



Kakogawa City

～ Safety and Security Initiatives ～

26 October, 2023





Population : 256,931
Households : 109,079
Land area : 138.48km²
(as of 1 April, 2023)

Geographical Characteristics

- Located at the mouth of the Kako River, a first-class river, and offers full enjoyment of nature
- Part of the industrial area in the Harima region
- Easy access to Kobe, Osaka and Himeji

Creating Kakogawa's Unique Attractiveness

- Promote attractions that leverage nature close at hand
- Invite industry in Kakogawa
- Create a new liveliness in the area around the station, etc.



Background of the Installation of Mimamori Cameras

- Increase in diversity and violent level of crimes
- Safety and security is one of the greatest concerns for citizens
- Promotion of the development of a safe and secure city where people can say, "I am glad to live in Kakogawa City."
 - (1) Deterrence of crime
 - (2) Early resolution of incidents and accidents (including traffic accidents)
 - (3) Ensure safety by confirming the whereabouts of children, etc.

Cameras are installed mainly on intersections, school routes and other bustling places to improve public security.



Safety camera

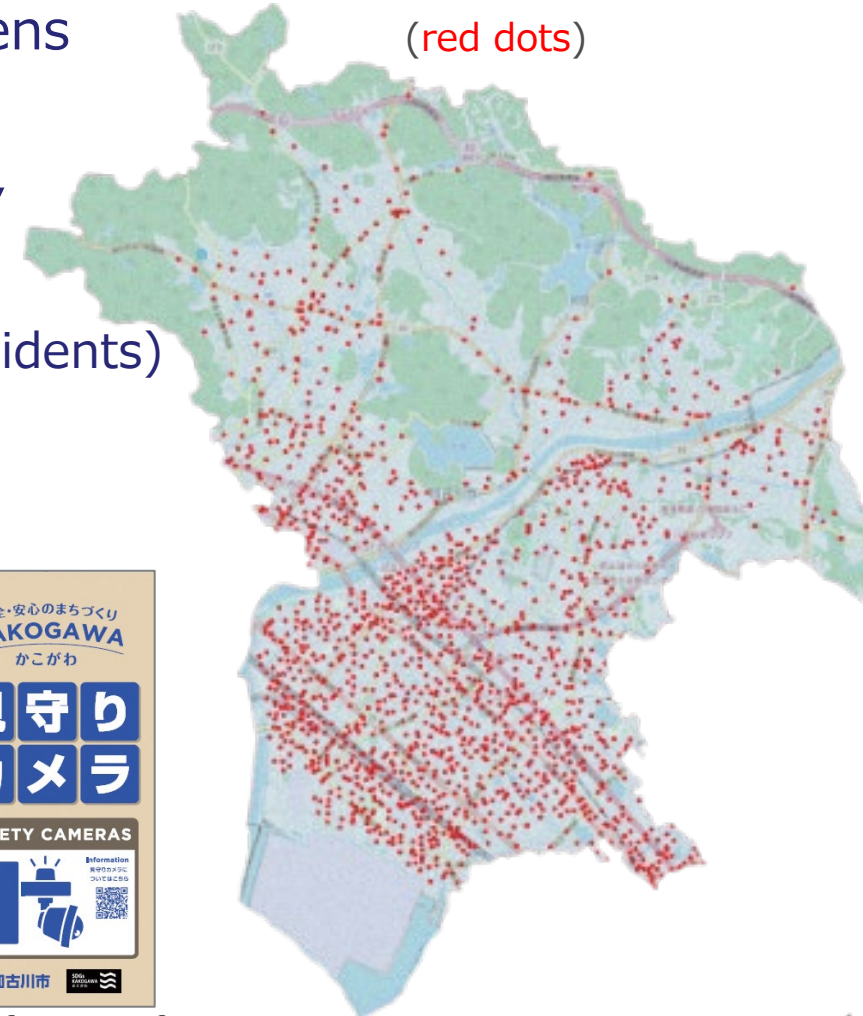


Advanced safety camera



Utility pole signs informing of camera installation

Location of safety cameras
(red dots)



Agreement on the Installation and Operation of Mimamori Cameras



- Signed an agreement with Kakogawa Police Department on January 19, 2018
 - Signed an agreement with the Kakogawa Police Department regarding the installation and operation of Mimamori cameras and the appropriate management and operation of image data.
 - When deemed necessary for criminal investigations or when deemed urgent and unavoidable for the protection of the lives, bodies, or property of citizens, etc., image data shall be promptly provided.

■ Status of provision in accordance with Article 9 of the Ordinance on the Installation and Operation of Mimamori Cameras

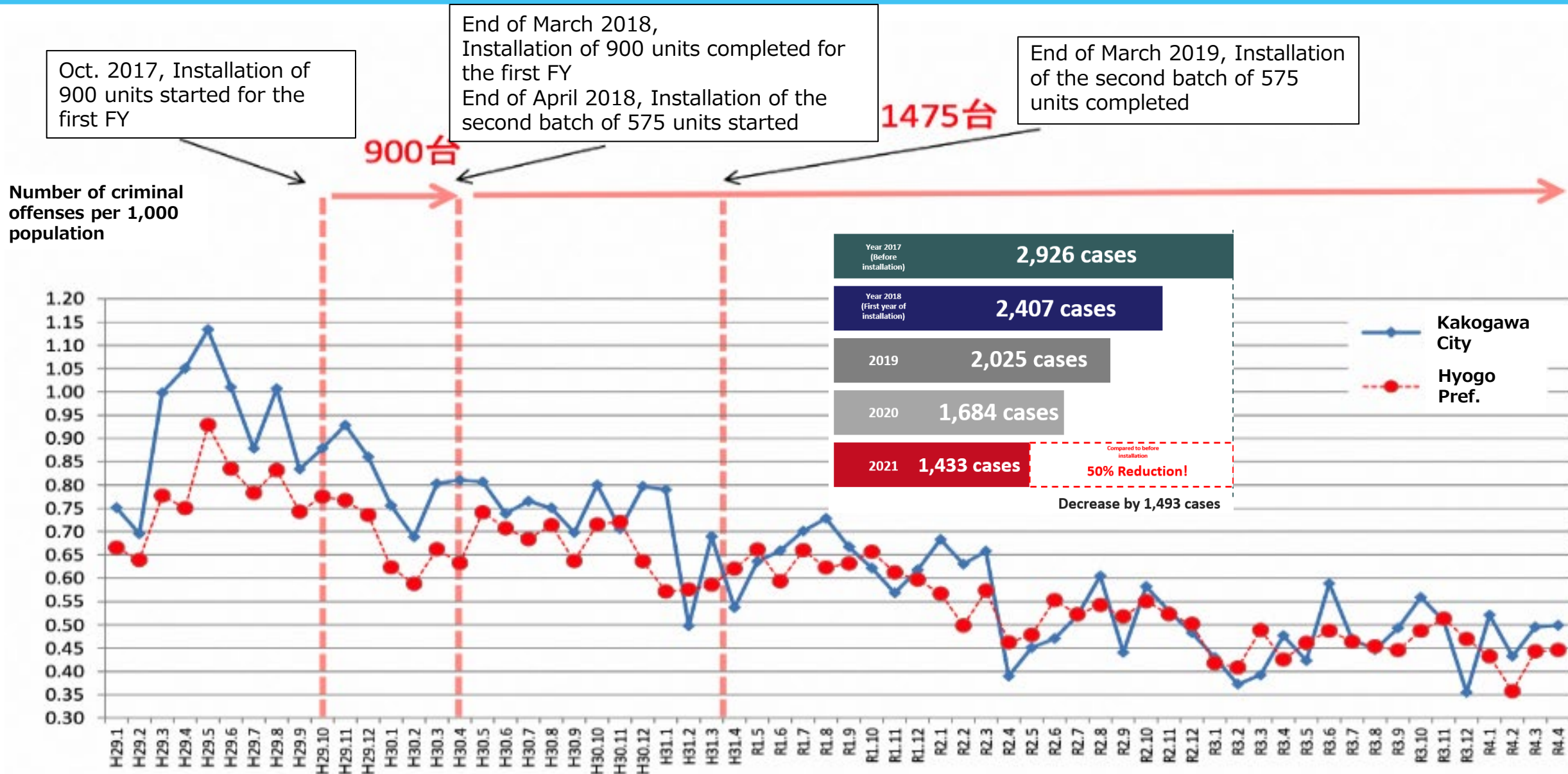
Status of external offerings:

- 9 cases in FY 2017
- 662 cases in FY 2018
- 876 cases in FY 2019
- 803 cases in FY 2020
- 999 cases in FY 2021
- 1,038 cases in FY 2022

- Provided in accordance with Article 7.1.3 of the Ordinance
 - When requested by an investigative agency for the purpose of criminal investigation (inquiry pursuant to Article 197, Paragraph 2 of the Code of Criminal Procedure) (Inquiry pursuant to Article 6-4(3) of the Juvenile Act)



Number of Criminal Offenses Recognized (Jan,2017 – Apr,2022)



Mimamori camera with AI function

- In addition to 1,475 Mimamori cameras (safety cameras) , cameras equipped with **AI functions** were introduced in 2003.
- AI detects abnormal sounds and unsafe driving at intersections and inform people in the vicinity with rotating lights and sound.
- Measure data on people flow and use it for future city development.

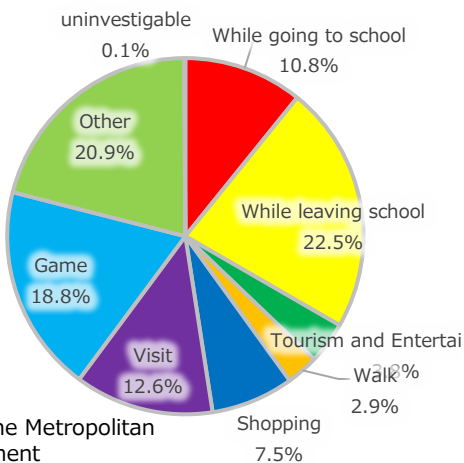
| Type I (100 cameras) | Type II (50 cameras) |
|---|--|
| Notification of hazardous situations (prevention of crimes) When abnormal sounds (screams, yells) are detected, rotating light and speaker sounds operate (only at night) | |
| | Promotes caution when a vehicle is approaching (Prevention of traffic accidents) Rotating lights light and speaker sounds when a vehicle approaches above a certain speed (daytime only) |
| | Measures people flow (for future city development) Data analysis and utilization |



Concept of AI for Detecting Dangerous Driving

- There have been a number of accidents in which vehicles have crashed into lines of children on their way to school, and although each municipality monitors dangerous areas along school routes, in some cases it is difficult to take physical countermeasures.
- The city implemented a system that uses timely AI analysis of camera images to detect dangerous driving early and alert people in the area.

Child (elementary school student) fatalities and serious injuries by purpose of passage while walking

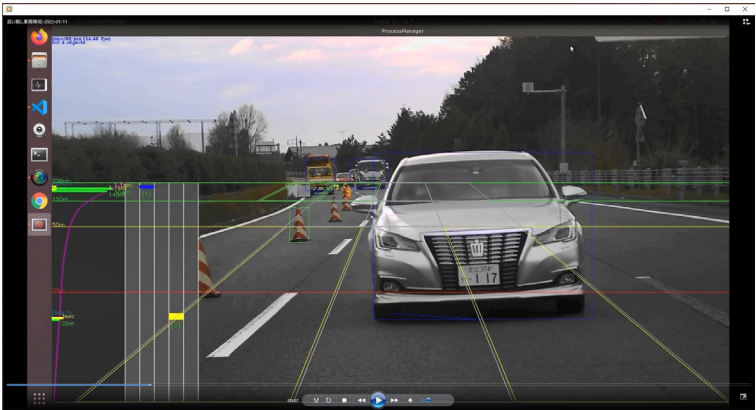


2008 – 2020
Summary of the Metropolitan
Police Department

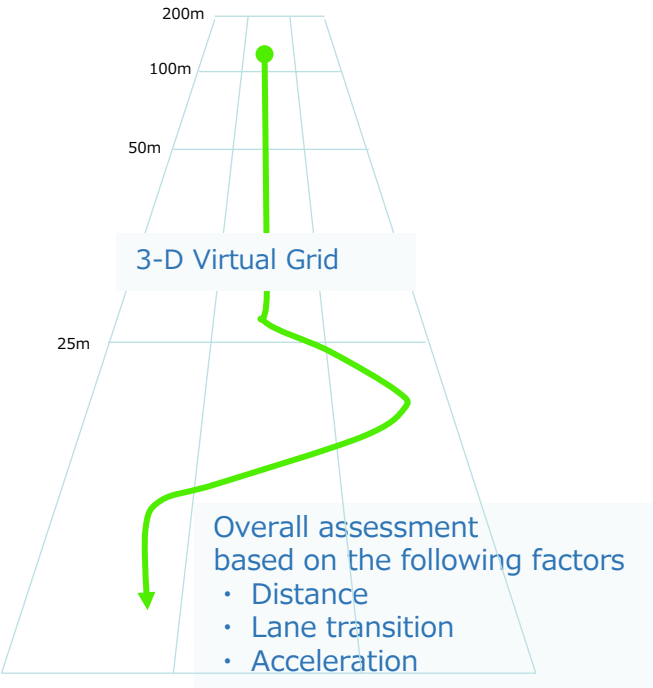
<Major accidents in 2021>

| | |
|----------|--|
| Jun 2021 | Five children were killed and injured when they were hit by a truck on their way to an elementary school in Yachimata City, Chiba Prefecture. |
| Dec 2021 | A fourth-grader was struck and killed by a large trailer on his way to school at an intersection on a prefectural road in Wadajima-cho, Komatsushima City, Tokushima Prefecture. |

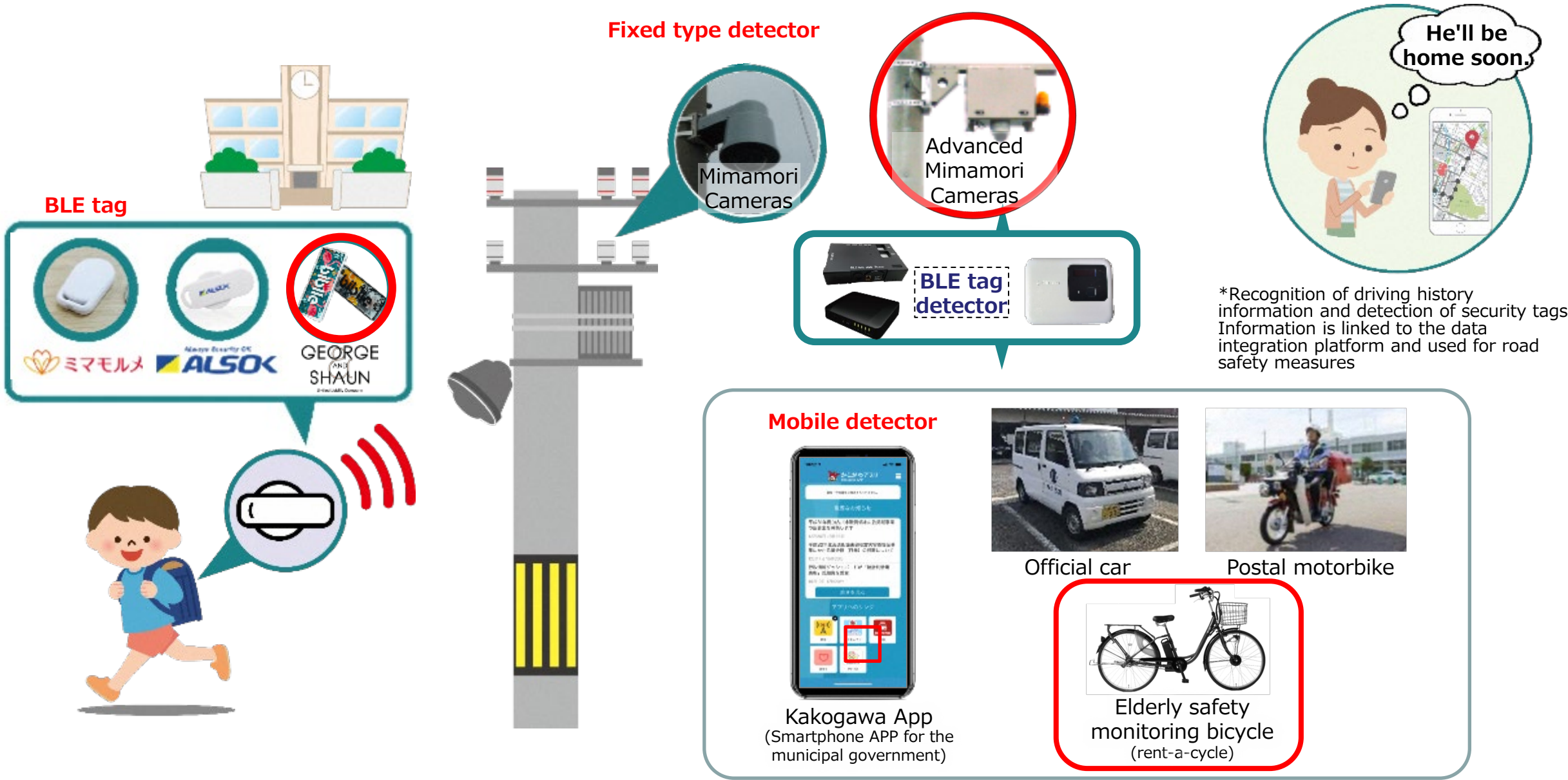
Solution with new technology



Determines dangerous driving by AI analysis of speed, acceleration, and position from the images
Patent pending (PCI Solutions)



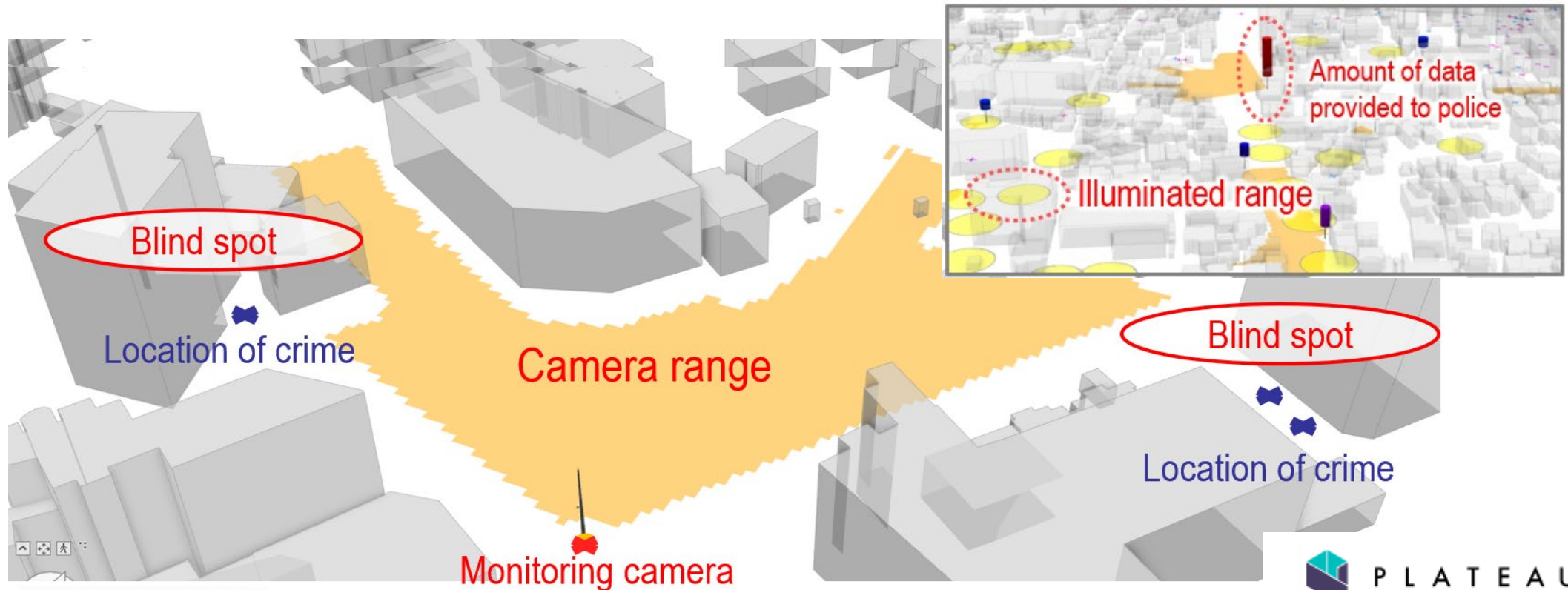
Mimamori (Safety Monitoring) Service



3D model utilization and future possibilities: Example 1



- By using 3D models, it is possible to check the shooting range and blind spots of the Mimamori cameras
- Combined with data on crime locations, it can be used to examine more effective locations for installation
 - Verification was conducted on 500 cameras in the train stations area



What are stumbling points

- Recently, there has been an increase in **efforts to utilize data** acquired through business **to provide new value to people and society**.
- However, in data utilization, actions taken with **good intentions can often become problematic**.
- **Even if there are no legal issues**, situations that cause public backlash may happen.
- These problematic factors are referred to as "**stumbling points**".

What is Ethics Framework

- When attempting new things through AI and data utilization, it is important to find stumbling points in advance and take measures to address them.
However, simply confirming based on legal regulations is insufficient, and it is necessary to find them **from an ethical standpoint**.
- The "Ethics Framework" is **the most appropriate content in modern times**, which analyzes recent problem cases and organizes them into an easy-to-understand system.
- The Ethics Framework is organized into **five ethical items** in the figure on the right. Below the ethical items are **14 stumbling points** and **49 checklist items**.





Efforts of Kakogawa City

■ Since FY 2017, approximately 1,500 SAFETY CAMERAS have been installed.

- Installed mainly in the school commuting routes, school surroundings, and park surroundings of elementary schools.
- Considering **residents' privacy**.
- Strengthening communities through local monitoring of children and the elderly.

■ Achievements so far

- Crime prevention effect and early resolution of crimes.
- **The number of crimes in the city has been less than half** in about four years since the installation.

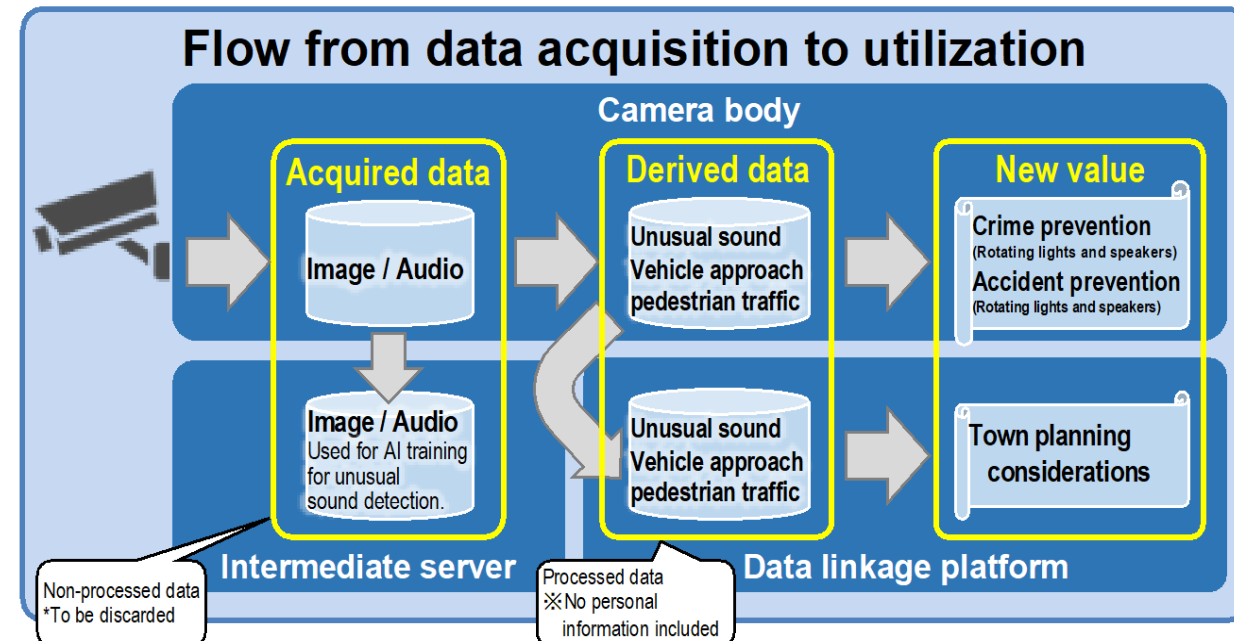
■ In FY 2022, 150 AI-enabled Advanced SAFETY CAMERAS were installed.

- The aim is to further create a safe and secure town.
- Detecting **unusual sounds such as screams**, and warning the surrounding area using a speaker and a Rotating light.
- Detecting **dangerous driving behavior of automobiles** and alerting pedestrians through warning lights.
- Automatically grasping **traffic and pedestrian flow data** and utilizing it for city planning considerations.

Verification through Ethics Framework.

■ Verification results.

- By using the 14 "stumbling points" and 49 check items, we can **comprehensively check** the response situation from an ethical perspective.
- Confirmed that **appropriate measures have been taken** for all check items.



3D model utilization and future possibilities: Example 2

- In workshops for the redevelopment of JR Kakogawa Station, a 3D model was used to create a video to share images with participants and to promote discussion.



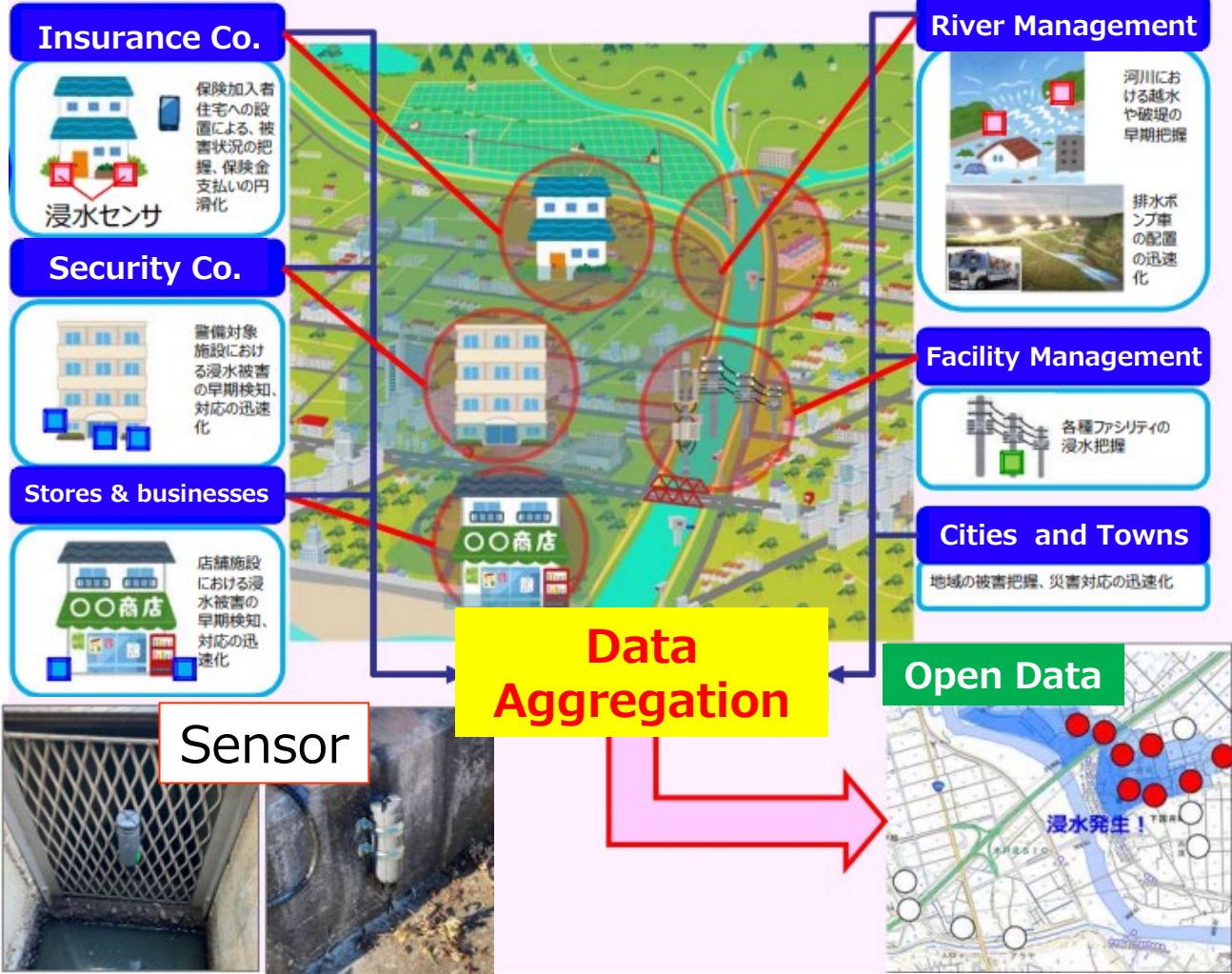
Use of "Decidim" in Riverside Development Project

- The project is being undertaken in the vast riverbed greenspace near JR Kakogawa Station.
- In addition to holding workshops and symposiums, citizens have been using “Decidim” to write down various ideas.

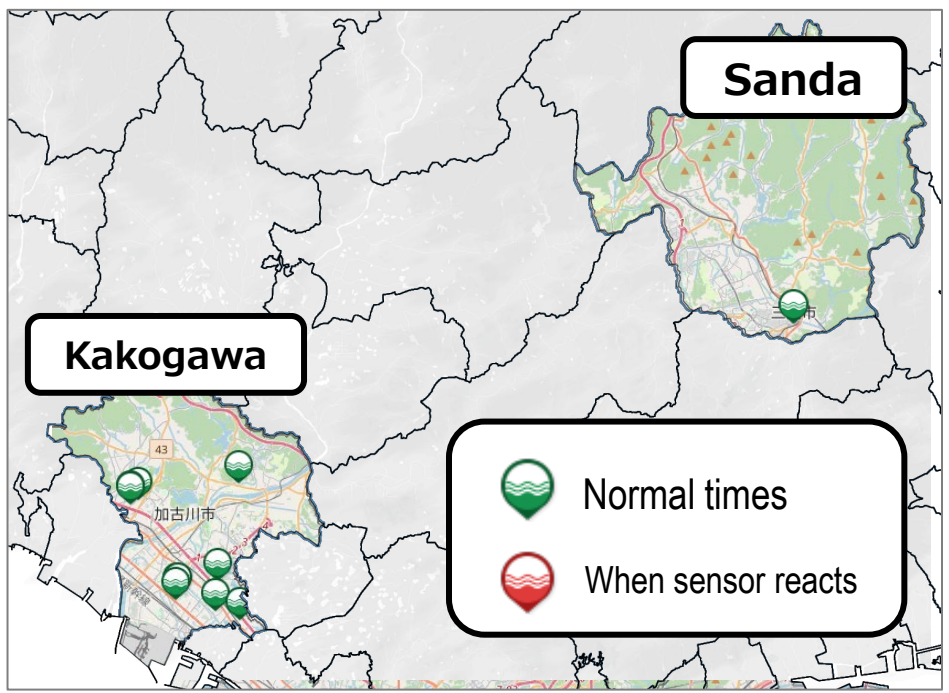


Coin Size Flood Sensor

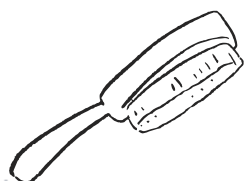
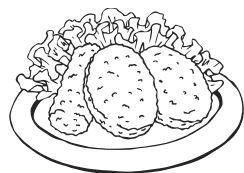
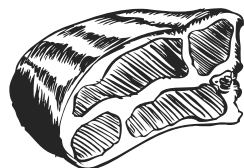
■Coin Size Flood sensors are installed in more than 20 locations to quickly transmit disaster information in the event of rising water levels.



Stores information from flood sensors in other cities and towns in Kakogawa City's information coordination infrastructure, and visualizes the information on the Administrative Information Dashboard



Thank you for listening!



KAKOGAWA CITY

