Cross-ministerial Strategic Innovation Promotion Program (SIP) Phase 3: Building a Smart Mobility Platform—Research and Development Project for Helping Prevent Traffic Accidents by Detecting Risk in Advance

Report of Project Results

March 2025

Traffic Accident Preemptive Prevention R&D Consortium

(Nippon Signal Co., Ltd., Sumitomo Electric Industries, Ltd., Honda R&D Co., Ltd.)

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1. Overview of the research and development project

1-1. Purpose and objectives

1-2. Overview and process chart of this research and development project

1-3. Research and development project objectives and KPI

1-4. Conceptual image of real-world service

1-1. Purpose and objectives

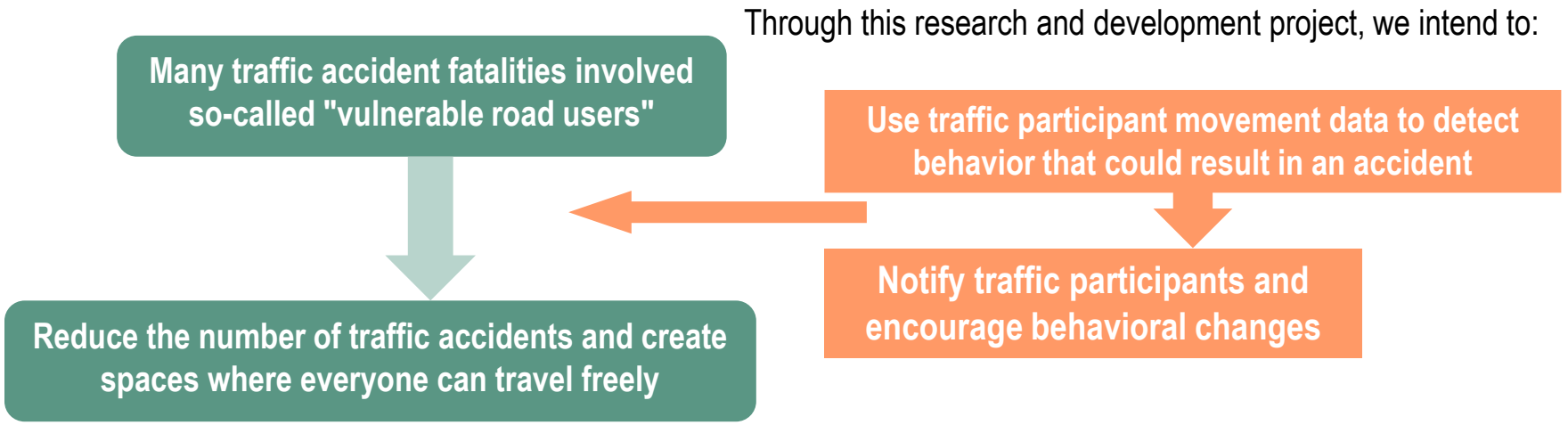
Societal issue to be resolved and purpose of the research and development project

Societal issue to be resolved

- **Vulnerable road users** account for a large portion of traffic accident fatalities, so this project aims to **reduce the number of traffic accidents** by informing drivers of risks in advance.

Purpose of the research and development project

- This project consists of R&D regarding building data infrastructure that collects and integrates data, creating traffic infrastructure that uses advanced technologies, and utilizing V2X technologies, traffic signal information distribution technologies, and the like. The goal is to use these technologies to be able to **detect behavior from traffic participant movement data**, to **promote behavioral changes in users**, and to **create spaces where everyone can travel freely**.

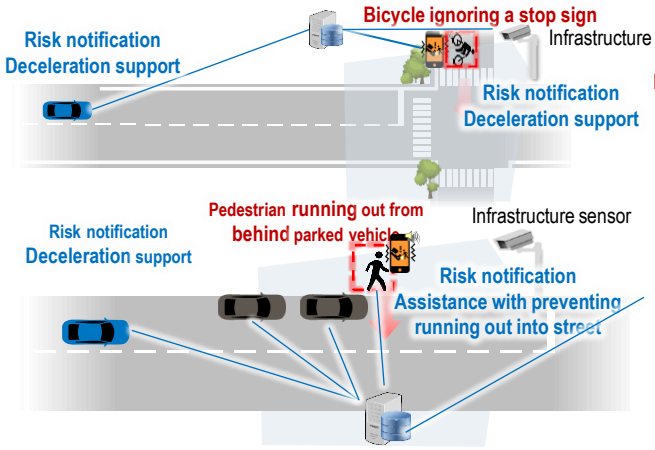


1-2. Overview and process chart of this research and development project

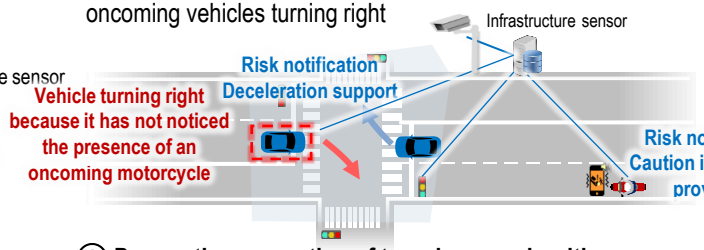
Representative use cases aiming to solve the problem

- We defined four use cases that represent specific traffic accident risks and are aiming to solve the problems involved.
- During five years of research and development, we developed the devices and technologies needed to solve the problems associated with each representative use case, conducted technical verification projects, and verified the effectiveness of each technology and service.

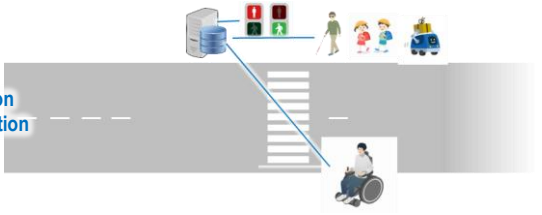
① Preventing accidents caused by **pedestrians, etc., running out into the street** in intersections with blind spots or from between parallel-parked vehicles



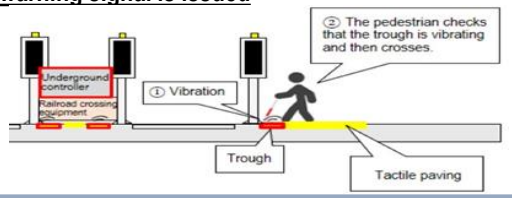
② Preventing accidents caused by **drivers not noticing the presence of motorcycles** due to blind spots created by oncoming vehicles turning right



④ **Assisting with traffic light crossings by people with transportation limitations, electric wheelchair users, and walking assistance robots**



③ **Preemptive prevention of trapping people with transportation limitations in railroad crossings when a warning signal is issued**



Activities performed in this research and development project

Perform and verify PoC for applying the technologies used to solve the problems involved in envisioned use cases to narrow urban streets and busy streets

Develop technical specifications for solve the problems involved in envisioned use cases, develop the technologies, and standardize the specifications

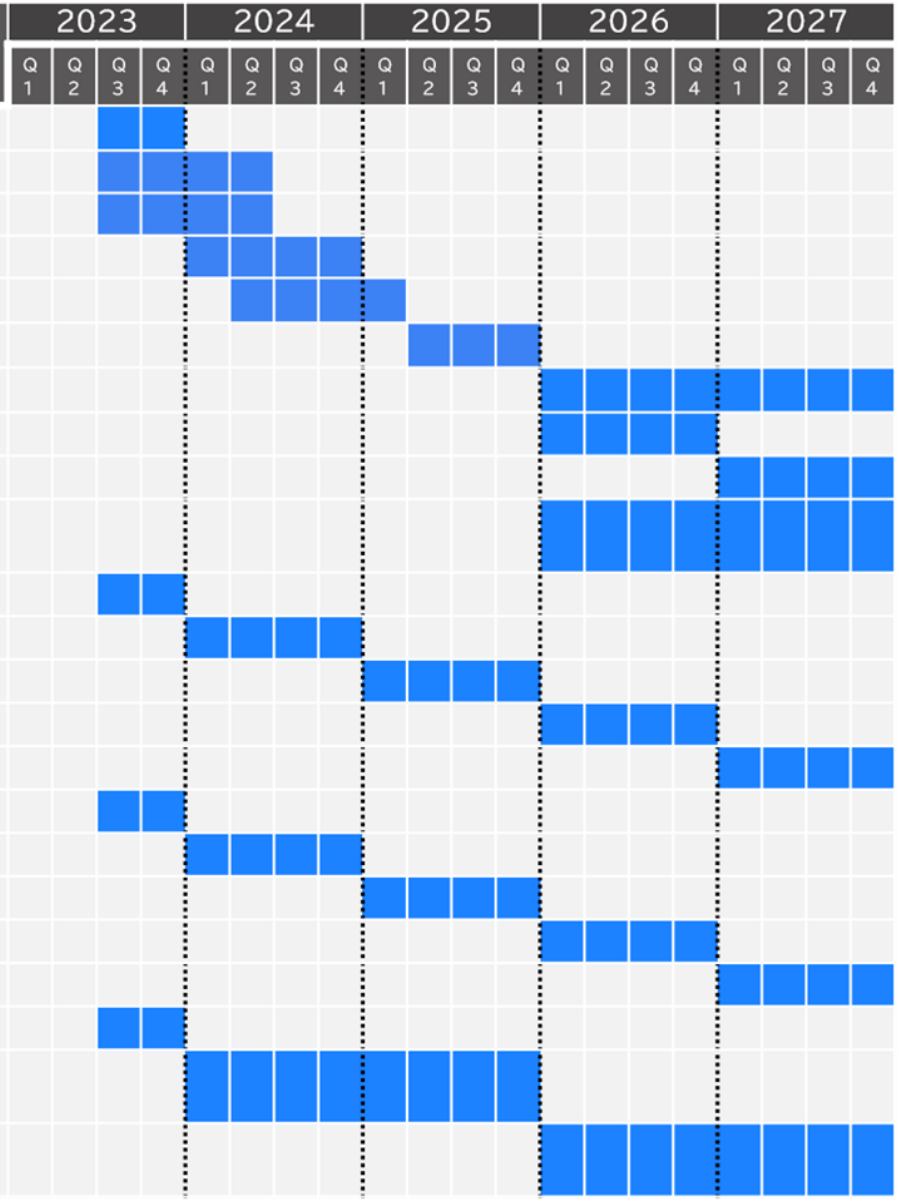
Based on the provision of V2X traffic signal information developed by SIP-adus, develop devices and verify information delivery when the scope of delivery of traffic signal information is expanded to all users within pedestrian spaces

Organize information regarding problems related to use cases and deliberate regarding countermeasures. Through this process, issue proposals for revisions to rules and systems that present bottlenecks to the implementation of envisioned services.

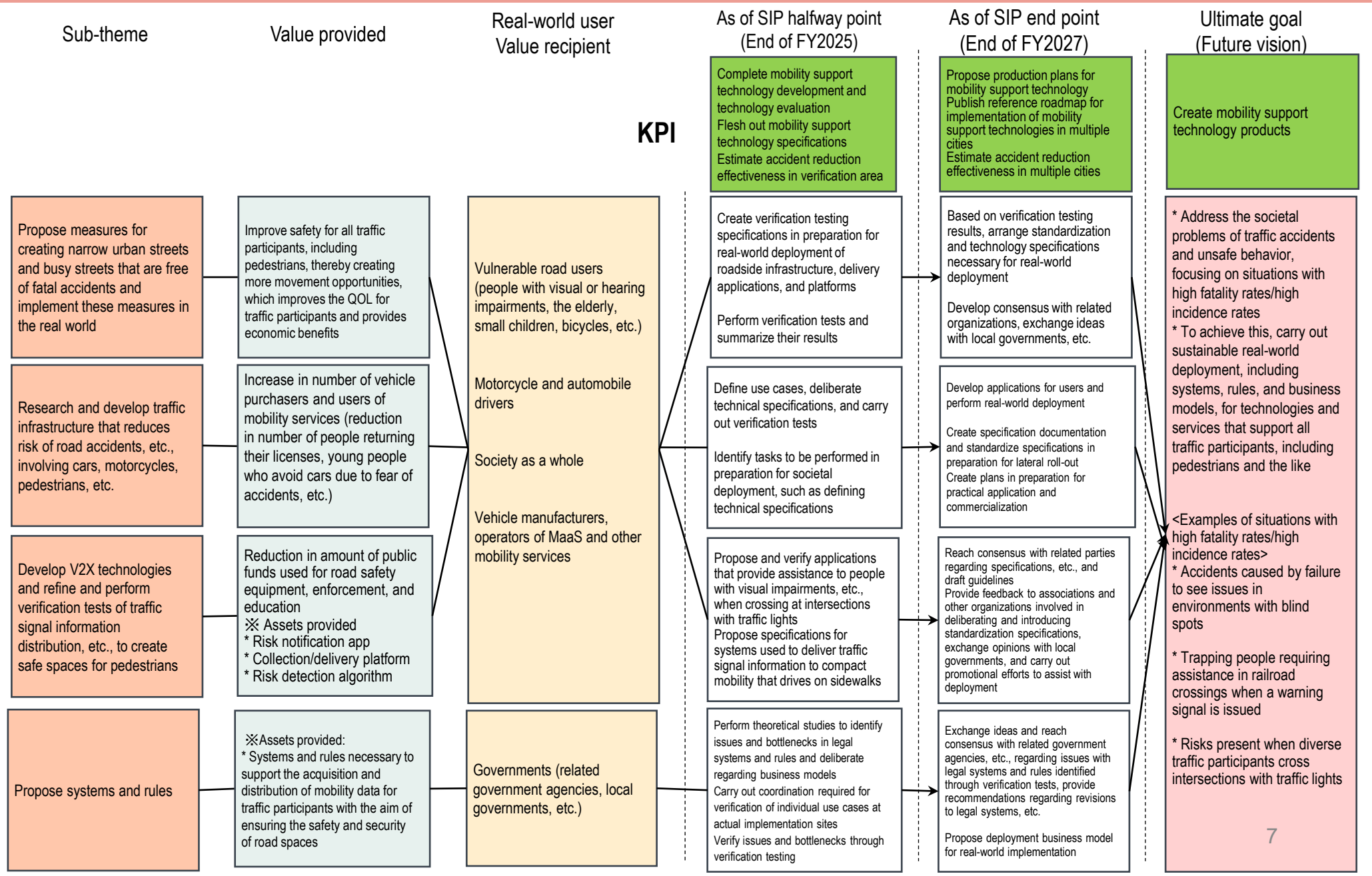
1-2. Overview and process chart of this research and development project

Five year process chart for each implementation item

Research and development theme	Implementation item	
⑦	5. Propose measures for creating narrow urban streets and busy streets that are free of fatal accidents and implement these measures in the real world	Develop specifications
		Develop independent information collection and delivery app
		Create independent risk evaluation algorithm technology
		Internal testing
		Comprehensive development and test course testing
		Field verification
		Deliberations aimed at standardization and real-world deployment
		Create input/output interfaces and standard message specifications
		Coordinate with related organizations in real-world deployment
		Large-scale verification testing (* deliberate on an as-needed basis based on work to be performed for theme 7 as a whole)
	6. Research and develop traffic infrastructure that reduces risk of road accidents, etc., involving cars, motorcycles, pedestrians, etc.	Develop specifications
		Elemental technology verification integration testing
		Field verification
		Organize information regarding issues in preparation for standardization
		Standardization
	7. Develop V2X technologies and refine and perform verification tests of traffic signal information distribution, etc., to create safe spaces for pedestrians	Develop specifications
		Elemental technology verification integration testing
		Field verification
		Organize information regarding issues in preparation for standardization
		Standardization
	9. Propose systems and rules	Perform theoretical study to identify legal systems and rules
		Deliberate regarding each discussion point for use case implementation sites (specific regions, etc.)
		Deliberate regarding each discussion point not only for specific regions, but for other regions as well

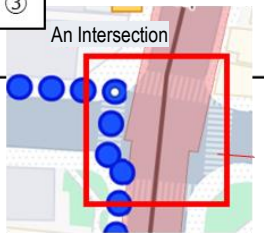


1-3. Research and development project objectives and KPI



1-4. Conceptual image of real-world service

Conceptual image of relaying of information to end users

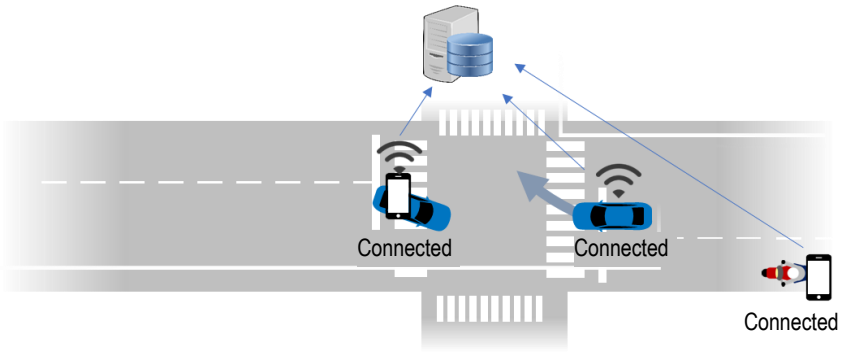
Support process	Details	Remarks
①Equip iPhone and Ashirase shoe-mounted navigation device for the visually impaired	* Hang iPhone from neck * Attach Ashirase device to shoe	①  iPhone Ashirase device
②Route navigation using Ashirase	* Navigation prioritizes routes with intersections that provide signal information	②  Ashirase app
③Intersection entry determination	* GPS data is used to determine if an intersection area has been entered	③  An Intersection Intersection determination area is set based on intersection size
④Eye Navi is launched	* Within the area in ②, double-tap foot with the shoe that is equipped with the Ashirase device * The above action causes the Eye Navi app to be launched	⑤  ④  Double-tap foot
⑤Eye Navi provides intersection traversal support	* The app provides information about the color of the traffic signal in the direction of travel. (The iPhone's compass feature is used to determine the direction being faced) * Received traffic color information is used to provide traversal support from 5 meters before the pedestrian crossing to after the intersection has been completely traversed. * Outside the above area, image recognition is used on image data from the camera to determine the traffic signal color and assist the user.	

The system structure of verification testing

- In order to **deploy the results of the research and development project over a wide area**, the following **two types of system structure will be used for the verification testing.**
- Each method has its own advantages, so we will try to maintain an optimal mix of the two **in real-world deployment that takes into consideration the diverse circumstances involved in transportation and road spaces.**

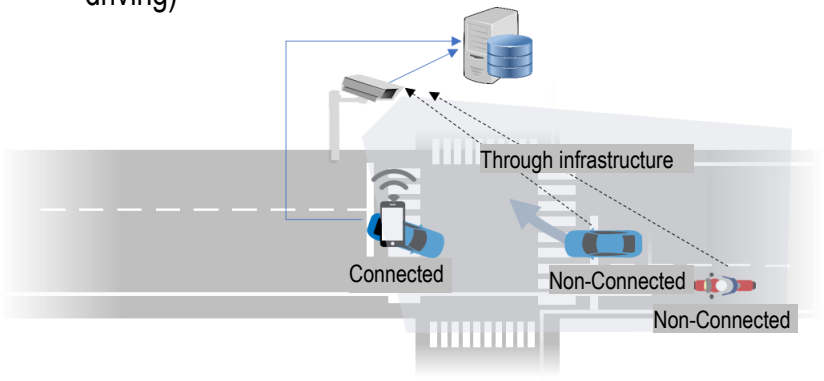
All-connected system

- Smartphone apps and V2N transmissions are used to track the locations of individual traffic participants (In-vehicle linkage is also expected)
- Service can be provided anywhere without relying on infrastructure
- Popularity of smartphone apps influences frequency of service provision
  (Assuming also promotion through linkage with other services)



Infrastructure-linked system

- The locations of individual traffic participants are determined using infrastructure sensors, in addition to smartphone apps and V2N transmission
- It's also possible to obtain location information from traffic participants who don't have the smartphone app, so the services can be provided as long as one of them has the app
- Infrastructure sensors will need to be installed (and are likely to be used for other purposes, such as autonomous driving)



2. Results and progress

2-1. Status of study regarding elemental technologies

2-2. Status of study regarding business, systems, and social acceptance

2-3. Exploration of use cases (1) UC ① and ②

2-4. Exploration of use cases (2) UC ③

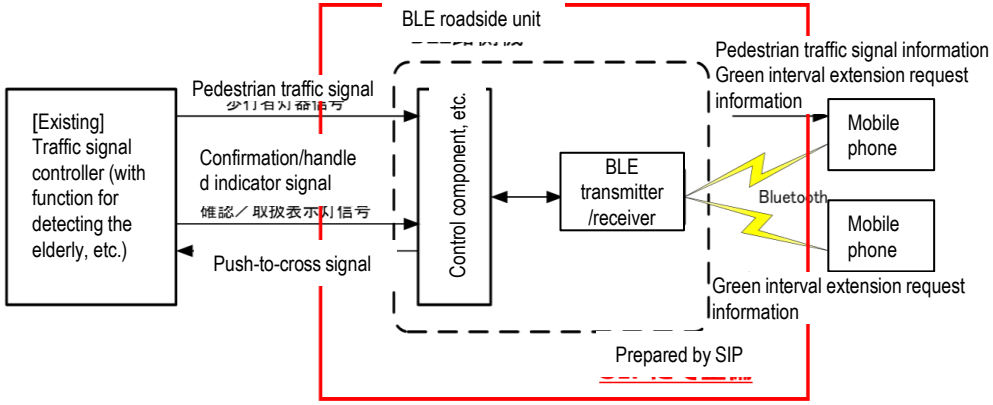
2-5. Exploration of use cases (3) UC ④

2-1. Status of study regarding elemental technologies

Detection and information acquisition

Current status of study

* Defining of interface specifications for implementing UCs ① and ②
* Combined operation confirmation performed for UCs ① and ②
* Fixed interface specifications for acquiring detection data to achieve UCs ③ and ④



Future study approach

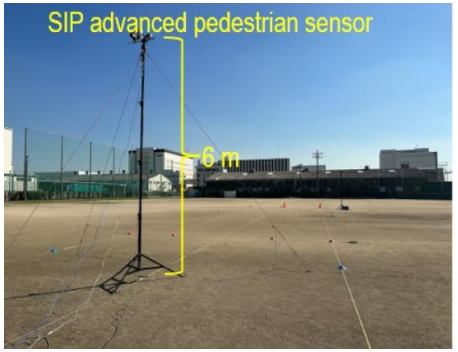
* UCs ① and ②: Perform verification on a test course
* UCs ③ and ④: Define requirements based on test course and actual field

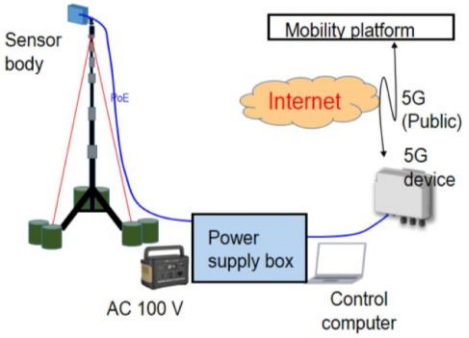
Infrastructure sensors

Current status of study

Development and verification of CooL4 specification-conformant sensors for inferring pedestrian road crossings

The sensors have been connected to a collection and delivery platform and integration testing has been performed. This testing has confirmed that both delay and accuracy targets have been met.





Test item	Test results
Delay time	141.6 ms @ 95% accumulation * Total time for camera output (15 fps), sensor processing, and transmission to integrated traffic platform
Location accuracy	0.67 m @ 95% accumulation Average error: 0.51 m Maximum error: 1.1 m * For 10 m x 10 m area directly under sensor

Future study approach

Verification testing at the Japan Safe Driving Center in Hitachinaka City for Safe Driving

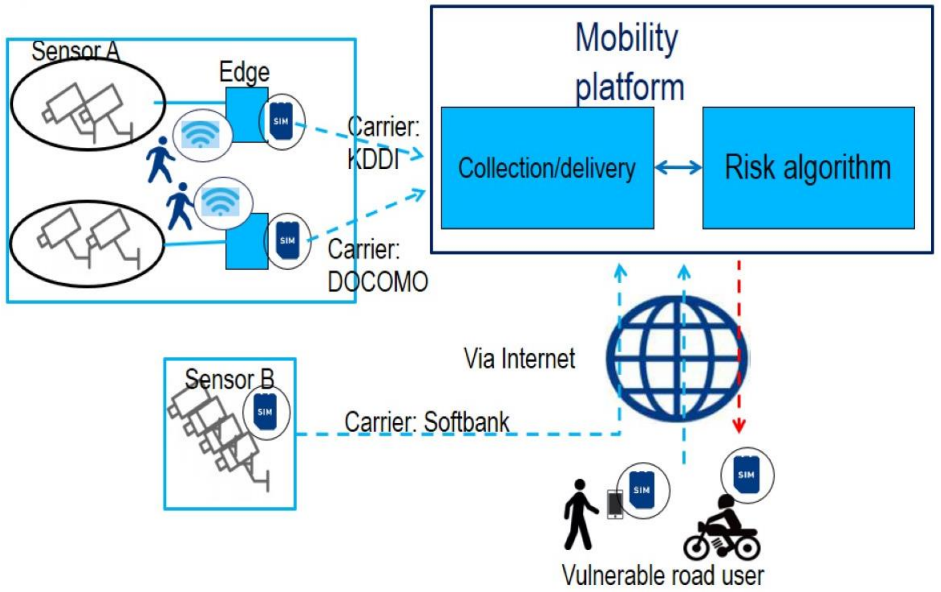
Carry out study regarding system refinements in preparation for next fiscal year

2-1. Status of study regarding elemental technologies

Transmission

Current status of study

* Verification items have been clarified and combined operation confirmation has been performed based on those verification items
* An environment was created for acquiring and delivering detection data (Transmission network that sends data via a closed network/the internet)



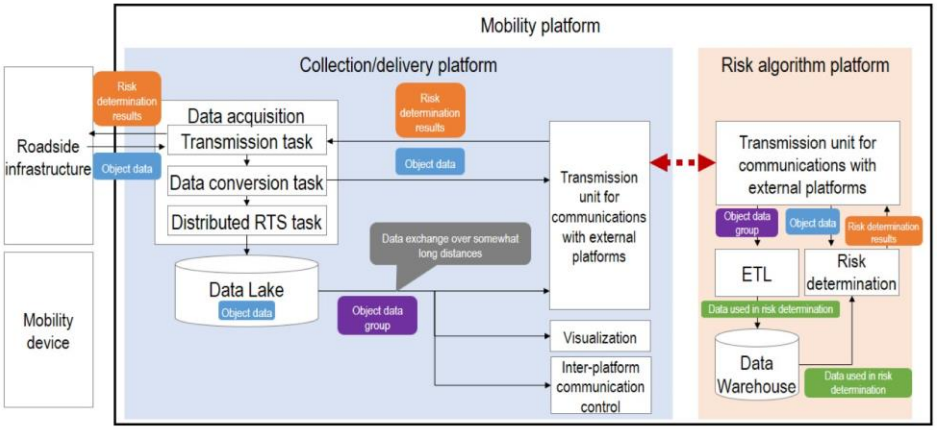
Future study approach

Summarize verification results and clarify issues

Mobility platform

Current status of study

* Verification items have been clarified and verification tools, such as log replay functions, have been created
* Deliberations aimed at implementing traffic signal information distribution have started



Future study approach

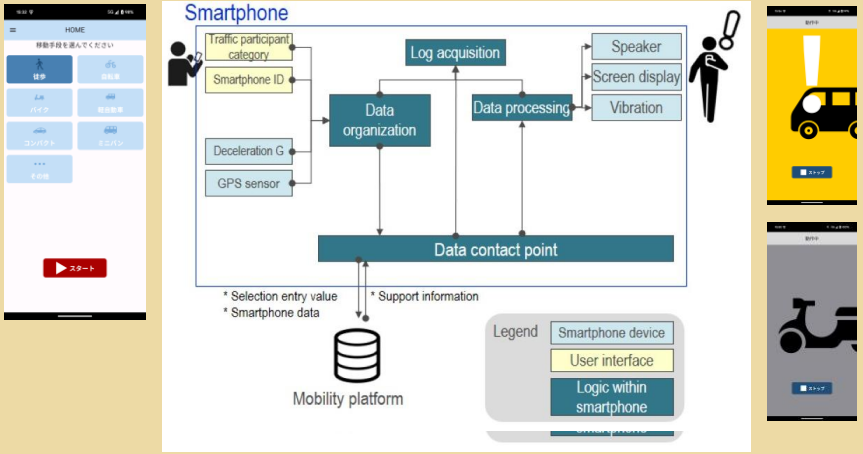
* Summarize verification results
* Identify issues and clarify necessary functions in order to perform public road verification next fiscal year
* Deliberate methods for implementing cross-platform integration functions

2-1. Status of study regarding elemental technologies

Delivery

Current status of study

* Organized information regarding support recipients and support timing
* Performed two types of delivery: "Notification" and "Caution"
* Built a smartphone app as a delivery system and performed combined operation confirmation for each UC



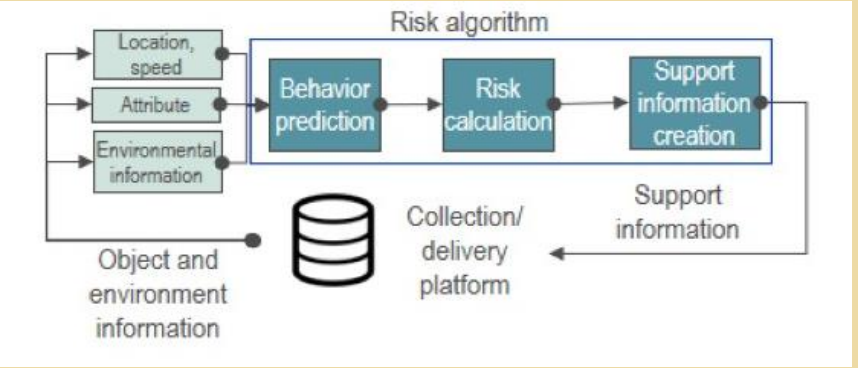
Future study approach

We will continue to perform combined operation confirmation to refine the system and we will clarify issues related to transmission speeds, support contents, and timing in order to promote behavioral change

Risk algorithm

Current status of study

* Created risk algorithm
* Improved risk algorithm to enable real-time processing
* Deployed algorithm in platform and performed interface matching



* Confirmed real-time operation using actual driving data
* Confirmed that operation was possible within the data transmission cycle time

Future study approach

We will evaluate the performance of the risk algorithm and clarify issues that must be addressed in order to deploy it in the real world, such as the accuracy of risk sign detection, scalability, etc.

2-2. Status of study regarding business, systems, and social acceptance

Business model

* FV: Field visit to the Japan Safe Driving Center in Hitachinaka City in late March 2025

Current status of study (equivalent to BRL3)

- We have hypothesized candidate customers and deliberated what value can be provided, approach methods, and service levels while using business model canvasses for individual customers.
- We have had discussions with some candidate customers (an insurance company and an automobile manufacturer) and we are verifying the above hypotheses.

Candidate customer	Value provided
Vulnerable road users (people with visual or hearing impairments, the elderly, small children, etc.), bicycle drivers, motorcycle drivers, car drivers	Improve safety for all traffic participants, including pedestrians Improve QOL for traffic participants by improving safety and thereby providing traffic participants with more movement opportunities
Police departments, road administrators (local municipalities, Ministry of Land, Infrastructure, Transport and Tourism)	Reduce amount of public funds used for road safety equipment, enforcement, and education Reduce site verification expenses by reducing number of accidents and enabling remote verification Improve QOL for traffic participants and provide economic benefits by improving safety and thereby providing traffic participants with more movement opportunities
Vehicle manufacturers	Increase number of vehicle purchasers (reduce number of people returning their licenses, young people who avoid cars due to fear of accidents, etc.) Branding benefits related to safety, security, and technological sophistication
Business operators such as MaaS, ride-sharing, and e-scooter companies	Increase number of service users, facilitate data-based marketing, and improve operation efficiency
Rail road operators	Reduce recovery costs arising due to accidents in railroad crossings, reduce fare revenue losses caused by service delays and suspensions
Delivery companies	Improve corporate image through accident rate reductions and safety measures
Smartphone manufacturers and app vendors	Increase number of smartphone buyers and app users by preventing dangers associated with using smartphones while walking
Schools and facilities	Reduce operational costs associated with traditional traffic safety education and accompanying students returning home after school
Insurance companies	Diversify insurance products by leveraging data, increase efficiency of assessments and reviews Reduce site verification expenses by reducing number of accidents
Local government consultants and systems integrators	Local government operational support using mobility data (fields other than transportation)

Future study approach (equivalent to BRL4)

We plan to create opportunities for customers to experience services through verification tests and FV and to verify the potential of the business model

2-2. Status of deliberations regarding business, systems, and social acceptance

Systems and rules

Current status of study (equivalent to GRL3)

- We have organized discussion partners and related laws and regulations, and we have engaged in exchanges of opinions with potential collaborators.
- We have begun coordinating actual operations with related organizations and local governments in preparation for verification testing.

Future study approach (equivalent to GRL3)

- We will confirm the importance of the above issues and the potential for future coordination by exchanging opinions with local governments and other consortiums.

Increasing social acceptability

Current status of study (equivalent to SRL3)

- We formulated hypotheses regarding measures and stories for each phase in preparation for real-world deployment.
- We are verifying the potential of measures by exchanging opinions with JAMA, other consortiums, local governments, etc.
- At the field visit, we exchanged opinions and received feedback regarding the hands-on event from potential communities in which initial deployment would take place.

Future study approach (equivalent to SRL3)

- Based on the feedback received at the FV, we will update our story hypotheses in preparation for real-world deployment and engage in even more vigorous exchange of ideas with potential communities in which initial deployment would take place.

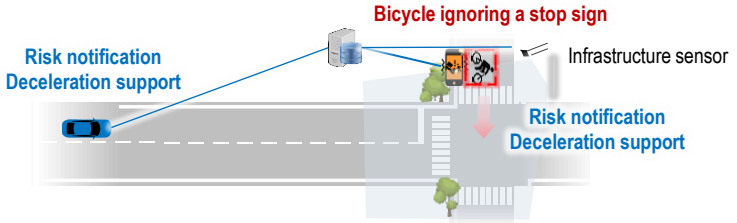
2-3. Exploration of use cases (1) UC ① and ②

Envisioned use cases

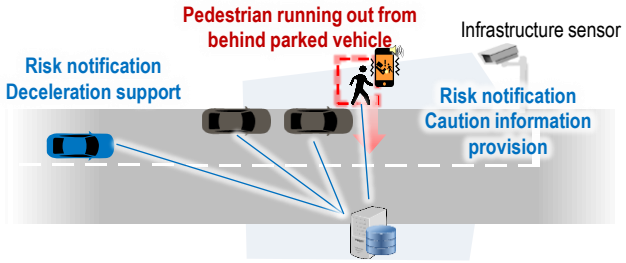
- We will aim to solve the problems involved in the following four typical use cases, which represent specific traffic accident risks.
- In the Tsukuba verification test, we will perform large-scale verification testing for these use cases.

① Preventing accidents caused by pedestrians, etc., running out into the street in intersections with blind spots or from between parallel-parked vehicles

①-1 **Bicycles suddenly entering the street** in intersections with blind spots

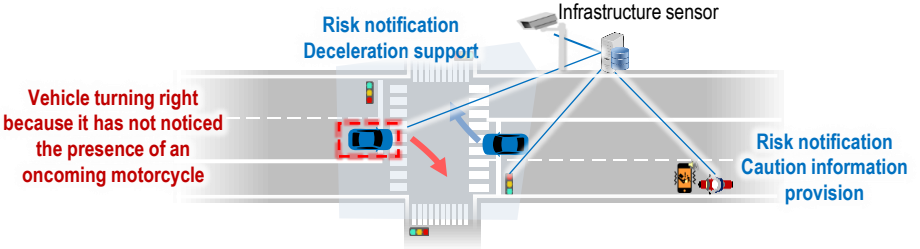


①-2 **Pedestrians running out** from behind parallel-parked vehicles

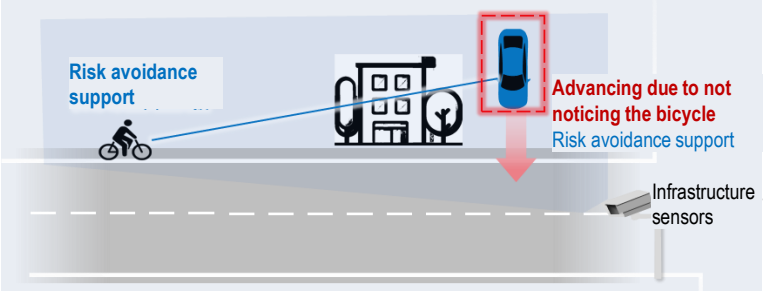


② Preventing accidents caused by drivers not noticing the presence of motorcycles due to blind spots created by oncoming vehicles turning right

②-1 **Not noticing the presence of** motorcycles due to blind spots created by oncoming vehicles turning right



②-2 **Not noticing the presence of bicycles** due to blind spots created by buildings, etc.



2-3. Exploration of use cases (1) UC ① and ②

- We performed integrated testing at the premises of Nippon Signal's Kuki Plant and confirmed the following:
  - Confirmed that infrastructure accurately detected pedestrians, bicycles, and motorcycles
  - Confirmed the uniformity of simultaneous infrastructure/smartphone data connections in an environment with actual vehicles and confirmed that visualization tools, etc. functioned correctly
  - Confirmed that smartphones, infrastructure, the collection and delivery platform, and the risk algorithm platform were properly integrated and that the entire system operated in an integrated manner
- We operated the entire system for the use cases, start to finish, and confirmed that **two stages of support were provided** for each of the use cases.

◆ Conceptual image of support timing

Using the bicycle use case as an example, we plotted the location where the predicted time to collision (TTC) was 10 seconds, the location where the TTC was 6 seconds, the location where a notification was issued, and the location where a caution was issued on the diagram below.
We confirmed that two stages of support were provided: a notification was provided between TTC 10 and TTC 6, and then a caution was issued between TTC 6 and TTC 3.

◆ Timing and contents of support

Item	Time to collision (TTC)	Support contents
Notification	10 to 6 [s]	Issue notifications of risks caused by site blind spots and other vehicles
Caution information	6 to 3 [s]	Issue cautions or warnings recommending stopping

2-3. Exploration of use cases (1) UC ① and ②

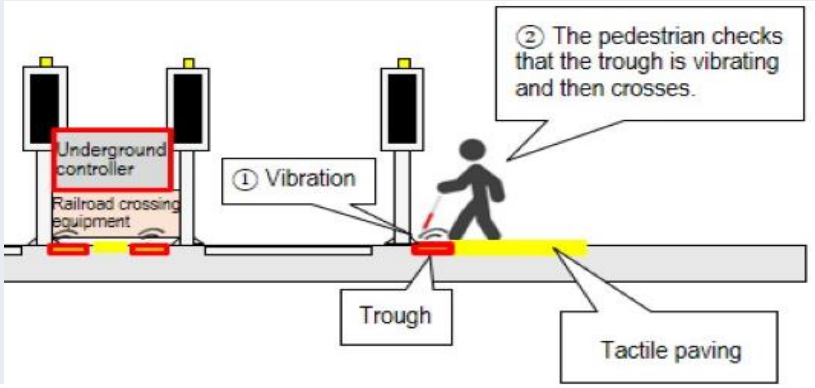
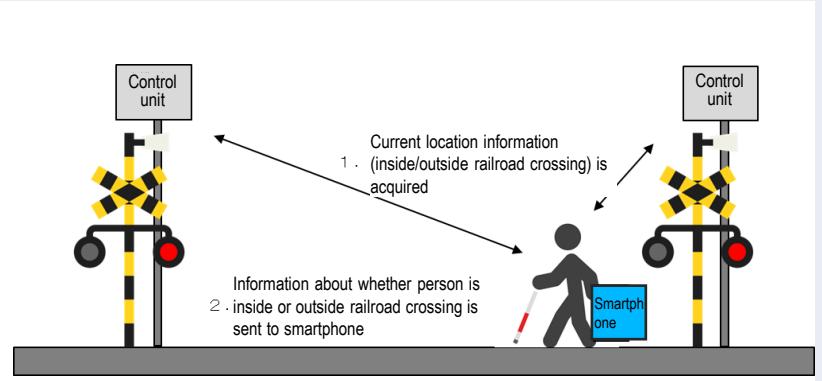
Verification testing steps

We have organized the verification testing steps leading up to real-world deployment. Until FY2025, the steps have primarily consisted of confirming the feasibility and effectiveness of systems on public roads. From FY2025 onward, we will carry out verification work to verify acceptability, reliability, etc., in preparation for real-world deployment

	Objectives	Test scenario participants	Related traffic participants
STEP 0 '24	• Verification of system feasibility • Verification of effectiveness * Controlled testing on test course	• Related parties (testing by consortium members testers)	• None Kuki and Hitachinaka verification testing
STEP 1 '25	• Verification of system feasibility • Verification of effectiveness * Controlled testing in actual roadway traffic environment	• Related parties (testing by consortium members and other OEM testers)	• General public Tsukuba verification testing
STEP 2 '26	• Quantitative evaluation of benefits • Verification of acceptability	Confirmation in simulation environment	
Reliability and safety verification '26～'27	• Verification of reliability design (theoretical demonstration of safety) • Approval by general demonstration participants		
STEP 3 '27	• Verification of reliability (real-world) • Promotion of widespread use * Confirmation in preparation for real-world deployment	• General demonstration participants (distribution of support app)	• General public (distribution of support app)

2-4. Exploration of use cases (2) UC ③

Use case reassessment

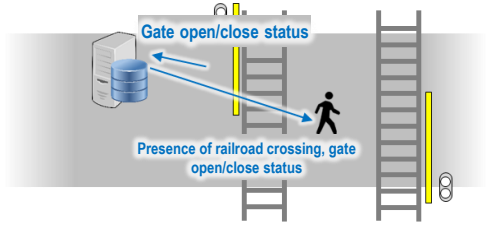
Item	UC ③	
	③-1	③-2
UC	Utilizing underground units to provide support to people requiring assistance in crossing LRT or streetcar routes	Determining locations (inside/outside railroad crossing) of people requiring assistance
Implementation site	Utsunomiya LRT Seiryo High School Stop	Currently under deliberation
Use case		
Overview	When: At all times Where: Near tactile paving in front of train track and railroad crossing For whom: People with transportation limitations, such as people with visual impairments, wishing to cross LRT/streetcar tracks What: Vibration, LED, voice How: Have underground units provide notifications to people with transportation limitations such as people with visual impairments, etc.	When: At all times Where: Railroad crossings For whom: People with transportation limitations, such as people with visual impairments, wishing to railroad crossings What: Current location information (whether inside or outside railroad crossing) How: Use Bluetooth to send a notification to the portable devices of people with visual impairments
Results	People with visual impairments can use the vibration of the underground unit to cross the tracks of LRTs or streetcars and reach the opposite side. This UC also helps reduce the psychological fatigue involved in waiting for an LRT or streetcar to pass.	People with transportation limitations such as people with visual impairments can clearly determine their own positions while crossing the railroad crossing and avoid accidentally stopping within the railroad crossing.

2-4. Exploration of use cases (2) UC ③

Use case ③-2

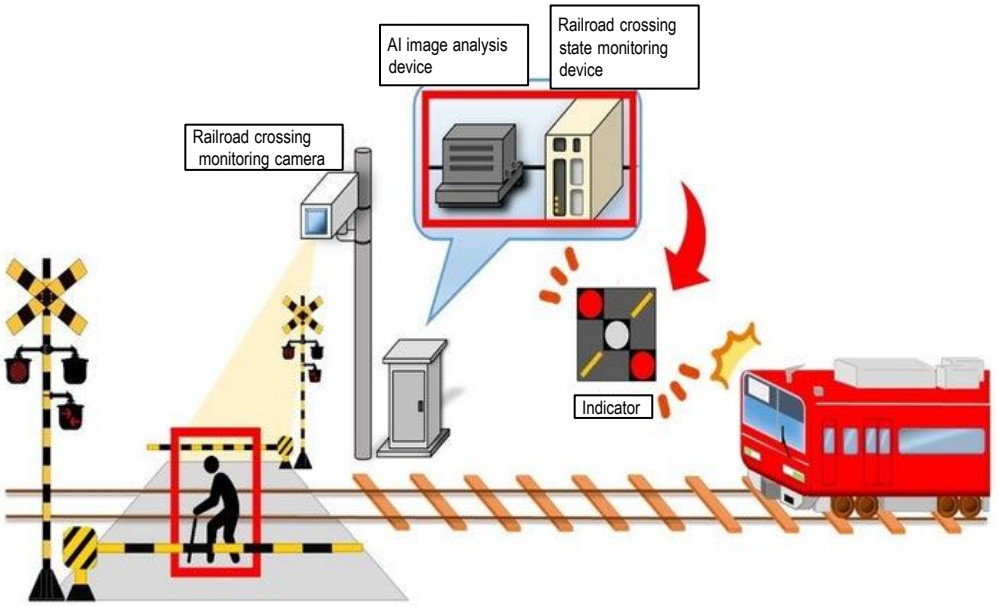
We have begun discussions with related parties to implement the use case through integration with railroad crossing monitoring systems.

People requiring assistance becoming trapped in railroad crossings after the warning signal starts



Item	UC ③	
	③-1	③-2
UC	Utilizing underground units to provide support to people requiring assistance in crossing LRT or streetcar routes	Determining locations (inside/outside railroad crossing) of people requiring assistance
Implementation site	Utsunomiya LRT Seiryo High School Stop	Currently under deliberation
Use case	② The pedestrian checks that the trough is vibrating and then crosses. ① Vibration Trough Tactile paving	
Overview	When: At all times Where: Near tactile paving in front of train track and railroad crossing For whom: People with transportation limitations, such as people with visual impairments, wishing to cross LRT/streetcar tracks What: Vibration, LED, voice How: Have underground units provide notifications to people with transportation limitations such as people with visual impairments, etc.	When: At all times Where: Railroad crossings For whom: People with transportation limitations, such as people with visual impairments, wishing to railroad crossings What: Current location information (whether inside or outside railroad crossing) How: Use Bluetooth to send a notification to the portable devices of people with visual impairments
Results	People with visual impairments can use the vibration of the underground unit to cross the tracks of LRTs or streetcars and reach the opposite side. This UC also helps reduce the psychological fatigue involved in waiting for an LRT or streetcar to pass.	People with transportation limitations such as people with visual impairments can clearly determine their own positions while crossing the railroad crossing and avoid accidentally stopping within the railroad crossing.

SIP Phase 3 use case ③ "People requiring assistance becoming trapped in railroad crossings after the warning signal starts"



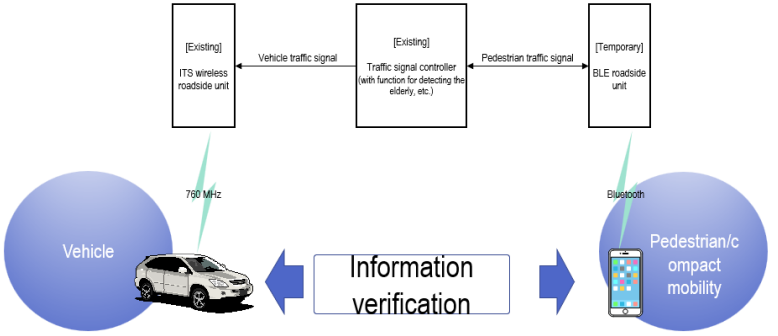
Railroad crossing monitoring system that uses an AI image analysis device (conceptual image)

Translation of excerpt from dffc432710a1e7f068b0cb323639e2858b491b22.pdf

2-5. Exploration of use cases (3) UC ④

Test field and system structure

[Objectives]
There are only a limited number of manufacturers who manufacture devices that use information delivered by infrastructure devices, so this verification test aims to expand the range of services that use traffic signal information by promoting participation and evaluation by a large number of vendors.



■ Test field

The following four locations were selected.

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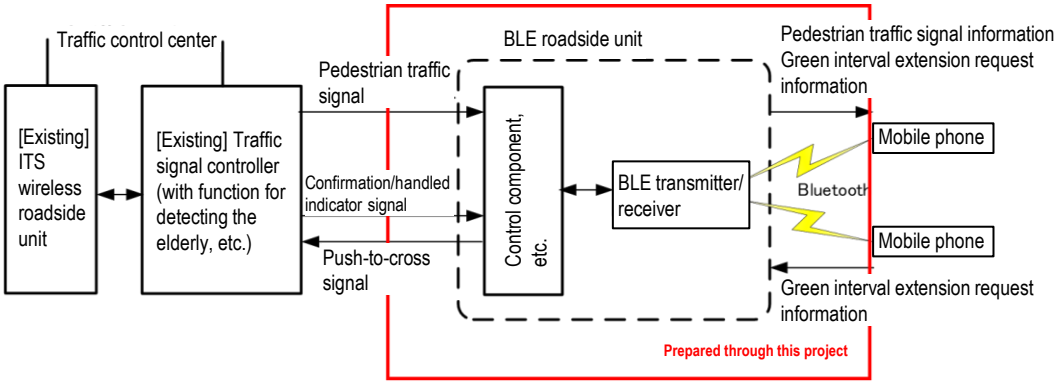
■ System configuration

The use case is implemented by distributing signals from the pedestrian crossing signal, without making any changes to the traffic signal controller



3. Progress towards real-world deployment

3-1. Progress towards real-world deployment and its ripple effects

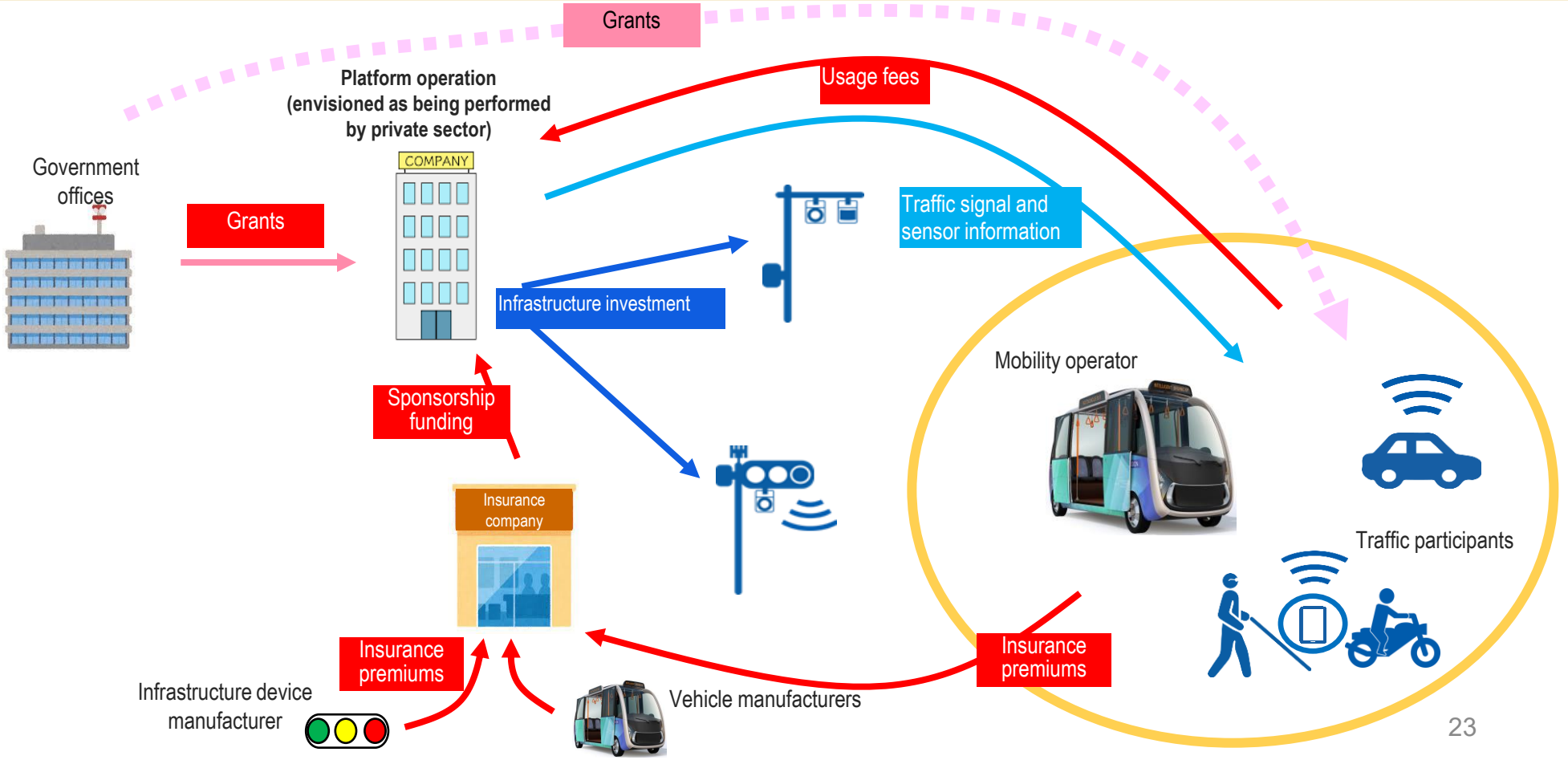
3-2. Drawing in other related parties

3-3. Status of external communications

3-1. Progress towards real-world deployment and its ripple effects

Ideals when the results of this research and development project are deployed in the real world

- To maximize the traffic accident prevention effectiveness of the scheme created through this project, **it must be implemented across a wide range of manufacturers, without being limited to specific vehicle or device manufacturers**, and **ideally its specifications should be standardized and widely adopted**.
- The **platform at the heart of the scheme is envisioned as being operated by members of the private sector**.
- In addition to app usage fees, we have also considered **offsetting the cost by collecting insurance premiums, etc.** from mobility operators and vehicle manufacturers



3-1. Progress towards real-world deployment and its ripple effects

Steps involved in realizing ideals (exit strategy)

SIP research and development

Achieve a smooth transition to the real-world deployment phase by conducting research and development and coordinating with related parties in advance with an eye towards the challenges of the initial stages of the real-world deployment phase

- Verify technologies to realize safety and security services available in a wide range of areas and users through an optimal mix of infrastructure and V2N
- Carry out end-to-end development that extends across infrastructure, platform, and app lines to create systems, including interfaces between platforms and apps
- With an eye towards nation-wide deployment in conjunction with related parties, clarify what falls in the cooperative area through the research and development project and create essential rules

Exit strategy

- **Our goal is to create services that play an important role in the traffic safety ecosystem and and make up the service platform that makes road spaces safe and secure.**
- To accelerate real-world deployment, we will work with related parties to **design and standardize interfaces between the platform and apps, which is part of the cooperative area** and **create service models based on actual regional conditions**. Through this, we will shape the initial service market for road space safety and security.

Ripple effects

- **Reduction in number of traffic accidents**: We plan to estimate the effectiveness of these measures in FY2025 to FY2027
- **Popularize automated driving**: Help improve the safety and social acceptability of autonomous vehicles through integration of infrastructure and on-board systems
- **Platform integration**: Link to national data strategies by connecting to information integration platforms provided by the national government, etc.

	Solving problems through SIP research and development		Wide-spread usage promotion scenarios during real-world implementation phases		
	SIP		Phase 1 (2028 to 2029)	Phase 2 (2030 to 2031)	Phase 3 (2032 onward)
Detection and acquisition (infrastructure, etc.)	Verification of technologies used to provide services	Define scope of cooperative areas and create rules by coordinating with related parties	Carry out preliminary deployment **in pilot areas, such as areas where automated driving verification testing is performed**, and **in areas with local governments who are interested in these initiatives**	Expand data detection and acquisition environments by **splitting expenses between the public and private sectors**, focusing on **areas with high incidences of accidents**	**Utilize data platform and smartphone app usage fees** to expand usage nationwide
Integration and processing (data platform)	Design interfaces between platforms and apps through end-to-end development		Largely complete framework for providing information based on service levels by **integrating information with external data platforms**	Largely complete **multi-dimensional data platform** that includes human movement data, image recognition data, etc.	**Connect to information integration platforms** provided by the national government, etc. and **link to national data strategies**
Delivery and utilization (app)			Supply simple and free apps, **primarily to OEMs and associations for people with disabilities**	Increase number of app users through **integration by telecommunications carriers**	Greater usage of data utilization apps by external vendors **in the traffic safety field and other fields** (E.g.: Automated driving systems and other on-board systems)

3-1. Progress towards real-world deployment and its ripple effects

Status of current initiatives based on exit strategy

- The greatest challenge is **expanding coordination and integration during the SIP research and development period** before including infrastructure, data platforms, and apps within the wide-spread usage promotion scenarios.
- **Currently, to tackle these challenges, we have defined tasks** and are coordinating with the parties that are essential to carrying out these tasks. **We will work to deepen the level of coordination and integration** with related parties and **continue preparing the groundwork for real-world implementation.**

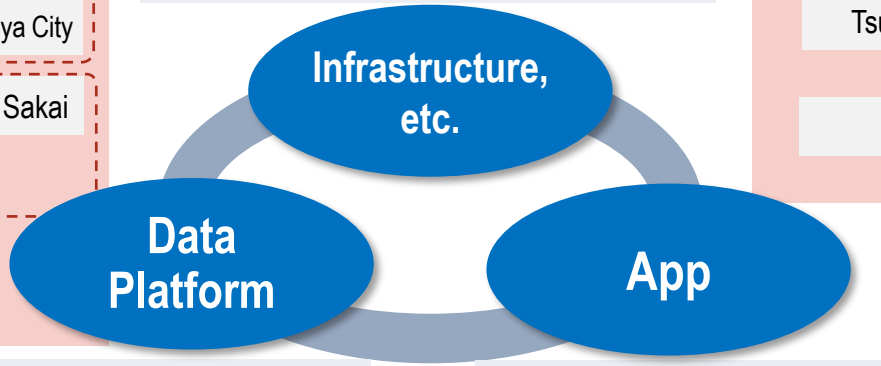
[Task ①] Perform technology verification integrated with candidate areas for pilot deployment and create service model

Local governments participating in verification project
- Tsukuba City
- Tokyo (Odaiba)
- Utsunomiya City

Local governments making advance preparations
- Shiojiri City
- Town of Sakai
- Higashihiroshima City
- Kashiwa City (Kashiwa-no-ha)

Related government agencies
- MLIT
- National Police Agency

[Issue] Popularizing and expanding use of services



[Issue] Expand platform integration

[Issue] Increase number of users

[Task ③] Estimate reduction in traffic accidents (Local governments participating in verification project, etc.)
- Tsukuba City
- Utsunomiya City
- Tokyo
- Oriental Consultants

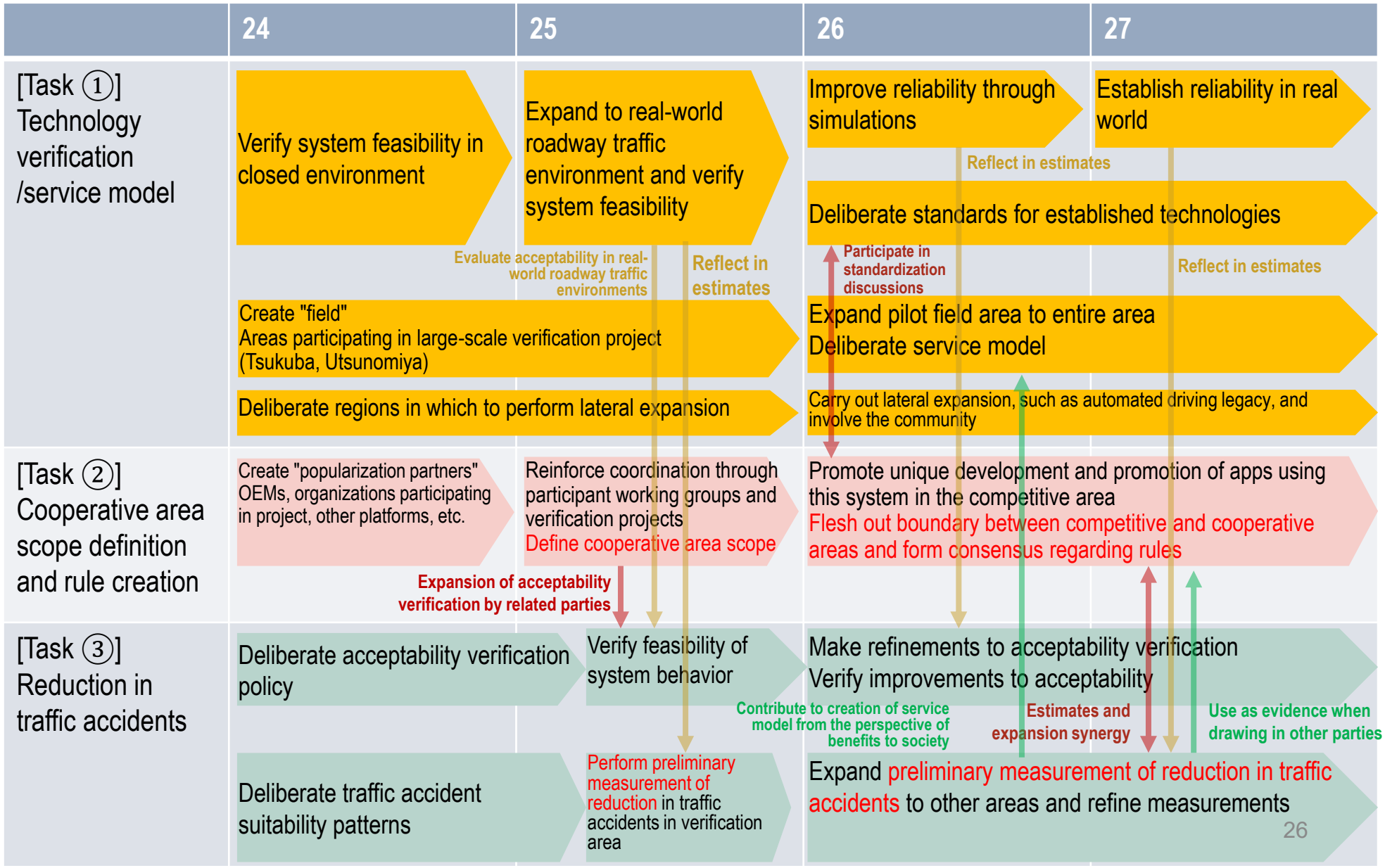
[Task ②] Define collaborative area and create rules (perform standardization)

Platform integration
- JMDS
- UTMS Society of Japan
- METI (Digital Lifeline)

User integration
- JAMA
- ITS Japan
- Associations for people with visual impairments
- Bicycle manufacturers
- Road Bureau next-generation ITS verification project

3-1. Progress towards real-world deployment and its ripple effects

■ Promotion of real-world deployment that integrates technology development, coordination with related parties, and result verification



3-2. Drawing in other related parties

Status of drawing in of test participants

- Applications have been received from the following companies and organizations to participate in verification tests. A briefing was held for participants in December to explain the contents of the project and the roles of participants. In future participant working group sessions, we plan to **engage in discussions from a variety of perspectives in preparation from real-world deployment, not limited to the FY2025 large-scale verification project**.
- Furthermore, we have conducted necessary discussions with **Tsukuba City and Utsunomiya City**, in which large-scale field testing will be performed. In particular, we have exchanged opinions with **Utsunomiya City from the initial testing site selection stage, predicated on real-world deployment (ongoing usage of installed equipment)** following the testing.

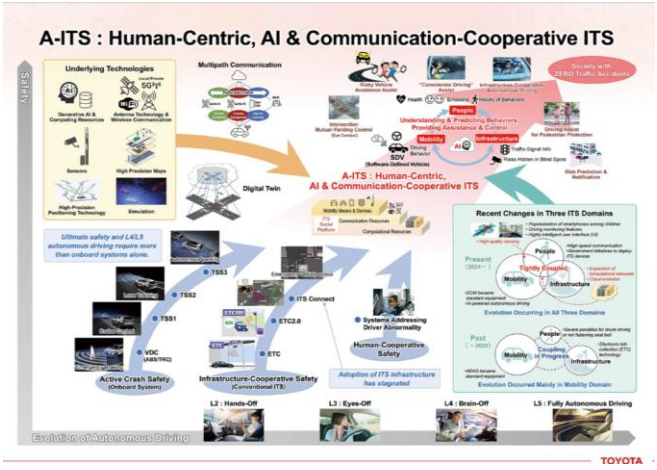
Companies and organizations involved in coordination	Participating use cases
JAMA (OEM)	①, ②, ④
Bicycle manufacturers	①, ②
Telecommunications carriers	①, ②, ③, ④
Developers/manufacturers of systems for people with visual impairments	③, ④
Singo Project (project for visually disabled traffic signal crossings) (voluntary organization)	③, ④

* We are currently making preparations to draw in even more participants

3-3. Status of external communications

Participation in ITS World Congress 2024

Presentation of overview of initiatives by the Traffic Accident Preemptive Prevention R&D Consortium



Multi-communication using digital twins (mobility platform) (Toyota)

Through exhibitions and sessions, we gathered information about the safety initiatives leveraging communications and platforms that are being actively conducted by different countries. These include digital twins that use V2N communications being created by Japanese companies (mobility platform) and the creation of environments overseas that combine V2X and V2N communications.

We believe that it is important to actively approach companies in Japan to urge them to participate in verification tests, to promote the recognition of the effectiveness of these systems by an even greater number of people, and to share information globally.

4. External coordination

4-1. Coordination within issues and spanning multiple issues

4-1. Coordination within issues and spanning multiple issues

Coordination with the UTMS Society Consortium

We also began coordinating on UC ④ to evaluate the interface specifications being deliberated by the UTMS Society Consortium.

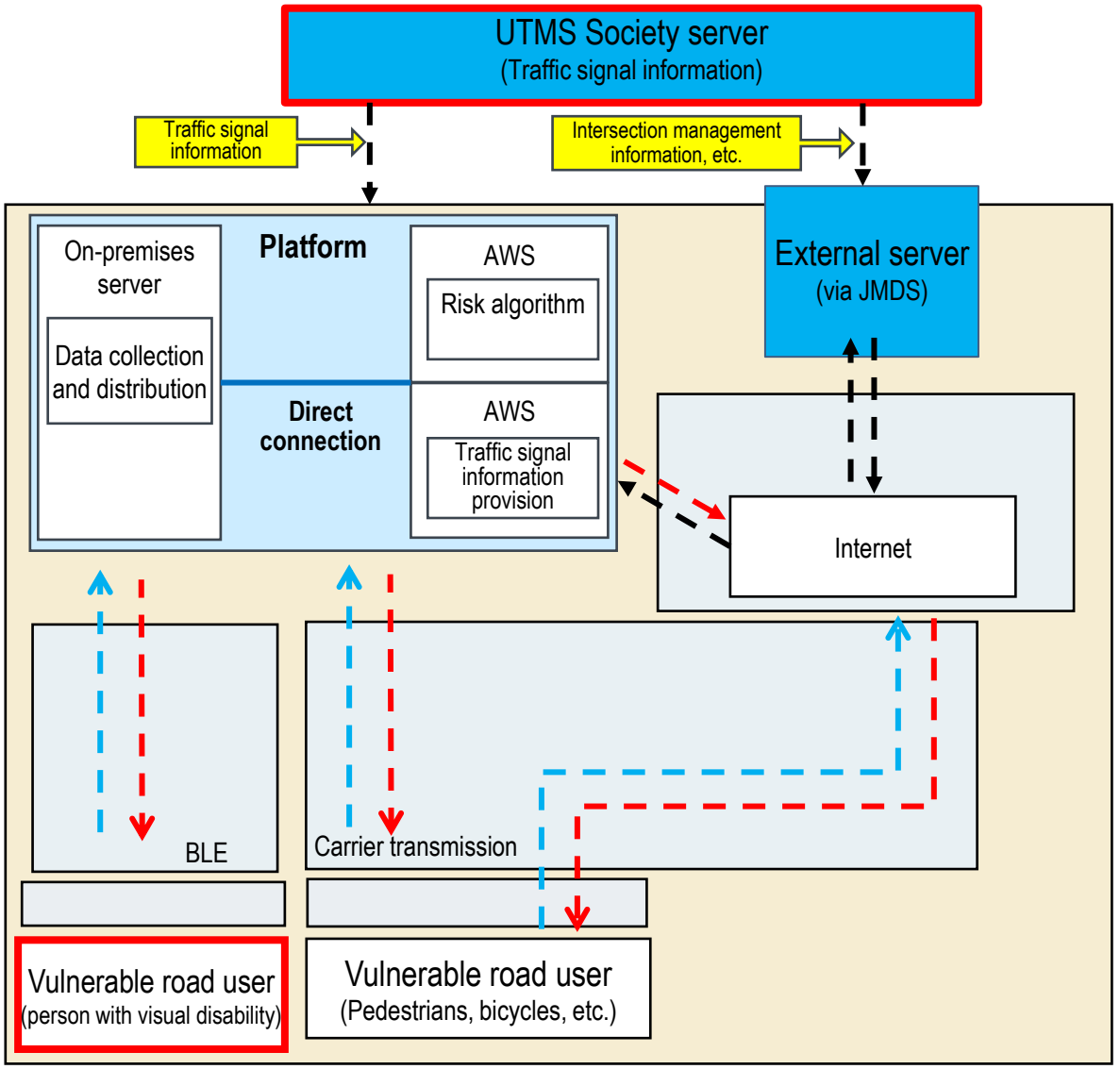


Photo:
Aerial photography by the Geospatial Information Authority of Japan