As the Ministry of Transport and Infrastructure, our principle is:

• to provide safe transport and fast access;
• in the fields of transport, maritime affairs, communication and information technology to provide accessible, economic and safe services, increase the quality of public life and contribute to the development of the country.
Ministry of Transport and Infrastructure is involved in following sectors;

• Highways
• Railways and Urban Rail Transport Systems
• Waterways
• Aviation
• Maritime affairs
• Communications
• Information Technologies
Before our Ministry decides on a transport investment;

• Short-term, medium-term and long-term plans and programs are prepared to provide permanent solutions to transport problems and to create effective transport systems.

• Conceptual projects are prepared, the investment cost and economic benefits of the projects are assessed.

• Once the feasibility of the project is established,
  - Preliminary design
  - Final design
  - Technical specifications
  - Feasibility study
  - Environmental Impact Evaluation Report

are prepared and the approval process commences.
• Once the feasibility study containing the benefit-cost analysis of the project, and the design are approved by the relevant organisations of our Ministry, an investment application is made to the Budget and Strategy Development Authority under the Presidency.

• Following the permission of the President the project is included in the investment program and the tender process is commenced. After the tender stage and the signing of the contract the construction stage commences.
Planning
Development of short, medium and long term plans and programmes
Transport studies

Design
Production of Conceptual Projects
Preparation of preliminary designs
Preparation of final designs
Preparation of feasibility study

Provision of Funds
Preparation of technical requirements
Preparation of EIA Report
Fund seeking Loan Agreements
Application to the Presidency for inclusion of the Project in the investment programme

Implementation
Tender of project
Construction Stage of Project
Commissioning and monitoring of project
• The construction period of the Transportation Projects is generally 3-5 years, experienced contractors are used, and safe, reliable systems that comply with international standards and particularly with European norms, are produced for an optimum cost.

• The construction process is undertaken under the monitoring and supervision of our Ministry.

• Upon completion of the construction work, before commissioning of the project the safety related issues are given the highest priority, testing and commissioning activities are conducted for a period of 1-6 months in accordance with international standards. Once the testing and commissioning period is successfully completed the investment is ready to be put into service.
• Commissioning of the investment is followed by a 2 year Defects Notification and Warranty period.

• This process continues under the monitoring and supervision of our Ministry.

• At the end of the 2 year period, after it is established that the investment service has been realized without defects, the contract seizes to have effect and the contractor’s obligations come to an end.

• Our Ministry’s monitoring of the completed project continues as the experiences gained in the project are utilized in other planned projects. If necessary, the technical specifications, design and implementation principles are revised and technical criteria is updated.
Infrastructure Investments General Directorate is under the Ministry and responsible from 4 main transport sectors:

- Urban Rail Transport Systems (Metro, Light Railway System, Tramway, Cable Car, Funicular, Monorail)
- Railways (Main lines, Logistic Centres, Branch Lines)
- Harbour, Waterways, Coastal Structures,
- Airports
Urban Rail Transport Systems sector Directorates responsibilities are:

For Metro, Light Rail System, Tramway, Cable Car, Funicular, Monorail systems;

- to establish project criteria and standards,
- to undertake the design,
- to undertake the construction,
- to approve feasibility studies, selection of rail system, design and requirements for rail systems planned by public institutions, municipalities or the private sector.
MARMARAY PROJECT
The *Marmaray Project* is the prestige project of Turkey which connects the Asia and Europe and provides continuous railway from Pekin to London. The Project includes upgrading of commuter system at Asian and European sides in Istanbul and construction of its central element being a railway tunnel under the Bosphorus.
3 Separate Contracts

- **Contract BC1**: Constructing ~1.4 Km immersed tube tunnel under the Bosphorus with 12. 2 Km approaching tunnels and 3 underground and 2 at-grade stations (Üsküdar, Sirkeci, Yenikapı & Kazlıçeşme)

- **Contract CR3**: Upgrading the 62.7 Km existing at-grade commuter rail system with completely new electrical and mechanical systems including the installation of a new third track for inter-city railway system. 38 at-grade stations have been designed in accordance with the international metro station standards.

- **Contract CR2**: Provision of 440 train cars for CR operations (Fixed fleet consist of 10-car, 5-car and 2 coupled 5-car EMU (Electrical Multiple Unit) trainsets)
Contract BC1-
Railway Bosphorus
Tube Crossing, Tunnels
and Stations
The Marmaray Project is not the first project conceived for an underwater crossing of the Bosphorus. The idea was first introduced in the Ottoman Empire in 1860 during the reign of Sultan Abdulmecid. A preliminary design was prepared for a submerged tube through the sea that rests on columns. Similar ideas were produced during the following years and in 1902, during the reign of Sultan II Abdulhamit, a design similar to the first one was produced for a tube tunnel that crosses the Bosphorus (Tünel-i Bahri). However, the means of the time and technology did not permit the construction of this Project.
Railway Tube Crossing Construction Stages
Bored Tunnels of BC1 Bosphorus Crossing

Avrupa Yakası

İstanbul Boğazı

Asya Yakası

Kazlıçeşme

Yenikapı İstasyonu

Sirkeci İstasyonu

Üsküdar İstasyonu

Ayrılık Çeşme

L=2428m
TBM 1 Örtü Kal.: 8-26m

L=3068m
TBM 2&3 Örtü Kal.: 13-81m

L=4189.5m
TBM 4&5 Örtü Kal.: 16-87m
Yenikapı Station (European Side)
Sirkeci Station (European Side)
Üsküdar Station (Asian Side)
Ayrılıkçeşme Station (Asian Side)
Contract CR3-
Gebze- Halkalı Commuter Rail Upgrading; Civil & Electrical & Mechanical Systems
The Commuter Rail (CR3)

- Upgrading of 63 km at-surface line – 3 new tracks
- Upgrading/renewal of 38 at-surface stations
- Renewal of entire electrification system
- Renewal of entire signaling and communication system
- New Operations Control Centre
- Rolling Stock Depots and Stabling Yards
- Reconstruction of 160 highway/pedestrian over/underpasses & bridges
- Maintenance
CR3 Stations

Total 38 Stations. 7 of them are transfer stations between Commuter and Intercity trains.
Control Center
Historical Heritage
One unintended consequence of the Marmaray Project has been the archaeological excavations that have been carried out different archaeological sites and led to groundbreaking discoveries about Istanbul’s history. Archaeological investigations have been conducted by the Istanbul Archaeological Museums Directorate in coordination with the Preservation Committees for Cultural Assets.

The discovery of a Neolithic settlement in Yenikapı pushed Istanbul’s known history back to 8,500 years ago.

All the archaeological findings have been documented and stored by the archaeological Museum Directorate. Architectural remains have protected in-situ by covered in accordance with the expert reports.
Archaeological remains at Sirkeci

Harbour of Theodosius-Yenikapı

Apsidal structure - Üsküdar
CR3 Alignment locates within the densely populated residential areas and there are historical station buildings and bridges constructed at the beginning of 1900s. Historical buildings have been preserved and restorated.
• In 1985 the first transport and feasibility study for the Bosphorus Railway Tunnel Crossing was prepared.

• In 1995 the transport feasibility studies were updated with the aim of renewing the existing commuter lines between Gebze-Haydarpaşa and Sirkeci-Halkalı, increasing their capacity and integrating them with the Bosphorus Railway Tunnel Crossing, thereby providing a wide-reaching public transport system. This approach formed the basis of the Marmaray Project.

• In 1999 a loan agreement between Turkey and the Japan International Cooperation Agency (JICA) was signed for the Marmaray Project, and in 2000 with a Cabinet Decision the project was entered in the investment program.
• In 2002 deep borehole investigations commenced in the Istanbul Strait and Contract BC1 for the construction of the Bosphorus tube crossing, a 13.6 km line and 5 stations was tendered.

• In 2004 the tender was concluded and the contract signed with the Joint Venture consisting of the Japanese company Taisei and the Turkish companies Gama and Nurol. With the basis for the Marmaray Project now being ready the construction works commenced. In 2008 the contract for the production of 440 railway cars was tendered and Contract CR2 signed with the South Korean company Hyundai-Rotem.

• In 2011 Contract CR3 was tendered for the construction of 63 km long commuter line & High Speed Train lines and 38 stations. The contract was signed with the Spanish company OHL-Siemens JV.
• In 2010 the land tunnels and sea tunnels of the Marmaray BC1 Section, which consists of the Bosphorus tube crossing, 13.6 km long railway line and 5 stations, were connected to each other.

• As the project alignment passed through the Historical Peninsula and archaeological and urban protected areas, archaeological excavation works were the biggest concern during the construction work due to the delays they caused to the project.

• In 2012 the trackworks, station civil works and archaeological excavations were completed.

• On 29 October 2013 the Marmaray BC1 Section which consists of the Bosphorus Tube Tunnel Crossing and 5 stations was opened to operations.
• In 2014 the Gebze-Pendik Section High Speed Train line under Contract CR3 was opened to operations.

• With the successful completion of the construction, testing and commissioning periods of the CR3 section, the 63 km long Commuter and High Speed Train lines and 38 stations were opened to operations on 12.03.2019.
• The Marmaray Project has a 100 year design life.
• Immersed Tunnel, TBM Bored Tunnel, NATM Tunnel and Cut & Cover Tunnel methods were used together in the Marmaray Project.
• The Electrification System is provided by a 25 kV AC Overhead Catenary System. CBTC and ETCS Level 1 were used in the Signalling System.
• The speed of the trains on line used by High Speed Trains is 100 km/h and on the commuter line 80 km/h.
• The design, construction and testing processes under the Marmaray Project have been conducted in accordance with European and American standards, providing quality and safety.
Benefits Of The Project (Main Objectives)

Provide long-term, sustainable solution to transportation problems of Istanbul

Direct connection of railway system between Asia and Europe; uninterrupted passenger and freight transportation across the Bosphorus

Reduce impacts of Traffic in the Historical Peninsula

Reduce congestion on the existing Bosphorus Bridges

Support intercity railway transportation by providing an additional track reserved specifically for intercity trains

Decrease pollution and CO2 release

Decrease travel time for more than 1 million people every day
THANKS FOR LISTENING.