

The design of the cover is created with inspiration obtained from the beauty of the curves of an expressway junction and mizuhiki. Mizuhiki raditional artwork made from thin, fine twine of washi, or ese paper. The beautifully tied knots are used to decorate gifts and are also popular motifs for hair ornaments and other accessories.

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Our Corporate Philosophy

Pursuing more advanced expressway service. Our mission is to create a safe, secure and comfortable network of expressways to satisfy customers, support the area livelihood, and contribute to Kansai's economic growth. I DISTRICT BILL PAR

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President Statement

Hanshin Expressway's 258.1km network is one of the major traffic arteries of urban areas in Kansai Region. In order to contribute to the development of people's life and Kansai economy by constructing and managing the network, and to realize safety, security, and comfort of our customers, Hanshin Expressway Group is working hard under our core corporate philosophy of "Pursuing More Advanced Expressway Service".

safely for a long period.

Furthermore, in order to let our customers truly have safe, secure, and comfortable driving experience, we commissioned "Customer Satisfaction Improvement Plan" where we initiate various concrete actions such as new traffic congestion countermeasures and more sophisticated traffic information provision.

In addition, as a precondition for conducting these various initiatives, we promote work style reform of the company to increase work productivity and quality by reviewing work procedures and implementing various work-hour and workplace settings. Hanshin Expressway Group keeps on challenging to realize the 'Hanshin Expressway Group Vision 2030' showing targets to be achieved by 2030 in all aspects of our activities. As one of major contributors for the further development of Kansai Region as well as trusted partners of local community, we will make every effort based on the basic policy of "thoroughly caring customers' viewpoints." Your continuous understanding and cooperation are very much appreciated.

HANSHIN EXPRESSWAY COMPANY LIMITED COMPANY PROFILE

Firstly with regard to network development, we proceed with the construction of the Yodogawa-Sagan Route (2nd and 3rd Phase Projects) and the Osaka Wangan Route (Western Extension Project), both of which will dedicate to the sustainable development of the region by eliminating the missing network link, alleviating traffic congestion, and strengthening the logistic function of the region.

Regarding operation and maintenance of existing network, we promote large-scale renewal and repair projects for aging structures and intensive repair works as well as enhance traffic safety and disaster mitigation measures in order to ensure that customers can continue to use Hanshin Expressway

YOSHIDA Koichi, President



1. Hanshin Expressway at a Glance

Corporate History -

Hanshin expressway holds a 50-year experience in expressways management and operation

During the period of the rapid economic growth, from 1960s to 1980s, a vehicle-dominated modal shift entailed heavy chronic traffic jam in the urban area. It resulted in serious negative impacts on the region's economy and living condition. Responding to a reflection of the strong demand for a new urban expressway network in the region, the former Hanshin Expressway Public Corporation, the predecessor body of the current private company, was established.



Hanshin Expressway Public Corporation was established

The first opening: 2.3 km section of Route 1, the Loop route was opened

New routes were opened one after another for the Japan World Exposition

Osaka and Kobe areas were directly linked

Umeda exit built to penetrate a building was opened. It was the first case of adopting three-dimensional right of way

Wangan Route connecting Kansai International Airport, Osaka and Kobe was opened, with a total network length reaching 200 km

The Great Hanshin-Awaji Earthquake caused tremendous damage to the expressway network in Kobe area The collapsed sections were fully recovered and reopened in 1996

Electronic Toll Collection (ETC) system was introduced

Hanshin Expressway Company Limited was established after HEPC's privatization

The toll system was shifted from flat rate to distance-based rate. Shin-Kobe Tunnel previously owned by Kobe City was integrated into the Hanshin Expressway network

Company Privatization in 2005

Hanshin Expressway Company Limited was founded under the national Privatization scheme in 2005 along with establishment of the other five expressway companies. Even after the shift to the company, Hanshin Expressway continuously responds to the expectations of regional society with speed, accuracy and dynamism.

The figure right shows the basic framework of the organizational conversion. The expressway companies borrow funds to construct expressways. After the completion, the expressway assets and the debt are transferred to Japan Expressway Holding Debt Repayment Agency (JEHDRA). JEHDRA leases the expressway assets to the companies for the operation and management. The companies collect tolls and reimburse the total lease fees during a 60-year period from 2005 to 2065.



Company Profile-

Route length in service	258.1 km
Route length under construction	26.5 km
Daily traffic volume	709,646 trips
Annual toll revenue	JPY 178.1 billior
Capital	JPY 10 billion



Hanshin Expressway Group Operation

The Hanshin Expressway has subsidiary companies with specialized skills and knowledge, focusing on Maintenance, R&D, Traffic Control, Toll collection, Affiliated business, closely related to the "safety and security" of the road network, and established a group management system. In the group management system, we have established group governance by establishing a clear capital relationship and sharing principles and vision, and pursuit four elements (1) securing and improving quality, (2) streamlining of operations, (3) concentration of technology and know-how, (4) ensuring urgency and mobility.



HANSHIN EXPRESSWAY COMPANY LIMITED COMPANY PROFILE

Employ	rees Hanshin Expressway Group about 2,470 Hanshin Expressway Co., Ltd about 680
Shareh	olders National Government 50% and Local Governments*2 50%
Footnote	 All data as of, 2020 Osaka Prefecture, Osaka City, Hyogo Prefecture, Kobe City, Kyoto Prefecture, Kyoto City.
	Business and Maintenance Management Headquarters
	Business and Maintenance Planning Dept.
	Osaka Business Dept.
	Osaka Maintenance Dept.
	Kobe Business and Maintenance Dept.
	Internal Audit Office
се	Planning Dept.
	Bussiness & Operation Dept.
ations Dept.	Maintenance & Traffic Management Dept.
t.	Engineering Dept.
	Business Development Dept.
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Hanshin Expressway Engineering, Naigai-Kozo, Joho-Tech, Techno Hanshin, Highway Kansei, Hanshin Expressway Building & Facility Service : Inspection / Repair work / Monitoring / System development & operation Hanshin Expressway R&D, Hanshin e tech Survey & Analysis / Design / Cost estimation / System development & Operation / Consulting service Hanshin Expressway Traffic Patrol : Patorolling / Traffic monitoring

Hanshin Expressway Toll Osaka , Hanshin Expressway Toll Kobe : Toll collection operation

Hanshin Expressway Service : Parking area operation / Management of parking lots / Thruway credit card service

Hanshin Expressway Project Support [?] Consulting on public service Banshen Civil Engineering Consulting (Shanghai): Consulting on road, highway and railroad



Hanshin Expressway Network -

Hanshin Expressway network contributes to local community in the Hanshin metropolitan region

The network of Hanshin Expressway radiates from the center of Osaka, the second largest economic city in Japan and connects to one of the major harbors, Kobe. Our network dominates 15.4% of total vehicle traveled in the region while it covers only 5.9 % of the total road network, indicating our road network supports efficient freight transportation and people's daily travels.



Toll –

Hanshin Expressway offers two payment method, Cash or Electronic toll collection system (ETC) for five different car models. Vehicles with ETC can enjoy various discounts depending on chosen time and routes while those with cash payment are charged maximus toll rates on each car model. The details are shown on the right table.

Hanshin Expressway SmartCheck'nGo! https://www.8405.jp/en

Osaka & Kobe Area				
Car model	ETC	Cash		
Small-size vehicle, Motorcycle	280 - 1,090	1,090		
Standard-size vehicle	300 - 1,320	1,320		
Mid-size vehicle	310 - 1,410	1,410		
Large-size vehicle	400-2,080	2,080		
Over-size vehicle	460 - 2,650	2,650		
		(Unit: JPY)		

Footnote Type of vehicle is determined at toll booths by shape, specifications, passengers, and type of freight, etc

Expressway structures

Elevated structures account for 80% of the Hanshin Expressway network, while 10% of the network are located underground.

	Osaka	Hyogo	Total
Length (km)	156.8	101.3	258.1
Elevated (km)	141.6	60.5	202.1
Underground (km)	10.9	21.5	32.4
Earthwork (km)	4.3	19.3	23.6
Entrance	122	69	191
Exit	126	71	197





HANSHIN EXPRESSWAY COMPANY LIMITED COMPANY PROFILE

Osaka Wangan Expressway Western Extension Project

This planned route is the western part of Osaka Wangan Expressway Project constructing 14.5km-long viaduct and long-spanned bridges.

The route will help disperse the traffic volume in the bayside area and ease the traffic-related problems such as congestion, negative impact to the roadside environment. It will also be intended to make logistics activities more efficient by enhancing the function of Hanshin Port, one of the strategic international super hub ports, and will play a role of alternate routes in case of natural disasters and

Outline of Planning

Location : Koyocho Higashi, Higashinada-ku, Kobe City - Nishi-shiriike, Nagata-ku, Kobe City

(As Part of Joint Undertaking : Koyocho Higashi, Higashinada-ku, Kobe City - Karumojimacho, Nagata-ku, Kobe City) Length: 14.5km (As Part of Joint Undertaking : 12.2km)

Structure : Viaduct & Long Span Bridge (13.9km), Tunnel (0.4km), and Earth works (0.2km)

Yodogawa-Sagan Route Extension (3rd) Project

This planned route is a part of Osaka Urban Second Loop Route constructing 8.7km-long expressway mainly consisting of tunnel structures.

The route will be linked to Daini-Keihan Road to Kyoto, Osaka Bayside Area including Osaka Port functions and other major intercity expressways such as Meishin Expressway to Tokyo. It will also contribute significantly to the economic invigoration and competitive environment of the Kansai Metropolitan Area by enhancing the logistics efficiency and the effective expressway network performance, and will help conduct any post-disaster activities by providing resistant route.

Outline of Planning

Location : Hiejima, Kadoma City - Toyosaki, Kita-ku, Osaka City

(As Part of Joint Undertaking : Ryokuchi Koen, Tsurumi-ku, Osaka City - Tomobuchi, Miyakojima-ku, Osaka City)

Length : 7.6km (As Part of Joint Undertaking : 4.8km)

Structure : Tunnel (7.6km)



2.Main Business Domains

The business domains branch into various areas that are fundamental to provide safe and secure road services around the clock.



Planning

General project formulation flow of urban toll roads is as follows. Until the project is designated as an urban plan and Hanshin Expressway is appointed as the project implementation entity, the due process is basically governed by the national and the relevant local governments. Hanshin Expressway assists the process by providing analysis, data and information upon request, followed by further examinations to build a concrete project plan.



1. Hanshin Expressway Network Traffic Simulation

Based on the micro traffic simulation model specified for the Hanshin Expressway network and estimated traffic demand data sets of the national level, more localized traffic flow simulation is conducted to examine expected change after the route addition. This methodology is also used for predicting the extent of effects of countermeasures on congestion-prone sections.

2. Detailed Project Planning

By considering the cases with different, reimbursement of total project and operation cost by the total toll revenue is simulated. A reasonable combination of toll and cost is selected and refined into a concrete project plan along with the coordination for a necessary cost allocation scheme between Hanshin Expressway and other governing entities. After the plan is finalized and approved by the relevant entities, the process enters the steps of agreement with the Japan Expressway Holding and Debt Repayment Agency and acquisition of project license from the national government.

3. Project Budget Planning After the coordination with the relevant organization and the setting of precise project schedule, annual budget spending plan for the construction and land acquisition is finalized. Also necessary approvals are to be obtained for the work commencement.

4. Other Responsibilities

[Budget Management and Project Assessment]

The Planning Department is in charge of the management of annual operation and maintenance budget. Other responsibilities are the cost-benefit analysis of the project after the completion and the intermediate analysis during the construction when the conditions vary and the needs of revaluation arise.

[Action Program against Congestion]

With points and causes of chronic congestion are identified, feasible countermeasures (e.g. realignment, lane addition, traffic flow smoothing at merging and diversion points) are examined and reflected in the concrete action programs. These programs include the results of effect simulation and the budget estimation for the implementation after the approval. Due to lane addition shown on the right, congestion has decreased since the completion in 1997.

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Output image of simulation







Land Acquisition and Resettlement

The Hanshin Expressway network is running through the highly dense urban area where business activities and dwellings cluster. Under such circumstances, land acquisition and resettlement is unavoidable for the expressway projects. Resettlement can certainly cause loss of land, housing, and livelihood. Hanshin Expressway entitles the project affected person(s) (PAPs) to just compensation. Types of loss are identified by conducting a thorough survey of the subject land, property and livelihood.



Project Briefing

Procedure of land acquisition and compensation



Land Survey









Business/Livelihood Survey



Air Space Utilization System

Hanshin Expressway has promoted an effective space utilization system which allows free use of space above/beneath road structures by designating three-dimensional ROW. The legal framework of the road space utilization was established in 1988 to keep balance between urban expressway development and favorable urban conditions. Its commitment has been recognized as precedents in for the urban expressway project.



Semba Center Building: the commercial building is capped with road structures

Seismic Engineering

What Was Lost in the Earthquake, What Need To Be Passed On, and What We Should Create From

At 5:46 AM on January 17, 1995, the Great Hanshin-Awaji Earthquake with magnitude of 7.3 directly hit the densely populated areas of Kobe and its adjacent cities and caused tremendous damage to the Hanshin Expressway which was running along the activated fault line. Faced with indescribable catastrophe, Hanshin Expressway struggled on every single day to rescue people, do emergency response, and restore the expressway facilities. The entire route was fully recovered and reopened only after 623 days.





Hanshin Expressway Earthquake Museum This museum is an archive facility to preserve and display the structures damaged by the earthquake for future generations. It also provides information of innovative methodologies of reconstruction and of seismic strengthening technologies which have been invented from the lessons learnt. The museum also works actively as an educational facility to offer disaster management and outreach programs for disaster prevention.

Environmental considerations

"Environmental Friendliness" has become one of the most important key phrases and Hanshin Expressway fulfills its social responsibility as a road operator by taking various methodologies to minimize negative environmental impacts and to harmonize its structures with the roadside communities.

Noise and Vibration Reduction Measurement

Approximately 80% of the total length of the Hanshin Expressway consists of viaducts. Noise barriers or absorbers are installed to alleviate unpleasant noise caused by vehicles passing. Also viaduct sections have numerous joints on their surfaces and they often make heavy noise and vibration when vehicles pass over. As an effective countermeasure, existing slabs are connected to eliminate joints as much as possible.

Aesthetic Considerations

Some expressway structures are beautified in order to maintain good visual harmony with surrounding landscape. Some columns above rivers are illuminated with colorful lights, while other columns are painted to match harbor areas.

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Seismic retrofit and new seismic design based on lessons learned from the disaster

- (A) Pier strengthening
- (B) Girder connection device
- (C) Girder connection and replacement of metal bearings with seismic isolation rubber bearings



Noise Barriers









Construction Management

Hanshin Expressway is responsible for supervision of contracted construction work and has developed its own managerial methods reflecting the highway owner's points of view known through many experiences of construction projects. They are to ensure the quality and smooth and safe work execution.

Appropriate cost estimation improves construction quality

"Cost estimation" is a procedure of pricing road activities to ensure uniformity in public and private procurement practice. "Client's quoted price" is benchmark of determining contract price and identified as appropriate cost for public works calculated by "Cost estimation".





Well performing contractor gets good contract evaluation that are reflected in the next tender

The completion inspection of the construction work is an important process to confirm and accept the total quality of construction work. Hanshin Expressway also evaluates the result of the construction work in many aspects and converts it into 1-100 score. The score is notified to the contractor and can be referred to as previous experience in the next tender.



Example of contract evaluation tally sheet

 Cost estimation Client's quoted price

Completion Inspection

Contract Scoring

Construction Work

Supervision

Safety Control

Quality Control

Financial competition used to be the only principle for public work tenders. However, awarding to the lowest bidder has the disadvantage that results in an unrealistically low price contract which cannot guarantee the quality. Furthermore there is a risk of bid rigging by forming the participants' cartel. Under this circumstance, Hanshin Expressway adopts comprehensive evaluation bidding method (CEBM) which is the new tender evaluation method based on the Act on Promoting Quality Assurance in Public Works enacted in 2007. CEBM converts the CEBM score = Price score + Quality Management score bidding price into score, which is combined Price score ⊖ Depend on the bidding price with scores of technical evaluation. Thus, Comprehensive CEBM enables the fair and objective tender Quality Management score

Technical Proposal score **Evaluation Bidding** evaluation with balanced consideration of Enterprise's Ability score Method (CEBM) both bidding price and technical capacity \bigcirc Engineer's Ability score + α of bidders.

Quality and work safety control guarantee good construction work performance





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CEBM enables economically and technically well-balanced contract

Hanshin Expressway's quality inspection and safety control are conducted during the work execution period. In addition to a check of construction site conducted by contractors, Hanshin Expressway also supervises the site in line with its own specification, which accumulates the management expertise.



Inspection and Maintenance-

Concept of Maintenance Management

The primary objective of maintenance works is to keep the expressways in good condition for a long term. All structures on Hanshin Expressway are regularly inspected and monitored to identify their current soundness. After diagnosis, planning and repair design according to the inspection data followed by the actual maintenance implementation, the condition is reevaluated and the inventory database is updated. This routine management cycle enables continuous progress of maintenance strategy.

Inspection

In order to prevent third-party disasters, on- and off-road inspection patrols are conducted daily. Comprehensive structural inspections by detailed observation of bridges from closer range are conducted basically every 5 years. Damage detected through inspections is evaluated and classified in terms of damage severity.



Re-evaluation

The effects of repair and rehabilitation work are re-evaluated to update the maintenance plan.

Maintenance information Database

Concept of preventive maintenance which is adopted at Hanshin Expressway is detecting damage in an earlier stage by regular inspection and conducting simple repair at a lower cost than that required for substantial repair of serious damage. Optimal maintenance plan is proposed by evaluating structural conditions using maintenance management system which consists of Maintenance Information Management System (database system) and Hanshin Expressway Bridge Management System (asset management system).





Large-scale Intensive Maintenance Work

Hanshin Expressway started to apply large-scale intensive repair and improvement work by all-lane closure in 1973, the first maintenance practice of its kind in Japan, and has carried it out approximately once in every year since 1985. This concept is aimed to minimize negative impacts on traffic in urban areas by concentrating all road works in a fixed short period. Major repair works include road re-pavement and expansion joint replacement. Work schedule and process coordination and management are the keys of success, and Hanshin Expressway has expertise on these know-hows.



Work duration Social loss cost of lost time of drivers) Traffic congestion amount Repair works with traffic control HANSHIN EXPRESSWAY COMPANY LIMITED COMPANY PROFILE

Design & Plan

Concept of Preventive Maintenance



Routine maintenance

Routine maintenance is executed in a daily basis to provide smooth and safe traffic service. Routine maintenance consists of: cleaning of road surface and drainage, and minor repair works.

Effectiveness of Large-scale intensive repair work (FY2018: Sakai Route / Nishi-Osaka Route)						
ltem	Works with partial lane closure	Works with all-lane closure	Benefits			
Work duration	300 days (5 years)*	10 days				
Social loss (cost of lost time of drivers)	43 billion yen	7 billion yen	▲ 35 billion yen			
Traffic congestion amount	4,921 km/h	3,071 km/h	4 0 %			
*Benair works with traffic control are only allowed in weekends						



Traffic Management

Traffic Control System

For over fifty years, Hanshin Expressway has been developing cutting-edge Intelligent Transportation System in order to smooth mass vehicle traffic volume in the urban area. By this continuous effort, can provide highly reliable traffic information for 24/7 basis, so that drivers can enjoy safe and comfortable driving experience on the network.



Traffic Safety Improvement

Hanshin Expressway continuously carries out many traffic safety measures at blackspots based on the Traffic Safety Enhancement Action Program formulated in 2005. Since the implementation of the program, accidents decreased by about 1,480 during the period from 2005 to 2017. A revised Action Program has been established for achieving further accident reduction.



2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019

Traffic Administration Crew / Prevention of Overloading

Well-trained crews on yellow patrol cars patrol expressway frequently. They handle traffic accidents with police officers and clear debris on the road. Also, they fill out potholes on road surface as an emergency measure with pre-packed cold mix asphalt.

Crackdowns on overloaded vehicles in cooperation with police officers are executed frequently since they may endanger traffic safety and structural healthiness of the roads. Furthermore, they could cause noise and vibration discomfort to roadside residents. In addition, with the wide use of ETC, Hanshin Expressway develops "High-precision Automatic Axle Weighing System" which is installed in all toll gates.

Affiliate Business

Domestic Road Management Business

Hanshin Expressway has been managing two tunnels Osaka Sakishima Tunnel and Yumesaki Tunnel linking logistic port areas of Port of Osaka, outsourced by Osaka City government since 2009. With our rich experiences, we engage in traffic control and facility management of the tunnels.We also awarded contracts on bridge inspection including overpasses in a university and bridges in a golf club.

Parking Area (Service Ares) Operation

Hanshin Expressway operates 13 parking areas with a key concept of hospitality and comfort for drivers. Some of the parking lots provide kiosks, restrooms and restraints where meals with ingredients of the seasons are available. Special staff is ready for drivers through 24-hours a day to provide any assistance. The other parking lots offer restrooms and refreshments through vending machines.



Parking Lot Operation

Hanshin Expressway manages about 300 parking lots such as monthly parking and coin-operated parking. We utilize underneath of our elevated structures of our network as parking lots and also expand its operation in neighboring areas.

due to hindered visibility and excessive speed entry

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Crackdown Activity of the Vehicle Weight

Vehicle weight measurement system

Minami Ashiyahama Parking Area





3. Overseas expansion

Sharing technologies and know-hows of advanced highway operation and management

Hanshin Expressway has provided total expressway service for half a century, ranging from right-of-way and construction managements to operation and maintenance. Hanshin Expressway has been sharing this accumulated expertise with over 50 countries abroad.

Technical Cooperation in the World

Based on our professional experience and human resource, Hanshin Expressway has been dispatching experts to many countries collaborating with JICA*. This has contributed to the capacity strengthening of road sectors.

*Japan International Cooperation Agency



Countries where The experts are dispatched



Technical Advice in Kenya

Memorandum of Understanding (MoU)

Hanshin Expressway has explored a tight relationship with many countries and signed MoU with some highway administrative entities in order to keep and enhance the collaboration and deepen technical exchanges. Under the agreement, Hanshin Expressway sends experts and jointly hosts training programs and technical seminars.



Signing MoU with Autoroutes du Maroc (in Morocco)



Joint Seminar with Expressway Authority of Thailand (in Thailand)

Training Programs by Hanshin Expressway

Hanshin Expressway hosts many officers and engineers from highway administrative entities and provides a series of training programs, including lectures on highway operation and management and introduction of the latest technologies on ITS, construction and maintenance.



Participating Countries of Technical Programs (2014-2019)



Training Program on Bridge Maintenance

HANSHIN EXPRESSWAY COMPANY LIMITED COMPANY PROFILE

Consultancy Business for Highway Administrators

Hanshin Expessway caters to the needs of both developed and developing countries to enhance their capacity building and share the expertise in the scope of the urban expressway projects.



Meeting with the local road administrators



Local seminar



Site survey