

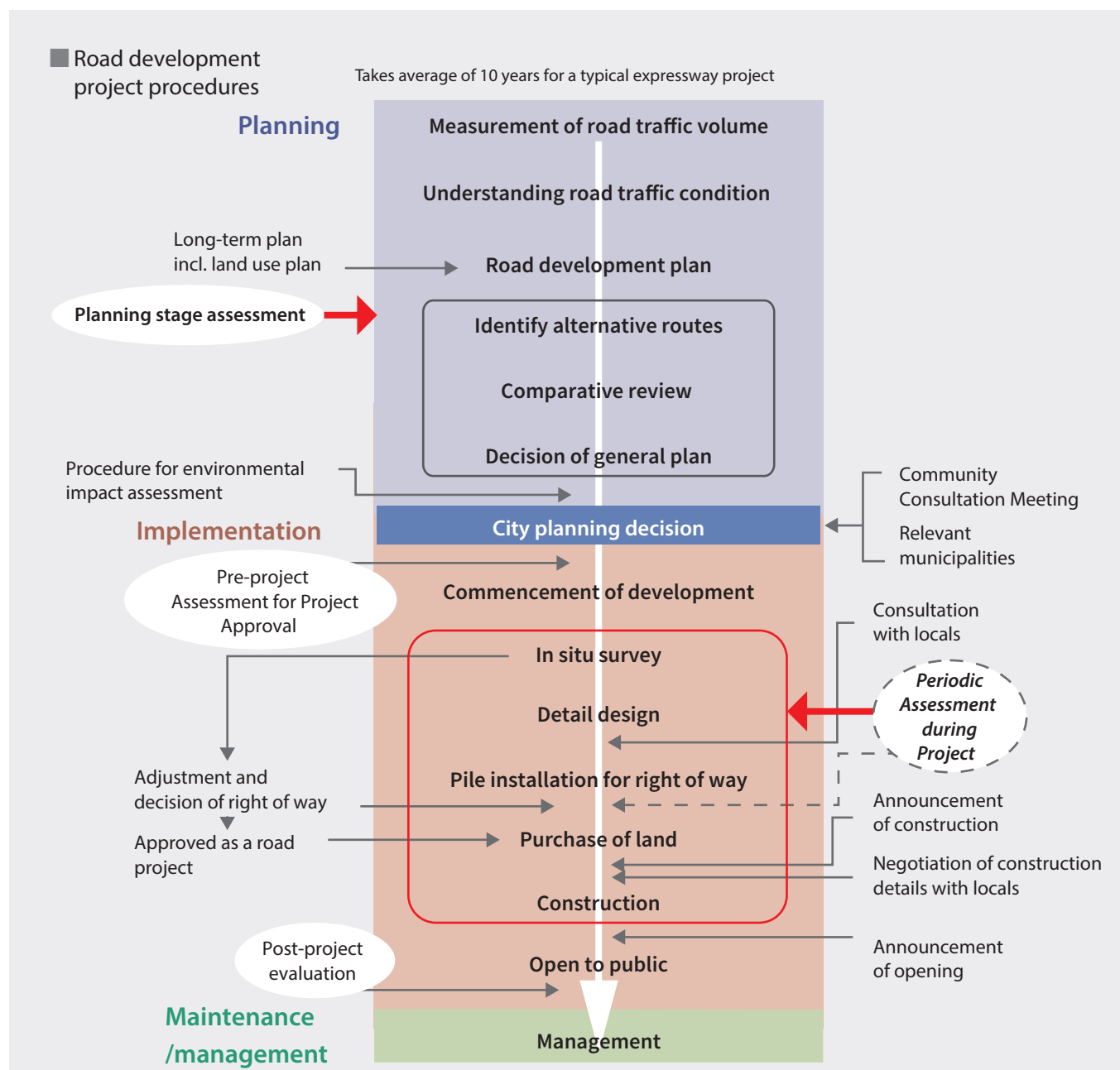
Planning and Implementation of Projects

This section describes how road projects are evaluated in order to achieve accountability

Implementation of an evaluation system

To improve efficiency and transparency, project evaluation is conducted throughout the entire process, from preparation to execution and servicing. The first evaluation is conducted while planning a new project and involves cost-benefit analysis. Projects that are not complete within five years of their start date are reassessed, and those that are found to be no longer necessary or no longer effective are discontinued or cancelled. Projects are also assessed when they are completed.

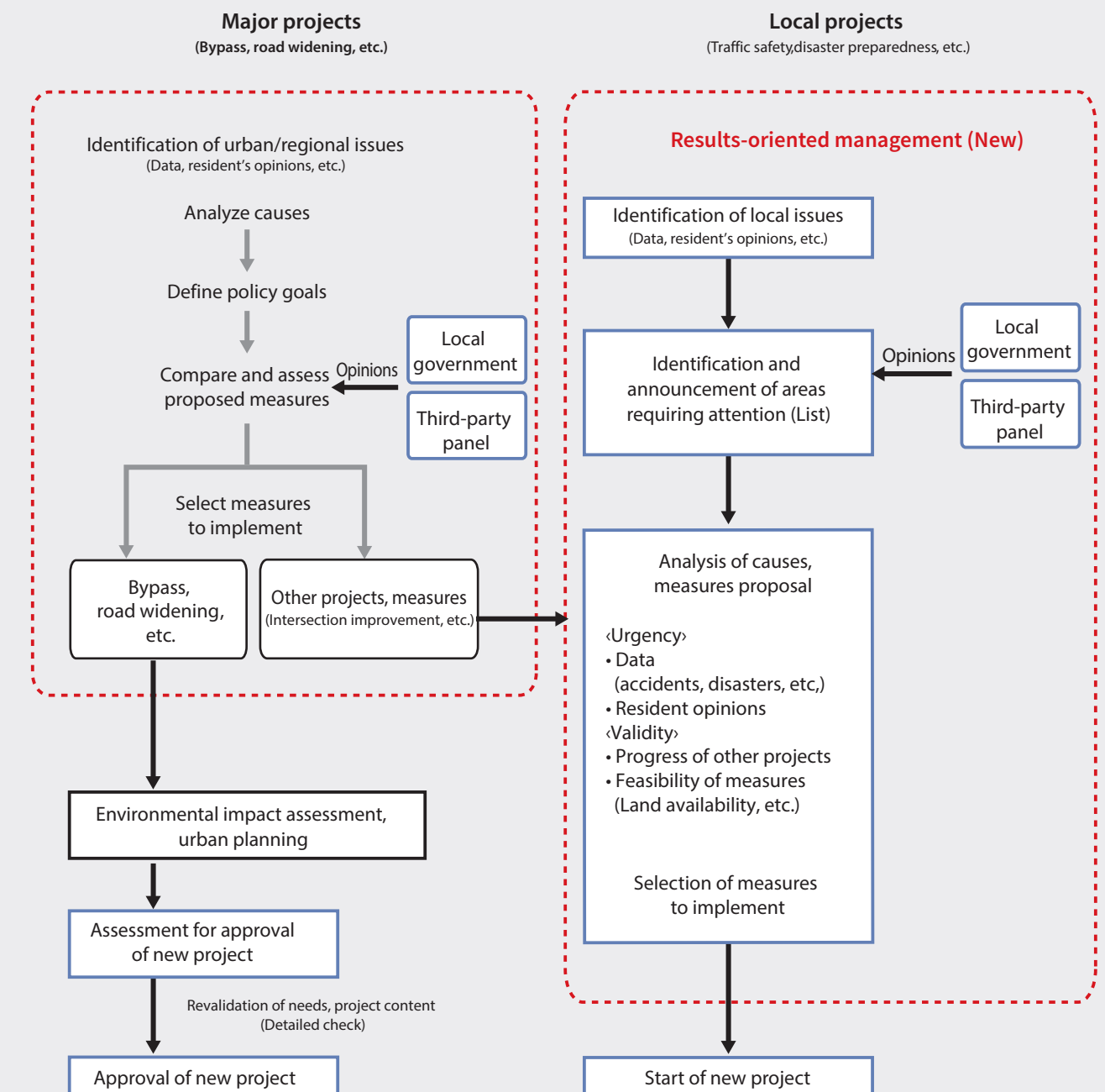
In order to evaluate the sustainability of a project, the economic, environmental and social effects of the projects should be assessed. Economic and environmental impacts are assessed through cost-benefit analyses and environmental assessments respectively.



Assessment of policy goals for road projects

To enhance the transparency and efficiency of road projects, reviews have been introduced into the planning stage of bypass, road widening and other projects, and “outcome-based management” practices, which are based on data, have been introduced in local projects.

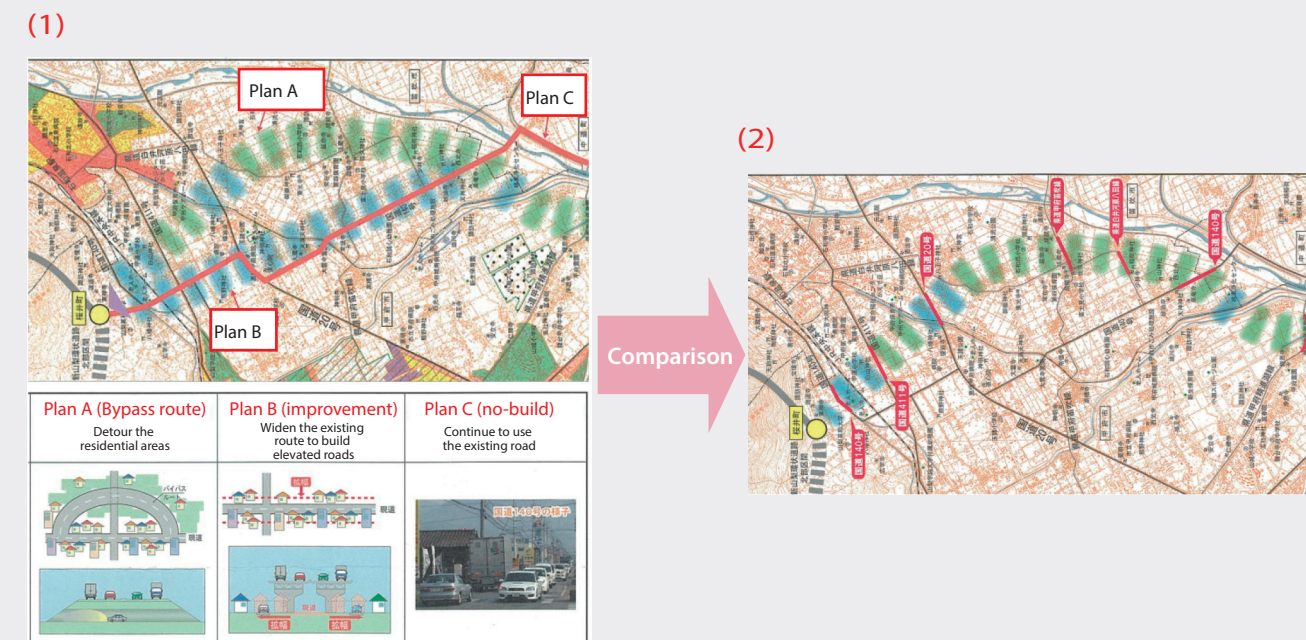
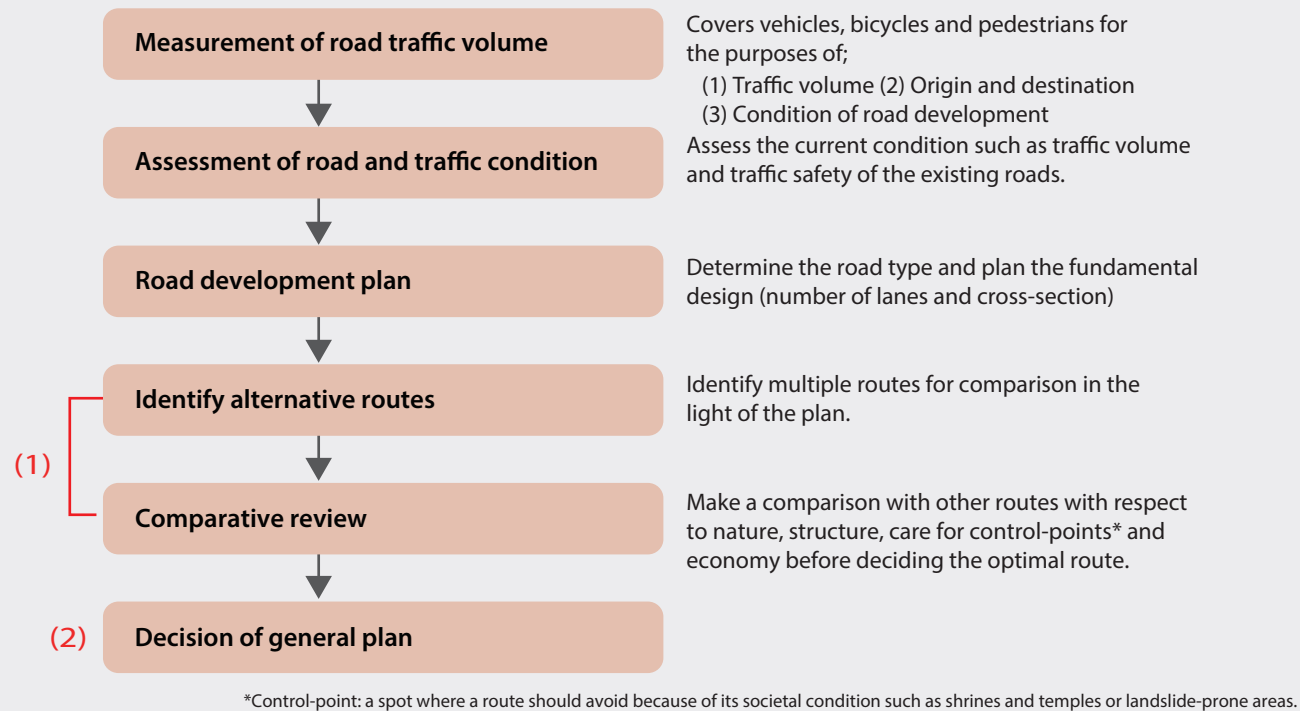
■ Planning review and outcome-based management flowchart



Road development planning

Roads in Japan are generally developed through the following procedure to make sure to choose the optimal route.

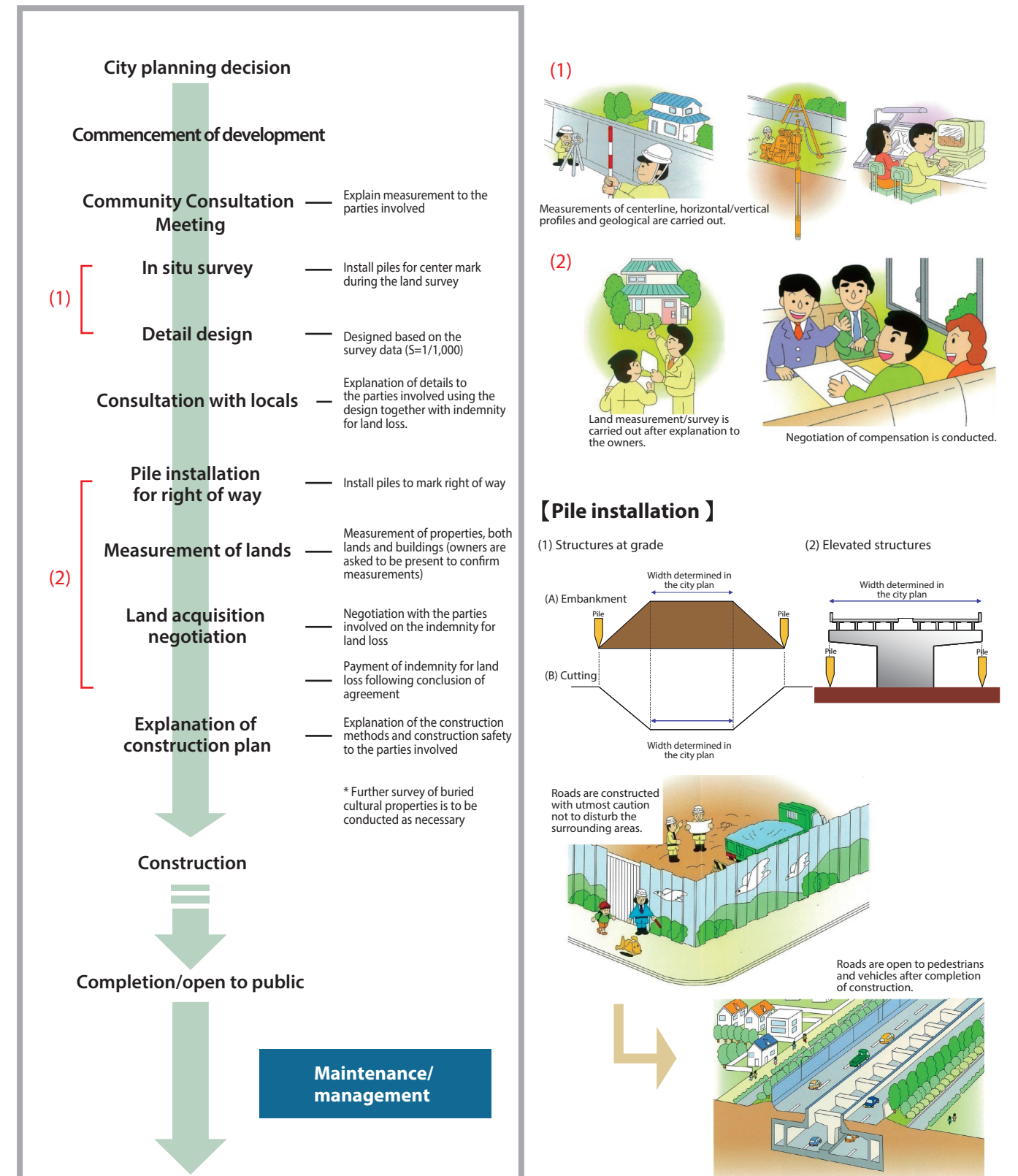
Road development planning



Road development process

After a city planning decision was made, roads are developed taking the following steps while making sure to build the consensus of the local residents.

Implementation of road projects



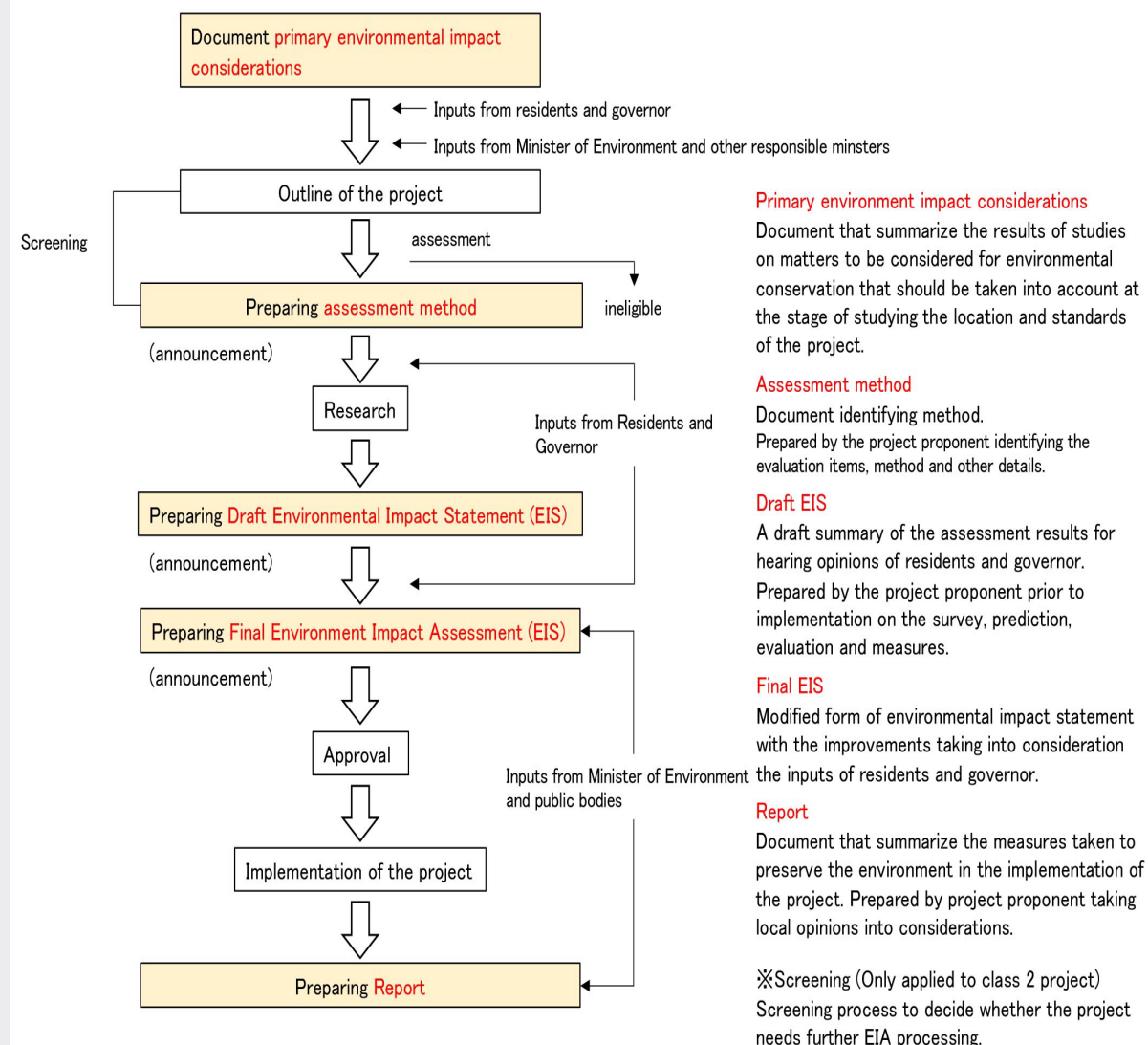
Environmental impact assessment (EIA)

An assessment system in which a project proponent identifies/predicts/evaluates the potential impacts of the project on the environment prior to the decision being made on the details. In order to create an improved project, this collected information is available to the public and municipalities so that they can add their input.

Road projects that have to be assessed

	Class 1	Class 2	
National Expressway	All	_____	Class 1 A large-sized project with potentially significant environmental impacts.
Tokyo Metropolitan Expressway	4 lanes or more	_____	Class 2 A large-sized project that requires an assessment to determine whether it has significant environmental impacts. A large-sized project that requires an assessment to determine whether it could have significant environmental impacts.
National Highway	4 lanes or more, 10km or longer	7.5km-10km	

Road projects that need to be assessed

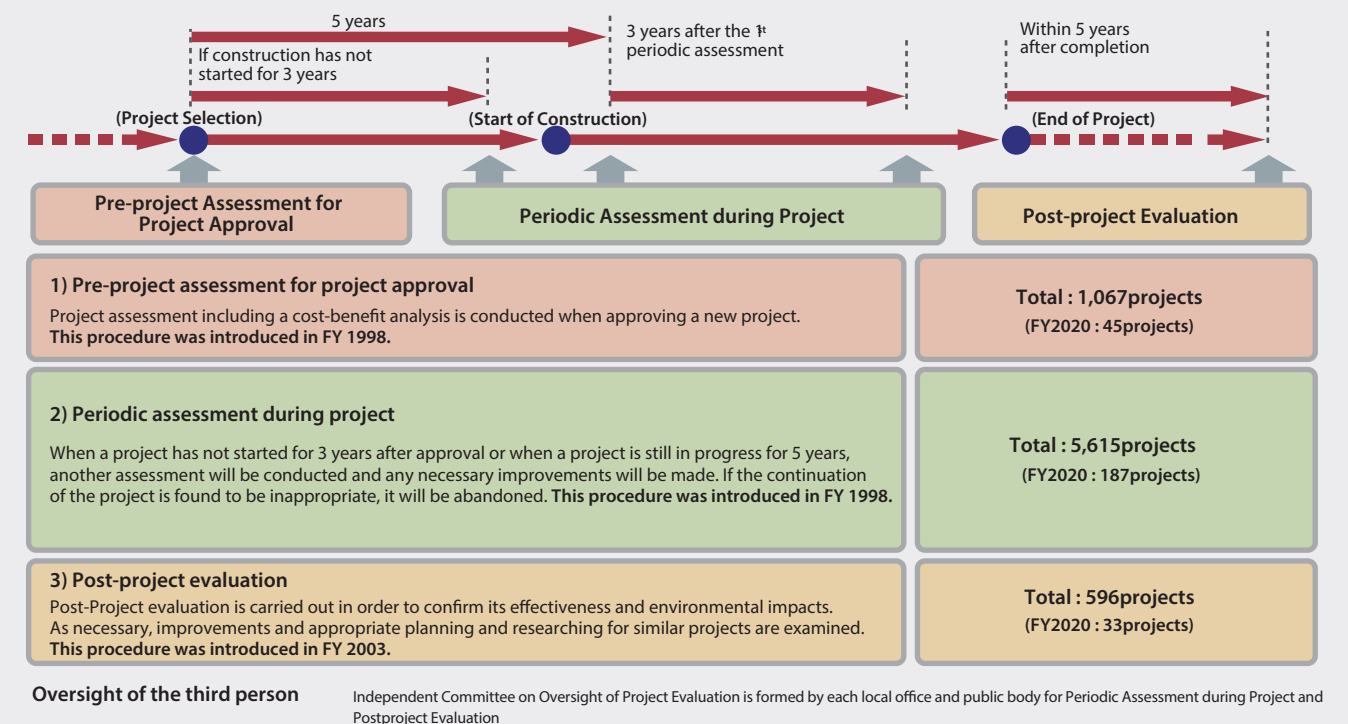


Road project assessment

Road project assessment is carried out at various phases of the project; assessment at planning phase, pre-project assessment phase, during project and post-project phase.

Road project assessment

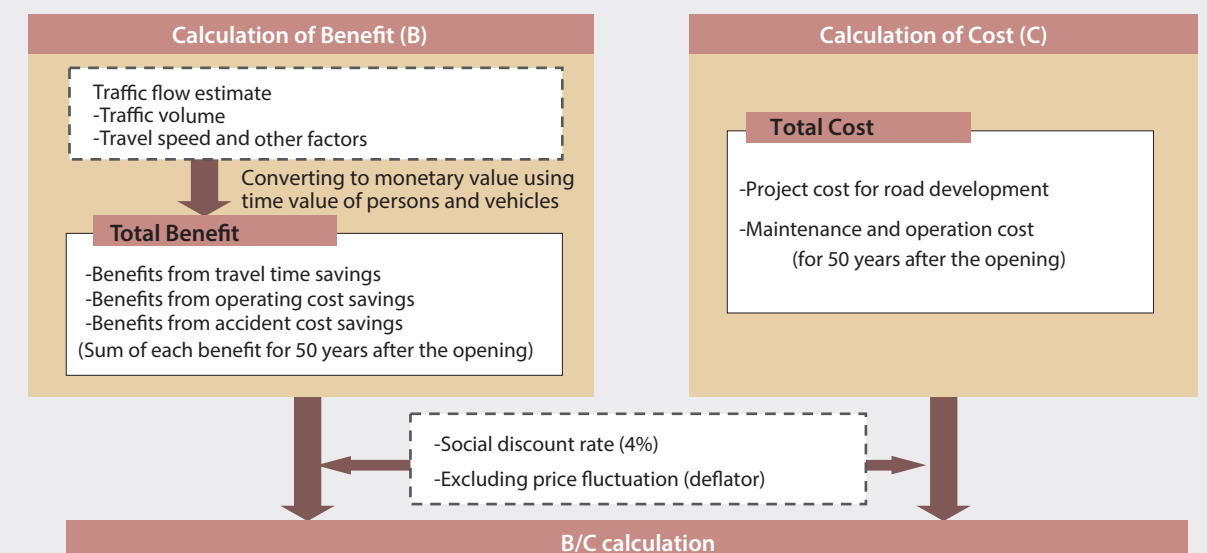
- Target of the project assessment : New development or improvement
- Evaluation proponent : Project proponent (MLIT, municipalities or the kind)



Cost-benefit analysis of a road project

Cost-benefit (B/C ratio) analysis for road project is made to assess adequacy of the project from the social and economic aspects.

Cost-benefit (B/C Ratio) calculation



Benefits

Travel time savings

Time values of human activities, vehicle user and freight are considered.

Travel time savings

Measured as a difference in the value of travel time before and after a new road is opened.

Benefits from travel time savings = (Value of travel time **Before** the road is opened)-(Value of travel time **After** the road is opened)

The value of travel time is a product of the time value unit multiplied by travel time and by volume.

Value of travel time (yen) = time value unit (yen/vehicle-minutes) x travel time (min) x traffic volume (vehicles)

What consists of the time value unit?

Time value unit	
The monetary value of one minute that is saved by one vehicle. (Unit: yen/vehicle-minutes)	Time value of human activities (Monetary) value of time savings that can be used for extra human activities such as labor and leisure.
	Time value of vehicle use (Monetary) value of time savings that can be used for extra production activities by unused vehicle.
	Time value of freight (Monetary) value of time savings from reduced travel time of freight

Operating cost savings

Costs for fuel, engine oil, tire and tube, maintenance and depreciation are considered.

Operating cost savings

Measured as a difference in operating cost before and after a road is opened.

Benefits from operating cost savings = (Operating costs **Before** the road is opened)-(Operating costs **After** the road is opened)

The operating cost is calculated by multiplying the operating cost unit by length and by traffic volume.

Operating cost (yen) = operating cost unit (yen/vehicle-km) x length (km) x traffic volume (vehicles)

What consists of the operating cost unit?

Operating cost unit	
Fuel cost	Costs for fuel
Engine oil cost	Cost for engine oil
Costs for tire and tube	Costs for tire and other
Maintenance cost	Costs for maintenance and repair
Depreciation	Reduction of vehicle value after travelling a unit distance.

Accident cost savings

Congestion-induced cost, physical damage and human damage are considered.

Accident cost savings

Measured as a difference in accident cost before and after a road is opened.

Benefits from accident cost savings = (Accident costs **Before** the road is opened)-(Accident costs **After** the road is opened)

The accident cost is calculated by multiplying the cost per injury/fatal accident by the number of injury/fatal accidents.

Accident cost (yen) = number of injury/fatal accident (accidents) x cost per injury/fatal accident (yen/accident)

Formula for cost per injury/fatal accident

Injury/fatal accident rate	x	Traffic volume	x	Road segment length or number of major intersections
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Formula for cost per injury/fatal accident

Per-accident cost due to congestion	+
Per-accident property damage	+
Per-accident human damage	

Administrative Management

Together with regional public corporations, NPOs and other citizens' groups, the Japanese government is currently putting its efforts toward enhancing administrative management for roads. In order to achieve more effective, efficient and transparent road administration, Japan has promoted result-oriented administrative management for roads.

Establishing a well-organized evaluation system

Currently, road administrative management is conducted according to the PDCA cycle (PLAN-DO-CHECK-ACT cycle), whereby: policy goals are determined by using performance (outcome) indicators (PLAN); policy measures and projects are executed (DO); results are analyzed and achievements are evaluated (CHECK); and the results are reflected in subsequent administrative activities (ACT).

To effectively implement each project, data analysis is conducted on each policy issue. This allows for the clear identification of sites and sections that are in particular need of substantial countermeasures. Road administration becomes more effective, efficient and transparent when the general public is consulted at each stage of the PDCA cycle. For example, regional needs and challenges can be better understood and confirmed when input from the public is solicited about which sites to select.

Road Administrative management that collaborates with the general public

