Cross-ministerial Strategic Innovation Promotion Program (SIP), 3rd Term

Development of Smart Mobility Platforms

Development of a technology and policy package for redesigning urban road traffic

March 2026

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Japan Institute of Country-ology and Engineering

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1. Overall study themes of the program

1.The vision, the goal strategy, and the kind of community the program aims at building

■ The vision and the goal strategy of the “Development of a technology and policy package for redesigning urban road traffic” program

Vision

Create a study environment based on theory and data

Provide data-based scientific evidence to validate the target technologies.

Study feasible actions and put them together into a policy package

Create a package of everything necessary for action-taking, including legal system design and processes, policy implementation methodology and key points.

Assist entities to take action

Engage with various entities in multifaceted manner to help them take proactive action.

Organically combine the three approaches to **support the effort** of governmental organizations and municipalities

Goal strategy

Municipalities

Proactively identify and analyze issues to improve small urban roads, backed by positive consensus of the local community.

To assist

Governmental organizations
(MLIT, National Police Agency, other relevant entities)

Drive various measures related to small urban roads.

Community we aim to build (tentative)

Children can walk to school safely and easily unattended by adults.

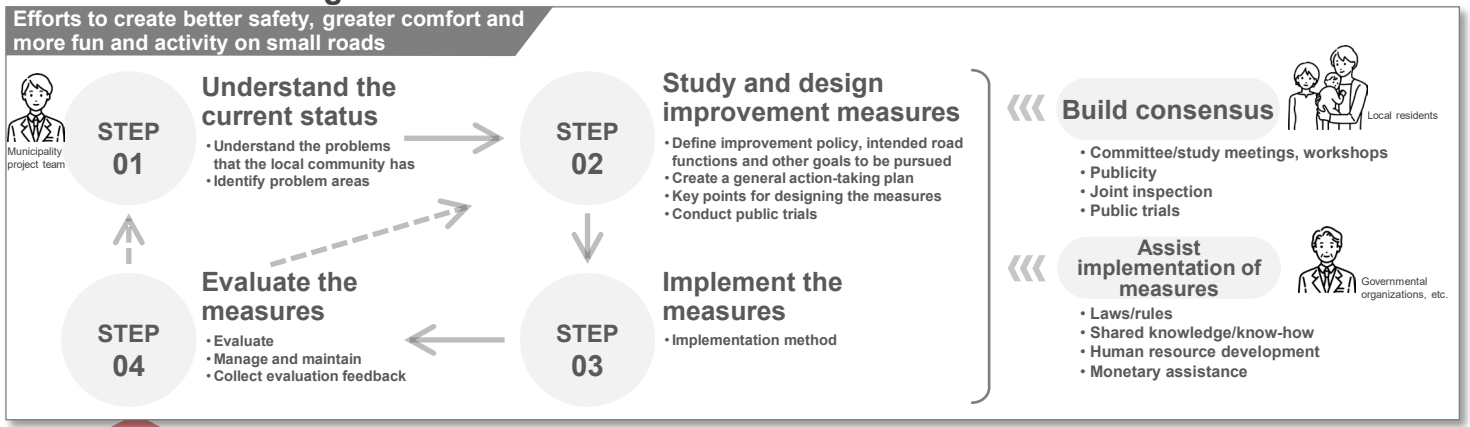
Residential roads provide the backbone of local community of people.

Small roads constitute a publicly shared space where people come to visit and enjoy.

*Other keywords: Lingering and resting, Zone 30, vehicle entry restriction, barrier-free design, in-area mobility …

2.Study and development goals (outcome to be pursued)

– Typical flow of action-taking –



[Benefits and value to be provided]

"Zero traffic accidents on small roads"

- Understand the current status and issues in effective manner.
- Implement measures and take action in productive way.
- Encourage the field teams to make speedy decisions.
- Assist smooth consensus building and seamless administrative process.

Clearly define the project and what action to take, who will be the user and how the outcome can be used.
Standardize the usage to facilitate public implementation (and proliferation).

<Deliverable>
Policy Package Implementation Guide (tentative)

<End users>
Governmental organizations and municipalities

- Include everything required for action taking, including **how to apply the developed technologies and theories, what thinking approach is called for and how to plan usage detail.**
- **Nationwide promotion of traffic safety improvement and urban road network planning with greater use of digital tools**

[Expected outcome]

Policy package to assist governmental organizations to take proactive action

- To be used for (examples):
- **School road improvement projects**
- **Zone 30** and **Zone 30 Plus** programs
- **Accident blackspots improvement projects,** etc.

- Action-taking entities (examples)
- **Basic local municipalities**
  (and other road administration entities)

Present technical evidence to assist smooth implementation of a legal speed limit of 30 km per hour

<End users>
Governmental organizations

- **The Order for Enforcement of the Road Traffic Act is being revised to specify that "the speed limit on all roads without centerline shall be 30 km per hour".**
- In some cases, **concerns are raised about impacts on the existing road function and gaps from the actual community situation.**

[Outcome to be pursued]
- Currently no **database of roads without centerline exists**. Study is called for to discuss **how such database can be actually created.**
- **Conduct a situation analysis to facilitate** implementation of the legal speed limit of 30 km per hour.
  * Alternative suggestions are raised to specify the speed limit implementation scope to "roads narrower than 5.5 m" or to areas outside urban planning zones.
- Aim at establishing a **fully feasible implementation and evaluation framework.**

Create plans to provide a "Japanese-style" shared space within small road network implementation area

<End users>
Governmental organizations

- **Realize a pedestrian-and-vehicle joint use road network by providing a new road category and defining its structure and traffic management rules. [goal]**
- **Aim at creating a complete action-taking scheme where the legal system is clearly defined and feasibility is warranted.**

3.Goal strategy toward successful social implementation (roadmap)

POINT

Collaborating with Sub-topic III (provision of accident risk alerts and signal information) can create a **synergy to drive nation-wide implementation.**

POINT

As this program primarily works with nationwide data, **greater implementation of** it can be anticipated if conducted as Sub-topic IV **JMDS use cases.**

Maturity of mobility services XRL

Prepare for social implementation trials

*XRL at hypothesis validation & conceptualization phase

- Propose to define **a new urban road category.**
- **NW placement scheme with pedestrians added.**
- Validation analysis result
  - ➔ Provided as insight to assist **Order for Enforcement of the Road Traffic Act revision.**
- Create a **nationwide road traffic database**
- Basic design of **visualization & tallying tools** + **urban road SIM.**
- Create "version zero" of the **Guidebook.**
- Identify **system- and rule-related issues.**

Complete these steps before the stage gate phase.

Social implementation trials in limited areas

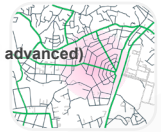
*XRL at target technology identification phase

Identify realistic target technologies in various regions and **start evaluation using digital sand boxes.**

Policy Package Implementation Guide (tentative)

- **Complete the rough draft before the stage gate phase.**
- In parallel to rough draft preparation, **try the package out in two-city model areas** to collect **feedback**.

City A (urban and advanced)



City B (suburban and standard scale)

Present technical evidence to support smooth implementation of 30 km-per-hour legal speed limit.

To be implemented in September 2026

Create plans for a "Japanese-style" shared space within small road network implementation areas.

Collaborate with JAPIC activities

Nationwide implementation

*XRL at social implementation commencement phase

- Create roads and communities that offer better safety, greater comfort and more fun and activity.
- Provide technical, system-wise and business-building **recommendations, and also start social implementation trials in early adoption areas.**
- Aim at **concrete realization of the goal strategy.**

Spread implementation across the nation

- To make the package ready to be applied to school road improvements and Zone 30 projects, clarify more advanced policy detail including categorization and handling of special cases.
- Provide a Guide (tentative) that can be flexibly applied under various conditions.

Proliferation to various areas across the nation

*XRL at social implementation proliferation phase

- Spread the network of roads and communities that offer better safety, greater comfort and more fun and activity.
- **Spread the social implementation wider and guarantee sustainability.**
- **Export the project services outside Japan.**

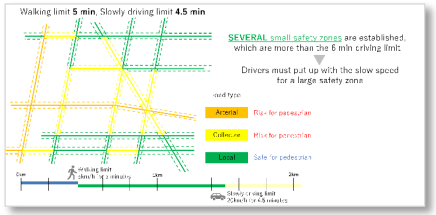
POINT **Interact with related organizations from the preparation phase**: Share the study result and discuss coordination with related policies, etc.

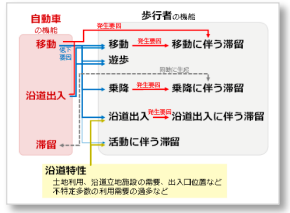
Up to FY 24 (SIP symposium in Japan on June 5) | Stage gate (FY25) | At the end of SIP (FY27) | After the end of SIP (FY 28 and thereafter)

4.Apply the study result to social implementation trials

Develop urban street network planning scheme

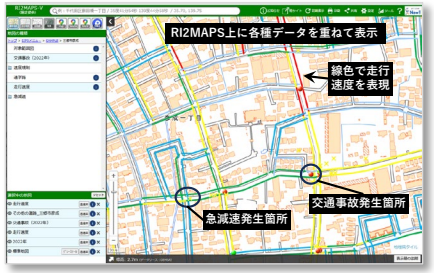
- Consider incoporating the perspectives of pedestrians, cyclists, and public transit users alongside automobile riders in a functionally hierarchical street network.
- Discuss the street configurations and the parameter settings to identify the optimal pedestrian-protected zones.





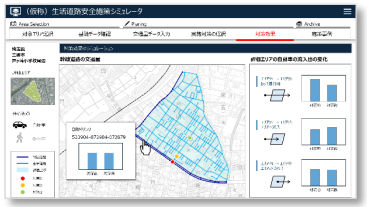
Understand the current status and build a policy monitoring system

- Build a database and a sustainable platform that are designed well enough for use by municipalities.



Create a digital sand box

- Develop a virtual evaluation system and identify evaluation metrics from the pedestrian and other relevant perspectives.
- Develop a traffic simulator technology that allows evaluating planar traffic flows (inbound flows to and outbound flows from the area, travel speeds).



Small road safety improvement action-taking scenario

This scenario can be applied when implementing projects like **Zone 30 Plus or Joint inspection of school roads.**

STEP 00 Start working

- Build the system.
- Establish means of communication.
- Select target area(s).

STEP 01 Understand the problems that the local community has

- Understand the problems that the local community has.
- Identify problem areas.

STEP 02 Discuss and design improvement measures

- Define improvement policy, intended road functions and other goals to be pursued.
- Create a general action-taking plan.
- Key points for designing the measures
- Conduct public trials.

STEP 03 Implement the measures

- Implementation method

STEP 04 Verify resolution of the problems

- Evaluate.
- Manage and maintain.
- Collect evaluation feedback to review and improve the plan.

Provide specific safety improvement recommendations and bring them to social implementation trials

- Think about the best spatial interval of speed limiting measures and where they should be placed.

■ハンプ２基の場合

	推奨度	
d	☆☆☆ (☆☆☆☆☆)	道路の入口で注意を促すとともに、出口交差点での一時停止や徐行を促すことができる。道路区間の問題が小さい場合は、☆4つ半に相当する。
e	☆½	道路区間における速度抑制が期待できる。2つ目のハンプとの間隔が50m以上になると再加速音を生じやすい。道路区間の2つ目のハンプを越えた地点で再加速音が生じる恐れがある。
f	☆	最初のハンプに高速で進入する恐れがあり、騒音・振動が発生する恐れがある。また、2つ目のハンプとの間隔が50m以上になると再加速音を生じやすい。

Make sure that the plan is socially acceptable and ready for collaboration and that necessary rules are defined

- Work with relevant governmental bodies to create a guidebook to be used as a basis to review and improve small roads.
- Obtain real-world and virtual results to provide a recommendation package toward legal system revision.

Recommend useful systems and rules

- Identify themes to review and improve governmental and ministerial ordinances, enforcement orders, notifications and guidebooks.
- Provide recommendations (proposals) about how to review and improve existing systems and how to implement the policy package.

2. What has been achieved so far, where the program is now and where it is going

1. Develop urban street network planning scheme

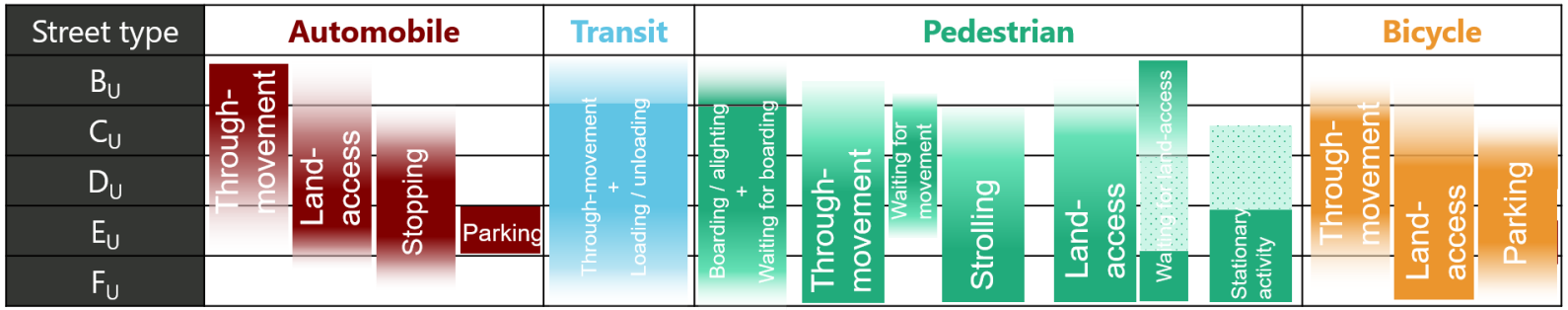
- Road users were **initially categorized into four groups—automobile, transit, pedestrian, and bicycle—and the functions required for streets** were identified.
- **Street types were defined** so that users and functions that need to coexist (e.g., transit-loading and pedestrian-boarding), as well as those that cause little mutual interference (i.e., small differences in speed), were grouped within the same type.
- A major challenge in the reorganization of urban street networks is the segregation between D_U (collector-distributor streets) and E_U/F_U (pedestrian-priority streets = small roads).

Automobile
- Includes logistics vehicles in principle.
- Includes taxis in principle.

Transit
- Refers to public vehicles used by an unspecified number of people, such as trams, route buses, and on-demand small public transportation services.
- Assumes transportation operated with designated stops only, rather than door-to-door service.

Pedestrian
- Includes wheelchairs, wheeled walking aid users, and small mobility vehicles (6 km/h or less).

Bicycle
- Includes vehicles permitted to use bicycle lanes, such as specified small motorized bicycles.



* Darker colors indicate higher functional priority, whereas lighter colors indicate lower priority (i.e., the function is restricted).
: The necessity of functions varies widely depending on land use or site conditions.

Street type	Assumed Road Classification under the Road Structure Ordinance (Class–Grade)	Automobile					Transit		Pedestrian space	Bicycle space
		Target travel speed [km/h]	Assumed speed limit [km/h]	Number of lanes	Land access	Median separation	Operating space	Stopping space		
B_U	4-1	50 to 60	60	4 or more	Partially restricted	Provided	Dedicated or priority lane as needed	Bus bay	Sidewalk or separate route	Bicycle path or Exclusive bicycle lane
C_U	4-2	40 to 50	60	2 or more	Unrestricted	Desirable			Sidewalk	
D_U	4-3/4	20 to 40	30 to 50	1 to 2	Restricted as necessary for pedestrians	Not provided	Same lane as general traffic	Curbside stop or Bus-bulb	Sidewalk or roadside strip	Exclusive bicycle lane or none
E_U	4-4, 5-2*	20 or less	20, 30	None (Coexistence with pedestrians)			Coexistence with pedestrians		Entire road	Coexistence with pedestrians
F_U	5-1*	Slow	Slow		Restricted					
Supported functions		Through-movement (+ stoppnig for through-movement)			Land-access		Through-movement	Loading / unloading	All functions	Through-movement

The A_U–F_U classification was developed based on the hierarchy proposed in the Guideline for Functional Hierarchical Road Network Planning (Draft) Ver. 2.0 (Japan Society of Traffic Engineers (JSTE), 2024), with modifications incorporating functions other than automobiles. ($_U$ denotes urban streets.)
* These classes are considered to fall under the “Class 5 Road (Pedestrian–Vehicle Shared Road)” proposed in “A Major Reform of Small Roads —Safe and Lively People-Oriented Small Roads in City Centers—” (April 2025) by the Japan Project-Industry Council (JAPIC).

1. Develop urban street network planning scheme

Refining Street Hierarchy Toward an Ideal Street Network that Balances Pedestrian and Cyclist Safety with Automobile Mobility Efficiency

- Underlying Principle : Differences in street classes from the automobile perspective—ranging from high-speed through movement to low-speed streets with frequent land access and stopping—correspond to differences in the risks associated with walking and crossing from the pedestrian perspective.

Street type	Road function type in the manual for zone control*	Term used from this research onward
B_U	Perimeter roads (also referred to as perimeter arterial roads, arterial roads, etc.)	Arterial streets
C_U		
D_U	I	**Collector-distributor streets**
E_U	II & III	**Collector-distributor street = Small roads** (Set them as F_u = Determine whether to dedicate them to pedestrians or restrict vehicle access depending on land use or site conditions.)
F_U	IV	

Fixed (input)

Pedestrian risk: High
Automobile speed: High

Pedestrian risk: Low
Automobile speed: Low
* Existing pedestrian-only roads can be fixed.

Pedestrian Safety Zone

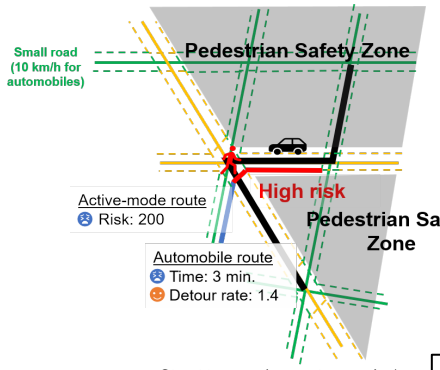
With these types treated as community roads, measures may be implemented to reduce automobile speeds and traffic volumes.

A methodology is developed with a focus on the reorganization of existing street networks where functional segregation is difficult.

* "Revised Manual for Community Road Zone Control" (JSTE, 2016)

Reorganization into ideal street types

- Assigning D_U and E_U to each street segment to maximize the number of streets where pedestrians (active mode) can travel safely
- Ensuring a certain level of automobile travel time and detour rate



Street type assignment example 1

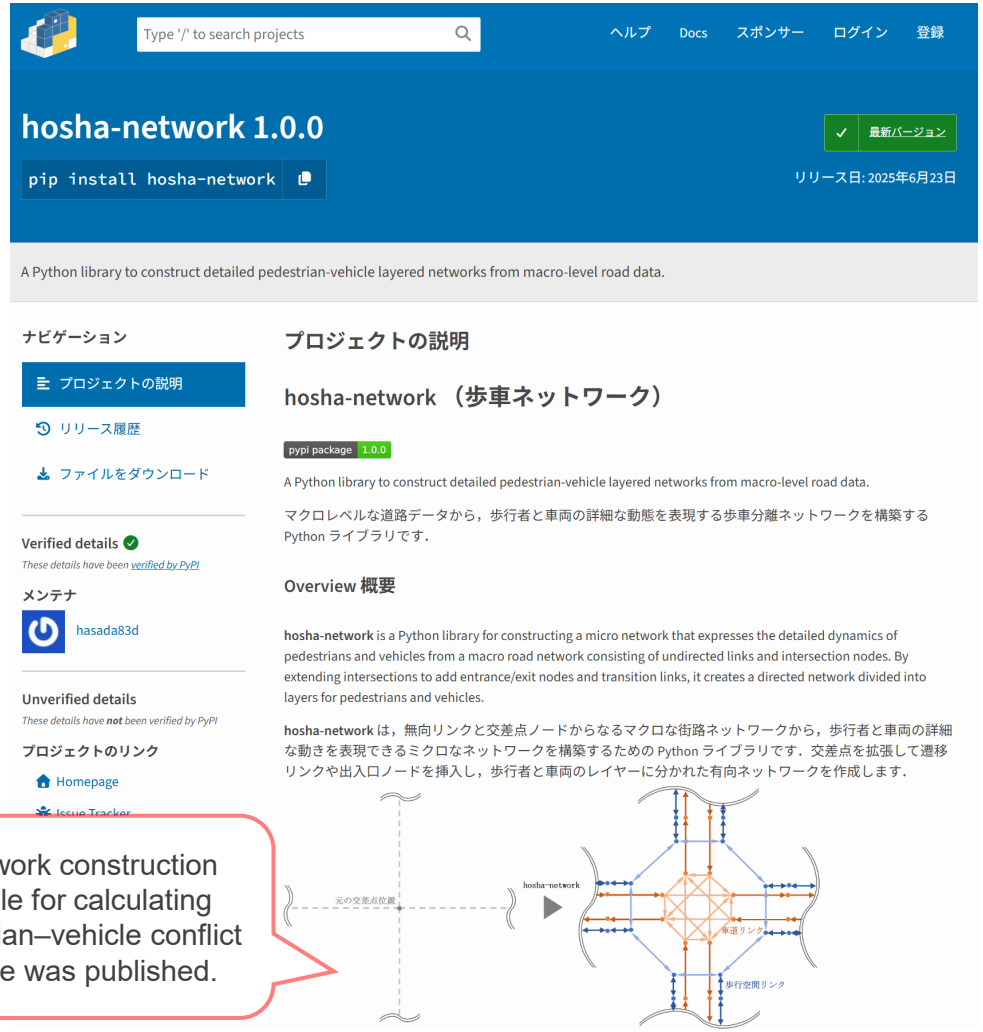
Street type assignment example 2

Derive the **safest urban street network** from all possible assignments.

1. Develop urban street network planning scheme

- **To achieve broad applicability nationwide**, the hosha (pedestrian-vehicle) network construction method was developed into a tool and reconstructed the street types in four model candidate areas on a trial basis.

▼ Pedestrian-vehicle network construction tool



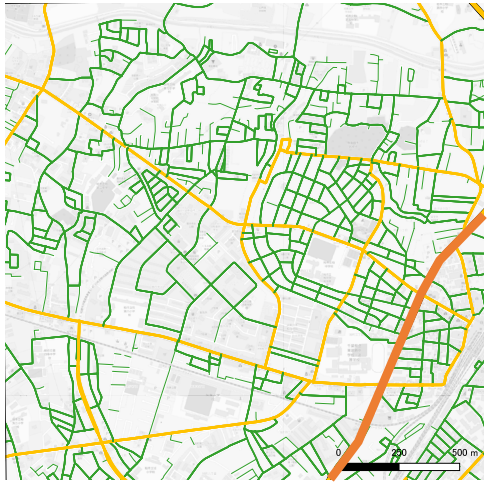
A network construction module for calculating pedestrian–vehicle conflict volume was published.

▼ Trial-based street type reconstruction in model areas

The results were discussed with municipalities and reflected in the plan.

Hikonari area in Misato

Togasaki area in Misato



Kashiwa Station area in Kashiwa

Kashiwanoha area in Kashiwa

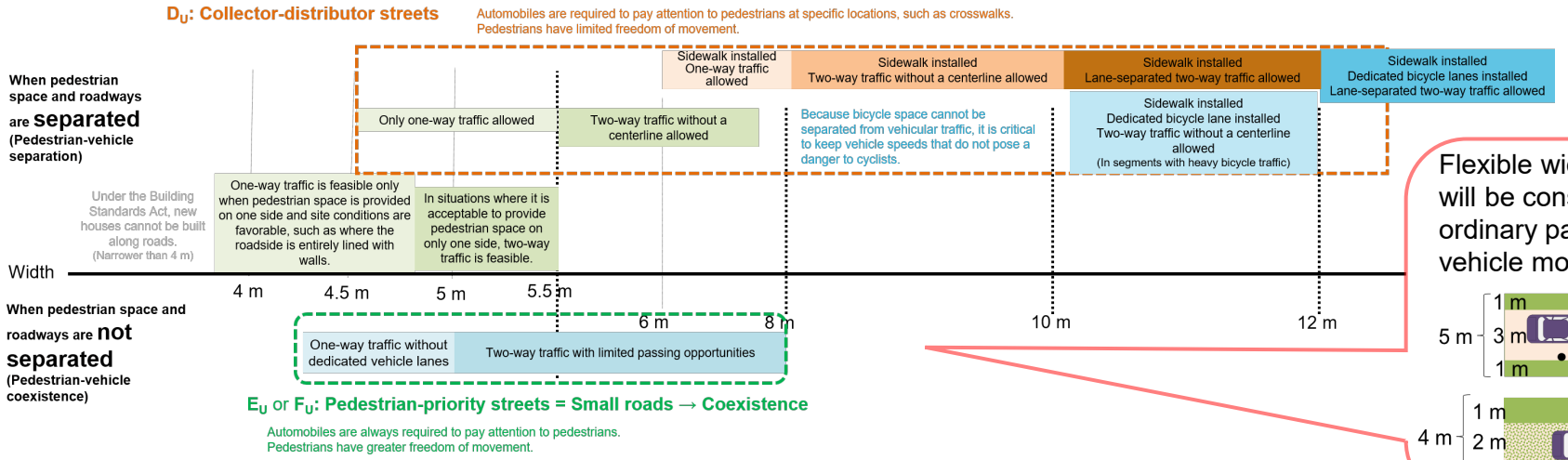
Legend

- C_U (fixed)
- D_U
- E_U

1. Develop urban street network planning scheme

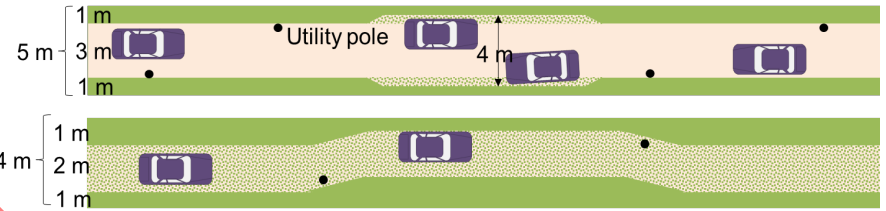
A policy for improving street segments was developed according to the street type assigned to each existing segment.

- Basic principle: pedestrian–vehicle separation on collector–distributor streets vs. pedestrian–vehicle coexistence on pedestrian-priority streets (small roads)



◀ Cross-sectional configuration according to the street types and width

Flexible width allocation based on pedestrian–vehicle coexistence will be considered, recognizing that design vehicles are larger than ordinary passenger cars and that pedestrians can respond flexibly to vehicle movements.



Classification of intersections between different types to maintain street type functions ▶

Street type	B_U	C_U	D_U	E_U
B_U	Grade separation, partial grade separation	Partial grade separation, roundabouts, signalized intersections	Left-turn-only intersection with acceleration/deceleration lanes	× No vehicular connection should be provided. (Even in this case, pedestrian connectivity should preferably be maintained.)
C_U		Roundabouts, signalized intersections	Roundabouts, signalized intersections, unsignalized intersection only with left-in/out (acceleration/deceleration lanes as necessary)	Unsignalized intersections with stop on E_U side + {raised sidewalks installed, humps or chicanes installed on the E_U side, etc.}, left-in/out access (median strips)
D_U			Priority-controlled unsignalized intersection, roundabouts, signalized intersections	Unsignalized intersections with stop on E_U side + {raised sidewalks installed, humps or chicanes installed on the E_U side, etc.}, roundabouts
E_U				Unsignalized intersections with traffic calming measures (humps, colored pavement, etc), modal filters

2. Provide specific safety improvement recommendations and bring them to social implementation trials

- Zone measures were evaluated individually. **Zone 30 Plus was introduced to assess reductions in the proportion of vehicles exceeding 30 km/h in districts.**
- An analysis was conducted to provide a basis for selecting measures, with a focus on their density and types. In particular, **a significant reduction in vehicle speeds was achieved through the high-density installation** of physical devices such as **humps**.
- The above results will be used as basic reference material for developing measures.

▼ Effects of zone measures

* ETC 2.0 impact analyzed across all 16 districts

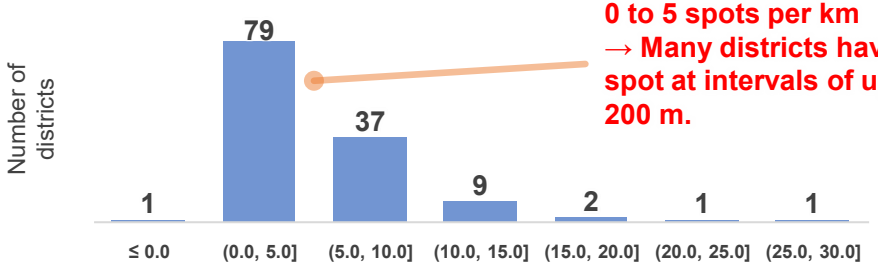
Measure category	Measure name	ETC 2.0 impact analysis area	ETC 2.0 impact analysis area		Proportion of vehicles exceeding 30 km/h	
			Number of impact reduction districts	Ratio of impact reduction districts	Number of speed reduction districts	Ratio of speed reduction districts
Physical devices	Narrowings	9	7	78%	6	67%
	Humps	3	2	67%	2	67%
	Smooth crosswalks	4	3	75%	3	75%
	On-road "crank-type" chicanes	2	2	100%	2	100%
Signs and road markings	Zone 30 Plus signs and road markings	16	9	56%	13	81%
	Colored pavements	6	3	50%	5	83%
	Roadside green belts	8	5	63%	7	88%
	Visual narrowing effect	2	0	0%	1	50%
Other	Monitoring during school commute	4	3	75%	3	75%
	Stop	2	1	50%	2	100%

Legend
75% : Reduced in over 75% of districts
50% : Reduced in over 50% of districts

Zone 30 Plus signs on roads reduced the proportion of vehicles exceeding 30 km/h.

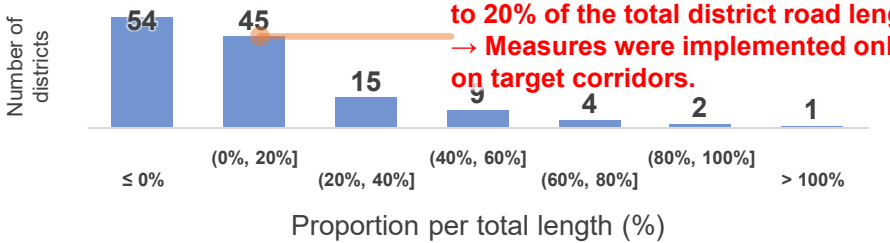
▼ Density of measures per road length

—Distribution of spot measures—



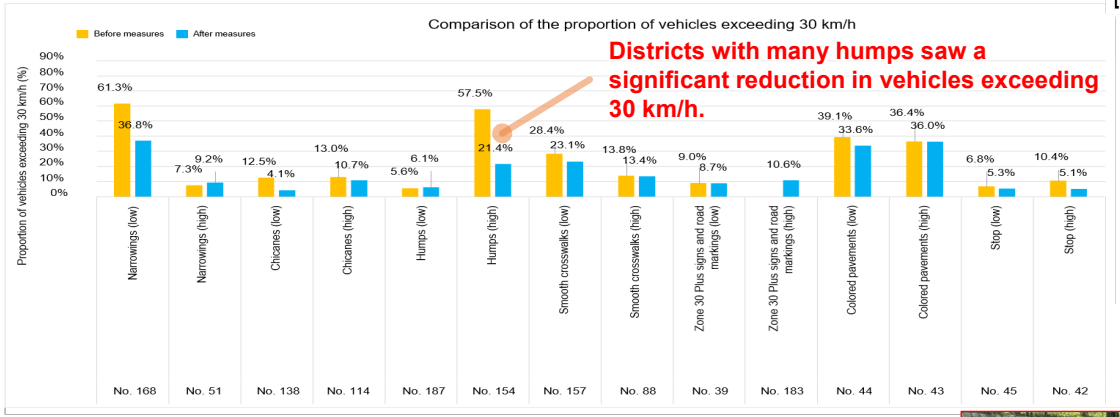
0 to 5 spots per km → Many districts have one spot at intervals of up to 200 m.

—Proportion of corridor measures—



Corridor measures implemented on 0 to 20% of the total district road length → Measures were implemented only on target corridors.

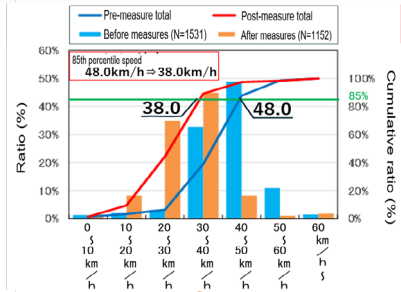
▼ Proportion of vehicles exceeding 30 km/h before implementation by measure type



Districts with many humps saw a significant reduction in vehicles exceeding 30 km/h.

▼ Effects of multiple humps

[Photo: An area with two humps installed]



Comparison of effectiveness in reducing the number of accidents ▶

Number of accidents at basic sections of community roads	Effective (n=12) Ave	Not effective (n=27) Ave	p-value
Perimeter: Number of links	33.917	32.667	0.708
Perimeter: Total link length (m)	2,651,583	2,739,593	0.776
Community: Number of links	83.667	67.815	0.199
Community: Total link length (m)	5,722.833	4,779.630	0.245
Area (m²)	274,941.369	282,106.827	0.685
Shape index	0.239	0.229	0.620
Number of three-leg intersections	27.250	21.852	0.358
Number of four-leg intersections	15.750	13.222	0.233
Number of blocks	37.667	29.667	0.259
Physical device (per km)	0.900	0.475	0.091†

Significance level: † < 0.10, * < 0.05

The higher the density of physical devices, the greater the reduction in accidents.

3. Understand the current status of small urban roads and build a policy monitoring system

Developing a traffic issue visualization tool

- **A prototype traffic issue visualization tool was developed**, using open data, for municipal workers to identify areas requiring traffic safety measures.
- Non-open data on traffic restrictions maintained by private organizations was also reviewed.
- Points for improvement were identified through the use of the tool in model areas.

▼ Traffic issue visualization tool screen

Accident

Rank	Elementary school district	Number of occurrences
1	Hikonari Elementary School	78
2	Waseda Elementary School	58
3	Kobo Elementary School	44
4	Sakura Elementary School	29
5	Shinwa Elementary School	26
6	Tachibana Elementary School	24
7	Takano Elementary School	21
8	Hikosato Elementary School	19
8	Togasaki Elementary School	19
10	Mizuki Elementary School	13
10	Takasu Higashi Elementary School	13
12	Ushiroya Elementary School	12
13	Maeya Elementary School	11

Sudden deceleration

Rank	Elementary school district	Number of occurrences
1	Hikonari Elementary School	37893
2	Kobo Elementary School	27192
3	Ushiroya Elementary School	20200
4	Shinwa Elementary School	13580
5	Takano Elementary School	12968
6	Takasu Elementary School	7615
7	Tango Elementary School	7453
8	Waseda Elementary School	5477
9	Takasu Higashi Elementary School	4824
10	Mizuki Elementary School	4130
11	Sakura Elementary School	4055
12	Tachibana Elementary School	2646
13	Togasaki Elementary School	1202

▲ Elementary school district ranking chart

→ Model areas:
Misato, Yokohama, and Kurume

▼ Data contained in the traffic issue visualization tool

Data	Display format	Purpose
Elementary schools, elementary school districts	Point, area	Identify distances from elementary schools, the number of accidents in each district, etc.
Road width (less than 5.5 m)	Line	Identify traffic conditions on narrow roads.
Roads without centerline	Line	Identify roads without centerline (to be included in the next fiscal year).
School roads	Line	Identify traffic conditions on school roads.
Speed limits	Line	Identify the details of the current traffic restrictions.
Use districts, densely inhabited districts	Area	Identify the current use of land.
Accident locations	Point, line, area	Identify accident locations.
Sudden deceleration locations	Point, line, area	Identify frequent sudden deceleration locations.
Vehicle traffic volume, spot speed	Point, line	Identify traffic volume (on shortcut routes) and the presence of high-speed vehicles.
Pedestrian/bicycle traffic volume	Line	Identify roads that should prioritize community transport (currently coordinating with the data holder).
Number of traffic signals and unsignalized intersections	Point	Identify the total number of areas requiring consideration of measures (to be prepared after the next fiscal year).

■ Points for improvement in the traffic issue visualization tool

- The tool is slow because too many driving history data points are plotted. → Organize data at the link level.
- Hazardous areas are not easily recognized. → Consider introducing metrics to identify areas requiring measures.
- Pedestrian traffic volume is required. → Consider using human mobility data managed by private organizations.

3. Understand the current status of small urban roads and build a policy monitoring system

- Private-sector road data was reviewed to consider potential applications.
- **A tool was developed to identify the presence of centerline.**

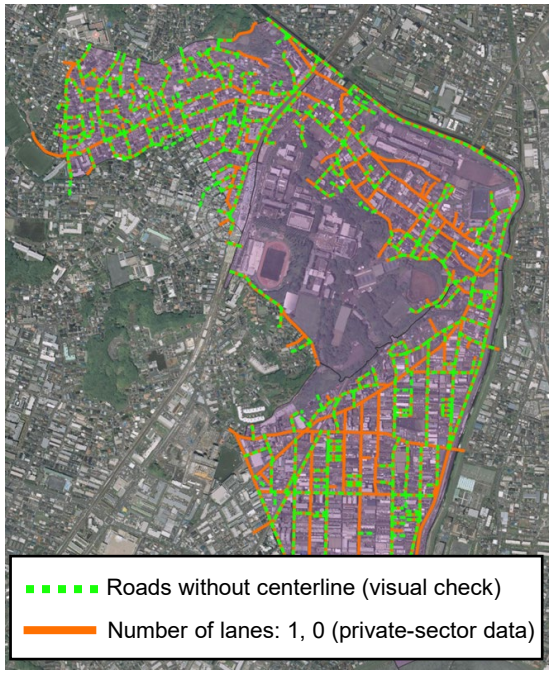
■ Consideration of potential applications of private-sector data

- Potential applications were considered by reviewing private-sector width data, restriction data, intersection data, sidewalk and crosswalk data, and lane count data.
- It is possible to consider the potential implementation of physical measures based on minimum width data.
- The number of signalized and unsignalized intersections in the area can be identified based on intersection data.
- Lane count data helps identify the presence of centerline (future speed limit of 30 km/h).

■ Centerline presence judgment tool

- Road surface photos are taken at 10 to 40 m intervals using a smartphone from a moving vehicle.
- AI is used to detect the presence of centerline.
- The results can be checked using a dedicated viewer. Since they are displayed in the visualization tool, they can be exported as a KML file.
- A method for providing centerline presence data to municipalities that require it will be considered (e.g., tool sales and outsourced centerline presence survey).

▼ Samples of private-sector data



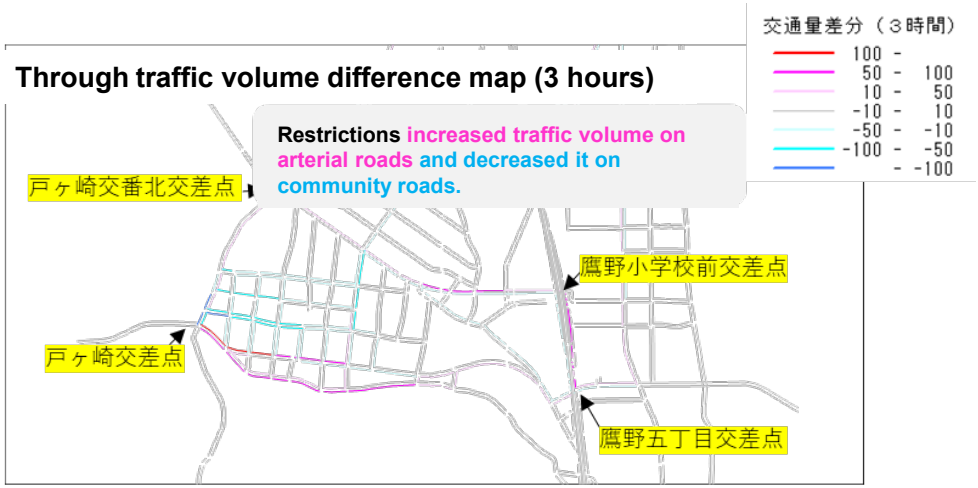
<Data: Visualized private-sector data>

▼ Centerline presence judgment tool

4. Create a digital sand box

- **A virtual countermeasure evaluation tool was developed** as a countermeasure effect simulator (automobiles) to assess changes in traffic volume inside and outside surrounding arterial roads and community road areas before and after the implementation of measures.
- A model was examined as a countermeasure effect simulator (pedestrians) to quantitatively evaluate safety perceived by pedestrians from measures that are difficult to evaluate using conventional quantitative metrics. A web survey was also conducted to **prepare a basis for defining evaluation metrics for perceived safety**.
- **A countermeasure visualization tool was developed to visualize community road measures in AR space to facilitate consensus building**, instead of public trials that install temporary structures on-site for a certain period.

▼ Visualization of simulation results in Misato



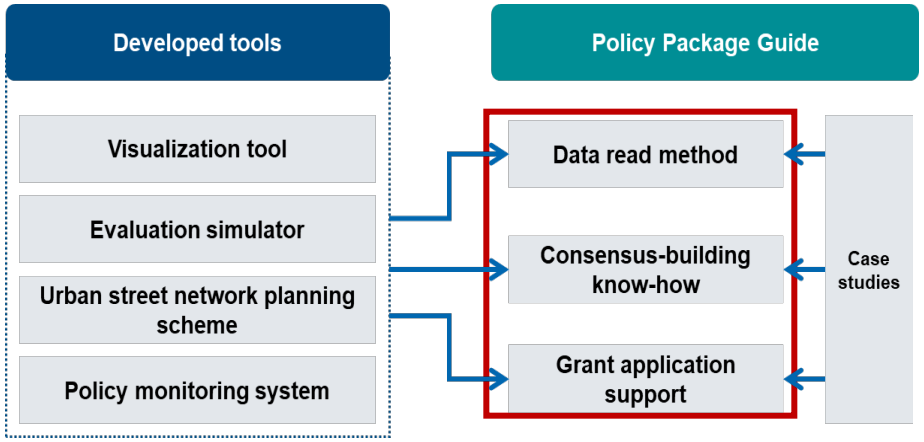
▼ Evaluation metrics for safety perceived by pedestrians

Metrics	Abbreviation	Question
Ease of hazard detection	DETECT	Do you think you can easily and quickly detect automobiles and bicycles as they approach you?
Protection from vehicles	PROTECT	Do you think pedestrians are adequately protected from moving vehicles?
Expectations of safe driving behavior	EXPECT	Do you think automobiles are driven with attention to pedestrians?
Freedom of movement	FREEDOM	Do you think pedestrians are able to walk freely wherever they like?
Overall safety	OVERALL	Overall, do you think this road is safe for pedestrians?

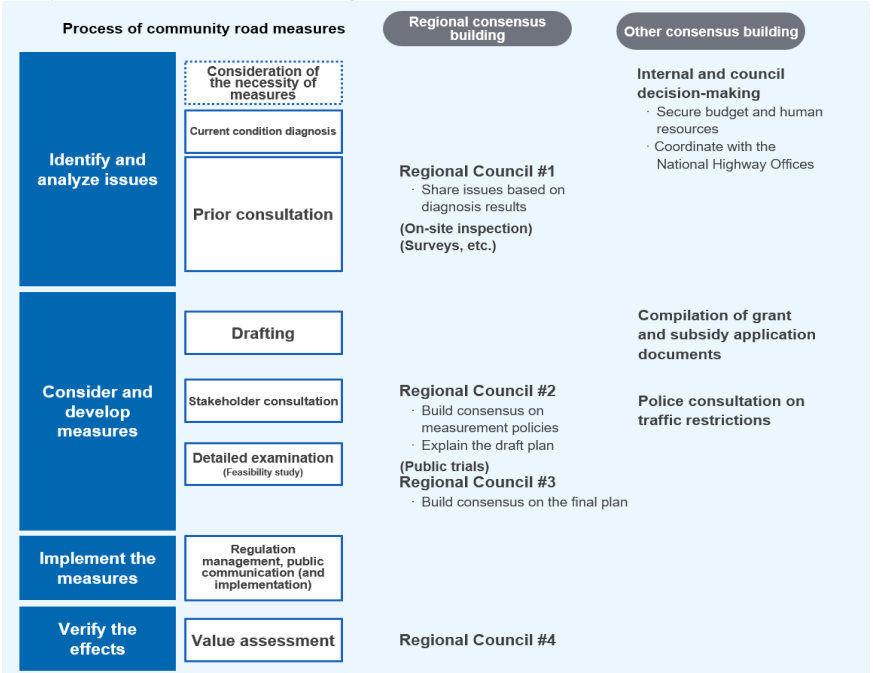
▼ Virtualization of community road measures in AR space

5. Make sure that the plan is socially acceptable and ready for collaboration and that necessary rules are defined

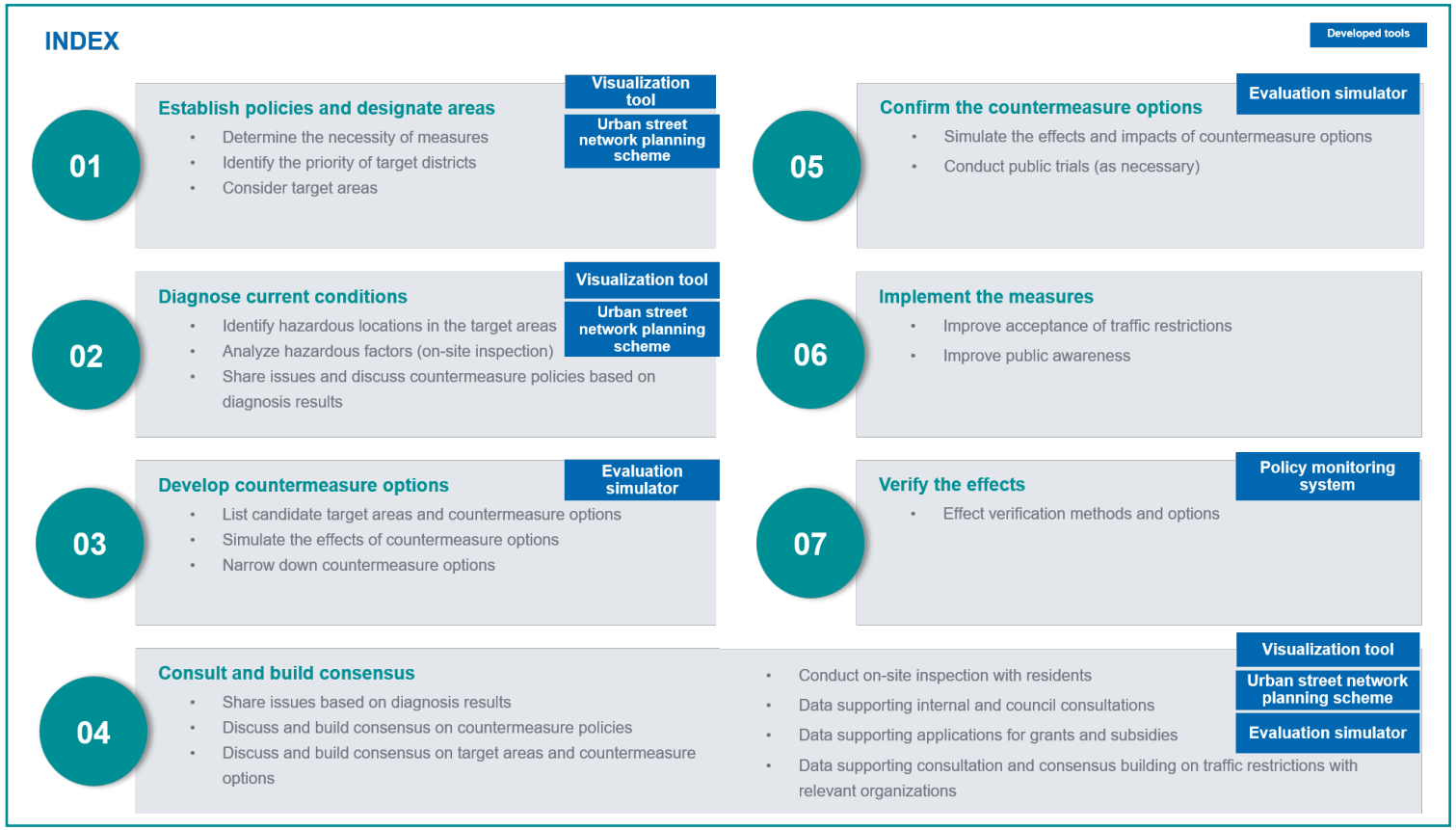
- A **draft Policy Package Guide (tentative)** was prepared to help users utilize the developed tools to implement policies.



The guide was designed so that community road measures could be **crystalized while building consensus** at each process.



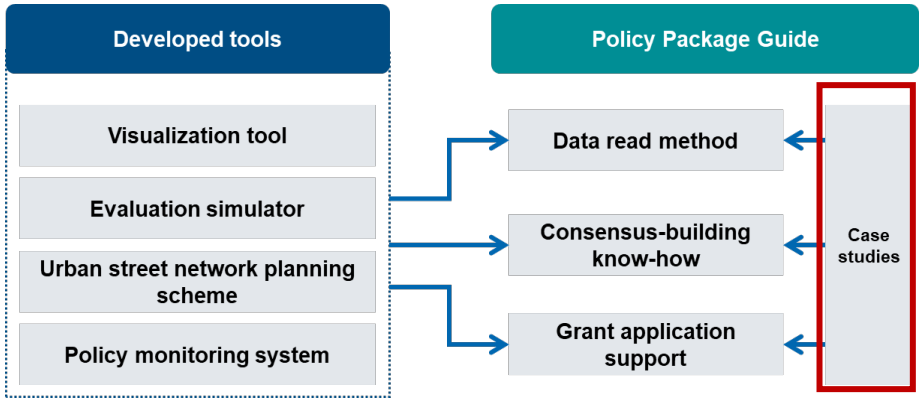
Needs and issues were identified through dialogue with operational sites (Misato, Saitama; Yokohama, Kanagawa; Kurume, Fukuoka; Kohoku, Saga, etc.), and the direction for Version 1 was examined.



The guide was published on the Japan Mobility Data Space (JMDS) portal site, and discussions began on enabling search using LLMs.

5. Make sure that the plan is socially acceptable and ready for collaboration and that necessary rules are defined

- To complement and support the contents of the guide (demonstrate the effectiveness of the developed tools and provide tips for promoting measures), **leading case studies from Japan and overseas were compiled into a coherent whole. → Case studies were introduced in advance.**



▼ Purpose of case studies

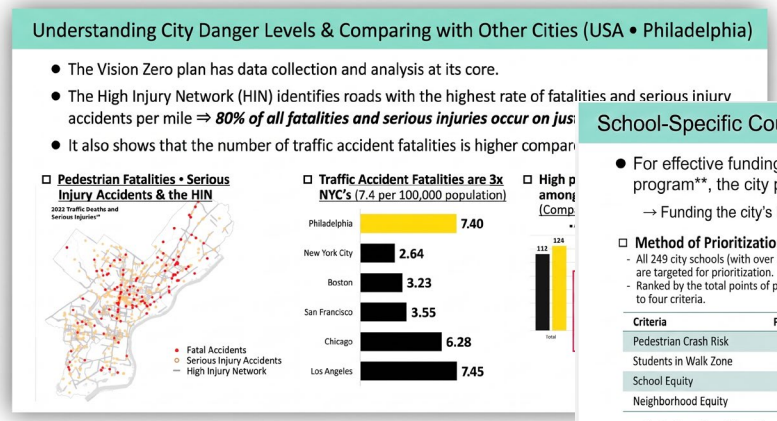
Demonstrate the effectiveness of the developed tools	Provide tips for promoting measures
To support problem-solving using the developed tools, their effectiveness is demonstrated through case studies to help users confidently leverage the tools.	Although it is not directly related to the developed tools, providing case studies as tips for implementing community road measures encourages users to adapt and apply the tools according to regional conditions.

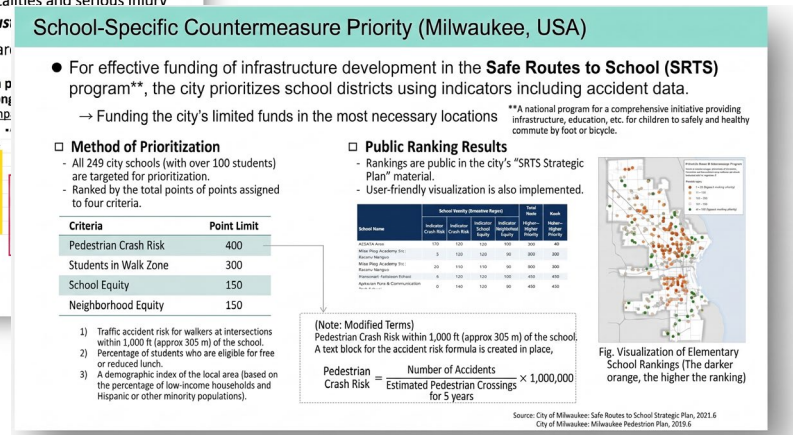
During the process or execution of measures, clicking items under "**What do you want to do? What problems are you having?**" redirects users to relevant case studies.

Scheduled to be published on the website in late March

Domestic and International Case Studies Collection

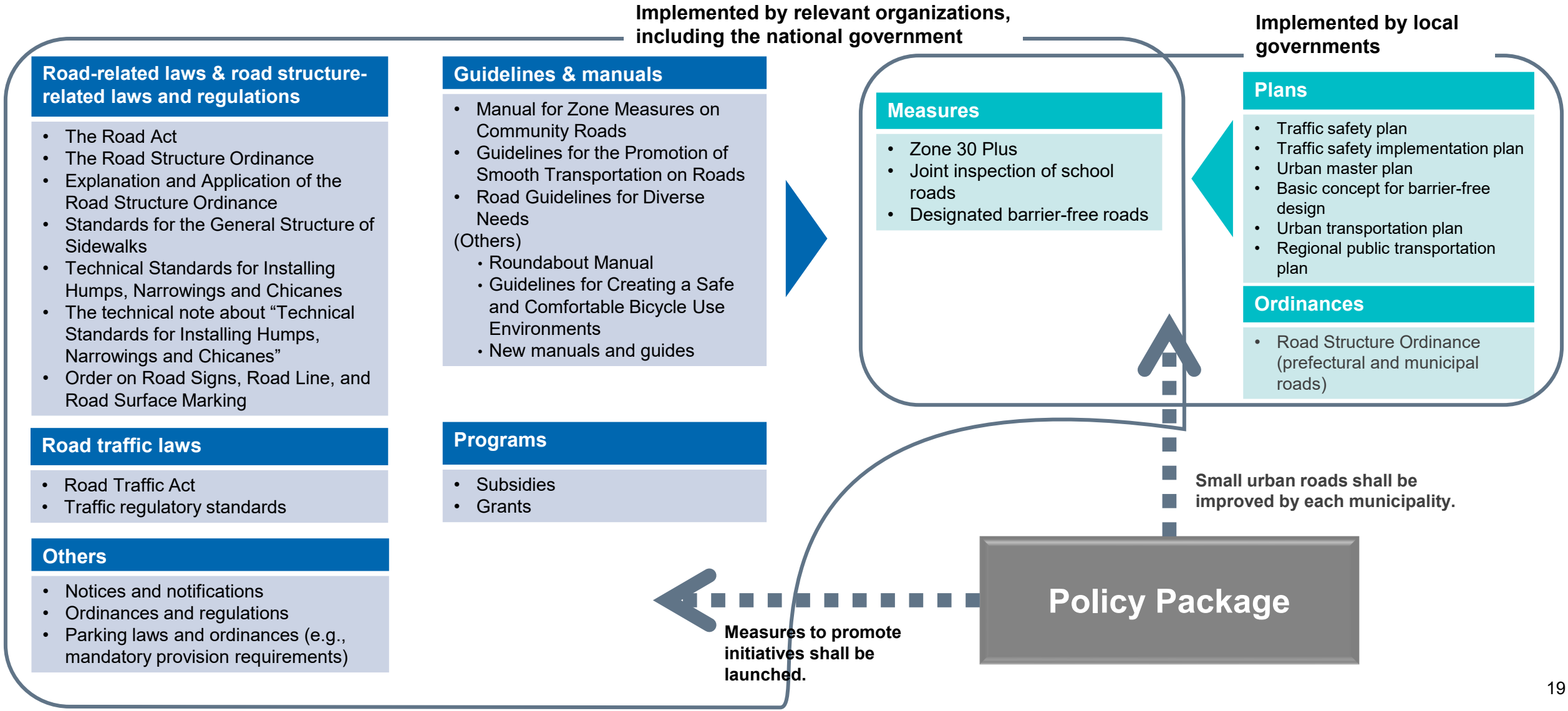
Local Road Countermeasures Process	What do you want to achieve? What is the trouble?
Issue Identification & Analysis	Is a countermeasure necessary? Where should we start implementing a countermeasure?
	What is the appropriate scope of the study?
	First, I want to understand what the problems are.
	I want to properly grasp the residents' opinions.
	I want to know what measures to implement and where.





6. Recommend useful systems and rules

- **Preliminary identification of issues was conducted, considering various institutional systems and rules** that hinder or discourage the implementation and spread of safe and secure mobility on community roads and the revitalization of city centers.



6. Recommend useful systems and rules

- This research defines the “community we aim to build (tentative)” as one that ensures **safe and secure mobility on community roads** inside perimeter roads, while **fostering a local community and creating vibrancy**.
- Overseas and domestic institutional systems and rules were listed and compared, with **a focus on shared roads** as one of the measures, based on the concept of **pedestrian-priority streets** (where pedestrians can walk freely, relax, and interact), which is defined in the urban street network planning scheme.

■ Institutional status of shared roads in Europe

- In Europe, shared roads have been introduced as traffic calming zones and encounter zones in line with revisions to laws and regulations.
- Pedestrians may use the entire roadway but must not intentionally obstruct vehicular traffic.
- In most countries, the speed limit is set at 20 km/h or less.

Country	Institutional system	Year	Method	Speed limit
Netherlands	Woonelf	1976	Revision to the Road Traffic Act	15 km/h
Germany	Wohnstraße	1980	Revision to the Road Traffic Regulations	Same as walking speed (4 to 7 km/h)
Switzerland	Begegnungszone	2001	Revision to the Road Traffic Act	20 km/h
Austria	Begegnungszone Wohnstraße	2013 1983	Revision to the Road Traffic Act Revision to the Road Traffic Act	20 km/h (partially 30 km/h) 10 to 15 km/h
France	Zone de rencontre	2008	Revision to the Highway Code	20 km/h
U.K.	Home Zone	2006	Revision to the Road Traffic Act	Approx. 20 km/h (10 mph)

■ Institutional status of shared roads in Japan

Shared roads, etc.

- Shared roads are referenced as case studies in guidelines, but are not clearly defined in laws or regulations.
- Legally, pedestrians are not permitted to walk in the center of streets without sidewalks (roadside strips).
- In general, the minimum speed limit is 30 km/h.

Type	Details of road closure (traffic restrictions)	Details of vehicle entry permission	Remarks
Pedestrian-only roads	Under Article 48-15(3) of the Road Act, vehicles are generally prohibited from entering pedestrian-only roads.	(Entry of vehicles is generally prohibited.) * Exceptions include emergency vehicles and road maintenance vehicles.	・Structurally vehicle-restricted roads are not subject to Articles 10 through 12 of the Road Traffic Act; therefore, pedestrian traffic rules (e.g., walking on the right-hand side and prohibition of jaywalking) do not apply.
Pedestrian roads	Under Article 4 of the Road Traffic Act, the prefectural public safety commission may prohibit the entry of vehicles. (An effective date and time may also be specified.)	Under Article 8(2) of the Road Traffic Act, vehicles with permission are allowed to enter. (Permission is valid for three years.) * The permission standards are stipulated in the Order for Enforcement of the Road Traffic Act. * Vehicles with permission are required to drive slowly.	・Since pedestrian roads are not subject to Articles 10 through 13 of the Road Traffic Act, pedestrian traffic rules (e.g., walking on the right-hand side and prohibition of jaywalking), as set out in Article 13-2 of the Road Traffic Act, do not apply. * On bicycle-pedestrian roads, pedestrian restrictions are applied in the same way as on ordinary roads. * Play streets are considered a type of pedestrian road.
Pedestrian-vehicle coexisting roads Community roads	(Subject to standard road traffic regulations due to no special measures.)	(All vehicles are permitted to enter.)	[General road traffic regulatory standards] ・In general, speed limits below 30 km/h cannot be designated. ・It is recommended that physical devices be installed if the speed limit is set at 30 km/h on community roads.

6. Recommend useful systems and rules

- Based on research into initiatives implemented by municipalities in Japan, **revisions to ordinances and road structure ordinances, as well as the sharing of case studies on innovative traffic restrictions and road design, are required to promote the adoption of shared roads**.

Stipulating shared roads in road structure ordinances (Mishima, Shizuoka)

- Mishima, Shizuoka, has a provision in place to ensure pedestrian safety within a limited road width by designating shared roads.

[Ordinances stipulating technical standards for road structures in Mishima]

(Basic principles)

1. Aim to develop a road structure that is easy and comfortable for all pedestrians.
2. Care shall be taken to ensure the functions required for the relevant roads.
3. Separate arterial roads into vehicle and pedestrian spaces as much as possible.
4. Encourage community roads to function as shared roads.

(Pedestrian-vehicle coexisting roads)

- Community roads can be used as Pedestrian-vehicle coexisting roads when necessary.
- The width shall be at least 4 m, including road shoulders.
- The design speed for Pedestrian-vehicle coexisting roads shall be 30 or 20 km/h.
- Resting spaces shall be provided for pedestrians on Pedestrian-vehicle coexisting roads as necessary.
- Humps, narrowings, chicanes, or bollards shall be installed on Pedestrian-vehicle coexisting roads where necessary.

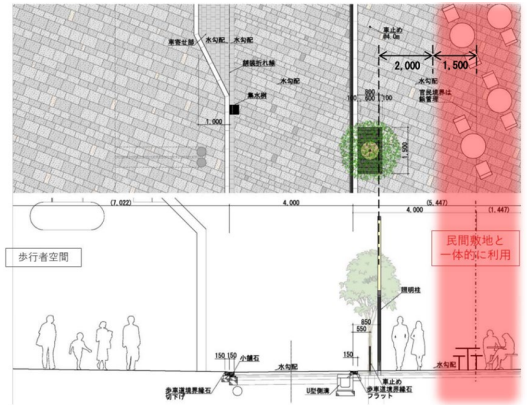
Source: Mishima City website (https://www.city.mishima.shizuoka.jp/page/1751.html#toc1)

Related laws and regulations
- Road Structure Ordinance
- Explanation and Application of the Road Structure Ordinance
- Local road structure ordinances

Ensuring safety through traffic restrictions and bollard installation (Kobe, Hyogo)

- Kobe, Hyogo, achieved no level difference between sidewalks and roadways while ensuring safety through a combination of traffic restrictions and bollard installation.

- [Design] No level difference between sidewalks and roadways
- [Issues] Neither the standard 5 cm level difference between sidewalks and roadways nor the requirement of at least 15 cm for designated roads under the Barrier-Free Act was met.
- [Measures] A combination of measures has been implemented to ensure safety, including a traffic restriction prohibiting general vehicles while allowing freight vehicles to enter between 6 a.m. and 5 p.m., as well as the installation of bollards at the boundary between the roadway and sidewalk.



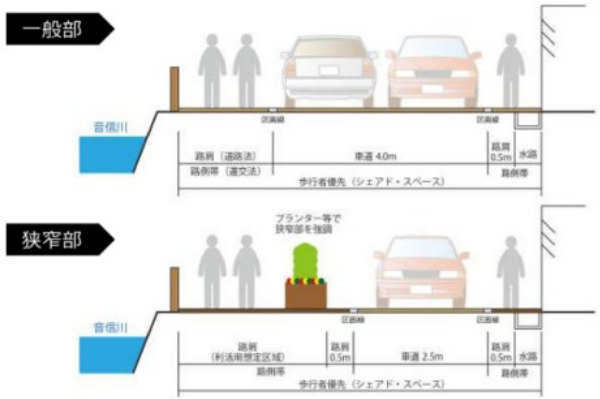
Source: Material provided by Kobe City

Related laws and regulations
- Standards for the General Structure of Sidewalks
- Standards for the Smooth Mobility of Roads
- Designated barrier-free roads

Verifying the flexible use of road shoulders through a public trial (Nagato, Yamaguchi)

- Nagato, Yamaguchi, achieved a roadway width of 2.5 m by securing sufficient width for emergency vehicle passage through the installation of road shoulders on both sides of a narrowing section and by conducting a public trial.

- [Design] The roadway width was narrowed to 2.5 m to reduce vehicle speeds (the width is 4.0 m in sections without narrowings).
- [Issues] The roadway width of 3 m between narrowing sections was not met.
- [Measures] Road shoulders of 0.5 m were installed on both sides to ensure the passage of emergency vehicles. ← This was determined based on a public trial demonstrating that fire engines and large buses could pass through the road.



Source: Lecture material by Committee Member Katagishi for JICE Study Group on Next-Generation Community Roads

Related laws and regulations
- Road Structure Ordinance
- Explanation and Application of the Road Structure Ordinance
- Technical Standards for Installing Humps, Narrowings and Chicanes

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