

Roads

Ensure Safety and Security

Countermeasures against a possible Nankai Trough Earthquake and other disasters and earthquakes

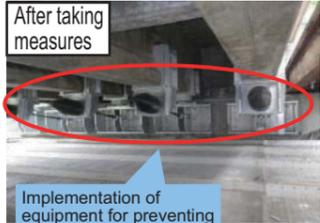
Disaster prevention measures and earthquake disaster countermeasures continue to be implemented to reduce damage at the time of disaster occurrence and to support smooth and prompt emergency activities.

■ **Earthquake disaster countermeasures**
Based on the experiences of the disaster, earthquake-resistant reinforcement for road bridges that are built on old standards is implemented.

Before taking measures


After taking measures

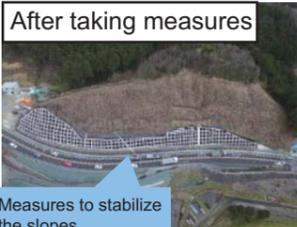

Implementation of equipment for pier reinforcement and preventing falling bridge

After taking measures


Implementation of equipment for preventing falling bridge

■ **Measures against heavy rain**
Measures to enhance safety are implemented at the places where there is a risk of landslides and falling rocks caused by heavy rain and typhoons.

Before taking measures


After taking measures


Measures to stabilize the slopes

Example of damage slope face


- [Major projects]
- Tsuruga City Azo area disaster prevention measures (sight frontage, Suizu to sight frontage, Azo, Tsuruga City, Fukui Prefecture)
 - National Route No. 165, Anti-earthquake measures for Shinjo elevated bridge (sight frontage, Bennosho, Katsuragi City to sight frontage, Soone, Yamatotakada City, Nara Prefecture)

Promotion of undergrounding

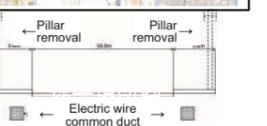
From the viewpoints of improving disaster prevention of roads, ensuring a safe and comfortable passage space, forming a good landscape, and promoting tourism, etc., undergrounding is promoted. Based on the amendments to the Road Law etc., undergrounding is promoted regarding roads that are important for disaster prevention such as emergency transportation roads. Thus road blockage caused by collapse of utility poles etc. will be prevented.

Osaka National Route No. 1 Electric Wire Utility Tunnel (Miyakojima Electric Wire Utility Tunnel)

Project location


Plain view
To Kyoto Prefecture
To Hyogo Prefecture
Project section: extension 3.5 km


Before implementation
Near Kyobashi Station on National Route No. 1

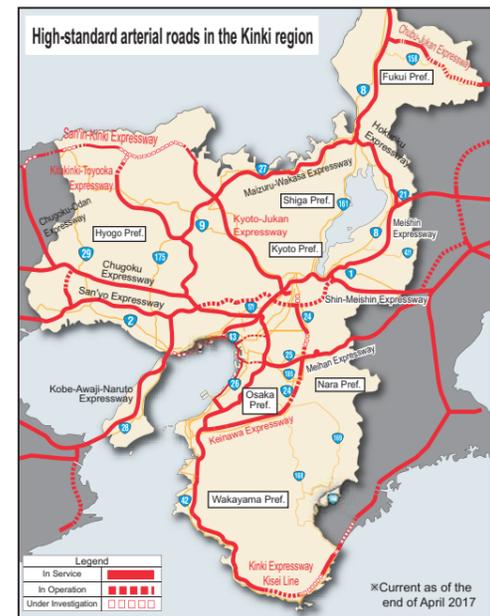

After implementation
Near Moriguchi Station on National Route No. 1


Ensuring safe and comfortable passage ways by eliminating utility poles

Promotion of wide area network development

With regard to the section where there is a risk of influencing the wide area traffic due to the shredding of the current road caused by earthquakes, tsunami and heavy rain disasters in the future, the development of high-standard arterial roads, etc., which connect manor cities, shall be promoted.

- [Major projects]
- Chubu Jukan Expressway: Eihei Temple Ohno Road
 - Keinawa Expressway: Yamato Goshō Road, etc.



Strategic maintenance and updates for infrastructure aging measures, etc.

Inspection of road facilities (bridges, tunnels, pavements, slope surfaces, earthwork constructions, road accessories, etc.) to grasp safety continues steadily. Measures against aging by maintenance cycles such as inspections, diagnoses etc. are also promoted.

- The ratio of the number of bridges over 50 years after construction that are managed by the Kinki Regional Development Bureau is 32% as of 2016, but it will increase to 50% after 10 years.
- Based on the long life of road bridge repair plan, repairs of the Yodogawa-ohashi Bridge, etc. are implemented systematically.
- By proactively repairing before reaching large-scale repair, long-life plan for bridge is applied.

Case of bridges

Inspection situation


Before taking measures
Corrosion of girder bridge rebar


After taking measures
Repair of cross-sections


Case of tunnels

Inspection situation


After taking measures
Cross section restoration / peeling prevention


After taking measures
Peeling prevention

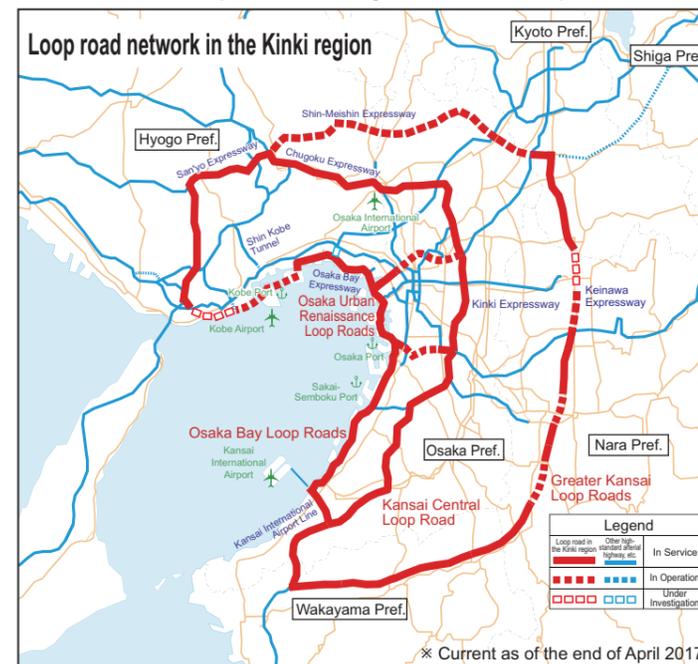

[Major projects]

- National Route No. 2 Yodogawa Ohashi repair (sight frontage, Fukusima-ku to Nishiyodogawa-ku, Osaka-city, Osaka prefecture)
- National Route No. 9 Kannon Tunnel repair (Sonobe-cho, Nantan City to sight frontage, Kyotamba-cho, Funai-gun, Kyoto Prefecture)
- National Route No. 24 Kishu Ohashi Bridge inspection (Taya to sight frontage, Dejima, Wakayama City, Wakayama Prefecture)

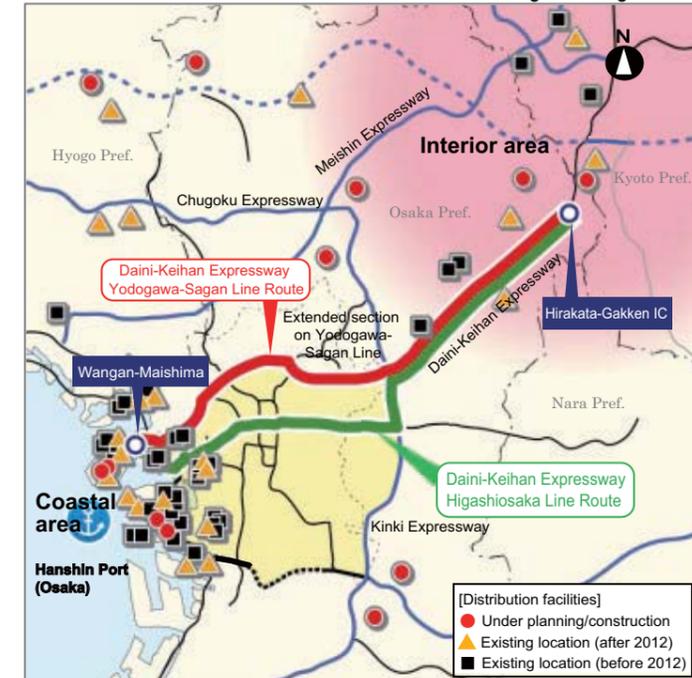
Reinforcement of Growth by Productivity Improvement

Promoting maintenance of the Kinki area ring road

To realize prompt and smooth logistics, strengthen international competitiveness, and alleviate traffic jams, etc., the development of ring roads will be promoted.



National Route No. 1: Extended section on Yodogawa-Sagan Line



Distribution facilities in the coastal and interior areas: surveyed by Naniwa National Road Works Office

[Necessary time at peak times
 (Hirakata City (Hirakata-Gakken IC) - Osaka Port (Wangan-Maishima))
 [Current] 48 min. ⇒ [After construction] 33 min. (15 min. reduction)
 (Daini-Keihan Expressway, Higashiosaka Line is used) (Daini-Keihan Expressway, Extended section on Yodogawa-Sagan Line is used)