

Daily Road Maintenance Work (At Nanbu Civil Engineering Office)

<November 20, 2025 JICA training “Road
Maintenance Management (C)”>

Okinawa Prefecture Civil Engineering and Architecture Department Nanbu Civil
Engineering Office

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Introduction (about today's training content)

<Definition of road maintenance, etc.>

| Terms | | Explanation | Business examples |
|-------------------|------------------|--|---|
| Road "management" | | All administrative actions under the Road Law carried out by road administrators | Construction, reconstruction, maintenance, repair, disaster recovery and other management of roads |
| Road "management" | | Maintenance, repairs, disaster recovery and other management activities | — |
| Maintenance work | Maintenance | Daily actions aimed at maintaining the function and structure of roads | Patrols, cleaning, weeding, pruning, pavement patching, etc. |
| | Repair | Actions to restore the damaged structure of a road to its original state, and actions aimed at strengthening additional necessary functions and structures | Repair of deteriorated or damaged parts of bridges, tunnels, pavement, etc., seismic reinforcement, slope reinforcement, etc. |
| | Maintenance work | Permission and approval given by road administrators, legal affairs, etc. based on the Road Law | Route certification, area determination/changes, register maintenance, road occupation, access permits, guidance on illegally occupied and abandoned properties, etc. |
| Road "renewal" | | The act of redeveloping a road with the same functionality, such as replacing the entire road structure | Bridge replacement, etc. |

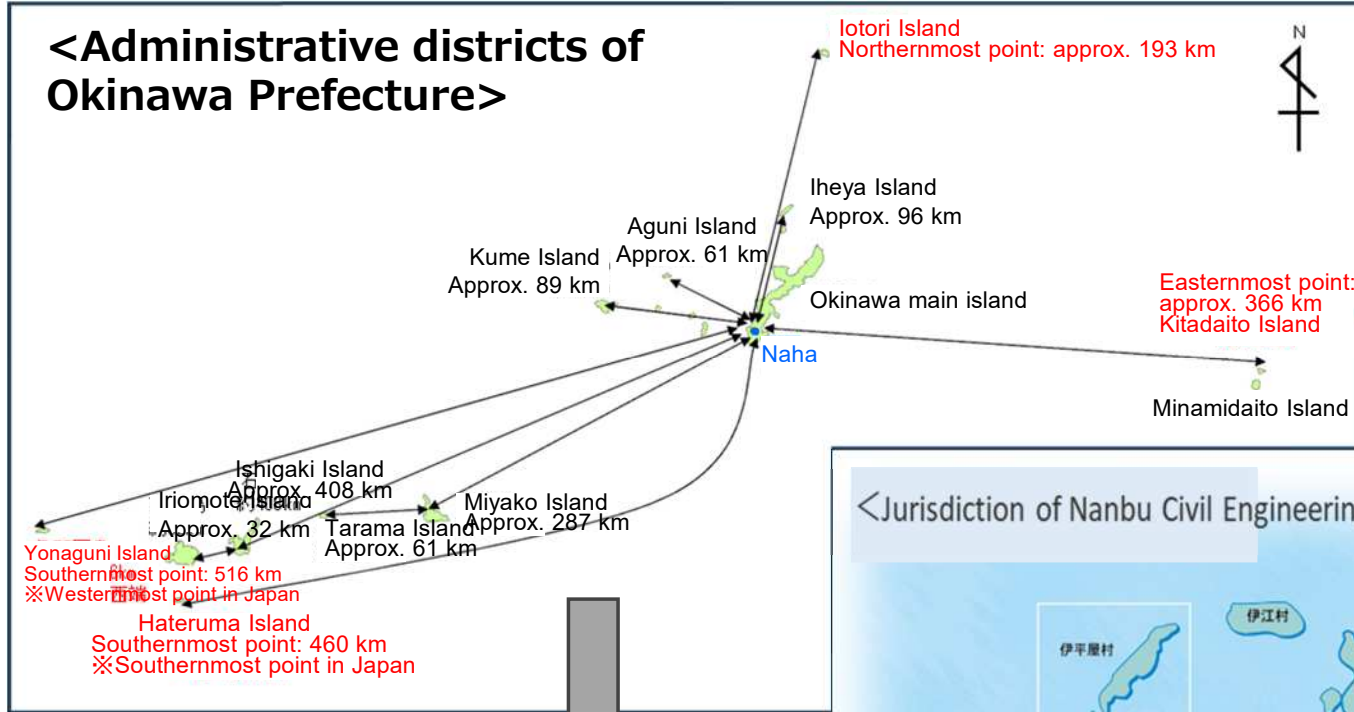
Source: Ministry of Land, Infrastructure, Transport and Tourism documents modified and revised

～ Contents ～

1. Overview of Nanbu Civil Engineering Office
2. Road conditions in Okinawa Prefecture and within the jurisdiction of Nanbu Civil Engineering Office
3. Current status of road maintenance work at the Nanbu Civil Engineering Office
4. Issues in road maintenance work and the direction of future efforts (on-site perspective)

1. Overview of Nanbu Civil Engineering Office

<Administrative districts of Okinawa Prefecture>



Nanbu Civil Engineering Office is responsible for the administrative districts of 14 cities, towns and villages, including seven cities and towns in the southern part of Okinawa Island and seven towns and villages on the surrounding islands.

<Jurisdiction of Nanbu Civil Engineering Office>



1. Overview of Nanbu Civil Engineering Office

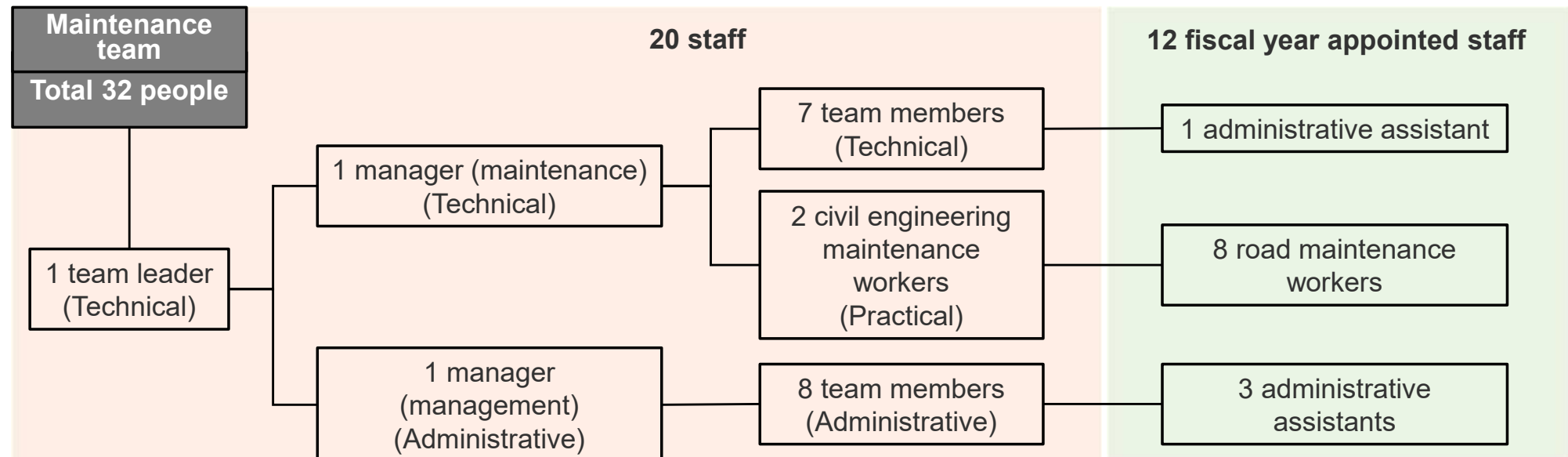
(3) Duties and structure of the Maintenance Team of Nanbu Civil Engineering Office

① Responsibilities (list of main responsibilities)

- Road patrols and maintenance work, and supervision of commissioned work
- Investigations, design and supervision of repair work on road bridges, tunnels, pavements, accessories, etc.
- Investigations, design and supervision of construction work on road traffic safety facilities (dividing lines, guardrails, etc.) and electric cable joint ducts
- Investigations, design and supervision of construction work related to river maintenance work
- Overall disaster recovery work
- Management of roads, rivers, ports, coasts, erosion control designated areas, landslide prevention areas, and steep slope collapse danger areas
- Management of facility registers
- Outdoor advertisements
- Investigations and guidance on public water surface reclamation, etc.

◀ Today's training content

② System



2. Road conditions in Okinawa Prefecture and within the jurisdiction of the Nanbu Civil Engineering Office

(1) Road conditions in Okinawa Prefecture

| Road types | Definitions | Number of routes | Actual length (km) | Road administrators |
|---|---|------------------|--------------------|---------------------|
| Expressways | Roads that constitute a vital part of the national automobile traffic network, connect areas that are particularly important politically, economically, or culturally, or that have a particularly important relationship to the interests of the nation. 【National Expressway Law, Article 4】 | 1 | 57 | National |
| National highway (designated section) | Roads that, together with expressways, form the national trunk road network and meet certain legal requirements 【Road Law, Article 5】 | 6(2)※ | 332 | National |
| | | 6(2)※ | 174 | Okinawa |
| Prefectural roads (major regional roads, general prefectural roads) | Roads that constitute a regional trunk road network and meet certain statutory requirements 【Road Law, Article 7】 | 143 | 1,087 | Okinawa |
| Municipal roads | Roads located within the boundaries of municipalities 【Road Law, Article 8】 | 16,840 | 6,599 | 41cities |
| Total | — | 16,994 | 8,250 | — |
| Okinawa Prefecture Management (Percentage) | — | 149 | 1,261 (15%) | — |

*The number in parentheses for the number of national highway routes indicates that the same route overlaps both in the designated section and outside the designated section.

(2) Road conditions in the Nanbu Civil Engineering Office area

| Road type | Number of routes | Actual length (km) | Improvement rate (%) | Paving rate (%) |
|--|------------------|--------------------|----------------------|-----------------|
| General national highways (outside designated sections) | 3 | 24 | 100.0% | 97.0% |
| Prefectural road | 50 | 228 | 97.8% | 93.8% |
| Total (Proportion of the total amount managed by the Southern Civil Engineering Office in Okinawa Prefecture) | 53 | 252 (20%) | — | — |

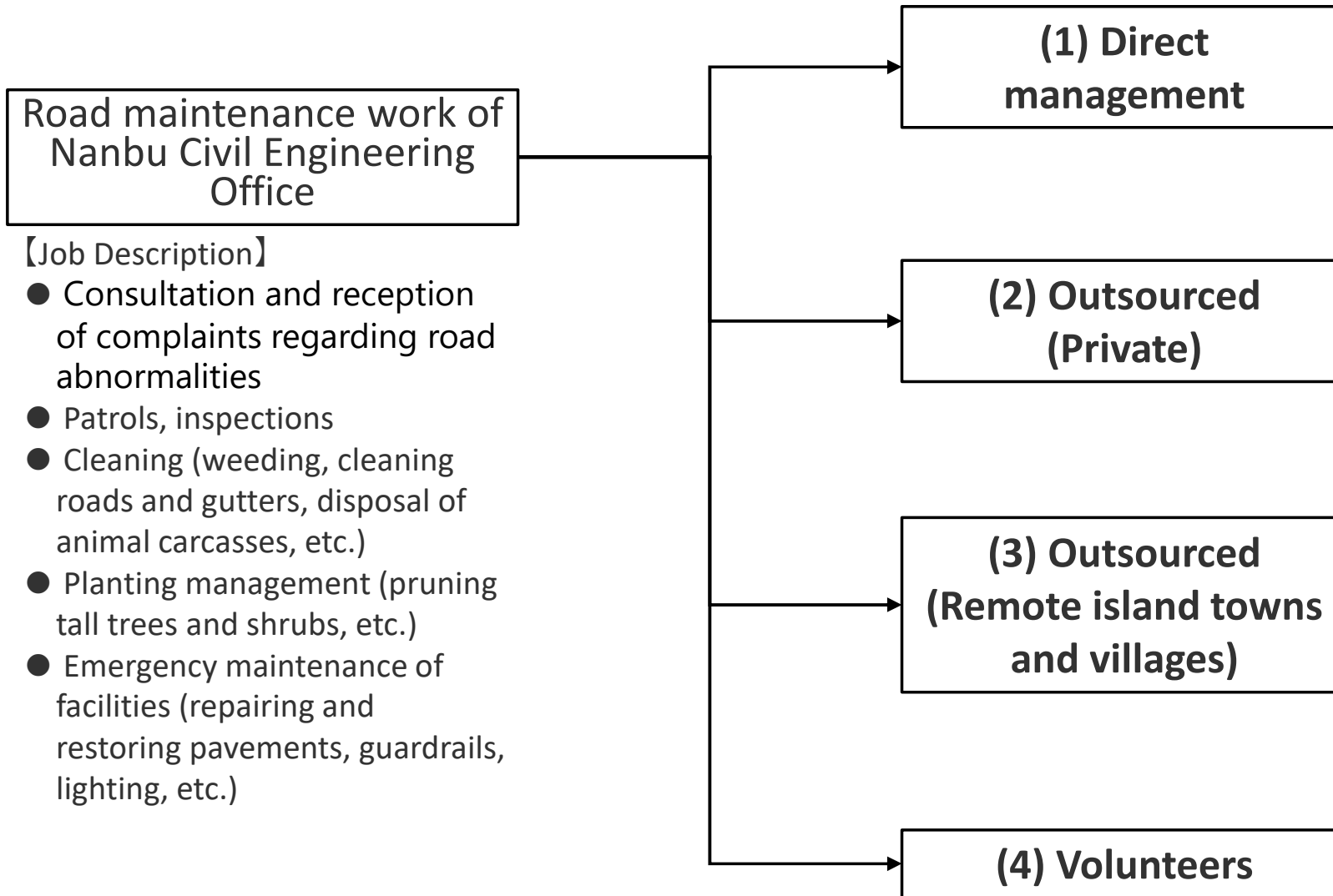
<Main road structures and road accessories>

- Bridges (including box culverts): 156
- Tunnels: 4
- Pedestrian bridges: 19
- Road signs: Approximately 1,670
- Road lights: Approximately 2,830

(Note) 1. Improvement rate: Roadway width of 5.5m or more
 2. Pavement rate: Excluding simple pavement

3. Current status of road maintenance work at Nanbu Civil Engineering Office

- Road maintenance work at Nanbu Civil Engineering Office is carried out in four different ways: direct management, outsourcing (private sector), outsourcing (remote island towns and villages), and volunteer work.



3. Current status of road maintenance work at Nanbu Civil Engineering Office

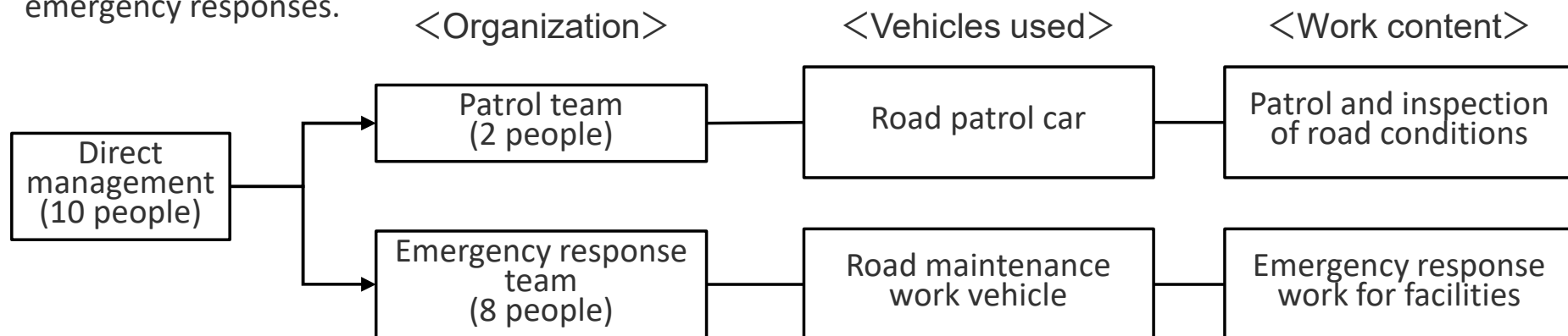
(1) Direct management

The work is carried out by a total of ten staff members, consisting of two civil engineering maintenance staff (staff) and eight road maintenance staff (fiscal year appointed staff).

- The team owns two road patrol cars and one road maintenance work vehicle.
- Response hours are weekdays from 8:30 to 17:15.

- Based on road consultations and complaints received the previous day, the team confirms the work content at a meeting every morning and heads out to the site.
- The patrol team basically patrols and inspects routes with traffic volume of 500 vehicles or more per day at least once a week, and other routes at least once a month. They take measures to prevent accidents when abnormalities or defects are found on the road, and coordinate communication with staff in charge and the emergency response team.

- The emergency response team ensures the safety of work and carries out emergency response work for small facilities that can be handled with the equipment they own. In fiscal year 2024, the team directly handled approximately 952 emergency responses.



3. Current status of road maintenance work at Nanbu Civil Engineering Office

(1) Direct management

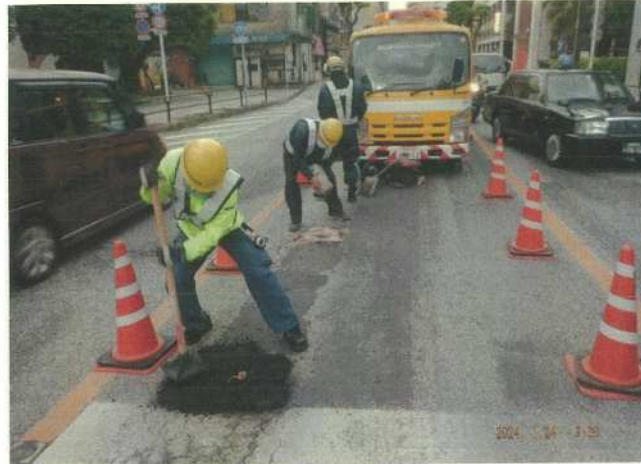
<Road cleaning (fallen objects on the road (gravel))>



<Pavement repair (potholes)>



<Measures against flooding (clogged gratings)>



3. Current status of road maintenance work at Nanbu Civil Engineering Office

(1) Direct management

<Protection fence repair>



<Tall tree pruning
(obstructing bus routes)>



<Tall tree pruning
(impaired signal visibility)>



3. Current status of road maintenance work at Nanbu Civil Engineering Office

(2) Outsourced (Private)

- Due to safety and technical reasons, emergency responses that require specialized skills or content or scale that cannot be handled directly are outsourced (to the private sector).
- A total of nine tasks have been commissioned for road maintenance work, and the initial budget for FY2025 is approximately 290 million yen (92% compared to the previous year).

| No | Business name | Business content | Number of orders | Bidding contract method | Contract period |
|----|--|--|------------------|---------------------------------|-----------------|
| 1 | Patrol and emergency response work | <ul style="list-style-type: none"> • Patrol during closed hours, road consultation and complaint reception • Emergency response for facilities | 1 | Designated competitive bidding | Single year |
| 2 | Planting maintenance and management work (medium and tall tree management) | <ul style="list-style-type: none"> • Pruning and felling of medium and tall trees | 3 | Open competitive bidding method | Single year |
| 3 | Performance-based weeding and other work (shrub management, weeding) | <ul style="list-style-type: none"> • Shrub pruning, felling • Weed cutting, herbicide spraying | 2 | Proposal method | Single year |
| 4 | Road and gutter cleaning work | <ul style="list-style-type: none"> • Road cleaning • Gutter cleaning | 2 | Designated competitive bidding | Single year |
| 5 | Lighting maintenance and management work | <ul style="list-style-type: none"> • Lighting facility inspection • Replacement of non-working lights | 1 | Open competitive bidding method | Single year |

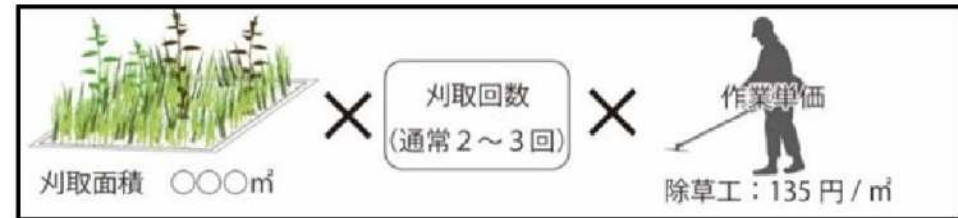
3. Current status of road maintenance work at Nanbu Civil Engineering Office

(2) Outsourced (Private)

● Topic 1: Performance-based road weeding and other work

- Previously, road weeding work was carried out according to specifications that stipulated the area, number of times, and work method, but this posed problems such as "it was not possible to perform work that suited the characteristics of the plants" and "weeding a few times a year caused the weeds to grow too large, making the work inefficient."
- In response to these problems, performance-based road weeding work was introduced in fiscal year 2021, which utilizes the technical capabilities, know-how, and knowledge of landscaping companies, and the number of target routes is gradually being expanded, including shrub height management.

<Specification-defined type>



<Performance-based type>



- ① The client specifies only the required standards to be achieved (e.g., weed height should be 40cm or less, shrubs in urban areas should be 50cm or less in height, etc.)
- ② The contractor independently decides on the construction method and materials to ensure the required standards, using their own know-how and ingenuity.

3. Current status of road maintenance work at Nanbu Civil Engineering Office

(2) Outsourced (Private)

● Topic 2: Weed control measures

<Laying weed control sheets>



<Planting cover plants with allelopathic effects*>



*Allelopathy effect: The effect of plants suppressing or repelling other plants by using chemical substances secreted by the plants themselves.

3. Current status of road maintenance work at Nanbu Civil Engineering Office

(2) Outsourced (Private)

● Topic 3: Measures to prevent road flooding

- Road gutter gratings are installed to quickly remove water from the road surface, but because their mesh is fine, they can become clogged with fallen leaves and other debris, causing road flooding.
- To resolve this problem, in areas where road flooding occurs, measures are being taken to reduce road flooding by improving drainage facilities with integrated curb and gutter systems that have long, horizontal drainage outlets.



<Countermeasures> Improved drainage facilities with larger openings



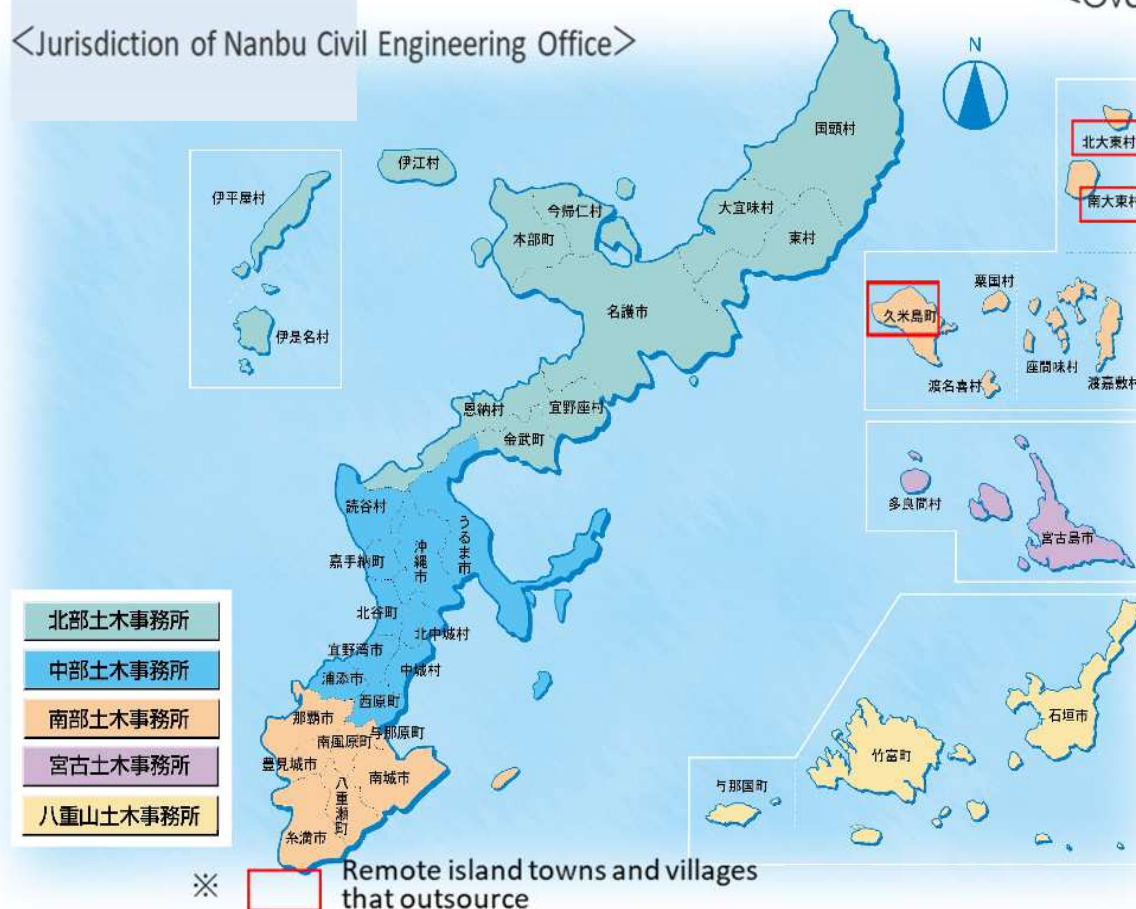
3. Current status of road maintenance work at Nanbu Civil Engineering Office

(3) Outsourced (Remote island towns and villages)

- For remote islands with large populations and large volumes of prefectural roads to manage, or islands located far away, the maintenance of prefectural roads is outsourced to local towns and villages.
- Towns and villages on remote islands that have received a contract from the prefecture subcontract the work to external companies.
- One of the benefits of outsourcing prefectural road maintenance work to towns and villages on remote islands is that the local office also serves as a liaison office for road consultations and complaints from road users and residents along the roads, making it possible to carry out swift and detailed road maintenance work that is in line with local conditions.
- The initial budget for fiscal year 2025 is approximately 32 million yen (roughly the same as the previous year).

<Overview of remote island towns and villages that outsource>

<Jurisdiction of Nanbu Civil Engineering Office>



| | Kume-jima town | Kita-daito village | Minami-daito village |
|---|---|--------------------|----------------------|
| Straight line distance from Okinawa main island (Naha city) | ≒90km | ≒360km | ≒360km |
| Population (September 2025) | 6,488 people | 564 people | 1,206 people |
| Total area (July 2025) | 64km ² | 13km ² | 31km ² |
| Prefectural roads - Number of routes (April 2025) | 3 lines | 1 line | 2 lines |
| Prefectural roads - Actual length (April 2025) | 30.0km | 2.2km | 12.2km |
| Details of the commissioned work | <ul style="list-style-type: none"> • Road consultations and complaints • Patrols, cleaning, pruning, emergency repairs for facilities | | |

3. Current status of road maintenance work at Nanbu Civil Engineering Office

(4) Volunteer

- The program aims to promote the creation of beautiful road environments through collaboration between residents and the government by supporting voluntary road cleaning and road planting management activities undertaken by local residents and road users.
- As of fiscal year 2025, 176 groups have registered within the jurisdiction of the Nanbu Civil Engineering Office and are carrying out activities on each route.

<Support details>

1. Target roads: Prefectural roads (prefectural national highways, prefectural roads, etc.)
2. Target groups: Neighborhood associations, women's associations, clubs, companies, etc., consisting of 5 or more members and carrying out ongoing activities.
3. Target activities: Pruning of medium-sized shrubs and management of planting boxes in a certain section of the road (50m or more or 50 square meters or more). (High-risk areas such as medians are not included.)

<Support targets>

1. Assuming activities take place more than four times a year, each group will receive support of up to 50,000 yen per year depending on the length and area of management.
2. Garbage bags, gloves, seedlings, and fertilizer will be provided free of charge.
3. Garbage collection will be carried out by the support service contractor.
4. Personal injury insurance will be applied to any injuries or accidents that occur during work.

【Duties and Responsibilities】

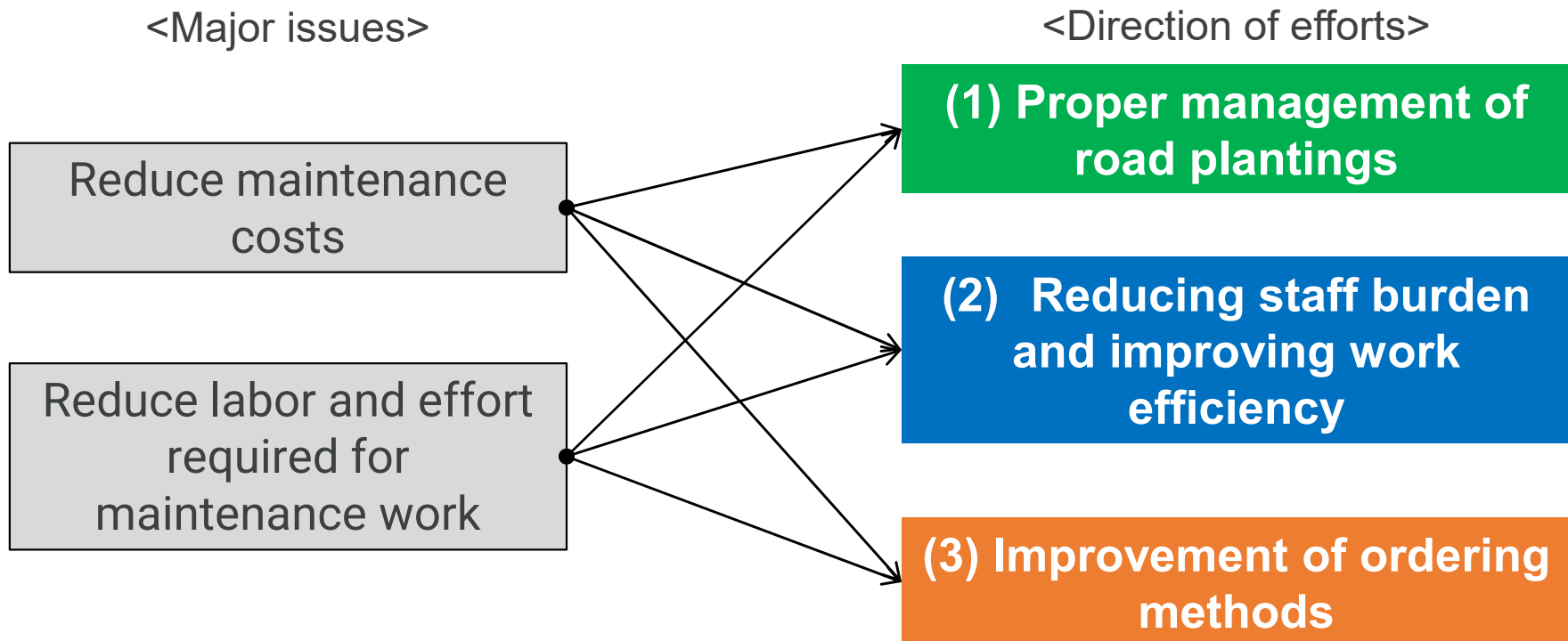
- Public relations activities
- Recruiting and registering volunteers
- Providing consumables
- Collecting trash
- Paying rewards

<Volunteer activity examples>



4. Issues in road maintenance work and the direction of future efforts (on-site perspective)

- As bridges, tunnels and other major road structures continue to deteriorate, the length of road maintenance, labor costs and material costs are also increasing, while the budget required for daily road maintenance work is stagnating. Road users and residents along the roads are being forced to carry out "ex post facto maintenance" work in response to consultations and complaints, and the limited budget continues to be unable to meet all requests.
- In addition, as the productive population is expected to decrease due to the low birth rate and aging population, the construction industry, which is the contractor, is aging and a large number of people are expected to leave the industry in the future. In addition, as the prefecture, which is the client, there are constant vacancies in civil engineering technical staff (declining number of applicants and employed), and even if the vacancies are resolved, there is no prospect of an increase in the number of staff in the future, so labor shortages are becoming apparent for both clients and buyers.
- The main issues in road maintenance work and the direction of future efforts to address these issues include my personal opinion from the perspective of a person who is responsible for the work on site, but I believe that the particularly important items can be summarized as follows.



4. Issues in road maintenance work and the direction of future efforts (on-site perspective)

(1) Proper management of road plantings

① Problems with road planting in Okinawa Prefecture

- In the Nanbu Civil Engineering Office jurisdiction, the number of road consultations and complaints for fiscal year 2024 was 2,051 cases. The most frequent issues were road facility malfunctions (521 cases), followed by issues related to roadside vegetation (463 cases). Problems include traffic obstructions, encroachment onto private land, damage to road surfaces and curbs from root uplift, fallen leaves, and the occurrence of pests and diseases.
- Additionally, these issues can sometimes lead to secondary problems such as road flooding or deficiencies in road management. Therefore, proper management of roadside vegetation is an important issue to consider for reducing the overall burden of road maintenance work and cutting costs in the prefecture.

<Number of road consultations and complaints (FY2023)>

| Contents | Number of cases in Nanbu Civil Engineering District | Ratio |
|---|---|-------------|
| Road planting | 463 | 23% |
| Disposal of dead animals | 443 | 21% |
| Road and gutter cleaning | 197 | 10% |
| Road facility defects | 521 | 25% |
| Problems with road lighting, etc. | 58 | 3% |
| Illegal dumping, occupancy and abandoned vehicles | 201 | 10% |
| Others | 168 | 8% |
| Total | 2,051 | 100% |

Source: Nanbu Civil Engineering Office

<Examples of road obstruction and crossing into private land>



<Examples of root growth>



<Examples of pest and disease damage>



<Examples of fallen leaves>



Source: Guidelines for planting and maintaining roadside trees (March 2024, Okinawa Prefecture) etc.

4. Issues in road maintenance work and the direction of future efforts (on-site perspective)

(1) Proper management of road plantings

② Future efforts to properly manage road plantings

Roadside Landscape Plan for Flowers and Trees (Plan Concerning the Appropriate Use of Street Trees, etc., for Creating a Good Roadside Landscape)

- ① Weeds are growing everywhere.
- ② There are many places with fallen trees, damaged sidewalks, and traffic disruptions.
- ③ The street trees no longer maintain a natural shape due to heavy pruning.
- ④ The planting and pruning have not been carried out taking into account the surrounding environment, such as the width of the sidewalks.

<Assignment>

- ① How to carry out maintenance effectively and efficiently within the budget.
- ② How to sustain a good roadside landscape.
- ③ How to create a mechanism that is truly effective.



【Ideal form (スタンダード)】

Formation of a Good Streetscape

- ① Weeds are constantly kept short and well-maintained.
- ② Road safety related to street trees is ensured.
- ③ Street trees primarily retain their natural shape with minimal pruning.
- ④ Flowers and plants create a vibrant and attractive landscape.
- ⑤ Plantings are well-balanced, taking into account the surrounding environment such as sidewalk width.



【Target Vision (カスタム)】

Creating roadside scenery suitable for a world-class tourist destination characteristic of Okinawa

For each zoning area (such as 'urban areas' and 'natural areas'), we will establish greening goals that allow people to experience Okinawa's nature, history, traditions, and culture, while also creating a sense of vibrancy with flowers and plants as a tourist destination, leading to the formation of roadside landscapes worthy of a world-class Okinawan tourist spot.



- ① Symbol branding
- ② Walkable city planning
- ③ Greening that leverages regional characteristics

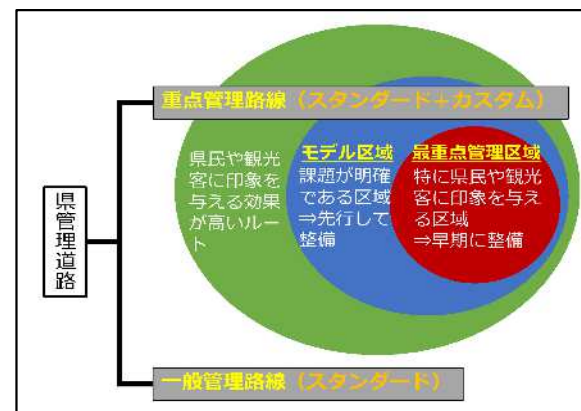
Scenic spot
Tourist attraction

Natural area

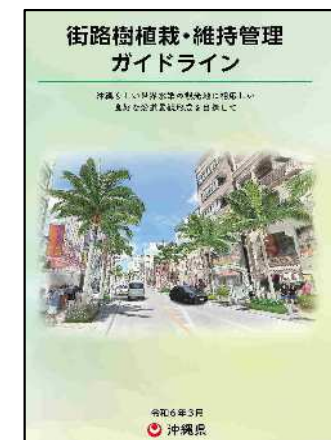
- ① Planting that considers the natural environment
- ② Greening that makes use of local characteristics



<Management classification concept>



<Formulated as a practical means>



4. Issues in road maintenance work and the direction of future efforts (on-site perspective)

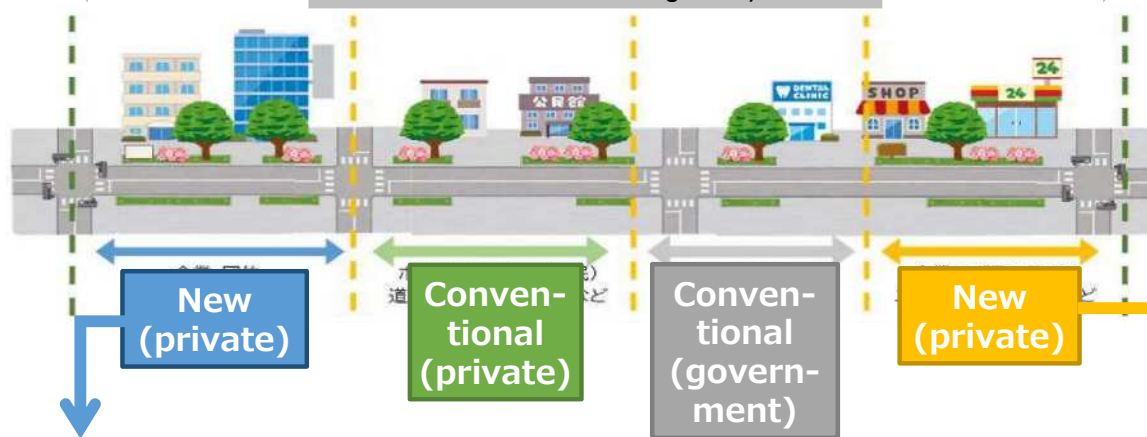
(1) Proper management of road plantings

<Image of the new public-private partnership system envisaged in the "Guidelines for Roadside Tree Planting and Maintenance" (Fureai Route System)>

- Under the conventional volunteer system, volunteer work was carried out on routes and sections at the initiative of residents, neighborhood associations, businesses, etc., but in the future, routes that are managed through collaboration between the government and local residents, businesses, organizations, etc. will be designated as "contact routes," and planned and effective maintenance will be carried out through a combination of various public-private partnership systems.

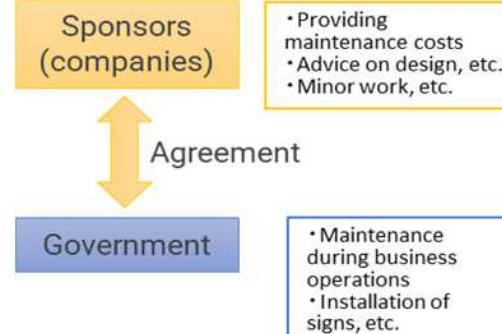
【Image of the Fureai Route】

Performance regulations (weeding, shrub and tree management)



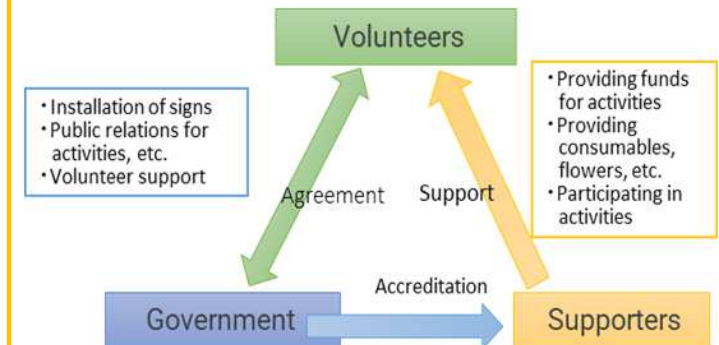
【Corporate Flower Garden System】

A system in which pocket parks and planting areas along roads are developed and maintained with support from companies, etc., and billboards (advertising) are installed as a token of appreciation for the support.



【Corporate Supporter System】

A system in which companies provide necessary consumables (flowers, garbage bags, etc.) and operating funds for maintenance activities (cleaning, weeding, flower planting, etc.) carried out by volunteer groups such as neighborhood associations, and the government recognizes companies that support volunteer activities as supporters.



4. Issues in road maintenance work and the direction of future efforts (on-site perspective)

(2) Reducing staff burden and improving work efficiency

Introduction of the Road Reporting System (July 16, 2025)

| Conventional Issues | Solution with the new system |
|--|---|
| Challenges in Receiving Reports : Interruptions to work due to handling phone calls, requiring time to identify the location and situation | Automatic reception from the web : Entered by the reporter (by staff if received by phone), accurately capturing photos and location information |
| Challenges in Information Management : Excel management, analog processing using paper documents, difficulty in data analysis | Database Management with the New System : Centralization of information, easy sharing, use of analysis and statistics |
| Challenges in Progress Management : Difficulty in grasping the situation, circulation of paper documents within the team, management of vendor correspondence | Real-time progress management : Immediate confirmation of response status, strengthened collaboration with vendors, and transparent processing |
| Challenges in Field Response : 即Immediate response, information delays, on-site verification, and other inefficiencies | Efficiency through mobile integration : On-site data verification and updates, real-time information sharing, efficient operations |

Report details (example)

Easy to report !



導入メリット

県民の皆さま

行政側


 簡単アクセス
 アプリ不要、
 ブラウザから即利用


 確実な伝達
 写真で状況を
 正確に報告


 時間の自由
 いつでも通報可能


 業務効率化
 電話聞き取りの
 手間を大幅削減


 迅速対応
 正確な現場対応で
 初動対応工場


 データ活用
 新システムでの
 一元管理と分析

4. Issues in road maintenance work and the direction of future efforts (on-site perspective)

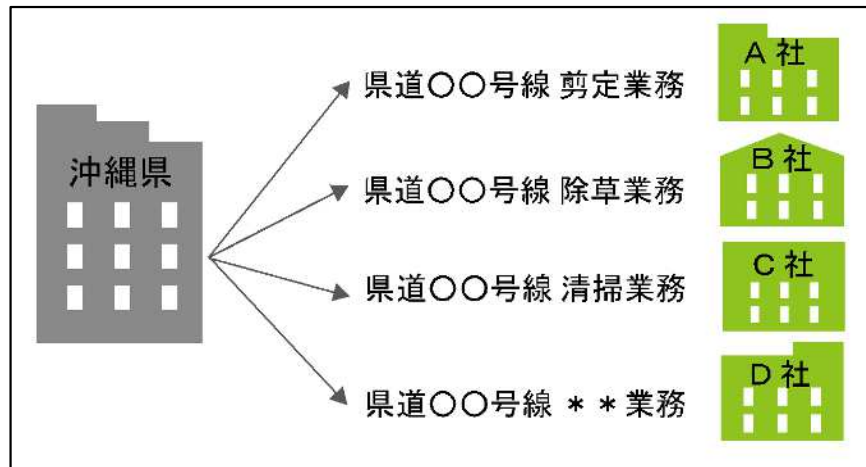
(3) Improvement to the ordering method

Introduction of a new ordering method (from 'individual' to 'comprehensive' private outsourcing)

- Currently, some road maintenance work (such as patrols and emergency repairs) is carried out directly by staff (civil engineering maintenance workers), but based on the prefecture's policy to review operational staff (not replacing retired operational staff), all road maintenance work is planned to be outsourced to private contractors in the future.
- Since fiscal year 2017, consideration has begun for comprehensive outsourcing to private contractors, not only for patrols and emergency repairs but also including vegetation management, road surface and gutter cleaning, and lighting management, and from fiscal year 2019, full-scale implementation has been carried out at civil engineering offices on remote islands.

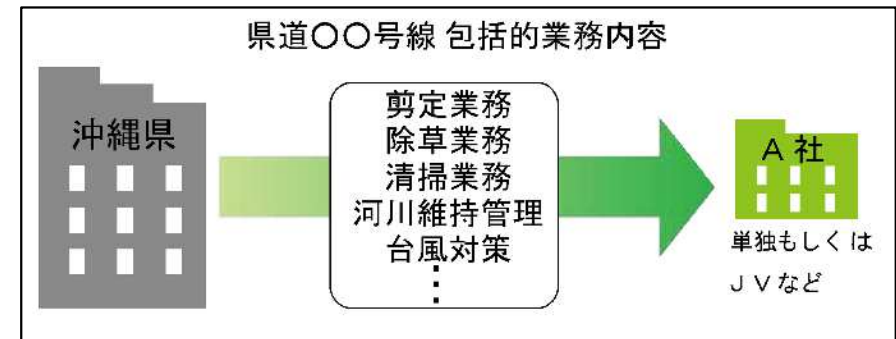
<Individual Order Type>

Individual orders per task are the main approach



<Comprehensive ordering type>

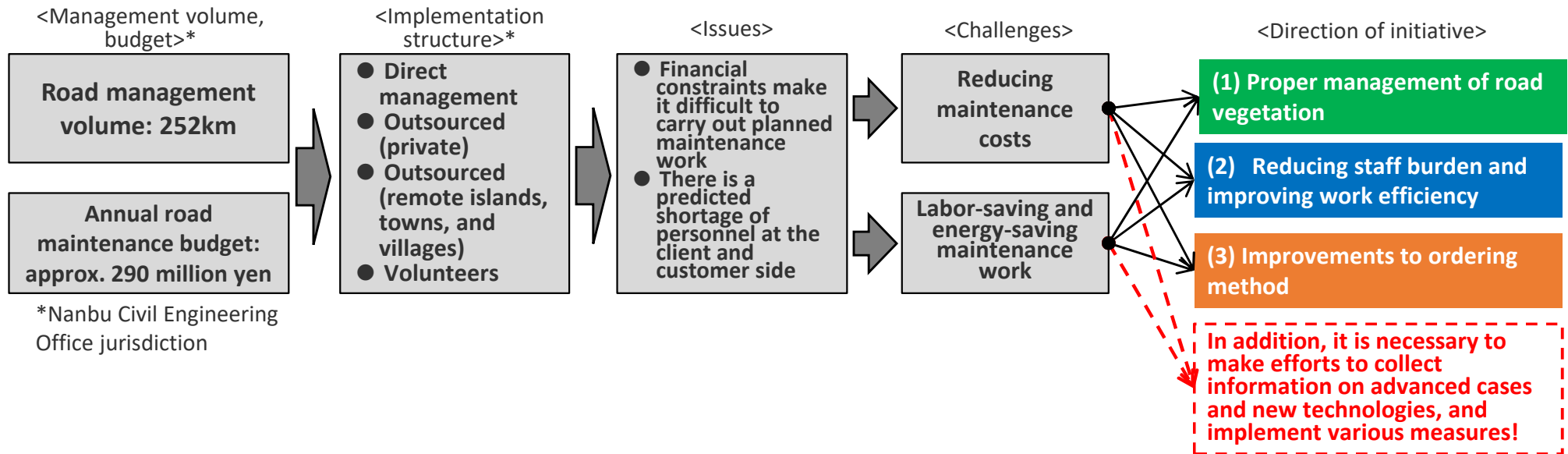
Mainly placing orders by consolidating tasks



Conclusion

- Okinawa Prefecture was under American rule for 27 years after the Battle of Okinawa in 1945, and was returned to Japan in 1972. Since then, six Okinawa Promotion Plans have been enacted, with basic policies such as correcting the disparity with the mainland and building an independent economy led by the private sector, and policies such as the development of social capital and industrial promotion have been implemented.
- During this time, the large amount of stock of infrastructure has deteriorated, and repair and renewal costs have increased. This, combined with the severe financial situation caused by the arrival of a society with a declining birthrate and an aging population, has resulted in a severe situation in which it is difficult to secure a sufficient budget for daily maintenance work on roads and other facilities. However, it is necessary to continue to collect information on advanced cases and new technologies, and to implement various policies to fulfill its responsibilities as a manager.

Conclusion



- It will be some time before we can introduce the current state of daily road maintenance work in our prefecture as a leading example, but we hope that what we explained today will be of use as a reference for the road maintenance work of the organizations to which the JICA training participants belong.
- Thank you for your attention.