



## Infrastructure inspection / repair / life extension planning

To deal with the growing amount of maintenance management fees caused by the aging and deterioration of infrastructure facilities, it is necessary to quantitatively grasp the deformation / deterioration of infrastructure through inspection and shift to preventive maintenance management, in order to conduct appropriate repair / reinforcement actions according to performance degradation.

By consistently working on a series of task processes in inspection / diagnosis, evaluation, planning/design, repairs, etc., we will contribute to precise and efficient / effective operations while ensuring safety and reducing costs to maintain and upgrade infrastructure facilities.

### Road Facility Life Extension Planning

We have established a database of ledgers and are considering LCCs and drawing up repair plans to contribute to the promotion of PDCA cycles related to the maintenance and management of structures.

- Road maintenance management planning
- Road surface property investigation
- Consideration of life cycle costs, etc.
- Repair design



Road surface property investigation

### Structure Facility Life Extension Planning

There has been a significant deterioration in road structures that are rapidly constructed and in large numbers during periods of high economic growth. We are providing support for drawing up life-extension and repair plans for road infrastructure.

- Structure monitoring survey
- Executing repair and reinforcement designs



Inspection by our own bridge inspection vehicle

### Structure survey inspections Repairs and reinforcement design

We are inspecting and performing detailed surveys on road infrastructures, considering repair measures according to damage impacts, and performing detailed design after selecting the optimal repair and reinforcement methods.

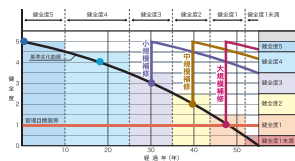
- Structure inspection work
- Inspection, survey, repair, and reinforcement design for bridges and disaster prevention structures
- Coating survey / non-destructive inspection
- Concrete deterioration survey / materials test



Inspection applying photographic technology (by our own UAV)

### Bridge life extension plan

Bridges, which are the key element of road stock that was constructed rapidly and in large numbers during the period of high economic growth, are showing remarkable deterioration.



Related to between bridge repair division and management target limit

- Collection of bridge foundation data
- Bridge soundness evaluation / judgment of importance
- Consideration of deterioration predictions
- Consideration of repair / reinforcement measures / budget calculation

### Park life extension planning

With increase in park stock, there has been a rapid deterioration the facilities; thus, planned and efficient renewal of facilities is required. Based on our extensive experience in park design, we are providing optimal renewal and repair plans.

- Park facility soundness and barrier-free surveys
- Park regeneration surveys and drawing-up plans



### Inspection of soil erosion-related facilities life extension planning

The currently existing soil erosion-related facilities were established 100 years ago and the total soil erosion dams in the country was over 60,000 units, many of which were constructed between 30 and 50 years ago. We are reviewing the methods of inspecting facilities, evaluating soundness, measuring priority order, and measuring methods, as well as follow-up methods from the perspective of protecting facilities that need to be conserved. Moreover, we are carrying out life extension planning to establish the scheme for measures in the annual plan.



- River channel planning / detailed seawall design
- Structural seismic reinforcement design
- Soil erosion foundation survey

### Sewage facility stock management maintenance management and renewal plan

It has become necessary to draft a total stock management plan for facilities owned by local governments from the perspective of life-extension planning for each facility. We shall perform a survey / deterioration diagnosis for the sound maintenance of sewage facilities, draft a facility life extension / stock management plan, and propose appropriate maintenance management / renewal plans.

- Facility surveys / diagnosis
- Life extension planning / maintenance and management plan proposals
- Renovation / renewal execution design



Inspection by pipe opening camera