NEXCO-WEST CAPABILITIES for EXPRESSWAYS

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We have solutions to make expressways in the world better.
Theme

- General Information
- Construction
- O&M
- Overseas Business
Company Profile

- Company name: West Nippon Expressway Company Ltd.
- Representative: Yoshinari Ishizuka (President, CEO)
- Date of establishment: October 1st, 2005
- Toll road operation: 3,453km (As of July. 2015)
- Number of Traffic: 2.71 million per day (Average in FY2014)
- Shareholders’ equity: 475 million USD
- Toll Revenue: 7,181 million USD (FY2014)
- Associated revenue: 1,442 million USD (FY2014)
- Employees: 2,376 (As of March 2015)
- Head office: Osaka, Japan

- Credit rating: A1 (MOODY’S)
  AA+ (Rating & Investment Information, Inc.)
Business Scheme of Expressways in Japan

Japan Expressway Holding and Debt Repayment Agency (JEHDRA)

Holding expressways
Repaying debts

Agreement

Transferring expressway assets and debts
Leasing Expressway assets
Paying the rent

NEXCO-West

Constructing expressways
Operating expressways
Collecting tolls

Approval

Minister of Land, Infrastructure, Transport and Tourism

Approval

Borrowing funds

General Information
General Information

Business Area

NEXCO-West’s business areas include 24 prefectures of West Japan (Fukui and Shiga to Okayama). In West Japan, there are regions with an abundance of historical sites, places of interest, nature and charms. The potential of the regions expand in terms of logistics, tourism, culture and life, by linking the regions diverse ‘values and charms’ with expressways.

Map showing NEXCO-West’s business area

As of July 2015

3,453km : in operation
102km : under construction

<Legend> Expressways

Expressways in operation
Expressways under construction
Expressways under construction (Section developed by the central government)
Other expressways
### General Information

#### Cooperative Structure with Affiliate Companies

<table>
<thead>
<tr>
<th></th>
<th>Kansai area</th>
<th>Chugoku area</th>
<th>Shikoku area</th>
<th>Kyushu area</th>
<th>Number of employees</th>
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<tbody>
<tr>
<td>Head office</td>
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<td>Head office</td>
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<tr>
<td>Branch offices (4)</td>
<td>Kansai Branch</td>
<td>Chugoku Branch</td>
<td>Shikoku Branch</td>
<td>Kyushu Branch</td>
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<td>10 offices</td>
<td>10 offices</td>
<td>4 offices</td>
<td>10 offices</td>
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<tr>
<td>Expressway offices and administration offices (34)*</td>
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<tr>
<td>NEXCO-West</td>
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</tbody>
</table>

#### Partner companies

- **Conservation and inspection service Providers (6)**
  - West Nippon Expressway Facilities Co., Ltd.
  - West Nippon Expressway Engineering Kansai Co., Ltd.
  - West Nippon Expressway Engineering Chugoku Co., Ltd.
  - West Nippon Expressway Engineering Shikoku Co., Ltd.
  - West Nippon Expressway Engineering Kyushu Co., Ltd.
  - Fuji Giken Co., Ltd.

- **Maintenance and repair service providers (6)**
  - West Nippon Expressway Maintenance Kansai Co., Ltd.
  - West Nippon Expressway Maintenance Chugoku Co., Ltd.
  - West Nippon Expressway Maintenance Shikoku Co., Ltd.
  - West Nippon Expressway Maintenance Kyushu Co., Ltd.

- **Toll collection service providers (5)**
  - West Nippon Expressway Service Kansai Co., Ltd.
  - West Nippon Expressway Service Chugoku Co., Ltd.
  - West Nippon Expressway Service Shikoku Co., Ltd.
  - West Nippon Expressway Service Kyushu Co., Ltd.

- **Traffic management service providers (4)**
  - West Nippon Expressway Patrol Kansai Co., Ltd.
  - West Nippon Expressway Patrol Chugoku Co., Ltd.
  - West Nippon Expressway Patrol Shikoku Co., Ltd.
  - West Nippon Expressway Patrol Kyushu Co., Ltd.

*Operation office only

About 11 thousand for the entire Group

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General Information

Business Fields

① Construction (102km)
   • Conduct study and research on the effects and feasibility of expressway projects
   • Manage expressway construction projects in effective and efficient ways

② Operation and Maintenance (3,453km)
   • Operate and maintain expressways for 24-hour
   • Main four category works: Toll collection works, Traffic management, Inspection, and Maintenance

③ Associated Business
   (Rest Area Business, New Business and Overseas Business)
   • Construct and operate restaurants, shops, gas stations and so forth
Total Management

Tasks in project

- Economic survey
- Estimation of traffic volume
- Environmental impact research
- Public meeting on project overview
- Installation of center peg
- Site survey
- Geological survey
- Road design
- Bridge design
- Tunnel design etc.
- Public meeting on design
- Installation of area indicating peg
- Negotiation of land acquisition
- Construction
- Completion inspection
Construction Records in Difficult Situations

- Construction works without stopping traffic

- Construction works in mountainous area (earthwork)
O&M

Business Fields in O&M

**Toll collection**
- Toll collection at toll booth
- Electronic Toll Collection (ETC)

**Traffic management**
- Traffic Patrol Squad
- Traffic control center

**Inspection**
- Hammering inspection for bridge
- Inspection for message sign board

**Maintenance**
- Road cleaning sweeper
- Emergency pothole repair
Total Management in O&M

- Repair Work
- Inspection/Examination
- Soundness Evaluation
- Planning for Design and Repair
- Non-Destructive Inspection
- Inspection-Repair Management System
- Inspection/Repair History Database developed in our computer system

Minimize Life Cycle Cost

Reduce Inspection Cost
Non-Destructive Inspection System

Crack, Rut and IRI Inspection Vehicle

- Read the crack conditions and automatically output on drawing
- Rut and IRI conditions are output in CSV format
- Possible to inspect in the day time
- IRI is calculated by each 10m, 100m and 200m

<table>
<thead>
<tr>
<th>Contents</th>
<th>Velocity</th>
<th>Width of Road</th>
<th>Accuracy of Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Crack Photographing System</td>
<td>Maximum 100km/h</td>
<td>5.0m</td>
<td>Readable: 1.0mm Crack</td>
</tr>
<tr>
<td>② Rut Measuring System</td>
<td>Maximum 100km/h</td>
<td>5.0m</td>
<td>Accuracy: ±3mm for Rut depth (※) in Traverse Profile</td>
</tr>
<tr>
<td>③ IRI Measuring System</td>
<td>–</td>
<td>–</td>
<td>Accuracy: ±30% for standard deviation(※) in Vertical Profile</td>
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</tbody>
</table>

※1 Measured by man–powered
Non-Destructive Inspection System

Inspection Technology for Concrete Bridges

<Auto CIMA>

- High place inspection without special vehicle (Maximum height 40m)
- Objective evaluation without close visual inspection
- Just 15 minutes to get accurate drawing

- **Automatic crack detection (Minimum width 0.2mm)**

STEP1: Photographing

STEP2: Basic Drawing on Site (in 2min)

STEP3: Accurate Drawing (in 15min at Office)

STEP4: Detected Crack Drawing (in 100min)

※ Auto CIMA is highly praised in NETIS (New Technology Information Site):
Non-Destructive Inspection System

Screening Tool adopted in USA

- Screening system for inspection places on bridge slabs
  - Analysis software for slab deterioration
  - Infrared camera

Collaborating with

Robotic Assisted Bridge Inspection Tool (RABIT™)

- Plan to inspect about 1,000 bridges in 7 states in 5 years
- FHWA(Federal Highway Administration) promotes to produce on a large scale
A) **Non-Destructive Inspection Business**
NEXCO-West USA, Inc., subsidiary company established in Washington DC in 2011, is extending a reach of inspection business.

B) **PPP road projects in Indonesia**
Representative office in Jakarta, established in 2011, participated in PPP road Project in 2014 for the first time.

C) **JEXWAY(Est. 2011)**
Jexway, jointly established by 5 expressway companies in Japan, specializes in overseas road project business.

D) **PPP road projects in developed countries**
Questing for PPP road projects in North America, Europe and Oceania, collaborating with other Japanese companies.
Overseas Business

Business Strategy

**Public Financial sector** (e.g. JBIC, DBJ) (Lender or Sponsor)

**Government**
- Concession owner
- Joint-stock Corporation

**Land Owner**
- Land Acquisition

**SPC**
- Concession owner
- Joint-stock Corporation

**Private Financial firm** (Lender)

**Insurance company**

**Insurance Contract**

**Customer / Road user**

**O&M Contract** (ex. 20 years)

**Toll revenue**

**O&M firm**

**JEXWAY / NEXCO-West**

**Engineering consultant or design firm** (International bidding)

**EPC Contractor** (International bidding)

**Design contract**

**Construction contract**

**Loan / Repayment or Investment / Dividend**

**Revised of Toll Application / Approval**

**Revision of Toll Application / Approval**

**Loan / Repayment**

**Toll revenue**

**Advisory contract**

**Advisory**

**Advisory**

**Advisory**

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### Overseas Business

#### Business Strategy

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<tr>
<td><strong>Step 1</strong></td>
<td>O&amp;M Project including subcontract in the developed countries</td>
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<td><strong>Step 2</strong></td>
<td>Investment for brown field of PPP Road Project in the developed countries</td>
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We have conducted more than 20 projects with JICA and JBIC.

- Mainly contributed to development for Asian countries
- Highly Skilled advisory services for construction work control
- Financing with low-interest rate through JBIC fund or JICA fund

Advisory Services for Construction Work Control in Philippine

Track Records in the world

The others: Algeria, Zambia

Manila

Danang

Jakarta

Makassar
Participation in BSD Road Projects

1) PT Nusantara Infrastructure Tbk. (NI)
   - Private infrastructure company
   - Established in 1995
   - Business field:
     transportation, communication, distribution networks, financial institutions and markets, and energy supply system

2) BSD Road Projects
   Open : February 2nd 1999
   Length : 7.2km
     (Earthwork (fill:3.9km, cut: 3.1km), 5 bridges(0.2km), 1 IC, 1 Rest Area)
   Period : Aug. 2010～Oct. 2028

3) Business Participation Process :
   - Jan. 2015 Share Purchase
   - Aug. 2015 Technical Cooperation (Plan)