TRANS-TOKYO BAY HIGHWAY

A Message from the President

TRANS-TOKYO BAY HIGHWAY CORPORATION

President ***Akira Oka***

The Trans-Tokyo Bay Highway Corporation(TTB), established on October 1, 1986, concluded a construction contract with the Japan Highway Public Corporation(JHPC) in July 1987, and organized a joint undertaking entity to raise the necessary capital from the JHPC, interested local govenments and the private sector, and will carry out the Trans-Tokyo Bay Highway project.

The settlement of the negotiation on fishery compensation late in 1988 was followed by preparation for the construction and by the construction work commencement ceremony in May 1989.

Since the first feasibility study was conducted in 1966 by the Ministry of Construction, the project has experienced many ups and downs, and grown to become the first large scale project with a project will cost of as much as 1,150 billion yen, in which the private sector participates for the first time.

With a view to the expected tremendous impact of the highway on the entire Metropolitan area, as well as the possible influence of the project on other future ones involving the private sector, we are firmly determined to commit ourselves to achieve this important project successfully. I would also like to request the cooperation of the local residents, as well as the Ministry of Construction, JHPC, our stockholders and all others whose assistance is fundamental so that the project will be carried out on schedule. Thank you.

LOCATION OF THE TRANS-TOKYO BAY HIGH

The Trans-Tokyo Bay Highway is approximately 15-km toll highway that runs across the central portion of Tokyo Bay from east to west in connecting Kawasaki and Kisarazu. Along the coast line is located the Tokyo megalopolis consisting of Tokyo, Yokohama, Kawasaki, Chiba, Kisarazu and other cities.

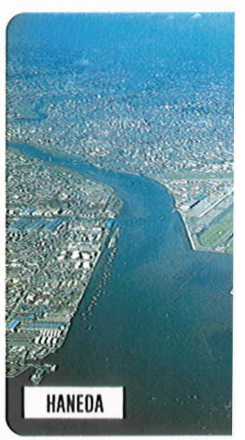
The Trans-Tokyo Bay Highway together with the Tokyo Bay Coastal Highway, the Metropolitan Central Highway and the Outer Loop, will form the Tokyo metropolitan highway network to be connected to main highways across the nation.

The Trans-Tokyo Bay Highway is expected to contribute to improving industrial improvements as well as alleviate traffic congestion in the area. It will also stimulate harmonious development of the Tokyo metropolitan vicinity by enhancing cooperation of the suburban cities and establishing new metropolitan area.

Scope of Construction License

1. Project scope

(1) Road Name	Trans-Tokyo Bay Highway
(2) Route Name	National Highway No.409 (Kawasaki～Narita)
(3) Work Area	Ukishima, Kawasaki, Kanagawa ～Nakashima, Kisarazu, Chiba
(4) Length	15.1-km
(5) Carriageway	Dual 2-lane at first stage Triple 2-lane at final stage
(6) Design Speed	80 km/h
(7) Traffic Forecast	33,000 veh/day in the 1st. year 64,000 veh/day after 20 years
(8) Work Schedule	July 1987 to March 1996
(9) Project Cost	¥1,150 billion



2. Project budget

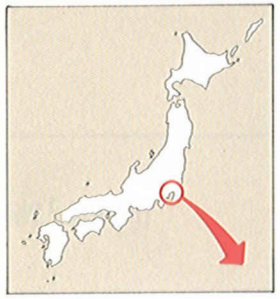
Unit : ¥100 millions

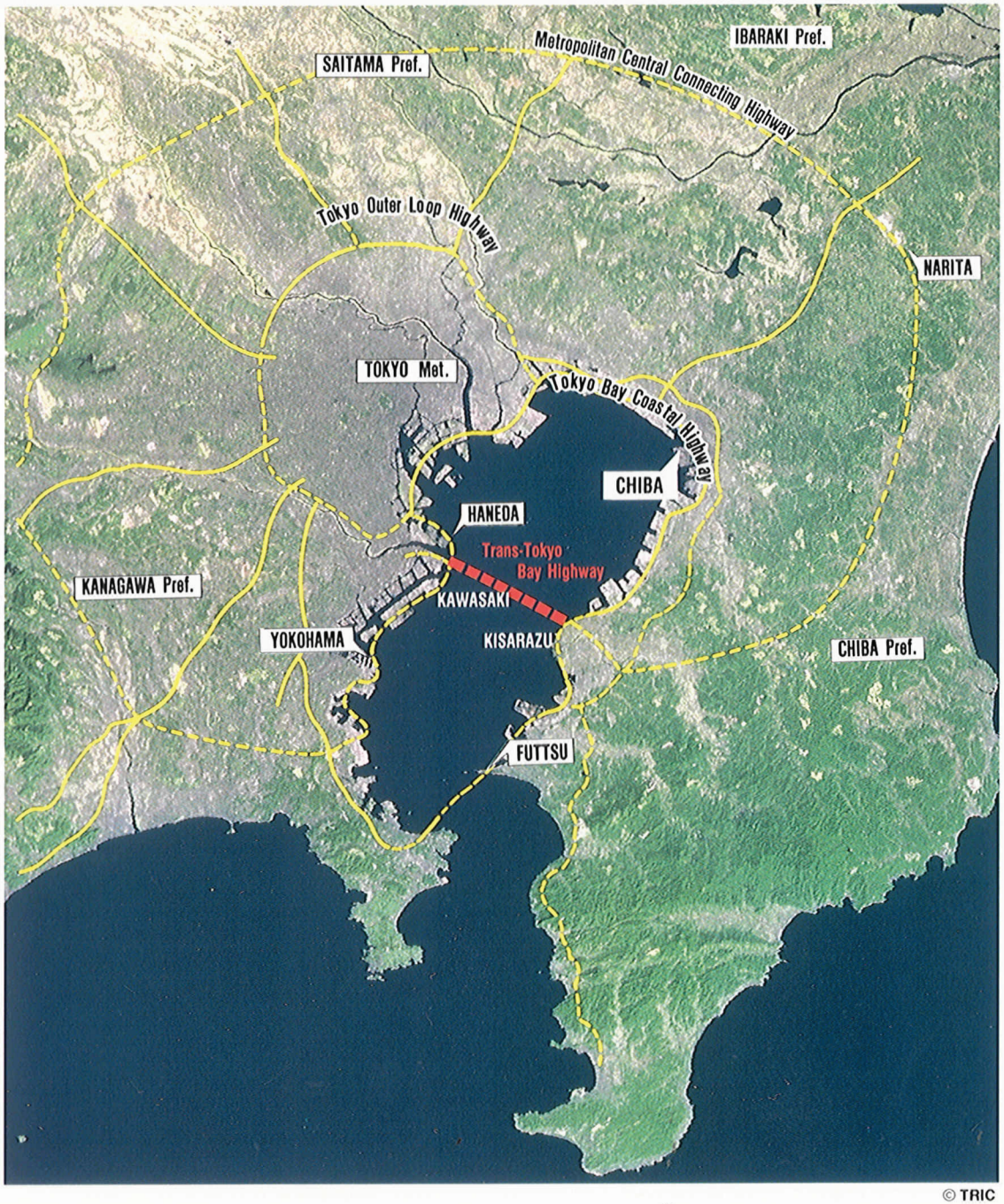
	TTB	JHPC	Total
Funds	7,891	1,409	9,300
Interest during Construction	1,506	707	2,213
Total	9,397	2,116	11,513

3. Project finance

Unit : ¥100 millions

Organization	Item	Portion	Total
TTB	Capital	600	9,397
	Government guaranteed bonds	3,891	
	Private loans, Loans by Japan Development Bank	2,406	
	Official loans	2,500	
JHPC		2,116	2,116
Total			11,513




SAITAMA Pref.
Metropolitan Central Connecting Highway
IBARAKI Pref.
Tokyo Outer Loop Highway
NARITA
TOKYO Met.
Tokyo Bay Coastal Highway
CHIBA
HANEDA
Trans-Tokyo Bay Highway
KANAGAWA Pref.
KAWASAKI
YOKOHAMA
KISARAZU
CHIBA Pref.
FUTTSU


CHIBA (MAKUHARI)


NARITA

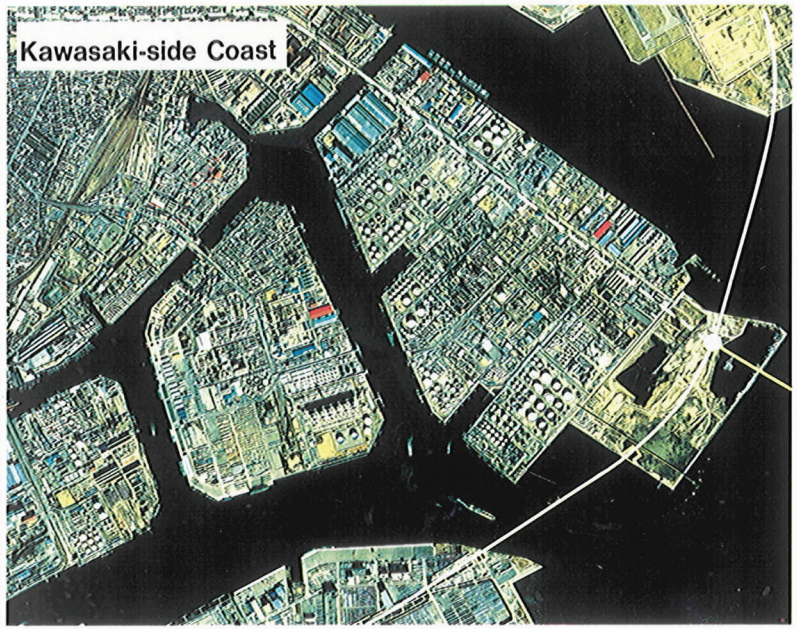

FUTTSU

OUTLINE OF THE PROJECT

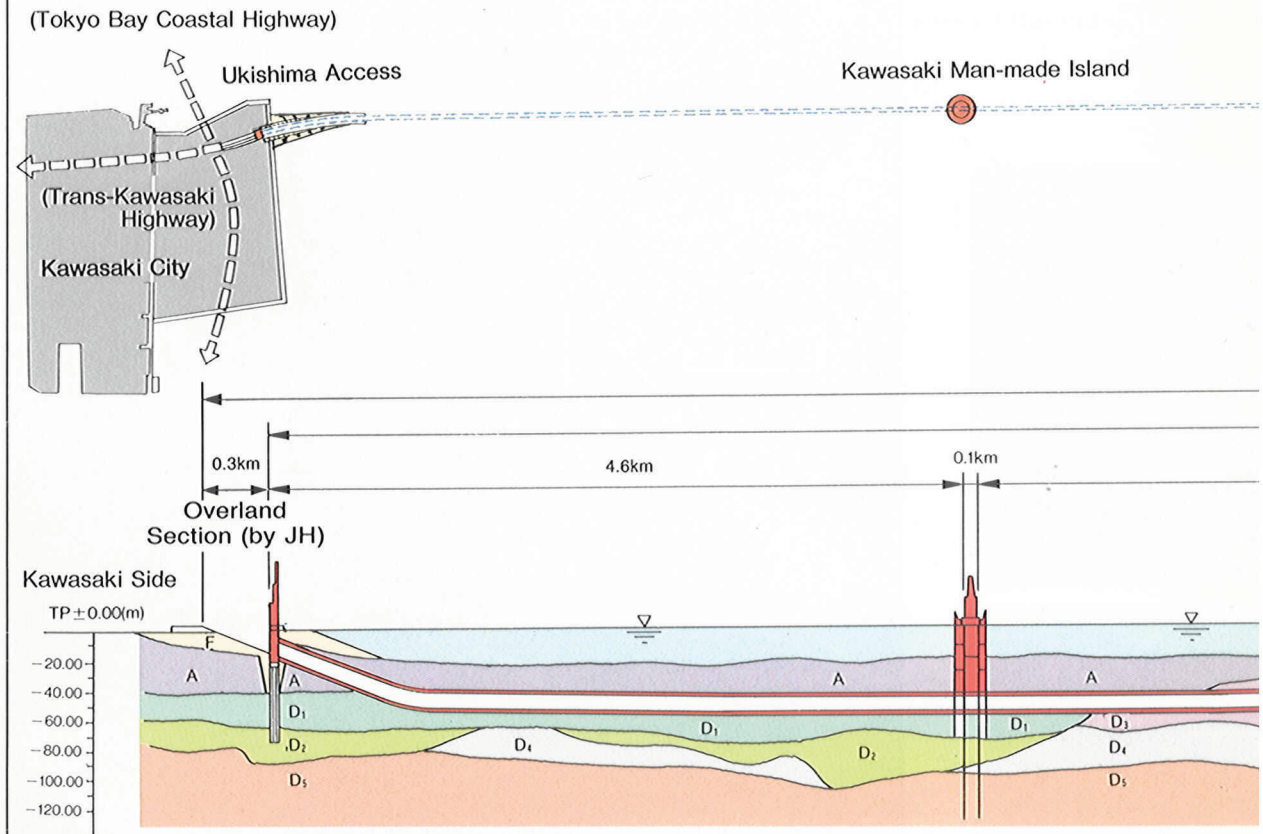
The Trans-Tokyo Bay Highway structure will consist of two-10 km long tunnels under Kawasaki waters where surface traffic is heavy, and a 5-km long bridge over Chiba waters where surface traffic is sparse, and two man-made islands in between.

The size and scope of the structures are far beyond those of conventional ones. In addition, the structures will be constructed in very soft grounds under deep water where the likelihood of large-scale earthquakes is high. Therefore, the most advanced technologies are required both for design and construction.

It is planned that slurry shield machines bore the underwater tunnels, that a cylindrical RC structured ventilation shaft with inside diameter of 100m be constructed at the mid point of the underwater tunnel, and that a manmade island be constructed to act as a transition structure from the tunnel portion to the bridge portion.

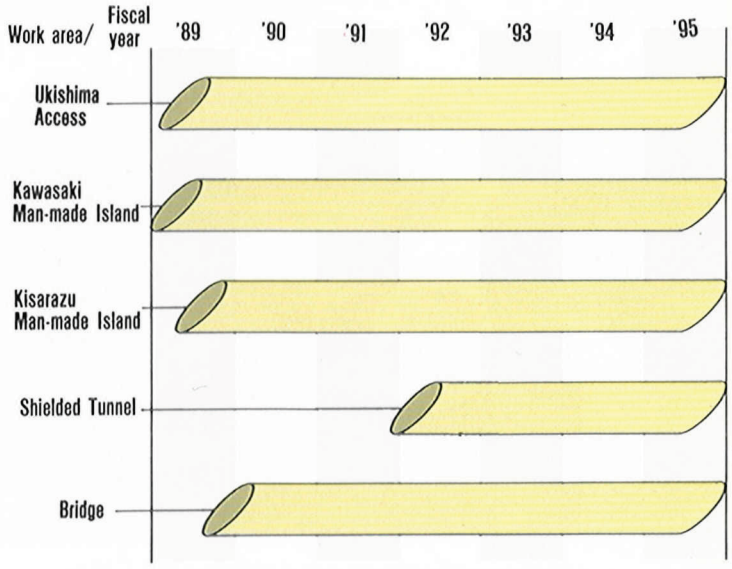


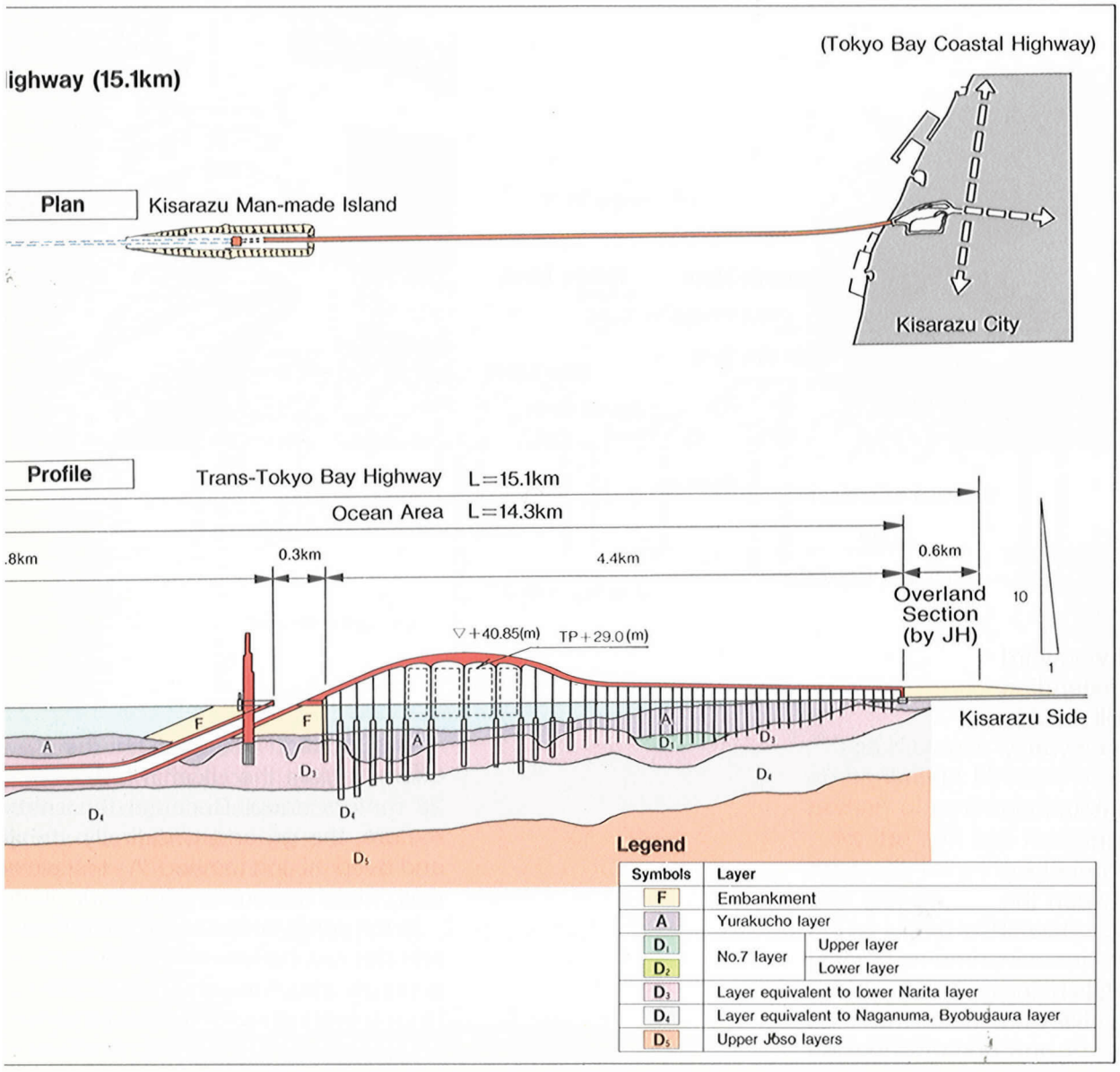
Trans-Tokyo Ba

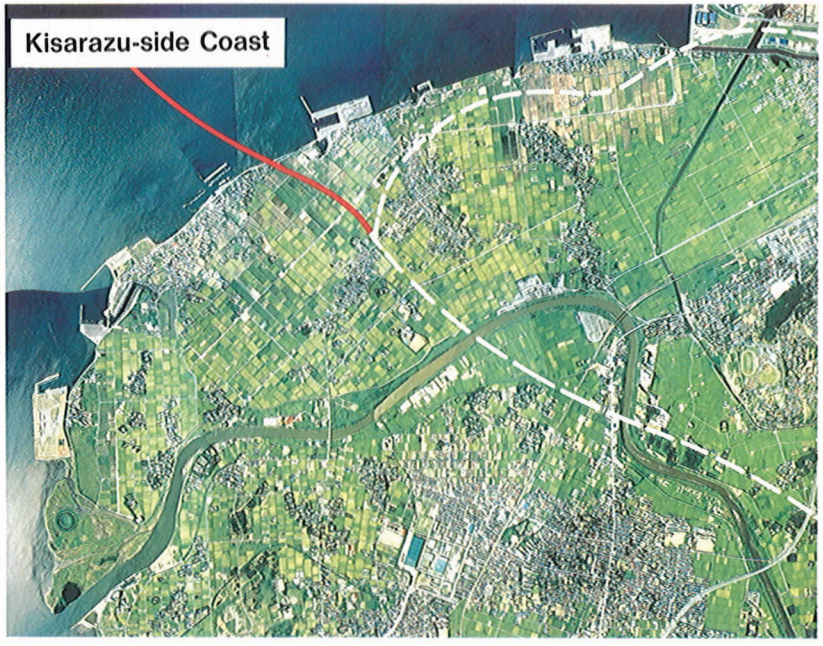


JH···Japan Highway Public Corporation
TTB···Trans-Tokyo Bay Highway Corporation

Work Schedule

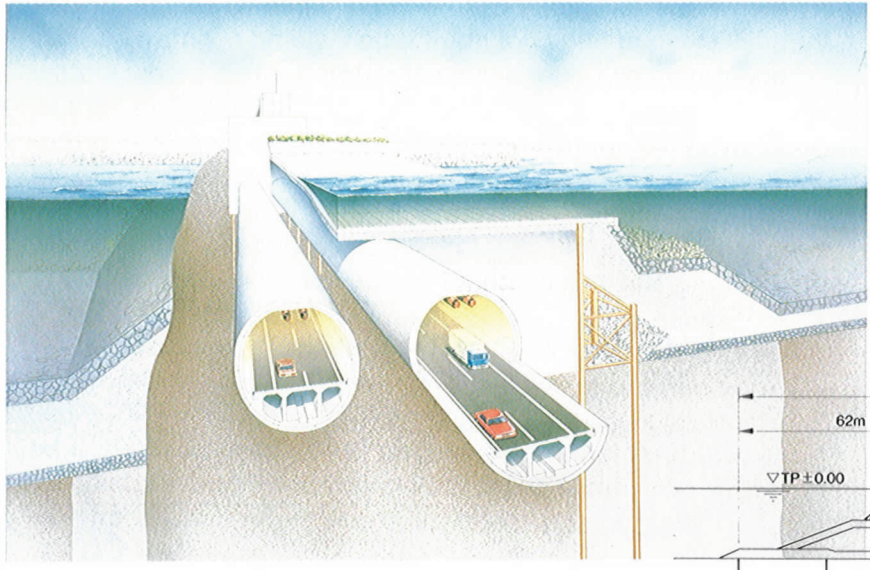


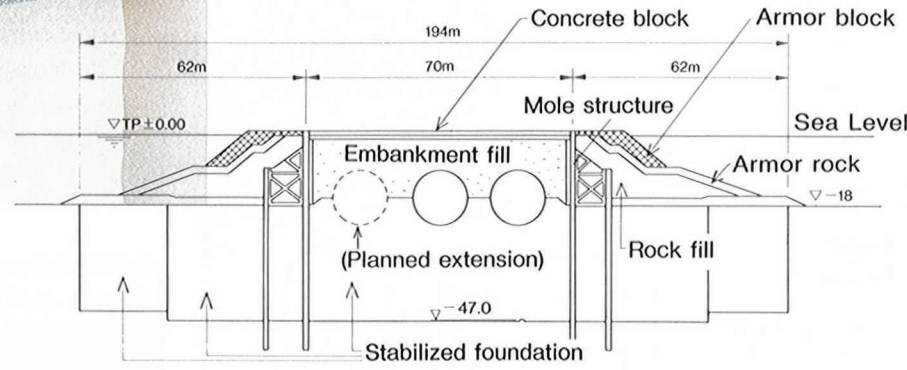




ENGINEERING ASPECT (Most Advanced Technology to be Applied in Constructing the Trans-Tokyo Bay Highway)

Ukishima Access





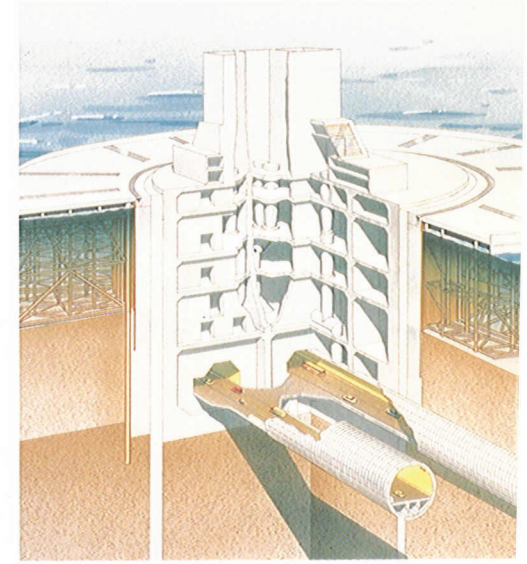
The Ukishima access will consist of an access shaft with tunnel workyard and workshop area, and a man-made underwater embankment extending from the existing seashore to the sea bottom. This embankment will provide stability and overburden for tunnel boring, and protection against buoyancy for the ground through which the tunnels are driven.

Soft soils underlying the embankment fill were stabilized to maintain face stability and to prevent subsidence of the soils beneath the tunnel.

Steel fabricated trestles and moles were placed to protect and enclose the tunnel path near the shore, with embankment fill placed between the trestles to form a mound. Side-protecting core rock and armor rock as well as armor block will also be placed.

A ventilation shaft, which will also serve as a tunnel access shaft, is being constructed by the caisson method, after stabilizing the underlying soils and driving foundation piles.

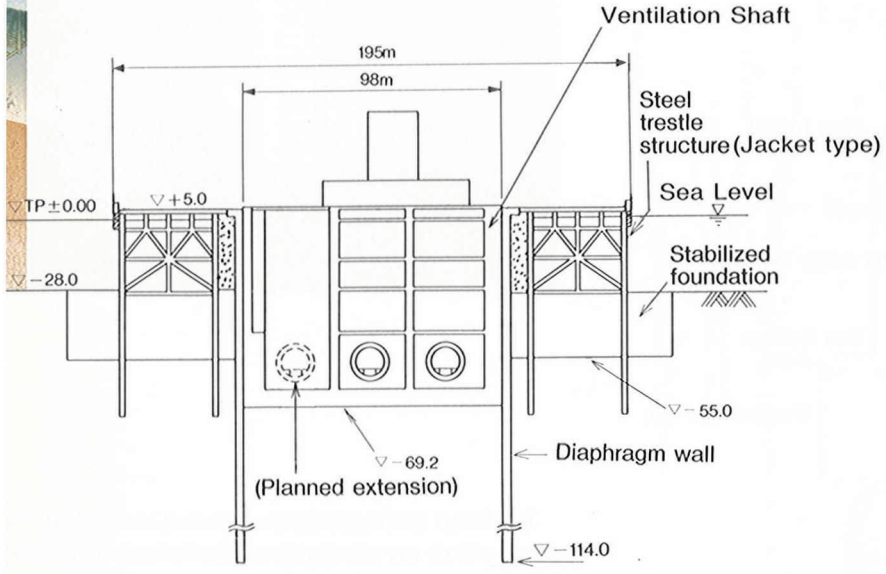
Kawasaki Man-made Island

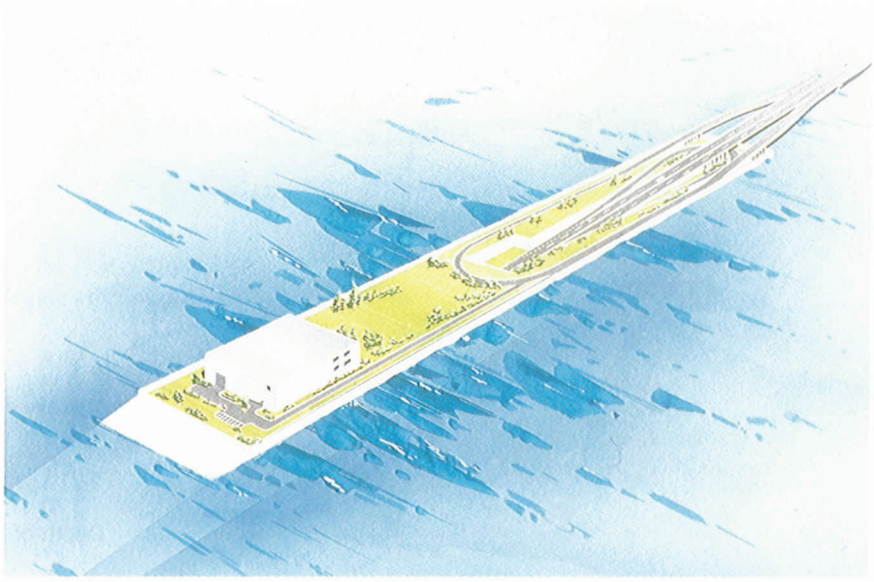


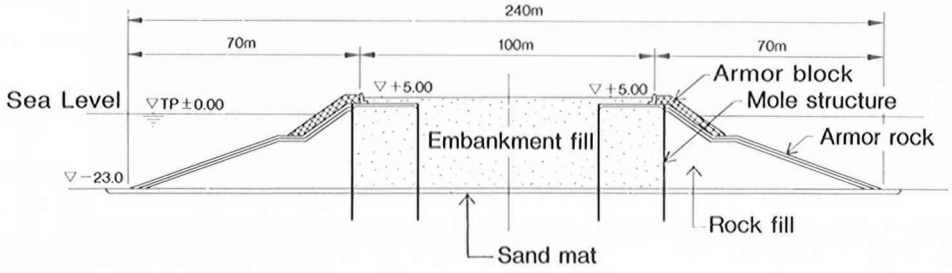
The location selected for the Kav
offshore from the Ukishima Access.,
28 meters deep. Because the seab
meters, the ground was firstly stabil
and deep mixing method. A steel jack
wall, mole structure, and work platf

In the construction of this man-made
into the sea bottom was built betwee
concrete structure of the ventilation s
During tunneling, the island provides
completion of the project, it will ser

Kisarazu Man-made Island







Man-made Island is 5 km
the water is approximately
soft to a depth of about 30
y sand compaction method
es as a combination retaining

, a diaphragm wall extending
nner and outer jackets. The
elf will be then constructed.
base of shield tunnel. After
a ventilation shaft.

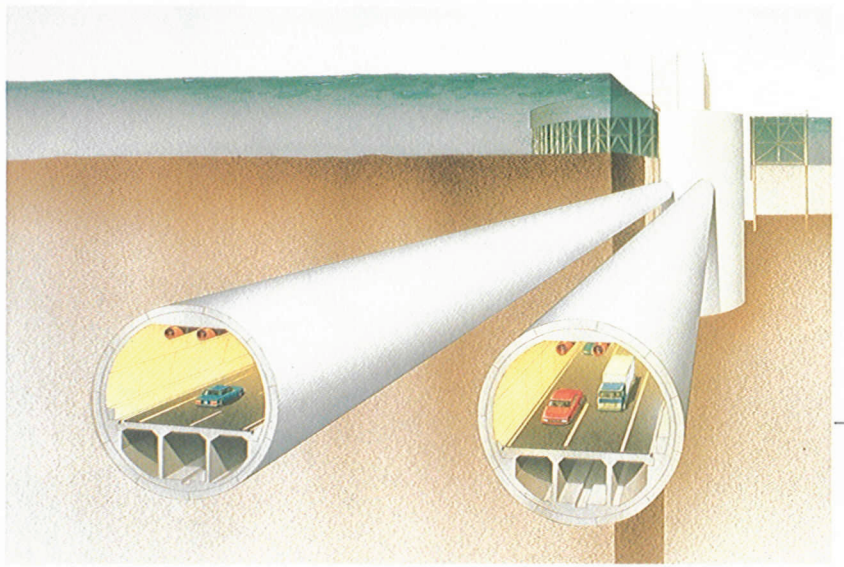
The Kisarazu Man-made Island consists of a slope portion of underwater embankment through which the tunnel reaches the sea bottom, and a flat portion of embankment between the tunnel access shaft and the bridge.

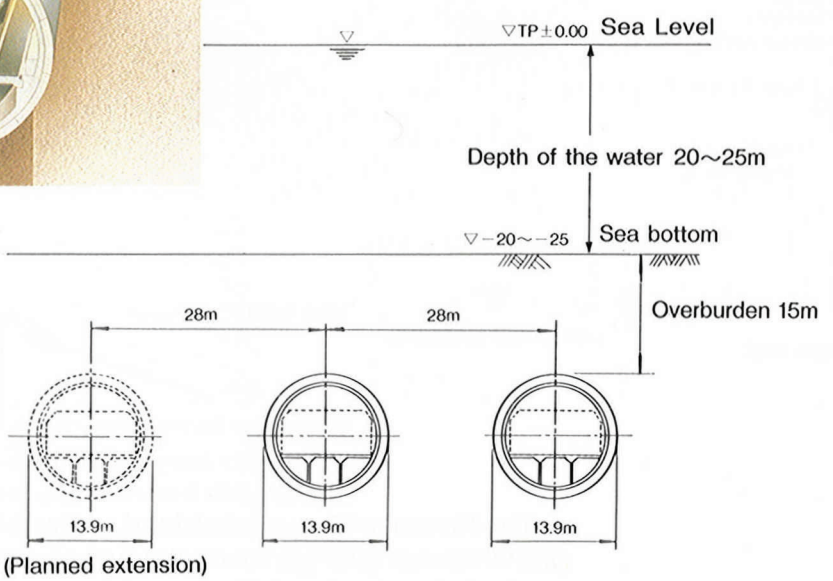
As the soft soil layer at the location selected for the Kisarazu island is relatively thin, the soft soils were dredged and repalced with selected sand and gravel.

The island will be subsequently reclaimed by constructing a structure and placing an embankment, starting from the tunnel access and sloping portion and proceeding eastward to the flat portion.

A ventilation shaft will be constructed by the floating braced-steel shell caisson method and towed into position.

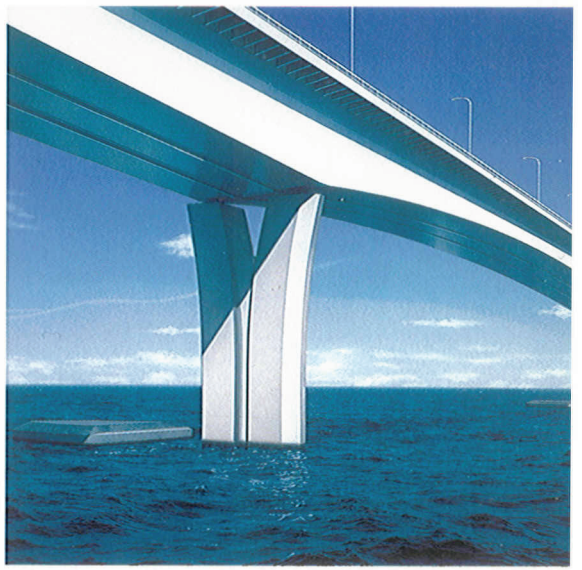
Shield Tunnel





To insure stability and watertightness at the tunnel face under the severest geological conditions of high water pressure in very soft soils, the slurry shield tunneling method has been selected. A total of eight shields will start their advance, two from the Ukishima access, four from the Kawasaki man-made island and two from the Kisarazu island to meet at the same time under the bay at points midway between the shafts.

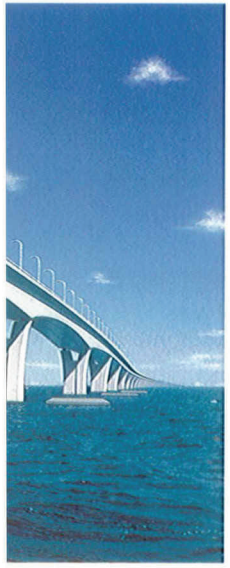
Bridge



In deep water areas, the superstructure c steel piers on steel pipe pile foundations. Th fabrication yards and transported to the wor position using a floating crane.

The superstructure of the bridge is of stee After assembly at yards, one of the thre is applied, depending on the depth of th

- Deep water: Large sections of the dec on land, then transported over water to th using floating cranes.
- Shallow water: Large sections are loade position directly from the barges at high tide
- Shallow areas near shore: A temporar lifted into position using a crawler crane



ıe bridge is supported by
teel piers are assembled in
ite, where they are set into

ox girder with a steel deck.
ollowing methods of erection
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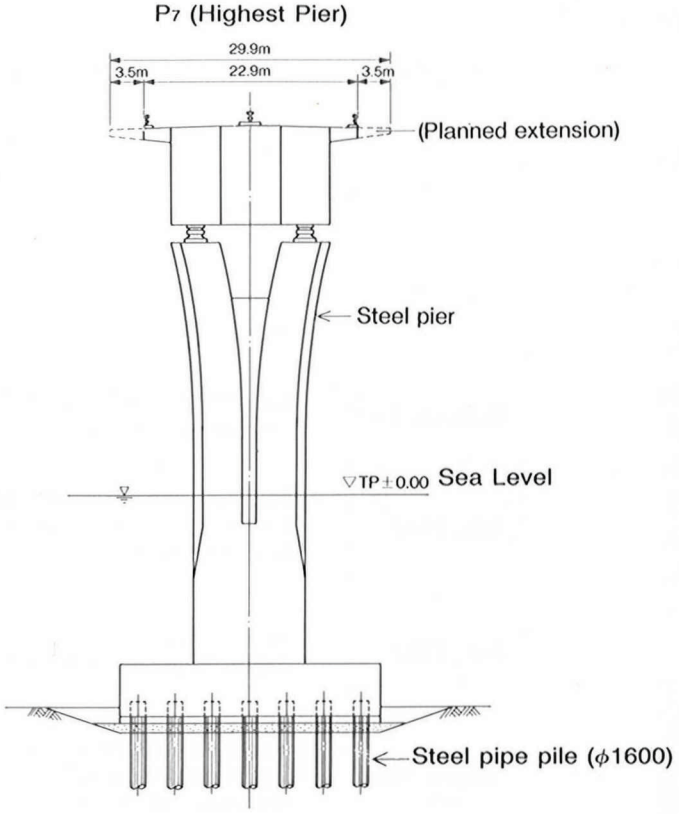
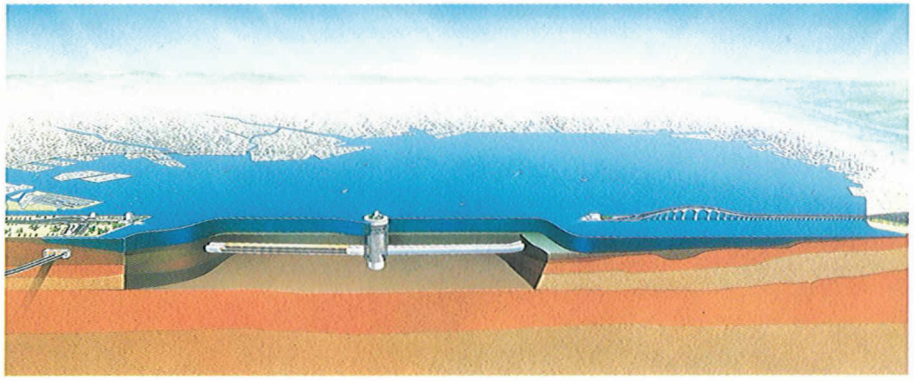
tructure are first assembled
ite, where they are erected

nto barges, then jacked into

estle is built, and sections are



Conceptual View (TRANS-TOKYO BAY HIGHWAY)



PROJECT SCHEME

The highway will be constructed by the Trans-Tokyo Bay Highway Corporation established exclusively for the project based on the investigations and studies undertaken by the Ministry of Construction and the Japan Highway Public Corporation.

Upon completion, the highway will be transferred to the Japan Highway Public Corporation.

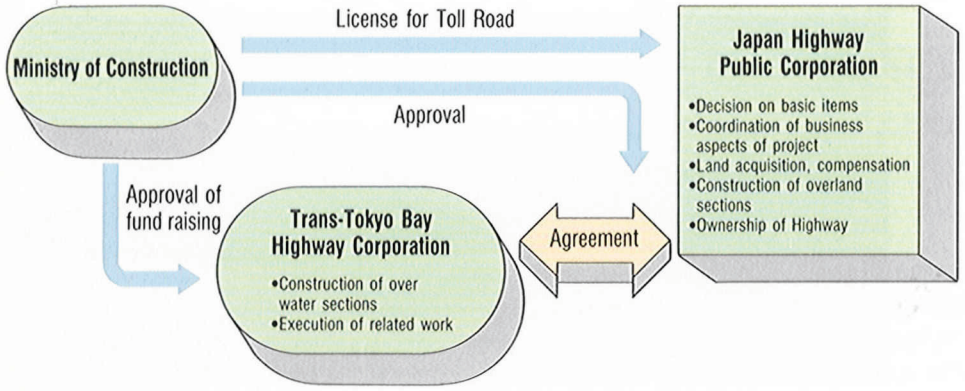
Roles to be undertaken by the Japan Highway Public Corporation (JHPC) are :

(1) Fundamental investigation and design
(2) Acquisition of lands and fishery compensation and other losses
(3) Adjustment with other operations required for implementation of works
(4) Works required for connection and intersection with the highways

Roles to be undertaken by the Trans-Tokyo Bay Highway Corporation (TTB) are :

(1) Detailed design and construction work based on the basic studies (Work area is 14.3km over the bay)
(2) Compensation for possible losses and etc. caused in the progress of the construction work

Formation of the Trans-Tokyo Bay Highway Project



A brief background of the project

April, 1966	The Ministry of Construction commenced surveys for the Trans-Tokyo Bay Highway.
August, 1976	Japan Highway Public Corporation took over the responsibility for surveys from the Ministry of Construction.
April, 1981	The Kawasaki-(Tokyo Bay)-Kisarazu-Narita Highway was designated National Highway No.409 (April, 1982).
December, 1985	The actual construction of the highway officially was approved and funds were appropriated for the construction of the Trans-Tokyo Bay Highway in the draft budget for fiscal 1986.
April, 1986	The law to stipulate the terms of the construction of the Trans-Tokyo Bay Highway was enacted.
October, 1986	The TRANS-TOKYO BAY HIGHWAY CORPORATION was established.
July, 1987	Environmental assessment was completed and the license for the project given to the Japan Highway Public Corporation by the Ministry of Construction.
July, 1987	The contract for construction was signed between the Japan Highway Public Corporation and the Company.
August, 1987	The Japan Highway Public Corporation and local public organizations furnished funds to the Trans-Tokyo Bay Highway Corporation.
December, 1988	The Japan Highway Public Corporation concluded the fishery compensation negotiation.
May, 1989	Construction Work Commencement Ceremony

OUTLINE OF THE CORPORATION

Name:

TRANS-TOKYO BAY HIGHWAY CORPORATION

Capital:

¥60.0 billion

Scope of Activities:

(1) Construction and management of the Trans-Tokyo Bay Highway.
(2) Construction and management of facilities for public use (parking areas, warehousing/storage facilities, rest areas, information services, restaurants, etc.).
(3) Construction and management of facilities for the use of the highway (sports facilities, amusement parks, theaters, multipurpose exhibition halls, hotels, etc.) to enhance and improve transportation services.
(4) Construction of highways and planning, investigation, survey, design, tests, and studies concerning the development of areas related to the construction of the Trans-Tokyo Bay Highway.

Directors: (as of June 30, 1992)

President-Representative Director	*Akira Oka*
Vice President-Representative Director	*Kaneo Ooki*
Managing Director	*Hiroyuki Sawai*
Managing Director	*Ken Takakura*
Managing Director	*Makoto Tanaka*
Executive Director	*Michio Ashidate*
Executive Director	*Keinosuke Uchida*
Executive Director	*Keiichi Tsuruoka*
Director	*Taro Ogata*
Director	*Jiro Yoshikuni*
Director	*Shoichiro Toyota*
Director	*Syo Nasu*
Director	*Katsushige Mita*
Director	*Minoru Sato*
Director	*Masahiro Maeda*
Director	*Akira Nakano*
Director	*Takayoshi Shikaya*
Director	*Susumu Miyamori*
Director	*Ryoichi Hirose*
Director	*Kiyoshi Sasada*
Auditor	*Koji Kato*
Auditor	*Yasuaki Nakamura*
Auditor	*Tomoo Yamamoto*
Senior Advisor	*Eishiro Saito*
Senior Advisor	*Kuniichiro Takahashi*
Senior Advisor	*Gaishi Hiraiwa*

Organization: