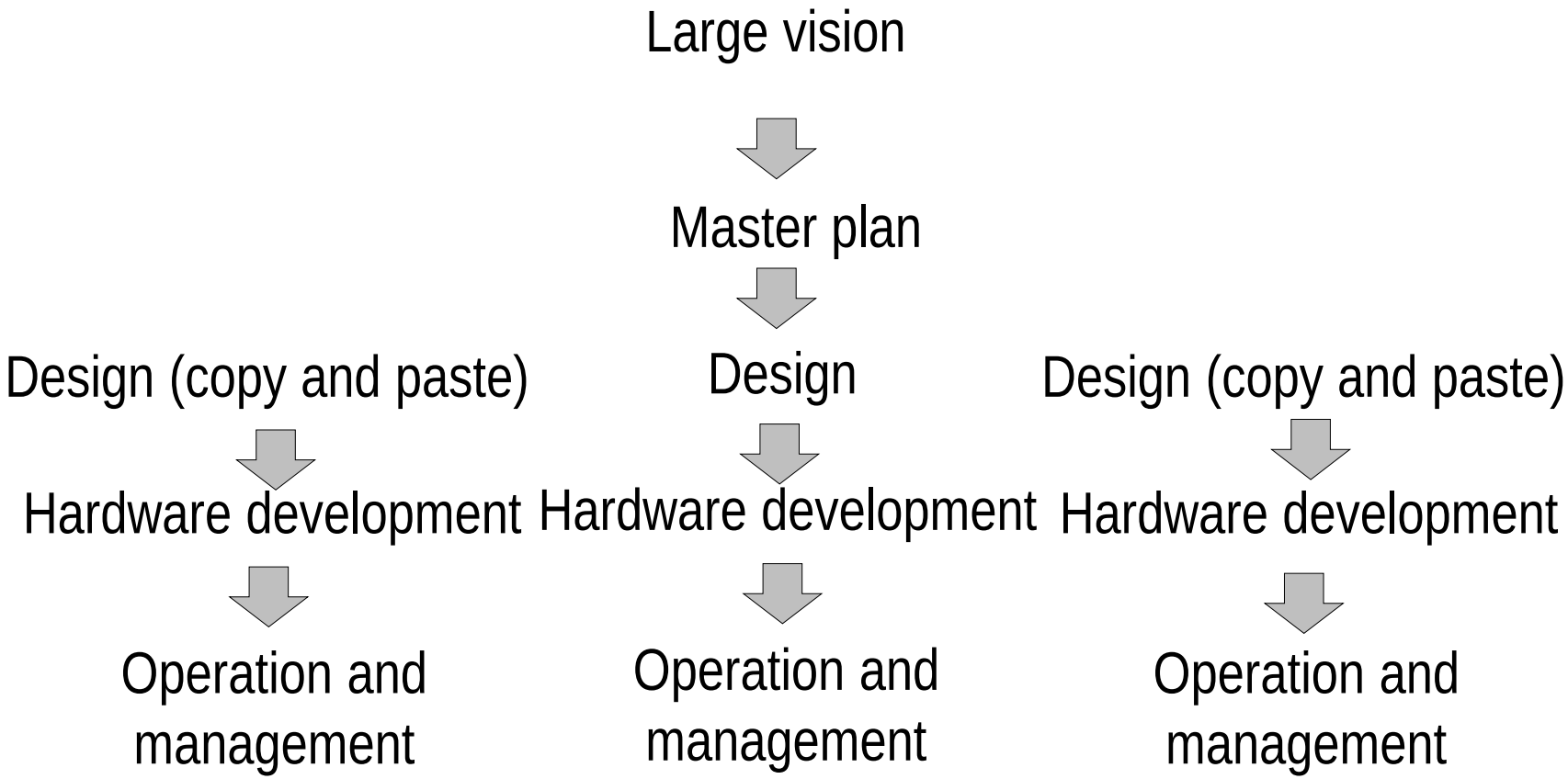
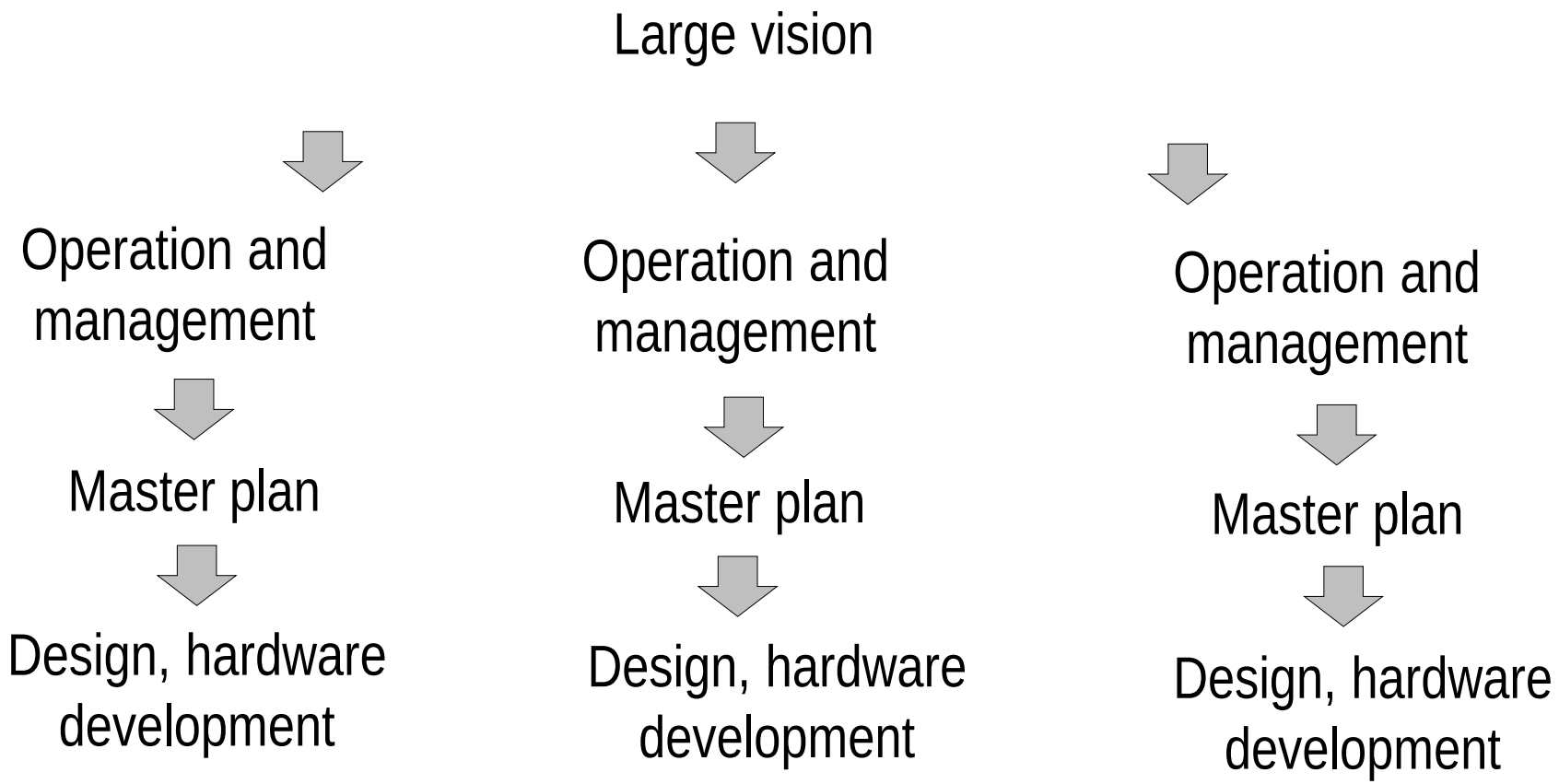
Translated by secretariat

# Priority Items in Road Traffic Safety Measures

## Large-scale project type / Standard mass production type



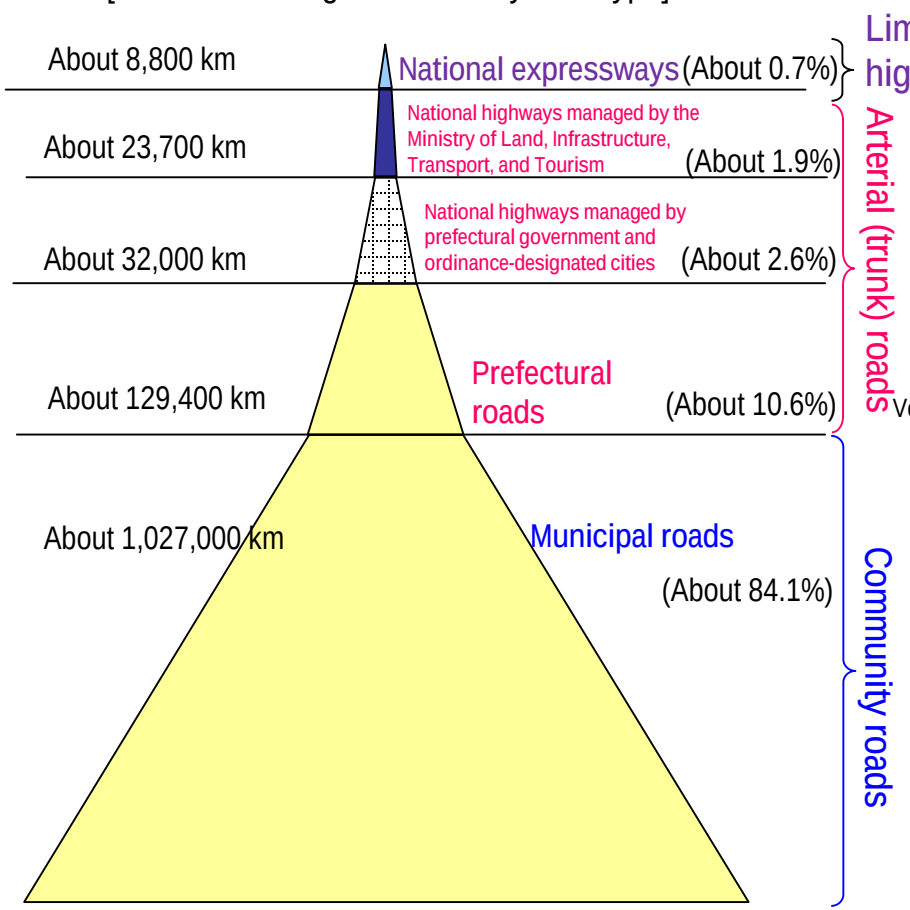
# Made-to-Order Type (Priority on Usage)



# Types of Roads

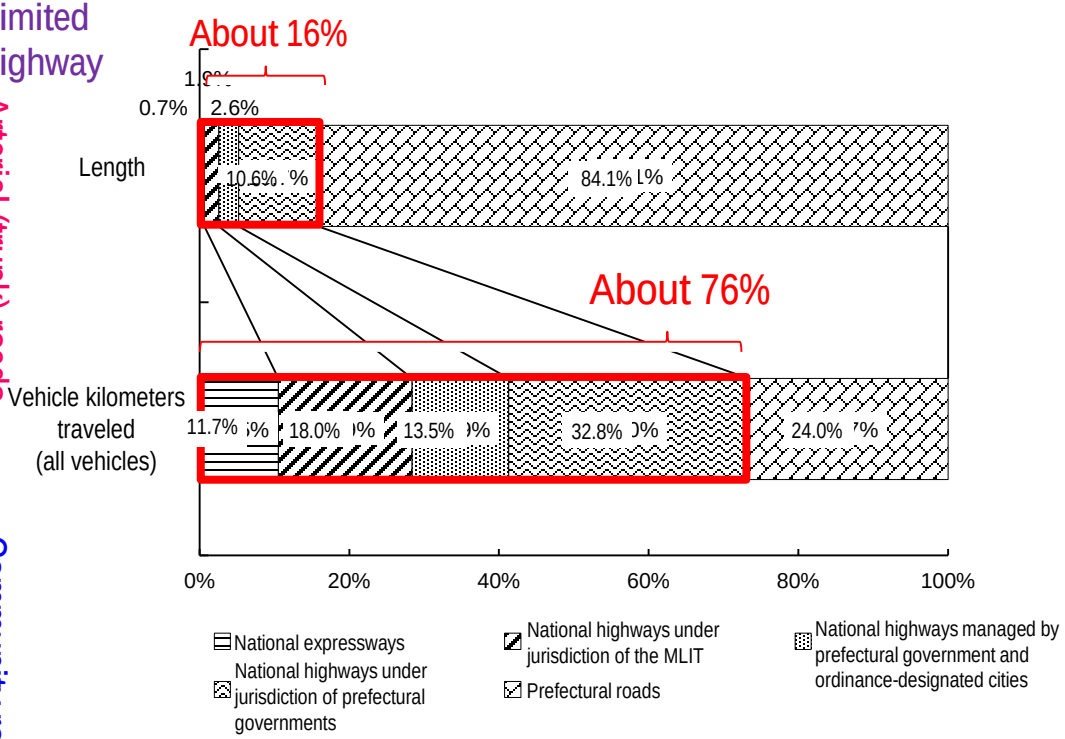
○ With regard to the maintenance and management of roads, roles are shared between the national government and local governments depending on the functions and roles of the roads.

[Ratio of the length of roads by road type]




Total of about 1.22 million km (100.0%)

[Road length and share of logistics, etc. by road type]

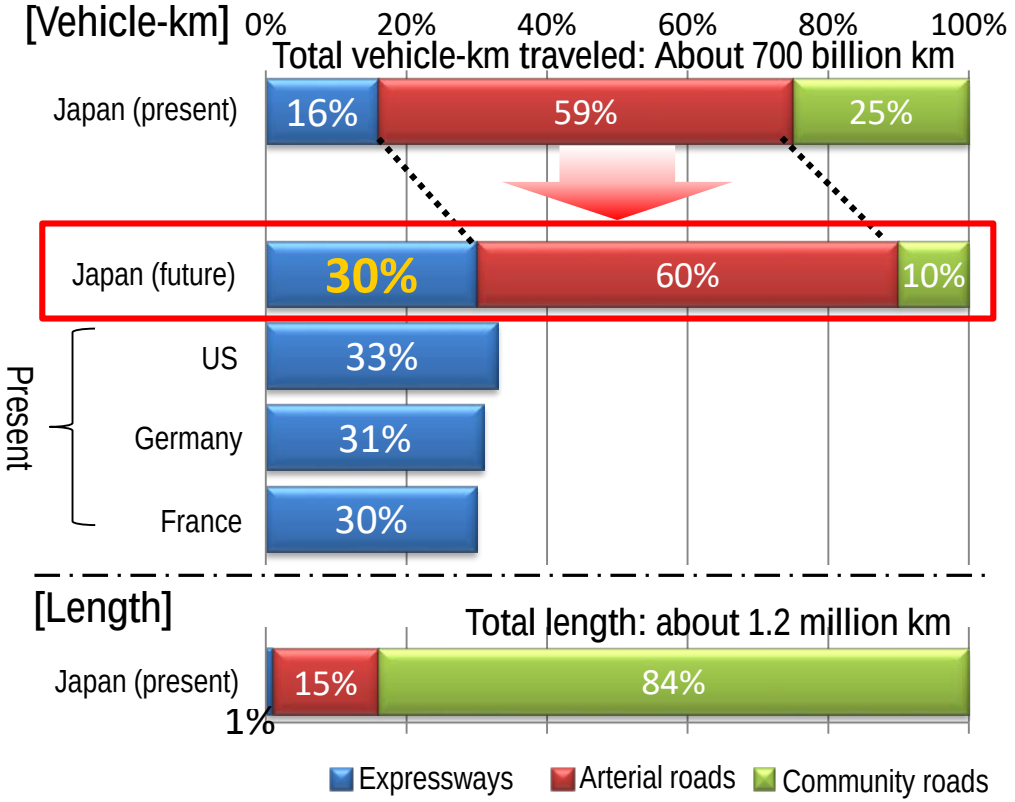



* Road lengths are as of April 2017 for national expressways, and as of April 2015 for others.

* Vehicle kilometers traveled are based on the “FY2010 Road Traffic Census.

# Effect of Increasing the Share of Expressways

- The share of expressways in Japan is low compared to those in Western countries.
- By raising the share to about 30%, which is the level in Western countries, the number of fatalities, fuel consumption, and congestion would be reduced.




## If the share of expressways is 30%

| | |
|---|---|
| Fatalities<br>2012: About 4,400 people | 600 people/year, down *1) |
| Injuries<br>2012: About 800,000 people | 200,000 / year, down *2) |
| Fuel consumed<br>2012: About 80 million kℓ | 4 million kℓ/year down *3)<br>(greater than the amount of automobile fuel used in one year in the four prefectures in the Shikoku region) |
| Loss due to congestion<br>2012: About 5 billion hours | 700 million hours/year down *4)<br>(An increase by 1.5 trillion yen/year in terms of the economic effect) |

## Case example of a high-performance expressway

The rate of fatalities and injuries on the expressway is one-tenth of that on ordinary roads.

Source)
Japan: Road Traffic Census,
Annual Report on Car Transport Statistics (2010)
US: Highway Statistics 2011 (excluding Puerto Rico)
France: Faits et Chiffres
Germany: Verkehr in Zahlen

Definition of expressway)
Japan: Arterial high-standard highway
urban expressway, and regional high-standard highway
United States: Interstate and other freeways and expressways
France: Autoroute, Route nationale interurbaine à caractéristiques autoroutières
Germany: Autobahn

Calculation method)

*1, *2: The reduction effect when there is a change in the share ratio was calculated by calculating the basic unit from the actual values of fatalities and injuries per vehicle kilometers on expressways and ordinary roads.
*3: The reduction effect when there is a change in the share ratio was calculated by setting the basic unit for each type of road from the $CO_2$ emission coefficients for different traveling speeds of vehicles.
*4: The reduction in time when there is a change in the share ratio was calculated by calculating the basic unit from the loss time due to congestion per vehicle kilometer for expressways and ordinary roads. The economic effect was calculated by multiplying the reduction in time by the labor productivity in Japan (per capita GDP divided by average working hours) and the ratio of workers

# Overview of “Emergency Traffic Safety Measures for Preschoolers and Other Children as well as Elderly Drivers”

- In the wake of such events as the fatal traffic accident that occurred in Otsu City on May 8, 2016, a meeting of relevant ministers was held concerning traffic safety measures in consideration of the recent situation of accidents, and “Emergency Traffic Safety Measures for Preschoolers and Other Children as well as Elderly Drivers” was compiled.
- With regard to “ensuring the safety of routes used by children in groups, especially preschoolers,” the measures are closely related to the reduction of fatal accidents involving those walking or riding bicycles on community roads.

■ Outline of “the “Emergency Traffic Safety Measures for Preschoolers and Other Children as well as Elderly Drivers”

## 1. Ensuring the safety of routes used daily by children in groups, especially preschoolers

(1) Conducting emergency safety checks of routes used daily by children in groups, especially preschoolers
(2) Promotion of the development of a road traffic safety environment to ensure children’s safe passage
(3) Measures, etc. to watch over children by the whole community
(4) Joint inspection of elementary school commuting routes

## 2. Further promotion of measures to support safe driving by elderly drivers

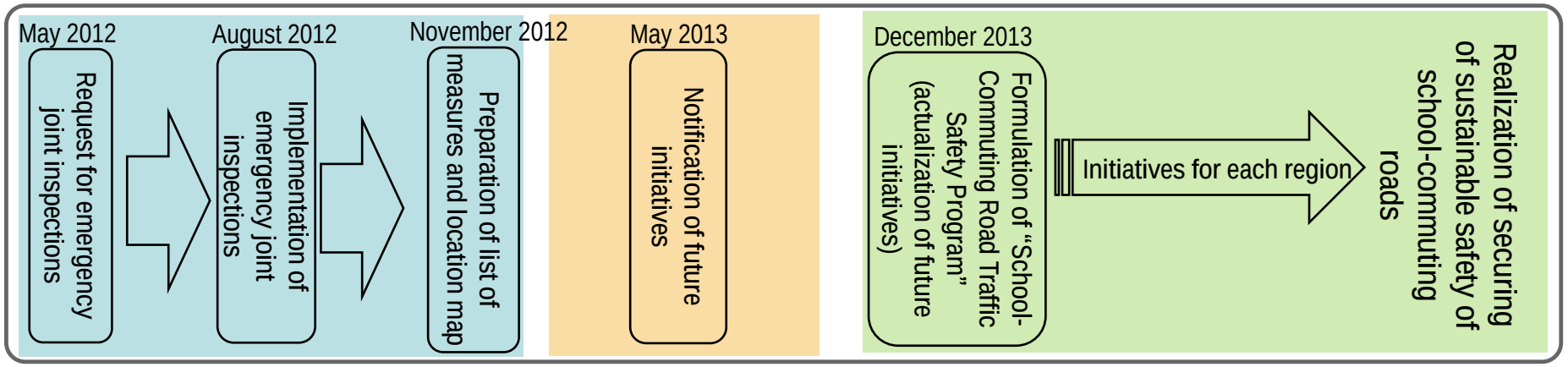
(1) Promotion, etc. of safe driving support vehicles
(2) Support for elderly people, etc. who feel anxiety about driving
(3) Construction of a road environment that is friendly toward elderly drivers

## 3. Enhancement of measures to support daily life that involves the mobility of elderly people

(1) Flexible use of public transportation
(2) Enhancement of transportation services in areas beyond the boundaries of the system
(3) Practical application of new means of mobility utilizing new technologies such as automated driving technology

etc.

# Framework of School-Commuting Road Traffic Safety Program Continuously Developed Since 2012




May 2012
Requests from the national government (simultaneous nationwide inspection)

May 2013
Notification of continuous initiatives

December 2013
Notification of formulation of school-commuting road traffic safety program

[Description of the program] * Programs formulated by each municipality

(1) Creation of a promotion system
(Already created in 1,680 municipalities (about 96% of municipalities throughout Japan))
* As of the end of FY2017
(2) Periodic joint inspection implementation policy
(3) Improvement/enhancement of the measures through grasping of the effects, etc.

Implementation of emergency joint inspections

- Emergency joint inspections
- Drafting of measures
- Implementation of measures

Situation of implementation of measures by road administrators

Number of locations for implementing measures: 45,060
Number of locations where measures have already been implemented: 42,850 (About 95%)
* As of the end of FY2017

- Promotion of continuous initiatives such as the implementation of joint inspections
- Creation of a promotion system

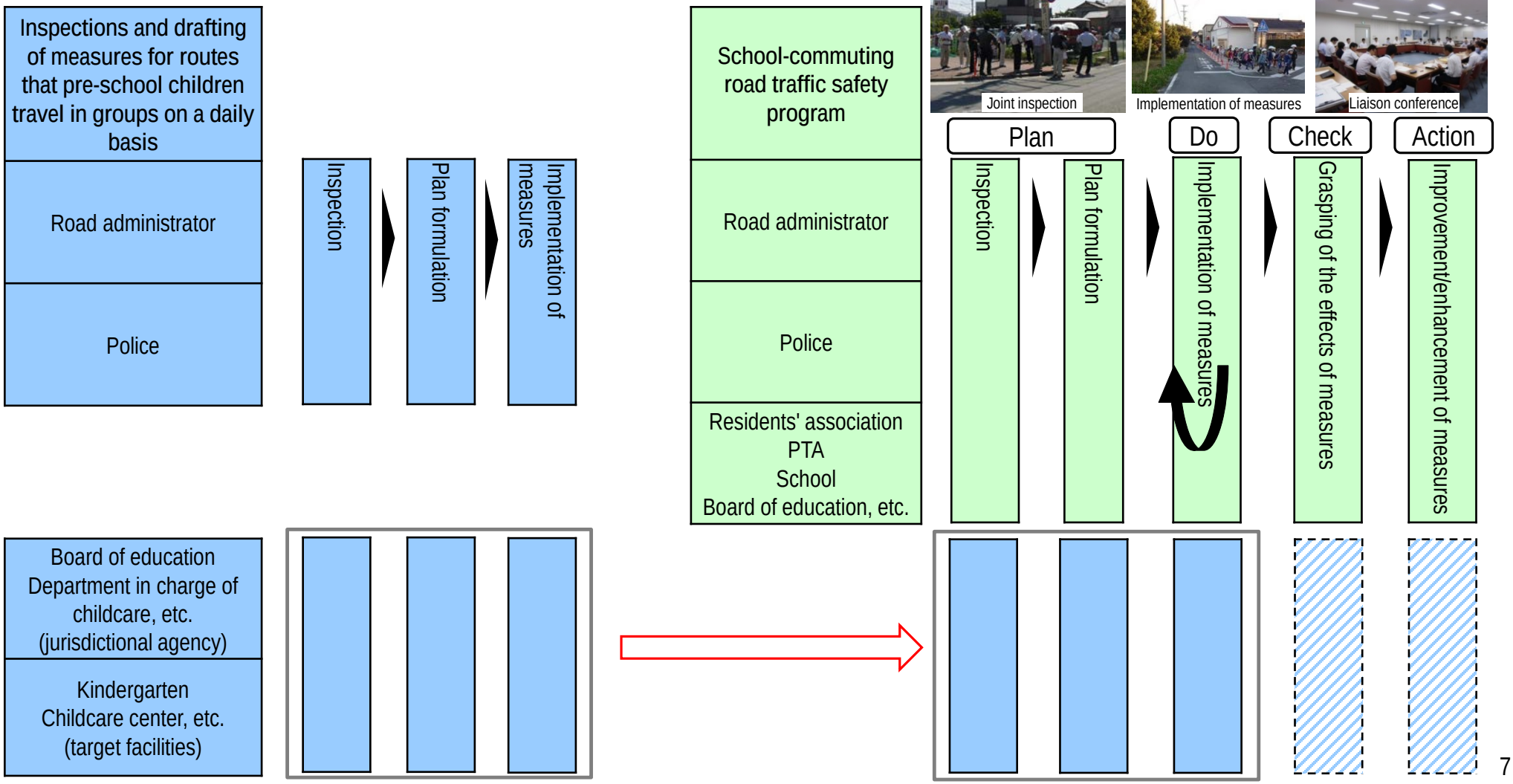
Implementation of periodic joint inspections

- Periodic joint inspections
- Drafting of measures
- Implementation of measures

Improvement/enhancement of the measures through grasping of the effects, etc.

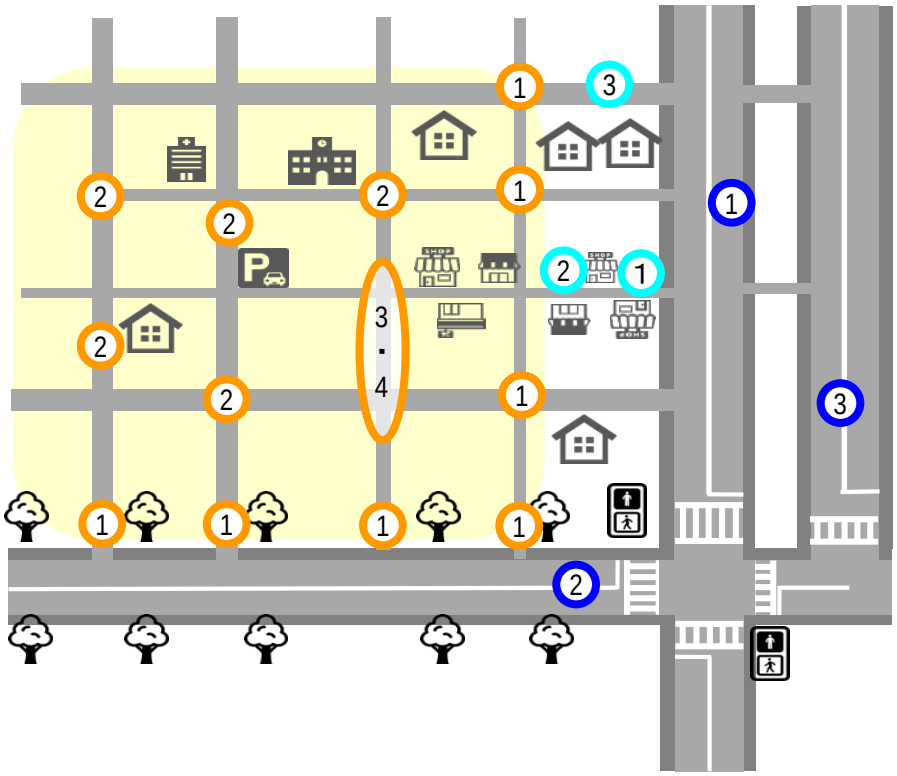
# Utilization of the School-Commuting Road Traffic Safety Program Promotion Framework

- The school-commuting road traffic safety program promotion framework, which consists of road administrators, the police, boards of education, schools, PTA, etc. has been developed at about 1,700 local governments nationwide.
- If relevant officials of agencies having jurisdiction over the boards of education, departments in charge of childcare, etc. and target facilities such as kindergartens and childcare centers are added to this framework, it would be possible to implement effective measures including efficient implementation of inspections and measures over a broad area.



# List of Measures To Be Implemented Proactively by Road Administrators

Areas for community road measures / 30 km/h zones




## II. Area (areal) measures

(1) Measures to make entrances difficult to enter
Example: Smooth sidewalks and rising bollards

(2) Measures to suppress traveling speed
*Examples: Humps, curb extensions, chicane, and block pavement*

Smooth sidewalks

Rising bollards

Hump

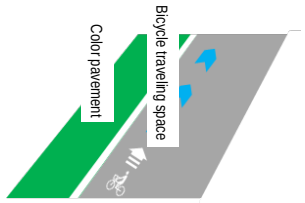
Curb extension

(3) Measures to secure pedestrian space
Examples: Protective fences, road shoulder color pavement

Protective fence

Road shoulder color pavement

(4) Measures to prioritize securing of pedestrian/bicycle spaces




(Image)

## I. Localized measures

Example of measures: (1) Installation of protective fences, (2) separation of pedestrian and bicycle usage spaces, (3) removal of electricity poles and laying power lines underground, etc.

● Example of separation of pedestrian and bicycle usage spaces

Before development

After development

● Example of removal of electricity poles and laying power lines underground

Before development

After development

## III. Measures for arterial roads

Examples of measures: Widening of lanes / development of sidewalks, (2) installation of right turn lanes, (3) development of bypasses, etc.

● Example of widening of lanes / development of sidewalks

Before development

After development

● Example of installation of right turn lanes

Before development

After development

# Area Measures (Areal Traffic Safety Measures) – 30 km/h Zones / Areas for Community Road Measures –

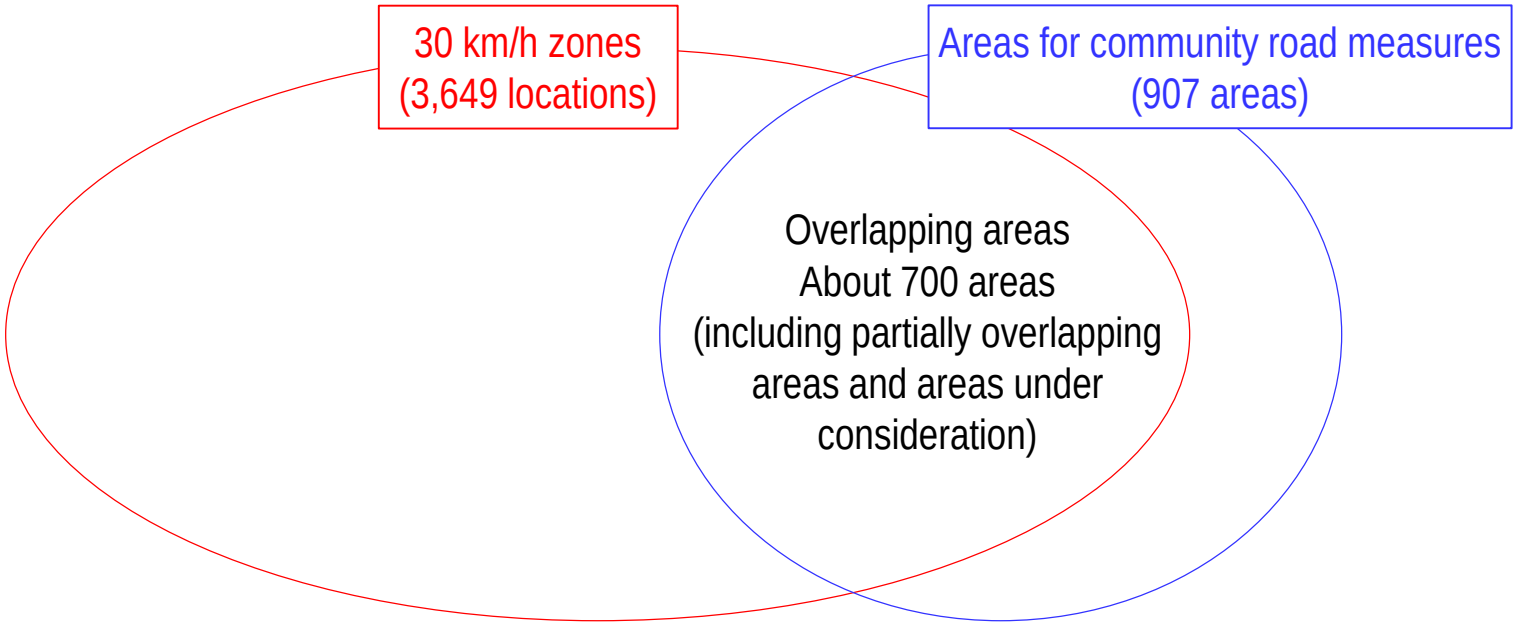
■ 30 km/h zones [Police] (FY2011 and onward)

- Designating a zone and enforcing a maximum speed limit of 30 km/h.
- Other road safety measures (selective measures) are combined as necessary to reduce speeds on community roads and suppress vehicles that pass through these roads as a shortcut.

■ Areas for community road measures [road administrators] (FY2016 onward)

- Implementation of measures for zones and road sections as road administrators, such as installing humps, curb extensions, and other physical devices
- Collaboration with police traffic regulation and guidance/control (consistent with areas designated as 30 km/h zones or areas under consideration for designation as 30 km/h zones)
- Technical support by national road offices, etc. having jurisdiction over the area (provision, etc. of route information such as speed and use as a shortcut, etc.)

Situation of initiatives in measures for 30 km/h zones and community roads



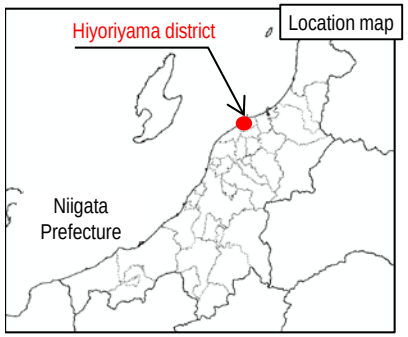

As of the end of FY2018

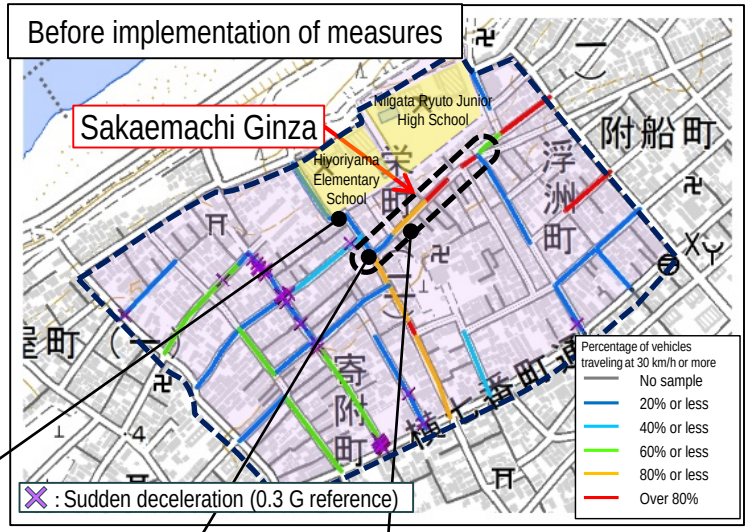
# Initiatives in “Areas for Community Road Measures” and Jurisdictional Support (Provision, etc. of Big Data)

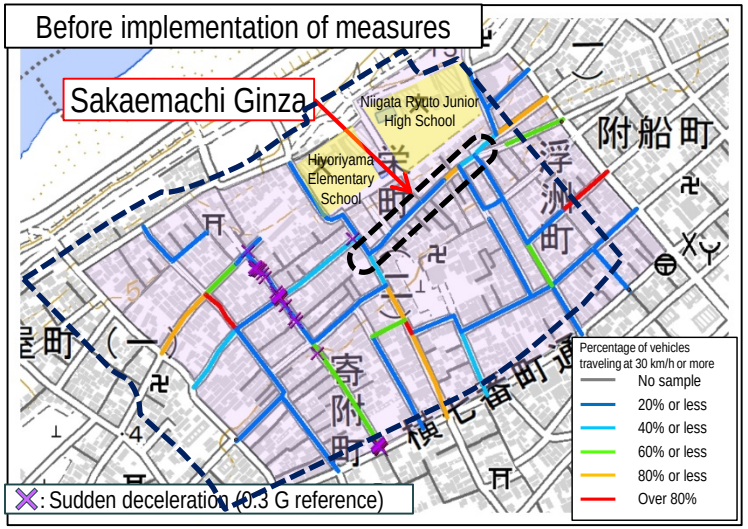
Niigata City Hiyoriyama Elementary School

- In the priority measures section (Sakaemachi Ginza), speed-suppressing measures have been implemented because more than half of vehicles passing through this section exceed the speed limit. (Installation of curb extensions and road surface color pavement)
- Measures to suppress entry of passing traffic have been implemented because there is a lot of passing traffic during the school-commuting hours on weekday mornings. (Rising bollards and smooth sidewalks)
- In the priority measures section, the percentage of vehicles exceeding the 30 km/h speed limit has been reduced by 45 percentage points, and a significant speed suppression effect has appeared.

## Results of big data analysis




## Situation of development

Development of smooth sidewalks


Installation of rising bollards

Implementation of curb extensions and color pavement

## Effects of development

| | Percentage of vehicles exceeding 30 km/h speed limit | | Average speed | | Situation of occurrence of sudden deceleration | |
|---|---|---|---|---|---|---|
| | Entire area | Sakaemachi Ginza | Entire area | Sakaemachi Ginza | Frequency | Percentage of generated trips |
| Before implementation of measures | 25.2% | 73.8% | 17.6km/h | 34.0km/h | 114 times | 13.2% |
| Before implementation of measures | 22.7% | 28.6% | 18.2km/h | 22.7km/h | 84 times | 9.5% |
| | (- 2.5 %) | (- 45.2 %) | (+0.6 km/h) | (-11.3 km/h) | (-30 times) | (-3.7 %) |

[Source] 1. Log point data: ETC 2.0 probe data (percentage of vehicles exceeding 30 km/h speed limit) [Before implementation of measures] April-June 2016, [After implementation of measures] April-June 2017 (Sudden deceleration) [Before implementation of measures] April-June 2016, [After implementation of measures] April-May 2017
2. Background map: Geospatial Information Authority of Japan

# Case Example 1 Consensus Building on Area Measures (Areal Traffic Safety Measures) in the Niigata City Hiyoriyama Elementary School District

- On the occasion of changes in school-commuting roads due to the consolidation/relocation of four elementary schools, the schools, police, the national government, municipal government, etc. collaborated and held workshops on traffic safety measures for school-commuting roads.
- In the workshops, Niigata City and the International Association of Traffic and Safety Sciences (IATSS) played the role of facilitators.

Workshop participants

- Hiyoriyama Elementary School
  Niigata Ryuto Junior High School
- Traffic Safety Promotion Council
  Hiyoriyama Safety Staff
- Hiyoriyama Elementary School PTA
- Community Council (four districts)
  Related residents' associations
- Ministry of Land, Infrastructure, Transport, and Tourism
  Niigata Prefectural Police
- Secretariat
  Niigata City
  International Association of Traffic and Safety Sciences

School-commuting road within area for countermeasures


Hiyoriyama Elementary School new school building
(from April 2017)

● Priority measures section: Municipal road in front of Hiyoriyama Elementary School (common name: Sakaemachi Ginza)

Former Minato Elementary School
(42 students)

Former Sakae Elementary School
(76 students)

Former Irifune Elementary School
(209 students)

Former Toyoteru Elementary School
(53 students)

: Community Road Measures Area (30 km/h zone)

Hiyoriyama Elementary School former school building
(April 2015 to March 2017)

Niigata Municipal Hiyoriyama Elementary School opened in April 2015 following the consolidation of four schools: Toyoteru Elementary School, Minato Elementary School, Sakae Elementary School, and Irifune Elementary School.

* Number of children at each school: As of May 1, 2014

# Examples of Measures Premised on the Promotion of Consensus Building in the Local Community

■ With regard to initiatives in the local community that are considered to be good examples, local government officials and experts play roles (facilitators, etc.) in coordinating consensus building.

| Measures (names of laws, plans, etc.) | Government ministry/agency having jurisdiction | Description of consensus building in the local community that is to be the premise to implementing measures | Case examples | Coordinator |
|---|---|---|---|---|
| Community road measures area (areal traffic safety measures) | Ministry of Land, Infrastructure, Transport, and Tourism | Area and time for implementing measures for speed reduction and entry suppression, as well as the locations, etc. for installing humps, rising bollards, etc. to that end | Hiyoriyama District (Niigata City) | City/Academics |
| | | | Higashi-Hatsutomi district (Kamagaya City) | City/Academics |
| Street space reconstruction/utilization | Ministry of Land, Infrastructure, Transport, and Tourism | Reallocation of road space to create bustling activity | Shinmon Street (Izumo City) | City/Academics |
| | | | Shijo Street (Kyoto City) | City/Academics |
| Facility management (formulation of comprehensive management plans for public facilities, etc.) | Ministry of Internal Affairs and Communications | Optimal arrangement in local communities to respond to the aging, etc. of public facilities | Katahigashi district (Niigata City) | City, etc. |
| Location normalization plan | Ministry of Land, Infrastructure, Transport, and Tourism | Compact community development that will enable sustainable urban management, etc. amid progressive population decline and aging | Toyama City | City/Academics |
| Earthquake / heavy rain countermeasures (district disaster planning system) | Cabinet Office | (mutual assistance in the local community) voluntary disaster prevention activities conducted by district residents, etc. | Ochiai District (Osaka-cho, Gero City) | City/Academics |
| Crime prevention measures (plans for preventing crime during school-commuting hours) | Cabinet Office | While there is a limit to conventional “mimamori (watch over children carefully)” activities, not only will the activities that have so far been conducted primarily by the elderly generation made more efficient and vitalized but also new entities shall be encouraged in a way that there will be little burden on the individual, thereby widening the base for “mimamori” leaders. | Nagara Mimamori (watching over children carefully while doing other things) (Kumatori-cho, Osaka Prefecture) | Police, PTA, etc. |
| Area management | Ministry of Land, Infrastructure, Transport, and Tourism | Proactive initiatives by residents, business operators, landowners, etc. for maintaining/improving a good environment in the local community and the value of the local community | We Love Tenjin Council (Fukuoka City) | City/Academics |

Case example 1

Case example 2

Case Example 2

# Study of Road Space Reallocation on “Shinmon Street” in Izumo City [Road Space Reconstruction/Utilization]

- On the occasion of “Heisei Great Sengu (a ceremony in which the enshrined deity is moved to a temporary shrine building)” at the Izumo Taisha Honden (main hall) in 2013, the Shimane Prefectural Government and the Shimane Municipal Government conducted studies on regenerating the street with a dignity and bustling atmosphere appropriate of a street in front of the gates of Izumo Taisha Shrine and implemented relevant measures in cooperation with local residents, etc.
- A workshop was held to listen to the opinions of local residents, roadside stores, etc., and studies were conducted on both securing the convenience of community roads for roadside residents and creating bustling activity and ensuring safety for tourists.

Before implementation of measures

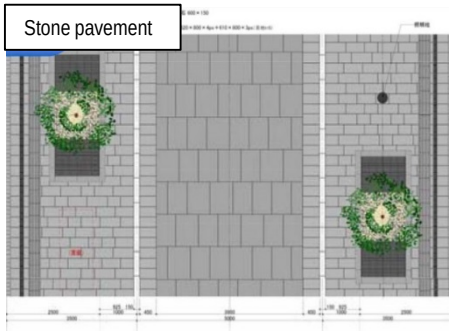
After implementation of measures

## ■ Shared space / stone pavement

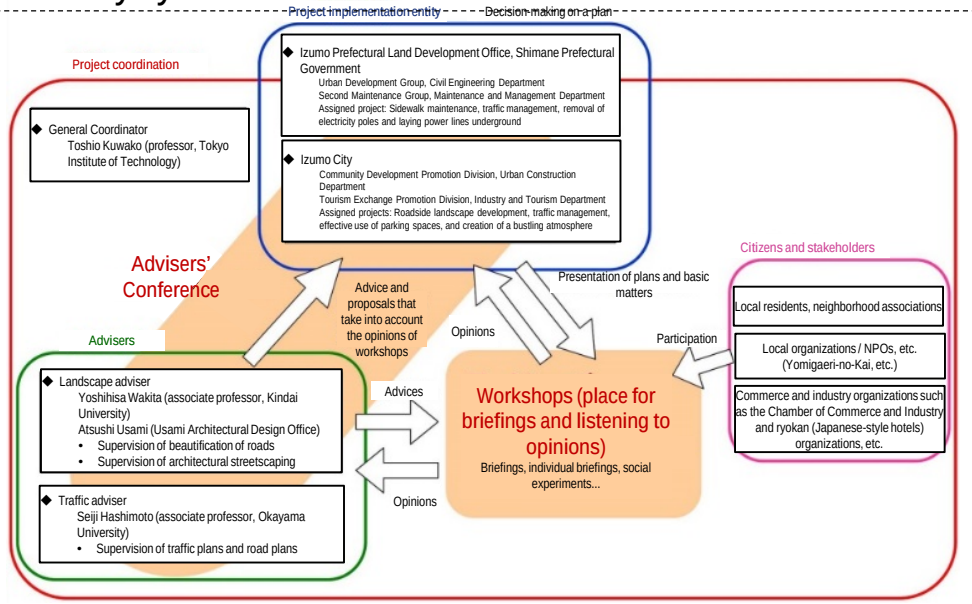
The width of the roadway was narrowed while erasing the center line, and the width of the roadside strip was expanded.

A visual countermeasure that made the width of the roadway appear narrow was implemented by using different methods of laying the stone paving for the roadside strip and the roadway and having the roadside strip pattern extend out toward the roadway.


Stone pavement



## ■ Study system



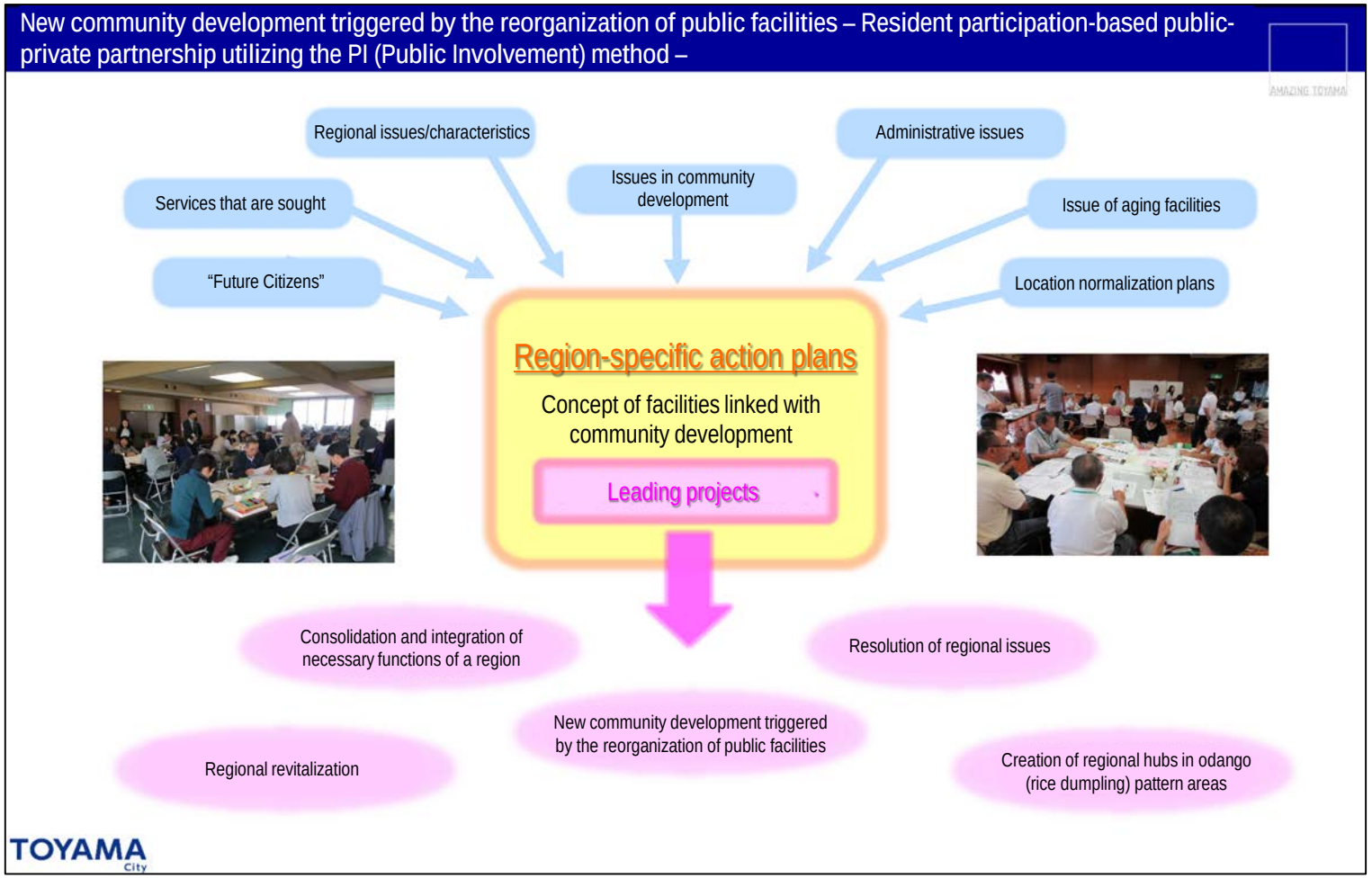

[Scene of a workshop]

[Scene of a workshop]

# Comprehensive Consensus Building Framework for Various Issues in the Local Community

■ There is a method of positioning local government officials and facilitators upon creating a consensus building framework for each policy objective, but with regard to the framework for consensus building to resolve other policy issues confronting the local community, it is also effective to encourage discussions on issues with high affinity, such as new ways to use road space for improving safety in the local community and creating bustling activity.

Example 4 < Example: Creating a region-specific action plan in Toyama City >




(Source) Materials prepared by Toyama City