



ABOUT METRO ISTANBUL



Est.
1988



Daily Ridership
2,2 million



Network Length
183,15 km



Number of Lines
16

Metro Istanbul Activities

Operation Services

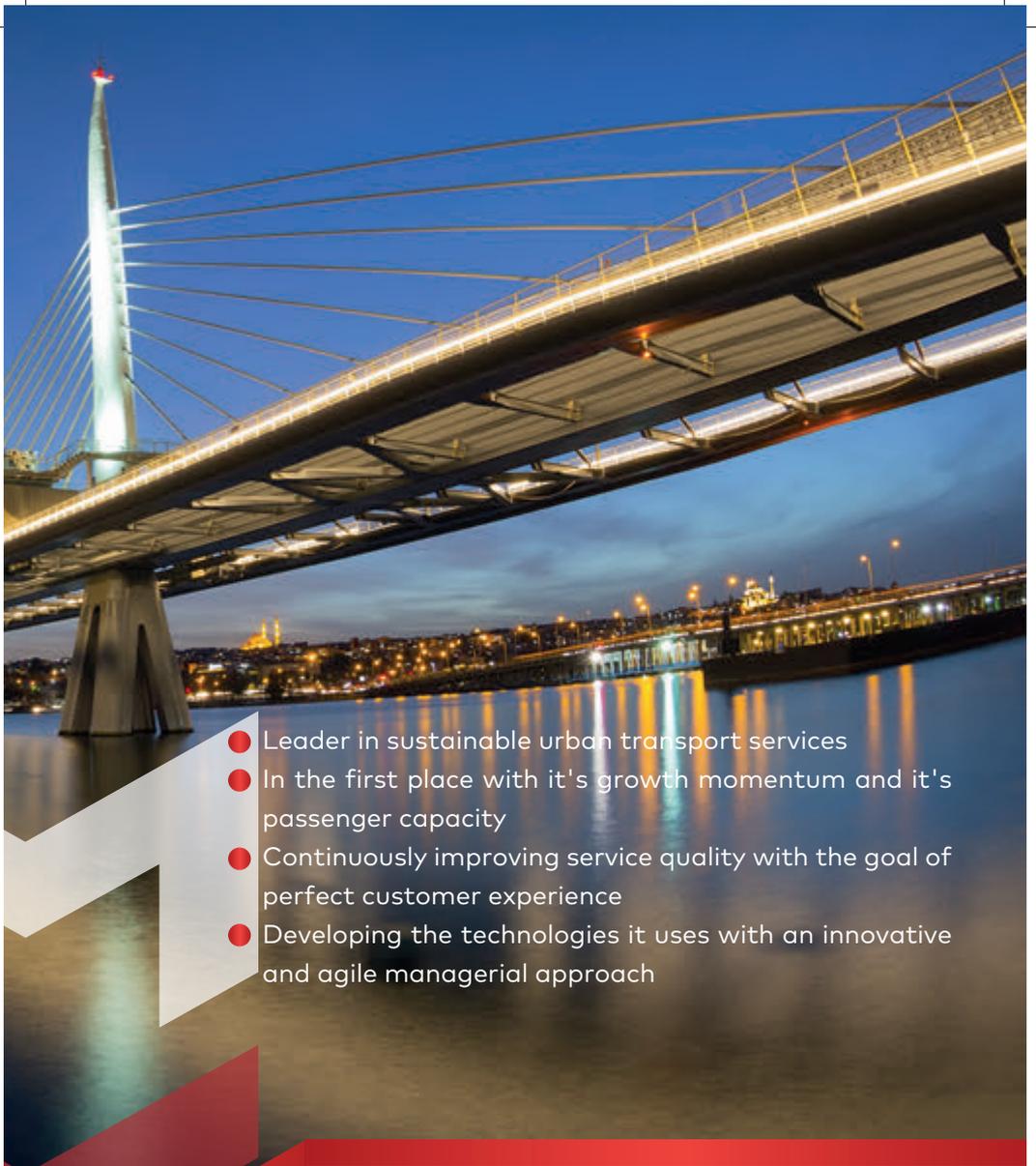
- Operation Planning
- Traffic Management
- Station Operation Services

Engineering and Consulting

- Transportation Studies
- Feasibility Studies
- Design Services

Maintenance and R&D Services

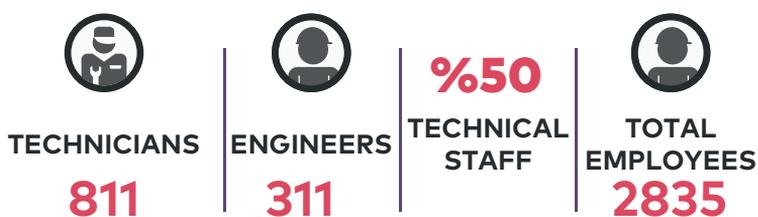
- Vehicle Fleet Maintenance
- Line Maintenance
- Facility Maintenance
- R&D
- Consultancy services
- Operation Management



- Leader in sustainable urban transport services
- In the first place with its growth momentum and its passenger capacity
- Continuously improving service quality with the goal of perfect customer experience
- Developing the technologies it uses with an innovative and agile managerial approach

Metro Istanbul is one of the leading urban rail system operators in the world. It was established in 1988 by Istanbul Metropolitan Municipality.

Metro Istanbul operates the metro, tram, funicular and cable car lines in Istanbul and provides modern, fast, safe and comfortable public transportation services to more than 2.5 million passengers every day with its passenger-oriented service approach.





Metro Istanbul successfully carries out the asset and maintenance management of the rail system lines, facilities, rolling stock, and electrical, electronic and electromechanical systems with different technologies and operational conditions in its rapidly growing operation network in line with the increase in rail system investments and commissioning of new lines.

Metro Istanbul manages the rehabilitation, renovation and construction works of infrastructures and superstructures in its operation lines and facilities, and provides turnkey projects to its corporate customers in public transportation investments.



With its operation & maintenance experiences of many years and qualified technical staff, Metro Istanbul offers engineering and consulting services to its corporate customers for their domestic and international public transportation investments. The company also carries out numerous R&D projects regarding transportation technologies, primarily including the signalling systems.

OPERATION SERVICES



2,2 Mil/Day
Daily Ridership



183,15 km
Network



16
Lines



189
Stations



949
Rolling Stocks

RAIL SYSTEM OPERATION SERVICES

- Operation Planning
- Operations and Traffic Management
- Station Management

- Operation Support
- Customer Services
- Maintenance Contracts Management
- Maintenance Control Management (SLA)



With its operation & maintenance experiences of many years and qualified technical staff, Metro Istanbul provides a high level of service quality and operational success in all of its operation lines with various infrastructures, technologies, and operational conditions.

Taking its place among the leading trademarks in the world for service quality, Metro Istanbul was awarded by UITP for "the best practise in meeting high passenger demand" regarding its operation services on T1 Kabatas Bagcilar Tram Line.

MAINTENANCE SERVICES



183,15 km
Network



16
Lines



189
Stations



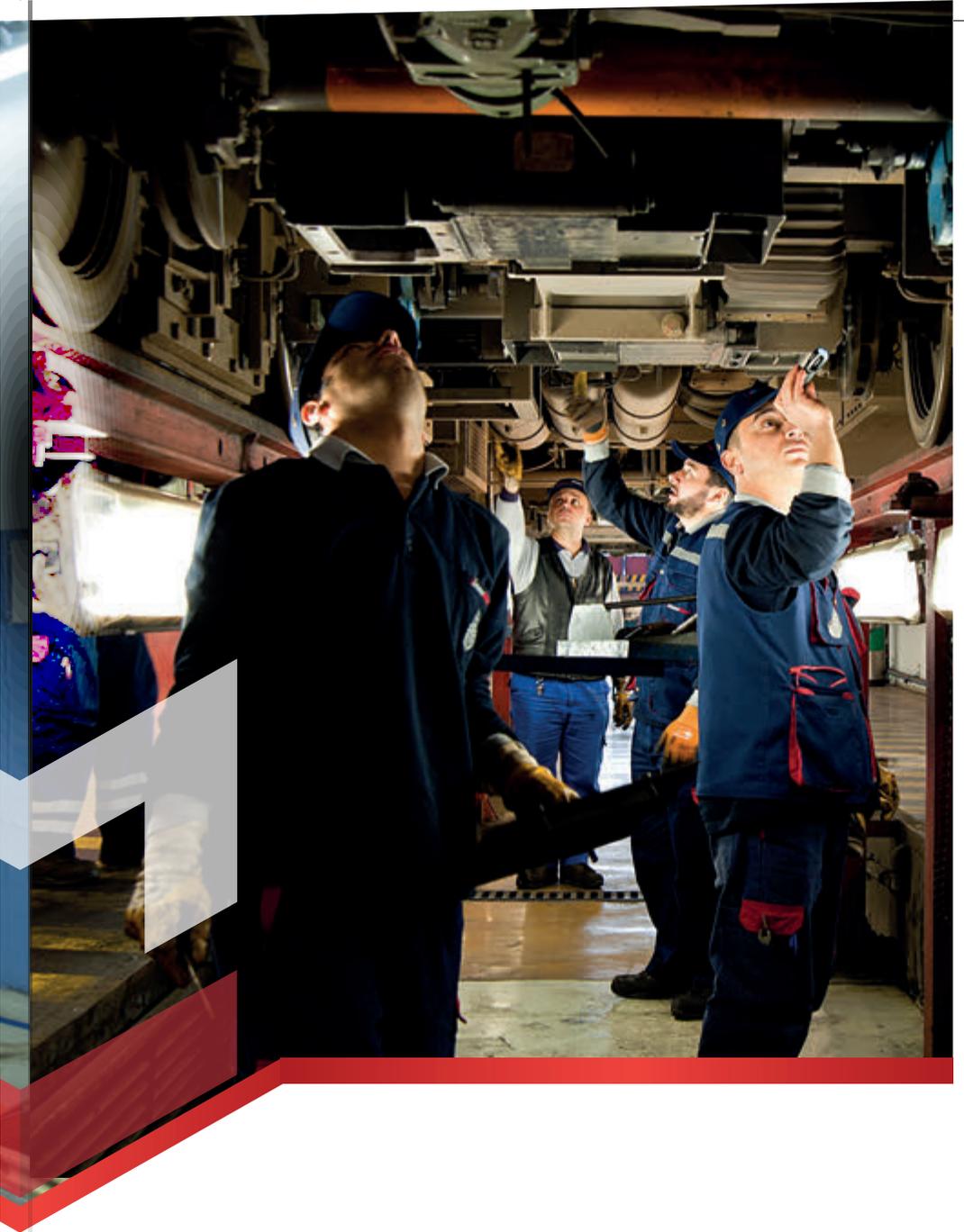
949
Rolling
Stocks



100.000 m²
Workshop
Area

MAINTENANCE AND REPAIR SERVICES

- Vehicle Maintenance and Revisions,
- Railway Maintenance and Revisions,
- Electricity,
- Electronic,
- Electromechanic,
- Facility Maintenance and Revisions



Metro Istanbul successfully carries out the asset and maintenance management of the rail system lines, facilities, rolling stock, electrical, electronic, electromechanical systems with different technologies and operational conditions in its rapidly growing operation network in line with the increase in rail system investments and commissioning of new lines.

With its highly qualified technical staff, Metro Istanbul performs rolling stock maintenance for its fleet with numerous brands and models and provides refurbishment, renovation and modernisation services for its older rolling stock. In this context, many rolling stock equipment and components are being renovated, a more modern and aesthetic appearance is provided.



R&D PROJECT SERVICES

R&D PROJECT SERVICES

- Transportation & Feasibility Study
- Architecture & Route Design
- Control & Consultancy
- Infrastructure Revision & Renovation
- R&D and Design
- System Engineering



In addition to urban rail system operations, Metro Istanbul carries out value-added R&D and projects regarding the systems, rolling stock and equipment under its operations & maintenance, and supports relevant projects by other authorities and institutions.

Having produced 18 tramcars with local manufacturers which are still under operation, Metro Istanbul contributes to the development of rolling stock procurement models, supports R&D projects for various rail system equipment and components and develops suitable solution models with domestic manufacturers regarding the design and production of such equipment and components in Turkey. Numerous equipment, components and spare parts have been domesticated as a result of these efforts.



COMPLETED PROJECTS

- T1 Stations Passenger Information System Project
- Esenler Warehouse Area Signallisation Project
- T4 Tram Line Mescid-i Selam Area Signallisation System
- M2 Alstom Vehicles On-board Passenger Information System
- M1 ABB Vehicles Passenger Information System
- Monitoring of F1 Line Vehicles (with wireless coverage) From Centre
- Operating T4 Rotem Vehicles in M1 Line (On-board Signal Transformation) Project



- Station Status Information With Smart System Methodology
- Domestic Vehicle Control Software Development Project
- Testing Device (ATA HPU) Manufacturing Project
- Token-matic Project
- Tram Tracking System (TTS)
- Passenger Information System (PIS)
- Regenerative Energy Recovery Project (REGEKAS)
- National Wind Power Plant Project (MILRES)



CBTC DOMESTIC SIGNALLISATION SYSTEM

**WE ARE
DEVELOPING
SIGNALLING
SYSTEM**

In line with its R&D vision, Metro Istanbul set off with the leading institutions of Turkey to design and commission the first high-tech CBTC automatic train control signalling system project of Turkey.

Once the CBTC Signalling System being developed for Yenikapi-Havalimani-Kirazli-Halkali Metro Line is in operation, the metro cars on this line will be operated without drivers and more safely, frequently and quickly.



At the end of the CBTC signalling system development project

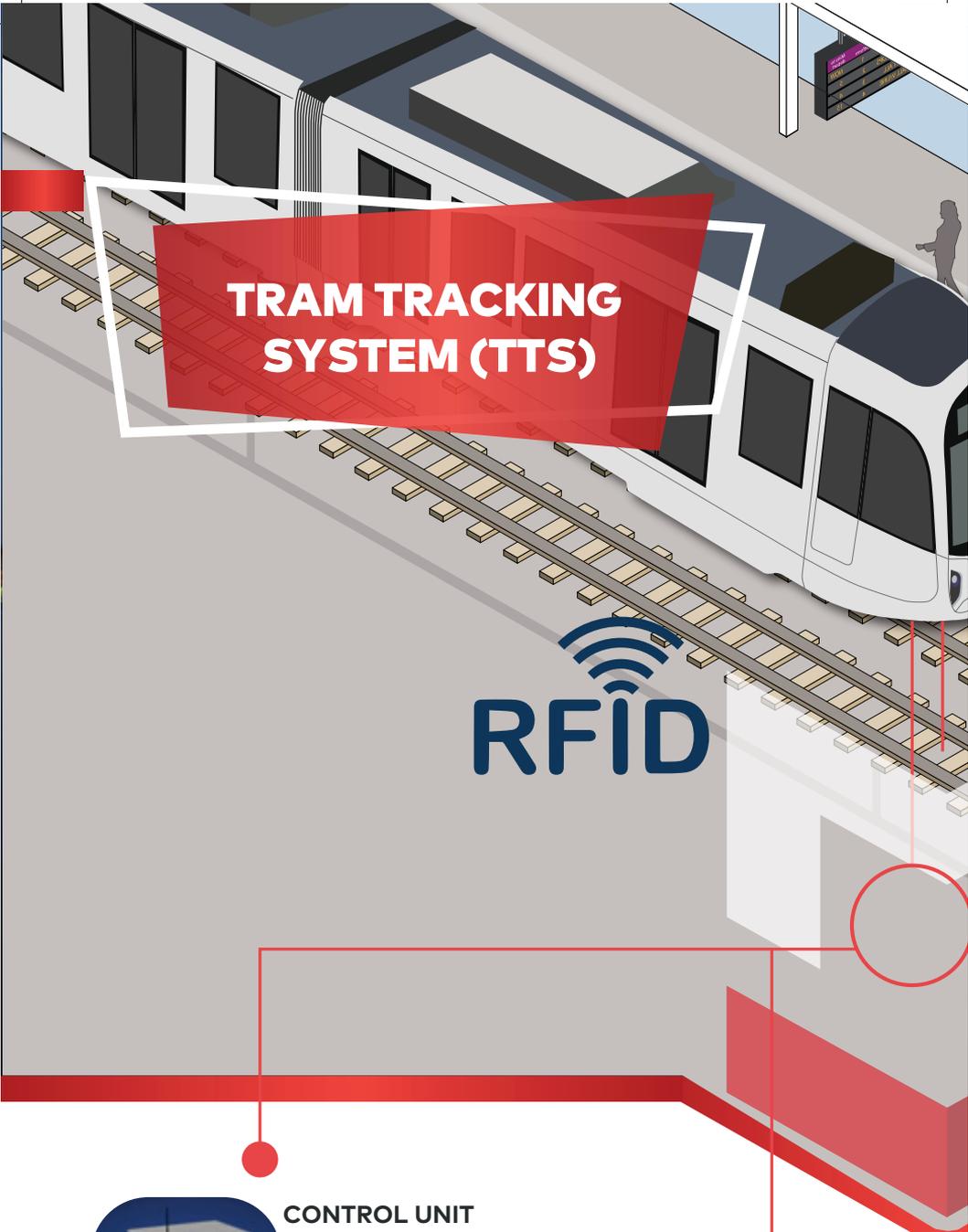
- The lack of a domestic signalling system in metro systems.

Inability to control high costs in main line and extension

- projects.
- Dependence on companies in current system revisions.

To have a global and technological brand.

At the end of the CBTC signalling system development project, it is aimed to open a domestic signalling system to the domestic and international market with a faster and more affordable cost.



The top half of the infographic features an isometric illustration of a tram on tracks. A large red banner with a white border is overlaid on the scene, containing the title. Below the banner, a blue RFID logo is centered. A red line originates from a circle on the right side of the tram tracks and extends downwards to the 'CONTROL UNIT' section.

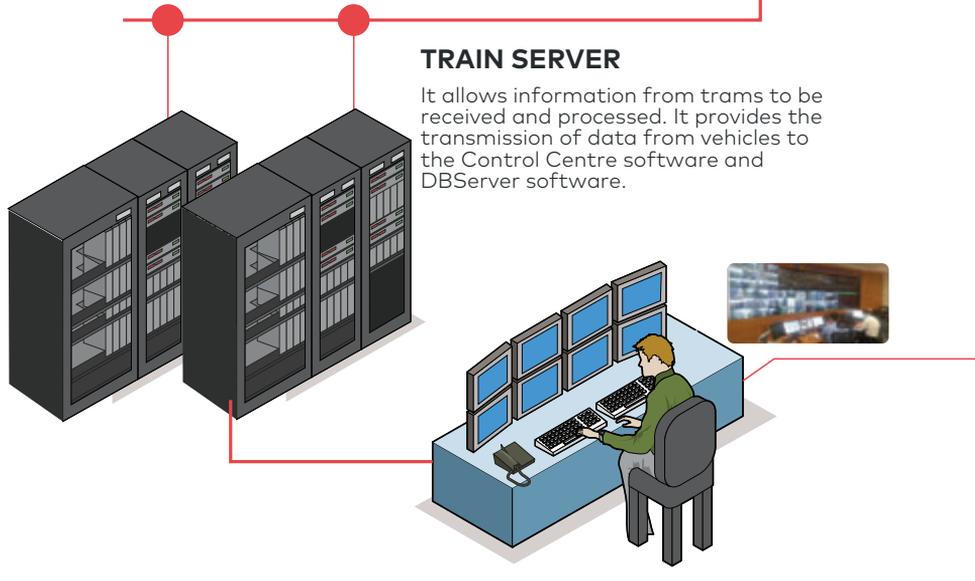
TRAM TRACKING SYSTEM (TTS)

RFID



CONTROL UNIT

It is the central processor unit in tram vehicles. The information received from the RFID sensors on the line, the driving personnel card-reading unit and the sensors inside the vehicle are evaluated and transferred to the central servers over the GSM line.



The bottom half of the infographic shows a server room with several black server racks. To the right, a person is seated at a workstation with multiple monitors. A red line connects the 'CONTROL UNIT' section to the 'TRAIN SERVER' section, and another red line connects the 'TRAIN SERVER' section to the workstation.

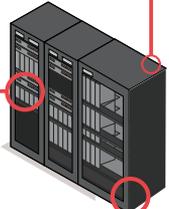
TRAIN SERVER

It allows information from trams to be received and processed. It provides the transmission of data from vehicles to the Control Centre software and DBServer software.





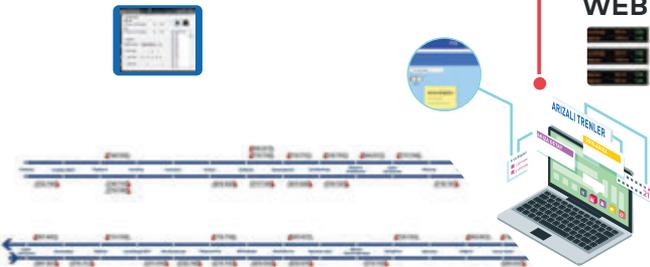
REPLAY
 Replay software is a software developed to view past train movements.



REPORTING
 Daily reports of the trams are made and the requested personnel are informed via e-mail.

DBServer(SQL)
 It allows to save the information from the vehicles to the Database Servers.

WEB INTERFACE



It is an interface software developed to display the positions of 92 low-floor tram vehicles on T1 Line. On the Control Centre screen, there are rail blocks, junction zones, signals, switches, station zones and trains on the line. The Control Centre updates the train information according to the data it receives from the server software. In addition to the locations of the trains, coupling, speed, daily quantity, drivers, journey time and information can be displayed on the Control Centre screen.



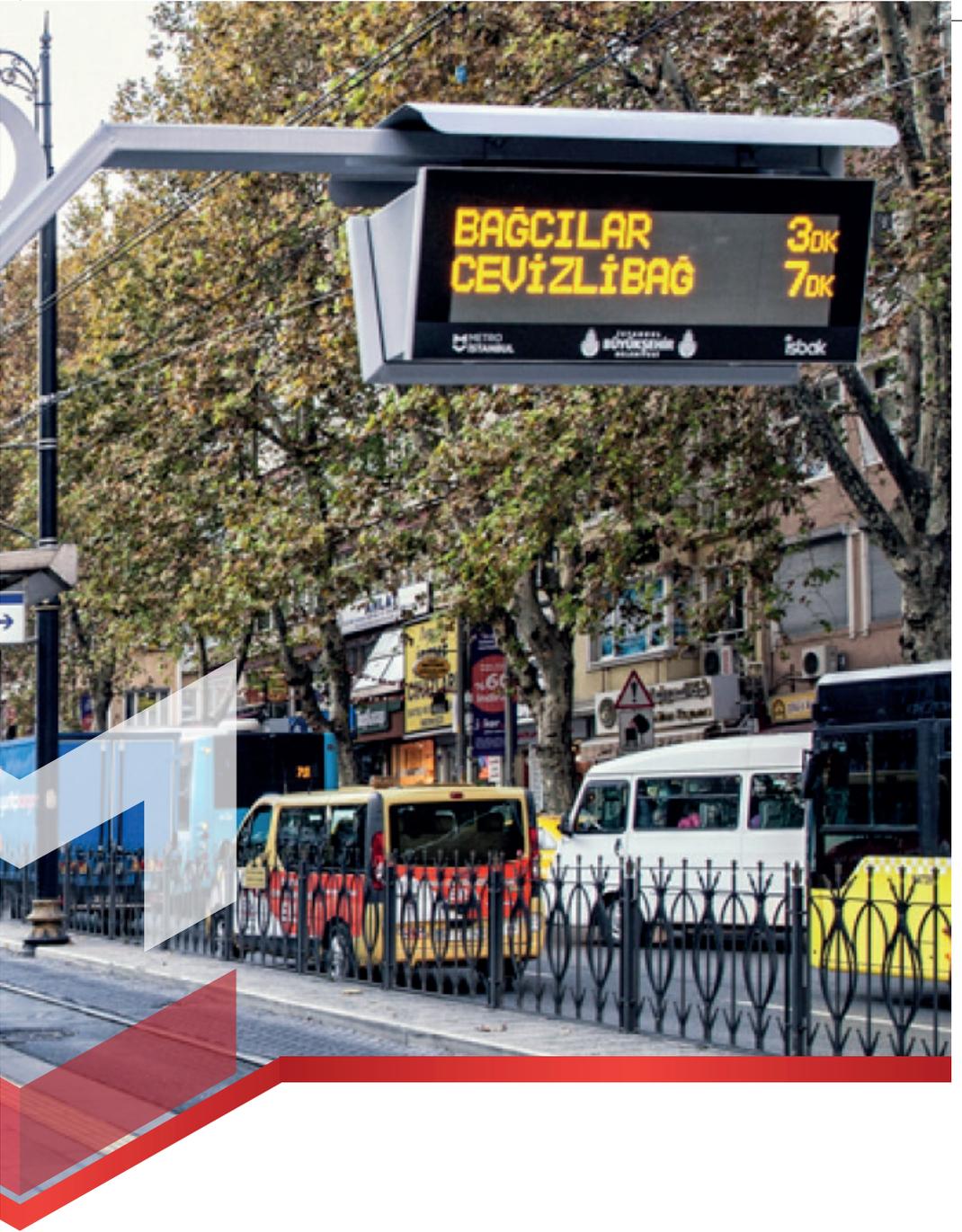
PASSENGER INFORMATION SYSTEM (PIS)

Passenger information system (PIS) is an audio and visual communication system that enables passengers to receive the arrival information of vehicles at the station in the operation of rail systems. The system developed by Metro Istanbul R&D Centre actively works on our T1 Kabataş-Bağcılar Tram Line.

Main features of the system are:

- Suitable for tram & metro vehicles
- Easy integration of the system with other signalling systems
- Information screen can be chosen as LED or LCD

Reliability of vehicle remaining time estimates



- Giving information on siren, announcement and screens in emergencies. Ability to send this information to the managers via text message and / or e-mail
- Instant device, announcement and sent messages can easily be monitored and controlled on internet.
- LTE technology is integrated
- Fast integration with video equipment



ESENER DEPOT SIGNALLING PROJECT (EDSP)

It is a fixed block signalling system consisting of line equipment and control centre software.

With Esenler Warehouse Signalisation Project (EDSP), it is aimed to carry out the entry-exit and all manoeuvring operations of the garage area in Esenler compound in a fast and safe manner.

The project includes 29 switches and 14 tracks in Esenler depot area.



All field equipment connections are gathered in the signal room.

All train movements are monitored through the systems in the signal room and the switch / signal controls can be monitored from here, the system can be continuously monitored and controlled by the control centre personnel.

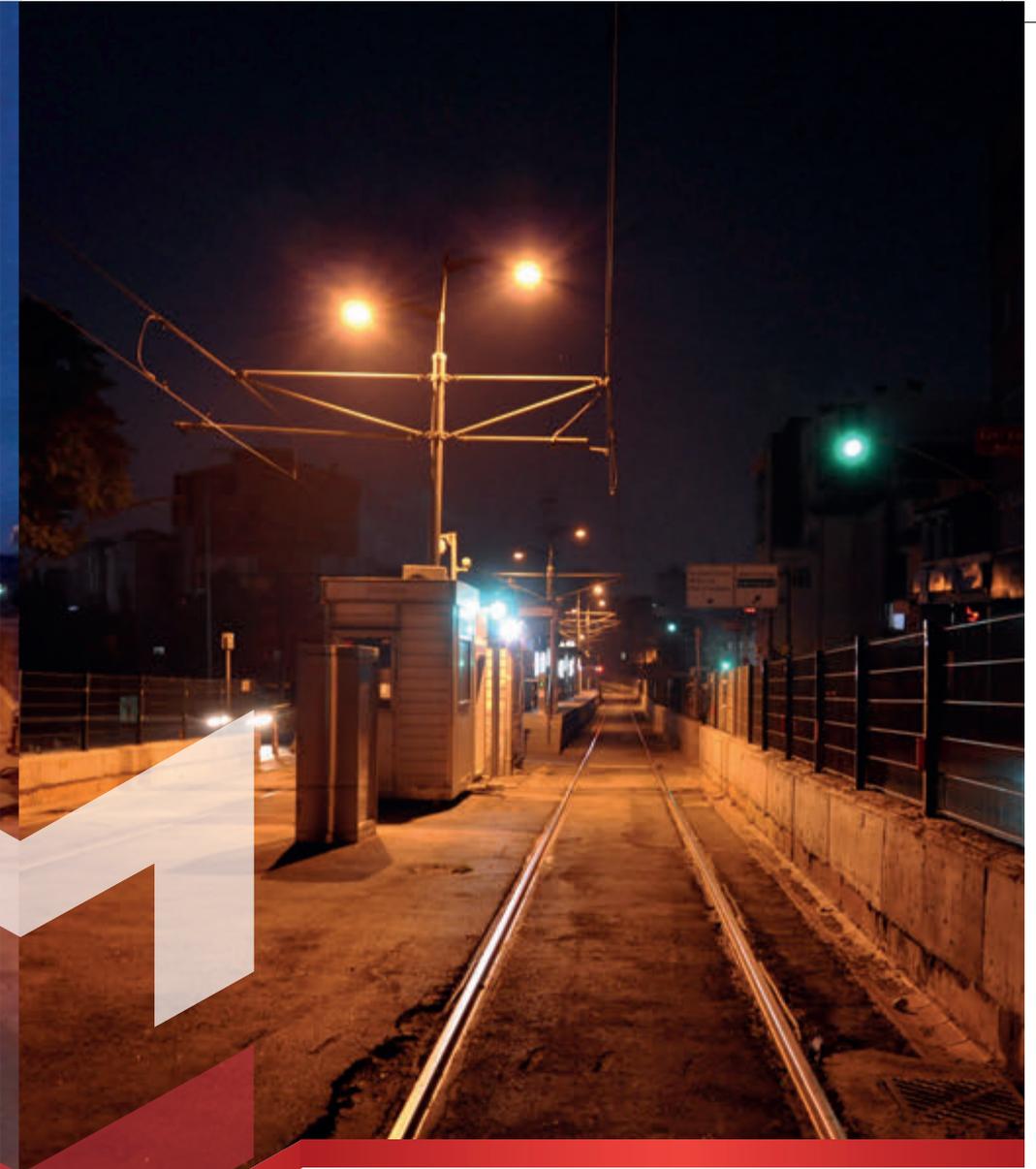
A nighttime photograph of railway tracks with overhead power lines and signal lamps. A red, angular graphic overlay is positioned in the upper left, containing the project title in white text. The scene is illuminated by streetlights and the tracks' own lighting.

T4 MESCİD-İ SELAM SIGNALLING PROJECT (MSSP)

A fixed block signalling system was installed to turn the manual loop switches at the entrance of the Mescid-i Selam Station of T4 Topkapı-Mescid-i Selam Line into automatic switches and to operate the system safely.

In the T4 Mescid-i Selam Signalisation Project (T4 -MSSP), daily scenarios required by operation are automatically operated. An axle counter system was used to detect the movements of the trains in the region, and signal lamps were used to stop the trains.

An interlock controlled signalling system has been developed in order to operate safely. The system consists of two components and these are field equipment and central equipment.



Field equipment enables the gathering of information from the field, evaluating this information and determining the route suitability. Central equipment, on the other hand, allows Control Centre personnel to monitor the status of Mescid-i Selam and Cebeci stations and send requests to field equipment.

BENEFITS OF THE PROJECT

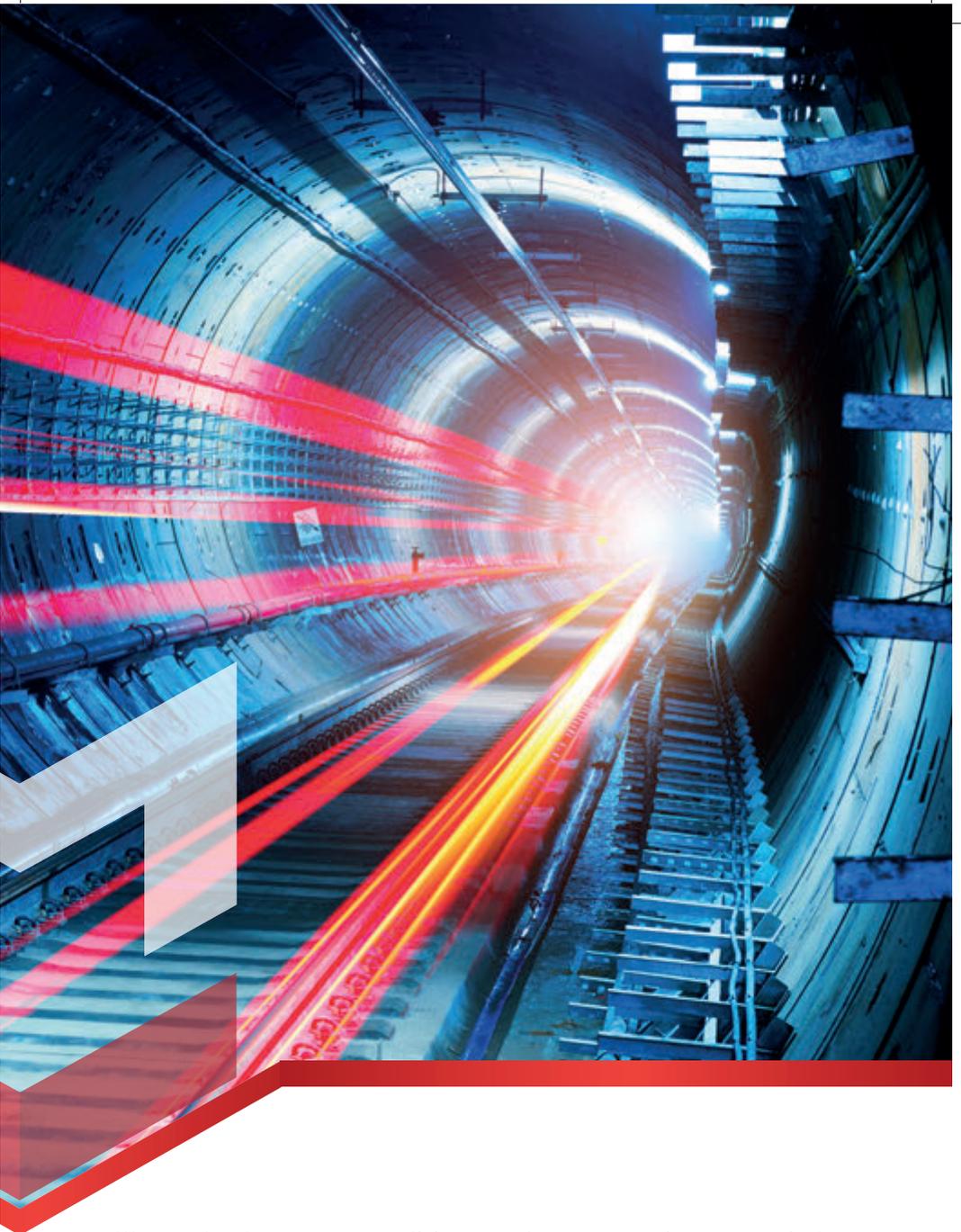
- Ensuring a safe operation at the entrance of the Mescid-i Selam Station
- Achieving a cost-advantageous system
- Employment of switch personnel in other fields
- Train movements between Mescid-i Selam and Cebeci stations can be monitored and intervened by control centre operators

HIZRAY PROJECT

GENERAL INFORMATION

Line Length	: 72.5 Km
Number of Stations	: 13
Passenger Capacity	: 60.000 passengers/direction-hour
Daily Passenger Capacity	: 1.2 million
Travel time	: 1 hour
Rail System Integration	: 16 Metro & Metrobus&YHT
Targeted Start Date	: 2022
Targeted Opening Date	: Between 2024 and 2029
Operating Speed	: 70-80 Km/hour
Operational headway frequency (minimum)	: 3 mins
Train Sets	: Series of 10 (440 vehicles)
Districts Passed	: 13 stations in 12 districts

- Transportation from Beylikdüzü to Sabiha Gökçen Airport will be possible in about 1 hour.
- It will control the land use development between TEM and D100 highways in the east-west axis of the city and reduce the growth pressure of the city towards the north of Istanbul, towards greener city.



- Since it is not possible to increase the speed in conventional metro systems, Express/High Speed Metro Lines have started to become current public transportation investment models in megacities such as Istanbul (London & Hong Kong & Sydney & Tokyo & Paris & Seoul).
- It is predicted that HIZRAY will carry 1 million passengers a day when it is commissioned. Detailed travel demand estimation studies are ongoing.
- Train set combination is designed as 5 and 10 series.
- It is estimated that the total cost for construction and procurement of metro vehicles will be approximately 6 Billion Dollars (excluding finance costs).
- Public Private Partnership models are also considered as an alternative as a finance model.
- Design and Feasibility studies commenced at the end of 2020 and studies are aimed to be completed by the second half of 2021.



DESIGN CONSULTANCY SERVICES

COMPLETED RAIL SYSTEM PROJECT

45 Project | 588,30 km

DESIGN SERVICES PROJECT CONSULTANCY SERVICES

- Determination of the Current Situation and Data Collection
- Route and Transportation Studies
- System Design and Design Guides
- Preliminary Project Design
- Land Surveys
- Geological Surveys
- Financial and Economic Feasibility Studies
- Environmental Impact Assessment Process
- Architectural and Engineering Designs
 - (BIM Based Pre-Final & Final Designs)*
 - Route, Architectural, Structural Designs*
 - Electrical, Electronic, Mechanical System Designs*
- Zoning Plan Proposals, Expropriation Documents
- Preparation of Tender Documents



**WE PRODUCE
SUSTAINABLE
INTEGRATED SOLUTIONS FROM AN
OPERATOR'S
POINT OF VIEW**

Metro Istanbul offers architectural & engineering design and design consultancy services to its domestic and international corporate customers for public transportation investments.

Successfully implementing its hands-on rail operation experiences into every stage of public transport investments from idea to operation, Metro Istanbul prepares its designs considering not only the investment stage but also the whole life of the system, and offers the most suitable tailor-made solutions to its customers that optimise the total life cycle costs.

In this scope, planning and feasibility studies for mass transit projects are offered; BIM based designs for the route, tunnels, art structures, stations, terminals, depots-maintenance areas are provided and tender documents are prepared.



BURSA TRAM PROJECT

BURSA T1 TRAM LINE FEASIBILITY STUDY, FINAL DESIGN AND TENDER PREPARATIONS

Bursa transportation system is based on a system developed by accepting the east-west axis as the backbone. The light rail system in the city is also located on this axle. The restriction of the southern part of the city to Uludağ Mountain resulted in less development of the north-south axis than the east-west axis.



Line information

System	: Tram
Length/km	: 5,9
Capacity/Hr/Direction	: 8.000
Number of Stations	: 16
Number of Cars	: 2

Services

Transportation Studies	: ✓
Feasibility Studies	: ✓
Preliminary Project	: ✓
Final Project	: ✓
Application project	: ✓
Tender Documents	: ✓



Within the scope of the extension project to be implemented to 8,5 kilometer long Ankara A1 Line, which has 11 stations between AŞTİ and Dikimevi;

- Dikimevi
- Abidinpaşa
- Aşık Veysel
- Tuzluçayır
- General Zeki Doğan
- Fahri Korutürk
- Cengizhan
- Akşemsettin
- Nato Yolu



ANKARAY DİKİM EVİ NATO YOLU RAIL SYSTEM EXTENSION

The 7.4-kilometer A2 Dikimevi-Nato Yolu Line consisting of 8 stations will be built.

The line, which is also integrated with M2 Kızılay-Çayyolu Metro Line, will facilitate transportation from Mamak to the city centre.

In this project, route and depot area projects, drainage, infrastructure displacement and temporary traffic circulation projects, ground survey, feasibility study, financial and economic analysis, transportation study and EIA report, architectural and structural design projects, electro-mechanical projects will be produced.

Construction and electromechanical tender documents will also be prepared.



M5 LINE UTO METRO VEHICLE CONSULTANCY

Metro Istanbul carried out official consultancy services of CAF brand vehicles of Turkey's first fully automated driverless metro line that is M5 Üsküdar-Ümraniye-Çekmeköy Line. The following activities have been carried out within the scope of this consultancy service;

- Design control,
- Manufacturing control,
- Equipment type tests,
- Vehicle type tests,
- Unloading and accepting the vehicles on the field,
- Stages of vehicle assembly in the field,
- Visual controls of vehicles,
- Function controls of vehicles,
- Vehicle routine tests,



- Control of field test line,
- Control of the workshop area and manoeuvres,
- Tracking of vehicle periodic maintenance,
- Tracking of vehicle malfunctions,
- Tracking of vehicle performance,
- Official correspondence,
- Document evaluation,
- Meetings,



OPERATION CONSULTANCY SERVICES

With its over 30 years of experience and qualified technical staff, Metro İstanbul offers operation & maintenance consultancy services including 'shadow operator' services for public transportation investments.

In this scope, it provides operation consultancy services for all stages of public transportation investments: from the planning stage to design, construction, testing & commissioning, acceptance and commercial operation stages.

SHADOW OPERATOR SERVICES

- Project Management
- Design Evaluation
- Construction Consultancy (Operator)
- Testing & Commissioning
- Trial Operation
- Operation & Maintenance Manuals
- Acceptance & Guarantee Process Management



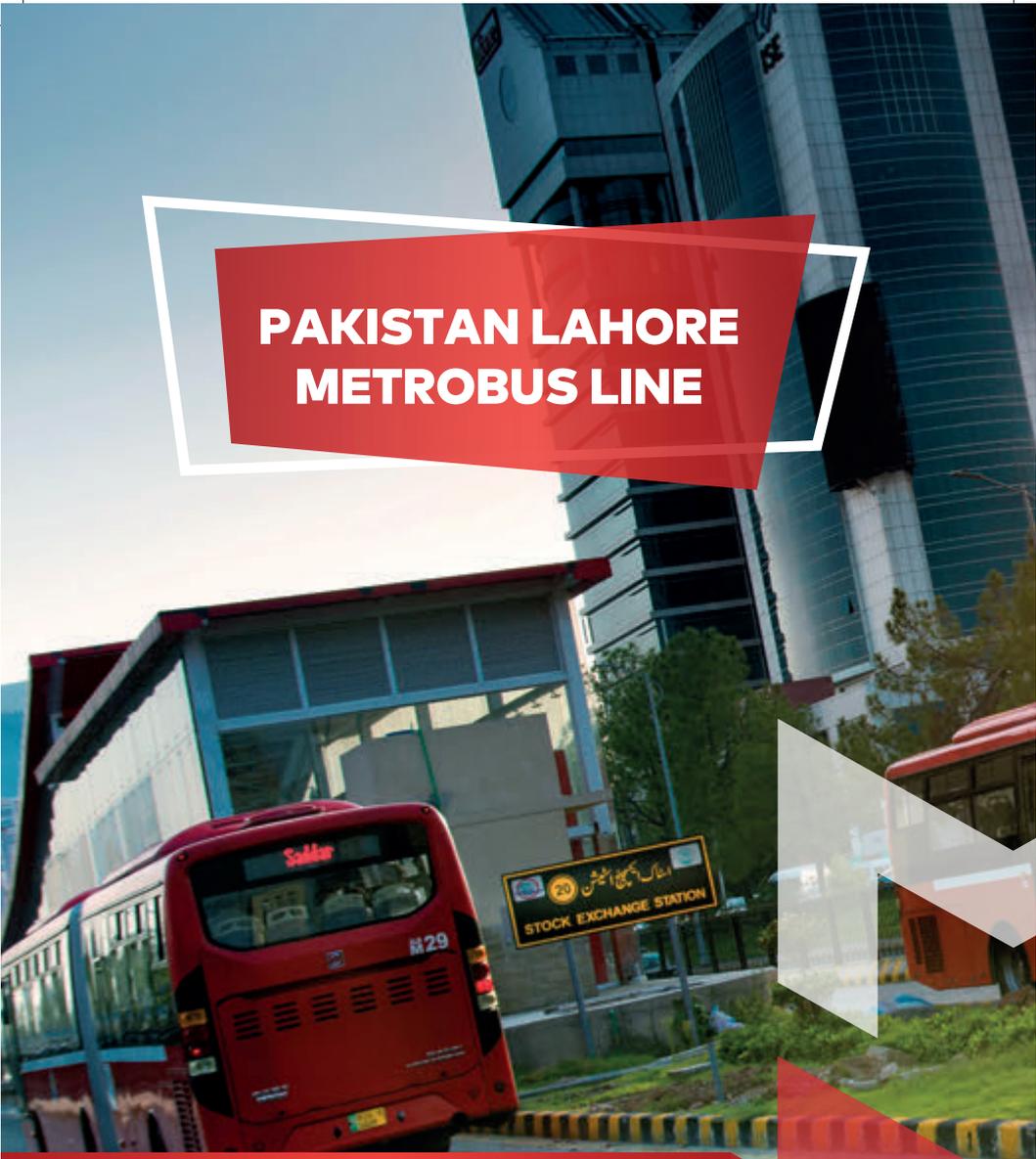
- Fracas and Interface Management
- Trainings

OPERATION & MAINTENANCE CONSULTANCY SERVICES

- Organisation Set-Up
- Operation and Traffic Management
- Track, System, Rolling Stock Maintenance Management
- Operation & Maintenance Manuals
- Trainings

MAINTENANCE CONTROLLING & CONSULTANCY SERVICES

- Maintenance Controlling and Reporting
- Failure and Fracas Controlling and Reporting
- Provisional/Final Acceptance Punch List Follow-Up
- System Improvement Suggestions



PAKISTAN LAHORE METROBUS LINE

LAHORE BRT (METROBUS) LINES ENGINEERING AND CONSULTANCY SERVICES

Within the scope of Lahore Metrobus Lines Engineering and Consultancy works;

- A feasibility study was prepared for the Metrobus Systems,
- A preliminary design was made for the Metrobus Lines,
- Consultancy services were provided for the construction and operation,
- Visualisation studies were carried out
- Employees were trained for the line.



Consultancy and operation services for the lines were carried out in cooperation with Metro Istanbul and Pakistan Ministry of Transport.

Work packages are as follows;

- Feasibility Studies
- Visualisation Studies
- Training Activities

Feasibility Study was prepared for a total of 53 km (Ferozpour Road: 27 km, Multan Road: 13 km, GT Road: 13 km) metrobus line in Lahore city and Preliminary Project services were provided.

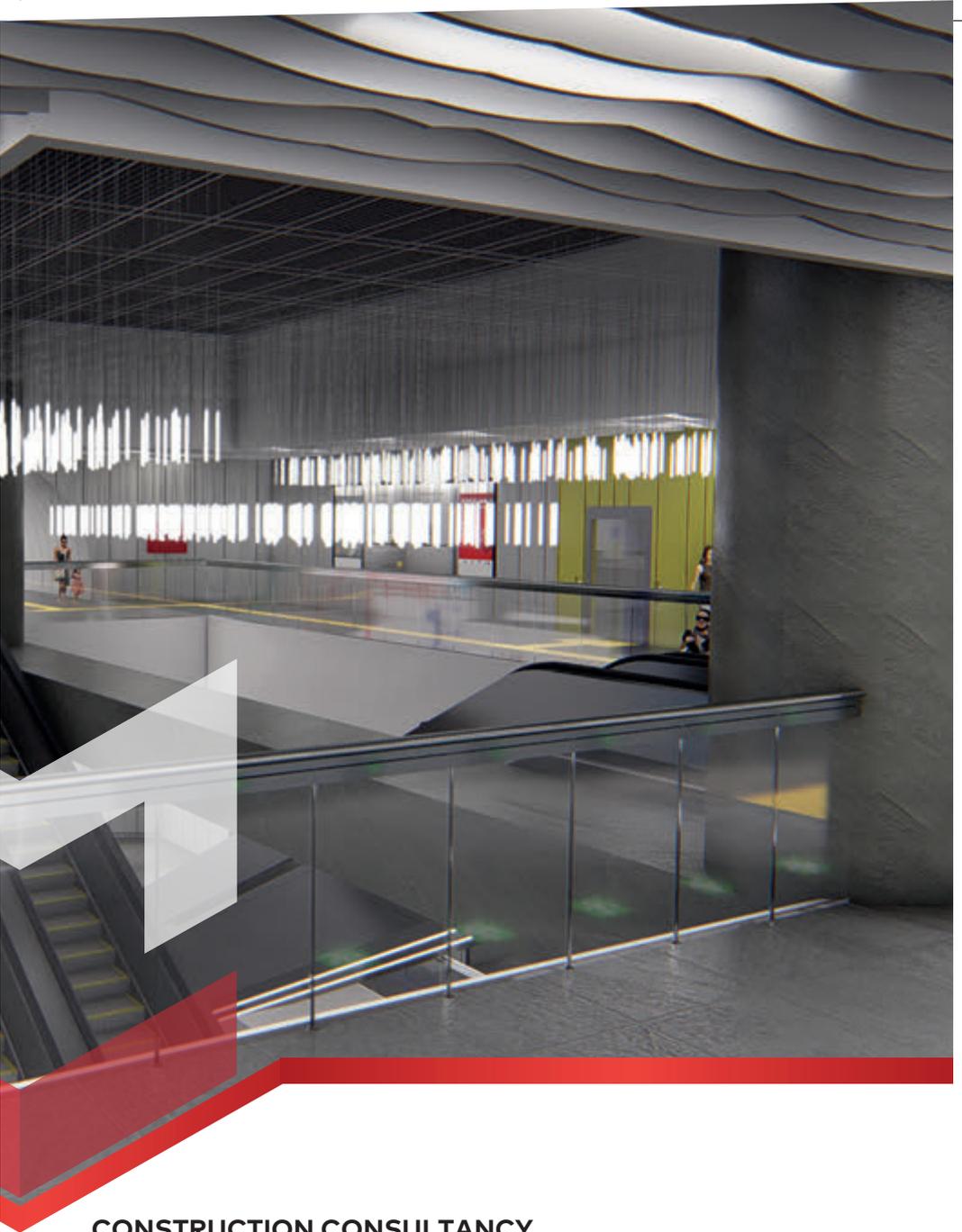


CONSTRUCTION CONSULTANCY SERVICES

Metro Istanbul offers controlling & consultancy services for public and private clients for their transportation investments.

In this scope, all the final designs including railway route designs, architectural and static designs, infrastructure displacement and drainage designs are reviewed, supervision & consultancy services are provided for civil works.

Consultancy services for the procurement of all the mechanical, electrical, electronic systems and rail system vehicles in the rail system line, warehouses, workshops and auxiliary facilities are also offered. Our expert technical staff supervise the design, construction, assembly, testing & commissioning works of these systems.



CONSTRUCTION CONSULTANCY

- Design Controlling and Consultancy
- Production Controlling and Consultancy

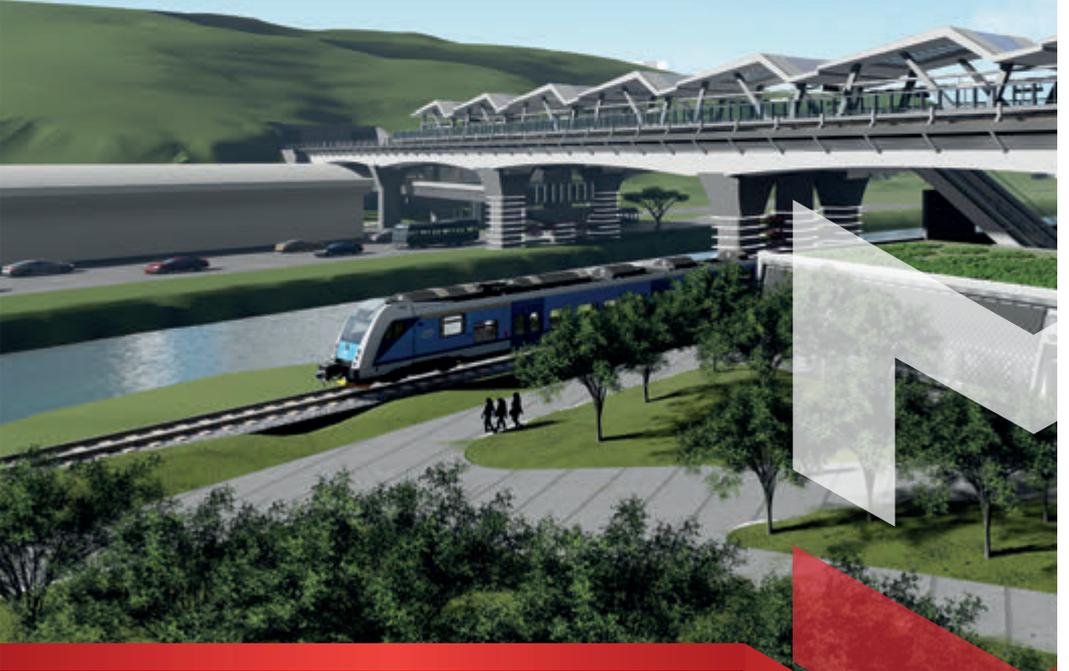
ELECTROMECHANICAL SYSTEMS CONSULTANCY

- Procurement Consultancy
- Design Controlling
- Production Controlling
- Controlling of Testing and Commissioning

ROLLING STOCK CONSULTANCY

- Procurement Consultancy
- Design Controlling
- Factory Production Controlling
- Controlling of Testing and Commissioning

EMİNÖNÜ-ALİBEYKÖY TRAM LINE



EMİNÖNÜ-ALİBEYKÖY TRAM LINE CONTROL AND CONSULTANCY SERVICES

10,10 km long Eminönü-Eyüpsultan-Alibeyköy (Golden Horn) Tram Line connects Fatih and Eyüpsultan districts. Tram vehicles are safely energised from the system buried between two rails along the line. Thus, it prevents visual pollution along the route.

The interior and exterior of the vehicles are monitored from the management centre with cameras and active communication is provided between the passengers and the driver. The construction of the tram line benefits from the Continuous Power Supply from the Ground System instead of the classic track laying system. This system is more modern, environmental friendly and provides more convenient car and pedestrian passage and it is used for the first time in Turkey at this length.



Line information

System	: Tram
Length/km	: 10,10
Capacity/Hr/Direction	: 15.000
Number of Stations	: 14
Total Number of Cars	: 30
Set of Cars	: 2

Services

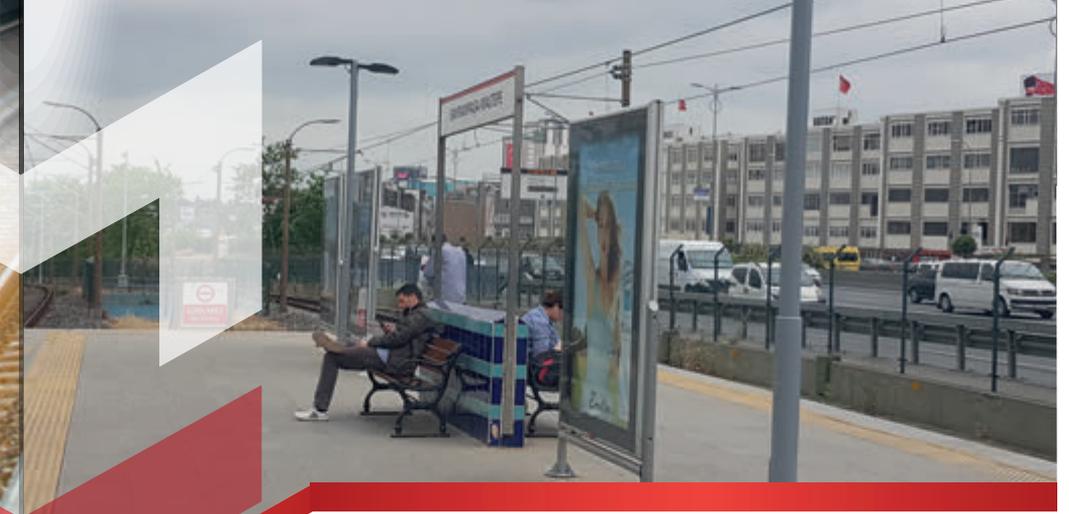
Transportation Studies	: ✓
Feasibility Studies	: ✓
Preliminary Project	: ✓
Final Project	: ✓
Tender Documents	: ✓



CONSTRUCTION, RENOVATION, REHABILITATION WORKS

Metro Istanbul provides construction, renovation and rehabilitation services for infrastructures & superstructures and electromechanical systems in rail system facilities and lines and performs these services under the existing operational conditions, in limited periods, and in most cases, without hindering the operation or ruining the comfort of passengers.

Metro Istanbul offers turnkey projects for its corporate customers in their public transportation investments.



TURNKEY SYSTEMS WE OFFER

- Railway
- Station Buildings
- Mechanical Systems
- Medium Voltage Supply and Distribution Systems
- Traction Power and Distribution Systems
- Auxiliary Power Supply and Distribution Systems
- Catenary/3rd Rail Systems
- Signalling Systems
- SCADA/ECS Systems
- Communication & Telecom Systems
- Camera Systems
- Passenger Information Systems



T4 TRAM LINE LINE RENEWAL

T4 Topkapı-Mescid-i Selam tram line is 15.3 km long and has double lines and has a total of 22 stations and is currently operational. This project includes renovation of tunnel, stations and rail line within the tram line, and construction of new workshop building, transfer warehouse building, vehicle parking tracks, supply, assembly, disassembly, testing and commissioning of design services related to rough and fine construction works, railway works, electrical works, electronical systems, environmental control systems, auxiliary facilities (requiring minimum maintenance for parts of all systems),



PROJECT PHASES

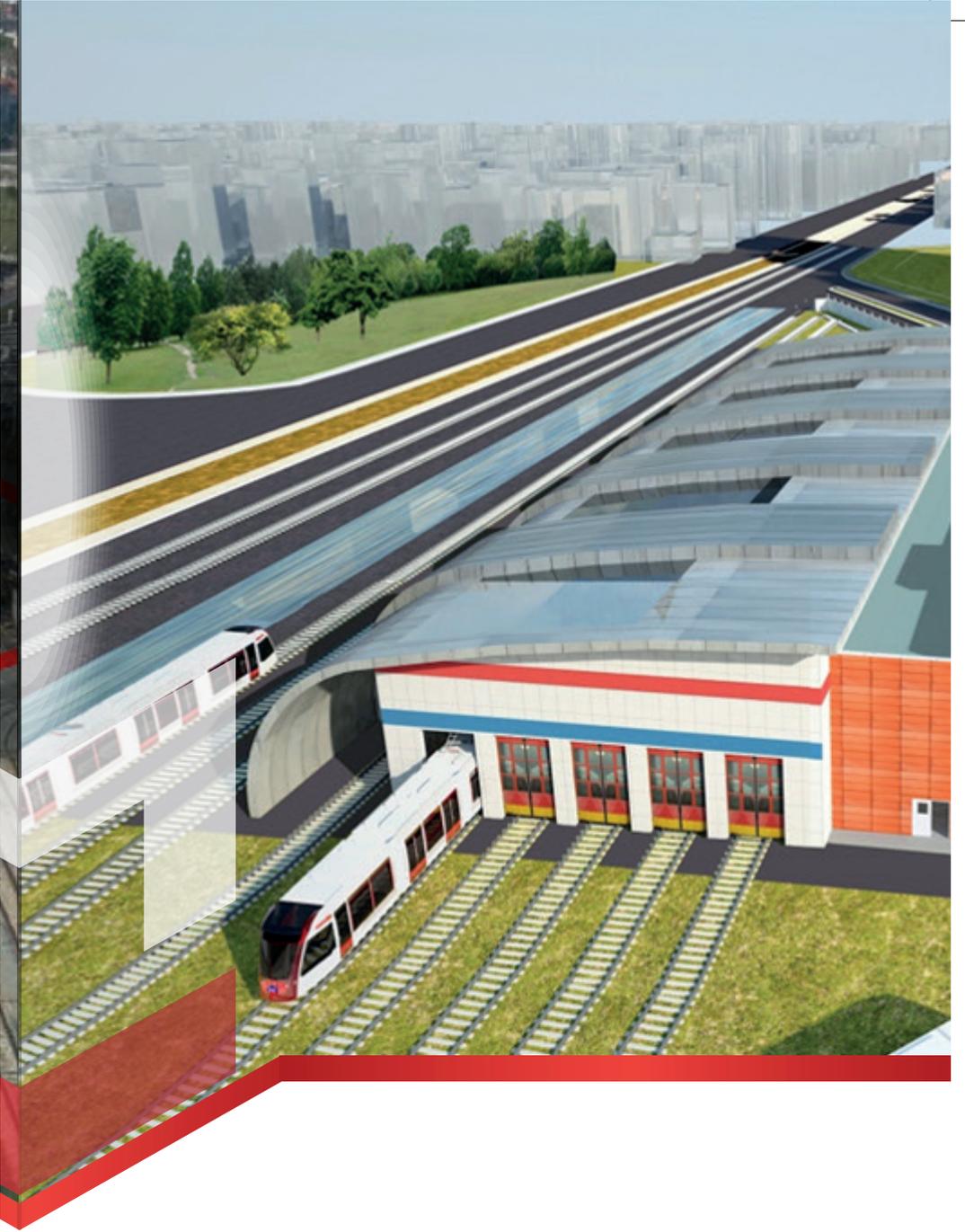
- T4 Line Line Renewal and Rail Replacement
- T4 Line Improvement Works
- Isolation of the Line Between Cumhuriyet and Mescid-i
- Selam Stations
- Topkapi Station Entrance Revision and Landscaping
- Station Renovation and Revision
- Station Revision and Renovation
- Signalling of No Signal Areas on T4 Line
- Moving T4 Transformer Building to Underground

An aerial photograph of a tram depot and workshop area. The image shows multiple sets of tram tracks curving through the site. There are several buildings, including a large warehouse and smaller workshop structures. A red graphic overlay, consisting of a white-outlined trapezoid and a red diagonal line, is positioned over the top half of the image. The text "TRAM LINE REVISION PROJECT" is written in white capital letters on the red background.

TRAM LINE REVISION PROJECT

TRAM LINE DEPOT AND WORKSHOP AREA RENEWAL PROJECT

Due to the density of passengers, it is necessary to carry out maintenance in a short time and bring tram vehicles to the service. The fact that the vehicles to be maintained had to be sent to Esenler workshop caused operational losses and the maintenance in Esenler workshop to be disrupted. Due to the need for a permanent and fully equipped workshop for the maintenance of vehicles with heavy maintenance periods, 6075 m² warehouse, workshop, tram car parking areas were renewed.



ZEYTİNBURNU TRAM COMPOUND PROJECT

- Zeytinburnu Workshop Building
- Additional Warehouse Tracks
- Zeytinburnu Workshop Underground Lathe Equipment
- New Catenary Systems
- New Closed Warehouse
- Revision of Existing Prefabricated Structures
- Revision to be Made in the Transformer Station



ISTANBUL
METROPOLITAN
MUNICIPALITY