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TRANSPORT



TRANSPORT

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OUR COMMITMENT, YOUR SUCCESS.

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Rapid transit systems



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Stations /
Transport hubs



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Railway networks



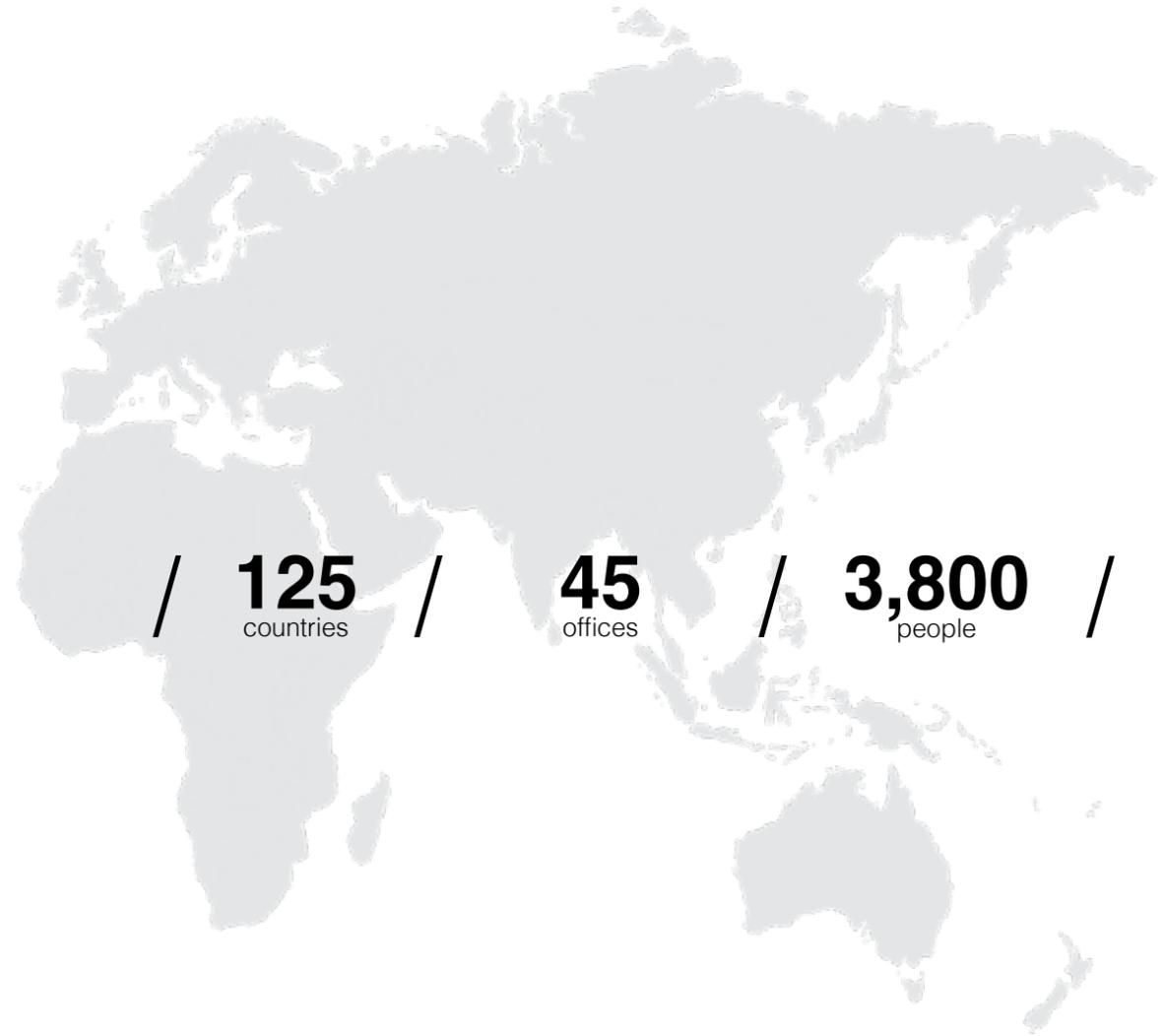
162
Mobility



178
Airports



/ **290M€** / **64** /
income years

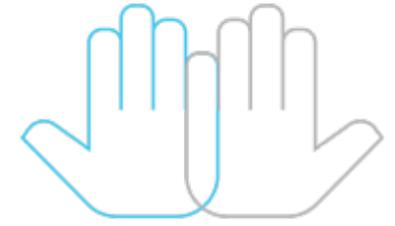


/ **125** / **45** / **3,800** / **893** /
countries offices people partners

/ OUR PILLARS /



We believe in excellence. We strive for excellence in everything we do.



We believe in the power of human relationships as a motivating force to overcome difficulties.



Innovation is present in each of our actions.



We are passionate about resolving problems that no one has solved before.

IDOM TRANSPORT

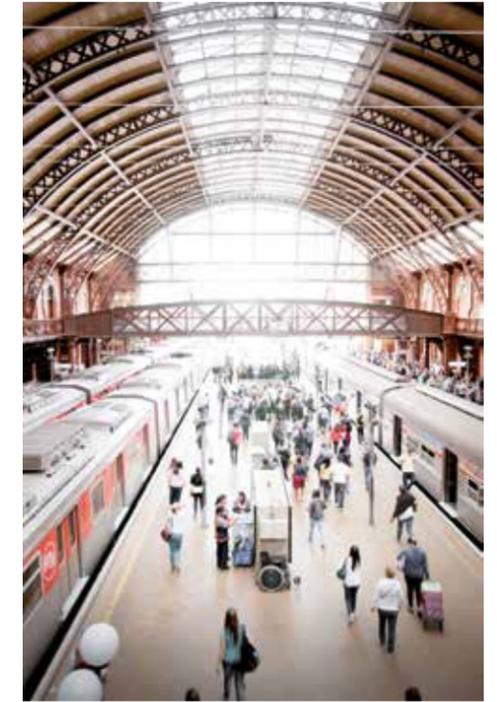
Citizens fulfil their daily needs to work, study and socialize throughout different locations on the territory and thus the need for mobility appears. Transport systems become the essential link between needs and places and the indispensable support for the economic and social development of the city and territory.

Only those cities that can provide a broad urban transport system remain at the top of economic competitiveness and quality of life. This is why many Administrations worldwide are making an enormous effort to tackle the challenge of sustainable mobility in the 21st century by providing outstanding transport infrastructure and high quality transport services to the population.

Idom's vast experience in the fields of urban and inter-city transport systems can help cities achieve their goals in a sustainable fashion regarding the way in which their citizens move.

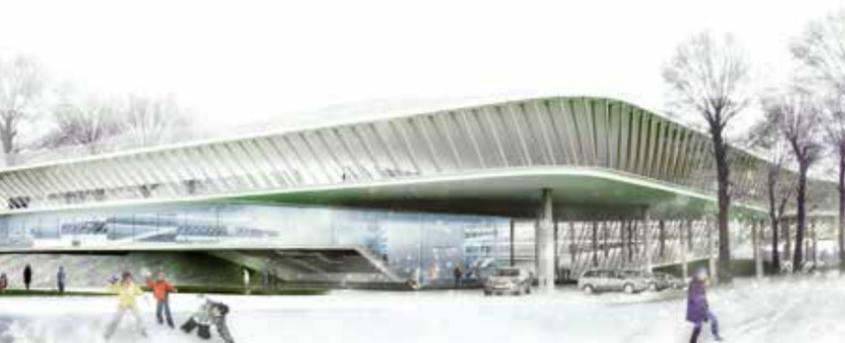
The technical capabilities of Idom cover all aspects of any urban or inter-city transport project, from the initial planning and decision-making stages, through the consultant's studies and preliminary designs, to the detailed design, the construction stage supervision and the monitoring of operations and finance.

Seville Tramway



What follows is a selection of projects developed by Idom in the fields of urban and inter-city transport systems, showing the capabilities of our Company when presented with any challenge related to mobility within our cities or territory and their specific requirements.

**TRANSPORT SYSTEMS ARE THE
BACKBONE THAT SUPPORT
THE ECONOMIC AND SOCIAL
ACTIVITY OF THE CITIES**



High Speed Station, Poland



Algiers Metro System

High Speed, Spain



Bilbao Metro System

MULTIDISCIPLINARY TEAM GLOBAL VISION INTEGRATED PROJECT

Idom's workforce includes specialists in all disciplines involved in the development of transport infrastructure projects within the territory or in urban environments.

This allows us to offer a global vision during the entire process, which results in integrated projects. Idom applies technological innovation in its transport projects for the efficient management of infrastructures with the communication, control, security systems and assistance programme.

The comprehensive designs and applied technologies allow for the reduction of the energy demand and the optimization of the consumption of the infrastructure, considering its life cycle.

Idom has the capacity to use computerized simulations of various operating scenarios, flow of travellers, above ground traffic or energy consumption that allow for the optimization of the design and the size of the transport infrastructures.

SPECIALISTS

- Consultants
- Communications specialists
- Simulation and operation experts
- Transport management
- Architects and landscape designers
- Environment specialists
- Safety specialists
- Town planners
- Engineers



Abi Bkar Road,
Riyadh

Natal Airport,
Brazil



FROM THE IDEA TO ITS EXECUTION, WE COVER ALL STAGES OF THE PROJECT

Feasibility Studies

Inter-city passenger train between Mexico DF and Puebla, Mexico. (Secretariat for Communications and Transport. Directorate General of Rail and Multimodal Transport).

Strategic Plans

Strategic transport plan for Croatia (Central Finance and Contracting Agency)

PPP Model and Concessions

Technical assistance for the concession and use tendering processes for the airports of Guarulhos, Campinas and Brasilia, in Brazil (AENA-OHL Consortium).

Functional Study

Functional studies of the High Speed Stations on the Rio de Janeiro - Campinas line, in Brazil. (National Agency for Terrestrial Transport-Directorate General of Rail and Multimodal Transport).

Project Preparation

Route project and production information for the Tramway in Constantine, Algeria. (Entreprise M tro d'Alger).

Project Supervision

Design verification of "CR3 Marmaray Project", civil works and systems, Turkey (OHL).

Project Management

TAG card implementation in El Cairo Underground (Egyptian Company For Metro Operation).

Site Supervision

Site supervision of the extension works in the terminal building of the Gran Canaria airport, Spain (AENA).

Operation and Maintenance

Maintenance of the "Localiza" Geographic Information System for (Renfe's Directorate General of Operations).

Monotrilho, Brazil



Riyadh Metro System



Gran Canaria Airport Extension

RAPID TRANSIT SYSTEMS

EXTENSION OF THE ALGIERS METRO SYSTEM

RIYADH METRO SYSTEM

SANTIAGO DE CHILE METRO SYSTEM

BOGOTA METRO SYSTEM

BARCELONA METRO SYSTEM

PORTO LIGHT RAIL

SEVILLE METRO SYSTEM

HO CHI MINH METRO SYSTEM

MOSCOW METRO SYSTEM

SAO PAULO METRO SYSTEM

ISTANBUL METRO SYSTEM



Barcelona Metro System

RAPID TRANSIT SYSTEMS

Stations

Architectural design
 Fire evacuation
 Urban integration
 Lighting
 Wayfinding and signage
 Acoustics

Operation

Demand studies
 Modal interchange
 Flow simulations
 Treading material

Public Works

Tunnels
 Cut and cover
 Viaducts
 Underpinnings

Systems

Ticketing systems
 Communications
 Control centre
 Signalling
 Security
 Ventilation
 Energy
 UTO systems
 Electromechanical services

Planning

Route
 Geology-hydrology
 Functional study
 Environmental impact assessment
 Feasibility study



Sao Paulo Metro System



Istanbul Metro System

EXTENSION OF THE ALGIERS METRO SYSTEM





Line 1 of the Algiers metro system, which is currently in use, is 17.58 km long and has 18 stations, with side platforms which are 115 m long. The project developed by Idom involves the Ain Naadja - Baraki extension, which will be 6.2 km long and will grant underground access to the city centre for new districts through 6 new stations.

This extension will connect the underground with the SNTF (Société Nationale des Transports Ferroviaires) railway network at the Gare de Ain Naadja. Other important points along the line are the crossing of the Oued El Harrach valley, where the line will be laid over a viaduct, and the Motorway called Radiale de Baraki.

All the work, including the definition of routes, civil works, architecture, urban integration and the impact studies, as well as the demand studies and the analysis of the restructuring needs of the Algiers metro system, was carried out bearing in mind the line already in use and its future extensions.

The project includes the architectural definition of the six stations included in the extension. Four will be underground and another two will be located over the viaduct, one of which will be a grand transport hub with the railway services.

The works related to the railway superstructure, power, rail signalling, telecommunications, centralized commands and assorted electromechanical equipment have also been taken care of.

FUNCTIONS

- Study of alternatives
- Informative
- Route projects
- Construction
- Installation

THIS EXTENSION INCLUDES THE CONSTRUCTION OF 6 NEW STATIONS

CLIENT
Entreprise Metro D'Alger

LOCATION
Algeria

COST
740 M€

DURATION
24 months

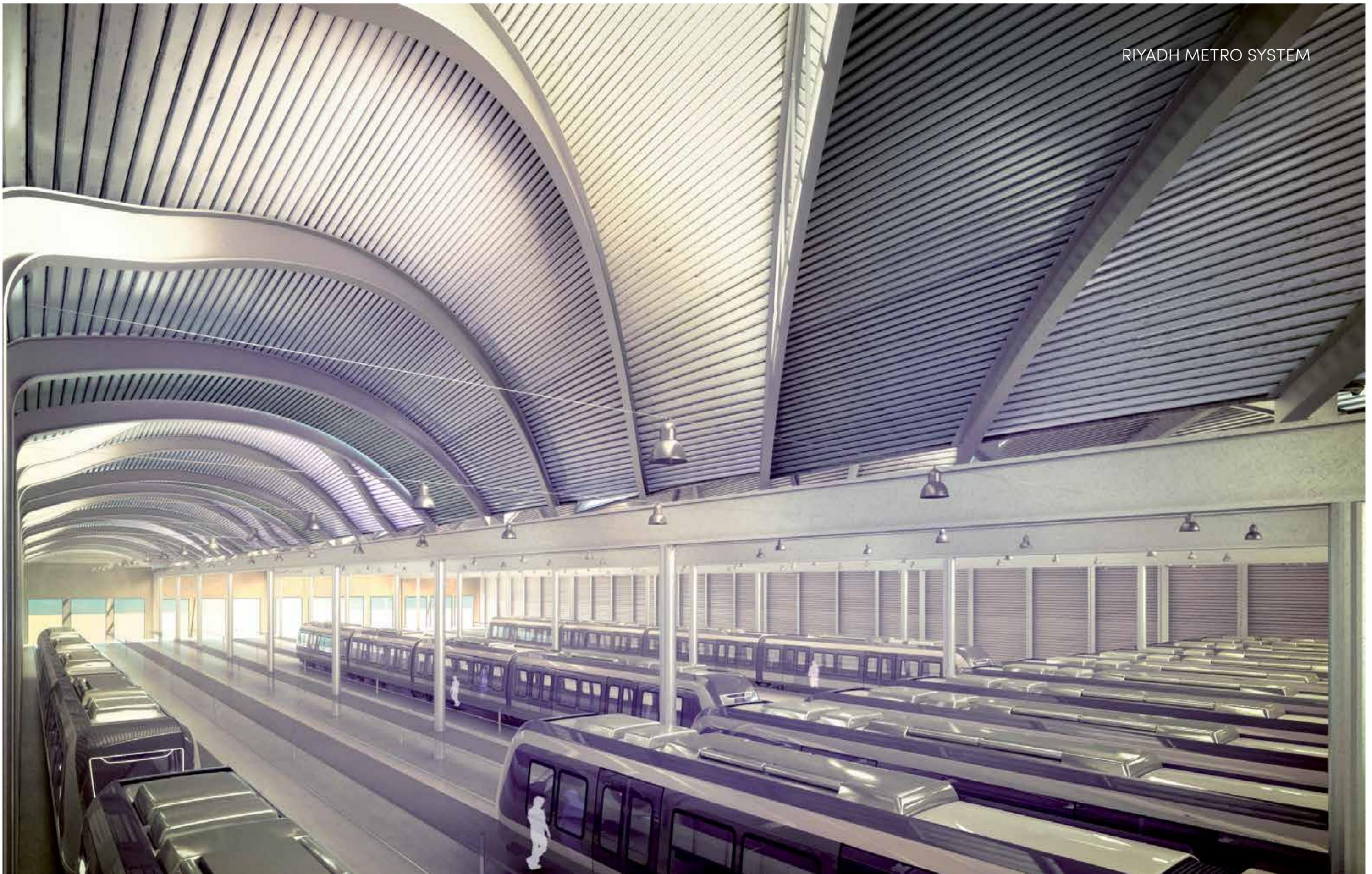
LINE KM
6.16 km

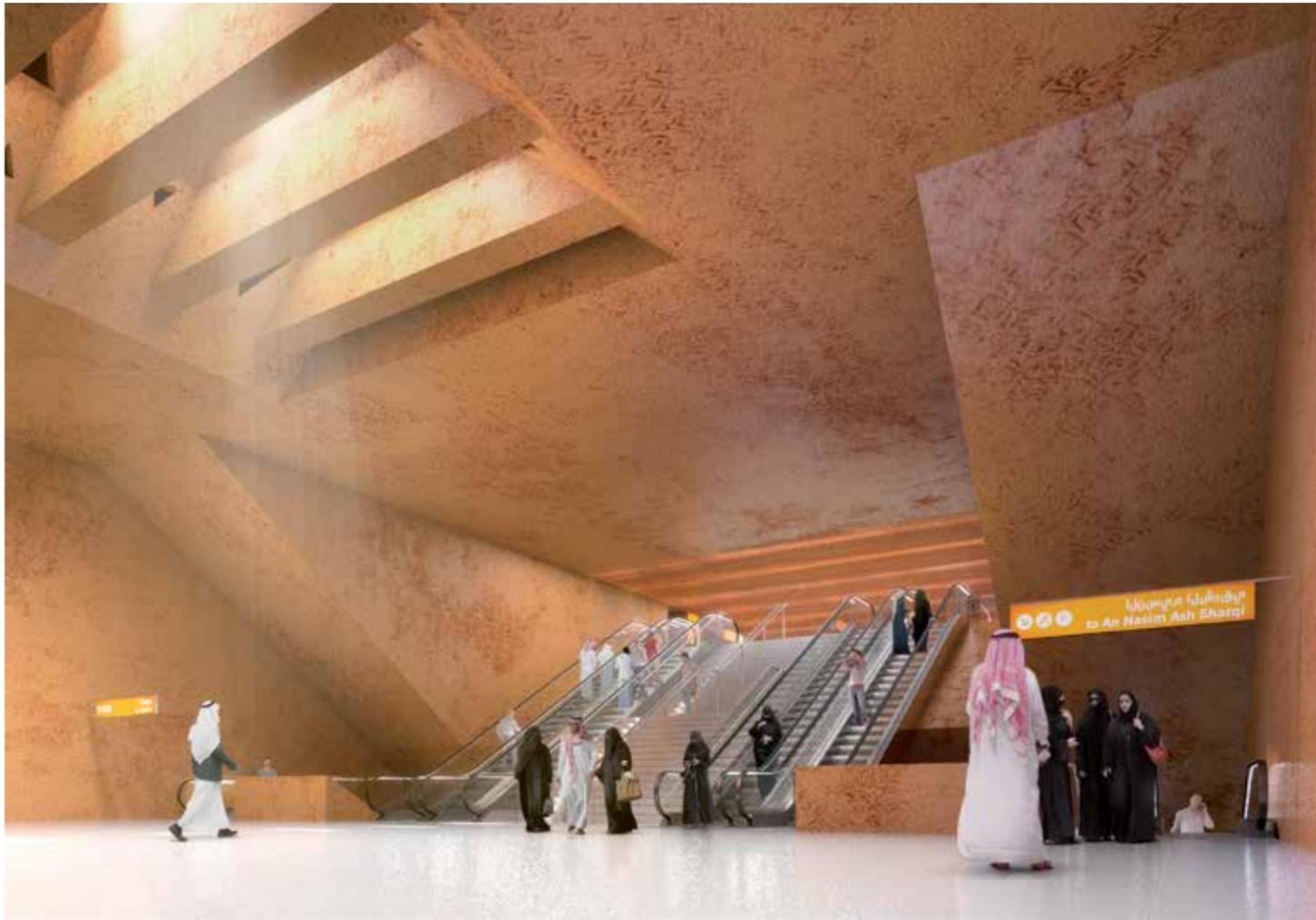
LAYOUT
Overground / Underground

No. OF DAILY PASSENGERS
16,000 passengers

No. OF STATIONS
6 above and under ground

INTERMODAL STATIONS
3 in combination with other lines or means of transport





Idom took part in the design of the entire infrastructure during the tendering process as a member of the consortium led by Salini-Impregilo.

The consortium was also appointed to carry out the work for Line 3, which is over 41 km long. Idom was responsible for the entire design of the latter: route, tunnel, viaducts and level sections, along with the stations (underground and above, plus the transfer station with Line 6), workshops, sheds and the landscape and road works

required for the integration with the urban environment.

The appropriate coordination between the different disciplines was one of the keys to the project, a task that was greatly eased by the multidisciplinary character of Idom's team, managed from the capital of Saudi Arabia.

FUNCTIONS

- Detailed design

CLIENT
Arriyadh Development Authority Ada

LOCATION
Riyadh

COST
3,750 M€

DURATION
2013-2015

LINE KM
41 km

No. OF DAILY PASSENGERS
28 million

No. OF STATIONS
20

WORKSHOPS AND SHEDS AREA
3



The project included the detailed design and the production information for twenty stations based on several prototypes contributed by the client. In the case of the underground stations, it was necessary to develop an entirely new prototype, given the width limitations imposed by the narrow streets of the popular Batha neighbourhood.

This opportunity was made the most of in order to increase the spatial quality of the stations and to allow sunlight in, all of which improves the passengers' orientation and experience.



A 176 KM NETWORK
TO CONNECT THE WHOLE CITY

LINE 6 STATIONS IN THE
SANTIAGO METRO SYSTEM





The work is developed from the previous civil works of tunnels and galleries. It includes the projects of architecture, structures, and station facilities as well as all the above-ground work that might be linked to these, access squares, aediculae, customer services, etc. Furthermore, it will also develop the extension, improvement and connection of the already existing 3 stations which will have a connection, with solutions that will allow for the service to run uninterrupted both underground and above ground.

The project includes opportunities for urban and over-ground transport development, for the fitting out of several customer services and the inclusion of cultural activities in the stations (book-lending services, underground art, archaeological remains integration, etc.)

It also includes the development of a branding and wayfinding project for the new line with the idea of giving it a new identity on all levels.

The project has been carried out with BIM, with models that include all specialities in such a way that the coordination of the interference of all the different elements has been possible, as well as the analysis of the construction sequence of the stations.

Additionally, Idom has been hired as technical supervisor for the installation, testing and service start-up of systems and services for the projects of Line 6 and 3. The service includes the technical inspection of the following systems: CBTC system, electrical system, communica-

tions system, centralized command system, platform doors system, toll and machines system, lifts and escalators system, rails and overhead power cables system, artificial ventilation system and booster pumps system.

FUNCTIONS

- Conceptual project
- Production information
- Construction stage technical coordination
- Urbanization project
- Tender documents

CLIENT
 Empresa de Transporte de Pasajeros Metro, S.A. \ Gerencia Desarrollo de Proyectos

LOCATION
 Santiago de Chile

COST
 141.4 M€

DURATION
 2013 - 2017

LINE KM
 15.8 km

No. OF PASSENGERS PER YEAR
 52 million

No. OF STATIONS
 10 underground
 (4 transfer stations)

METRO SYSTEM LINE 1
CITY OF BOGOTA



The Institute for the Urban Development of Bogota decided to extend the underground line creating 28 new stations between the stations of Portal de las Americas and Calle 127, with a total length of 26.4 km. The project included civil works, train sheds and workshops, systems and mobile material.

Idom was in charge of writing up the advanced detailed design, which followed on from the "Conceptual design of the massive transport underground network and operational design, legal and financial sizing of the first line within the framework of the public transport integrated system - SITP - for the city of Bogota".

The result was 27 products and included the following stages:

- 01 Stage 1. Civil work - infrastructure: geometric design, tunnel, workshops and sheds, stations. It includes an alternatives study between the stations of Primero de Mayo and San Victorino.
- 02 Stage 2. Furnishing and fitting out of the infrastructure: town planning, architecture and station services, workshops and sheds (functional distribution), rail and non-rail facilities.
- 03 Stage 3. Acquisition of trading material - operation costs.

FUNCTIONS

- Detailed design and scheme design

CLIENT
Institute for the Urban Development
of Bogota

LOCATION
Bogota

COST
2,500 M€

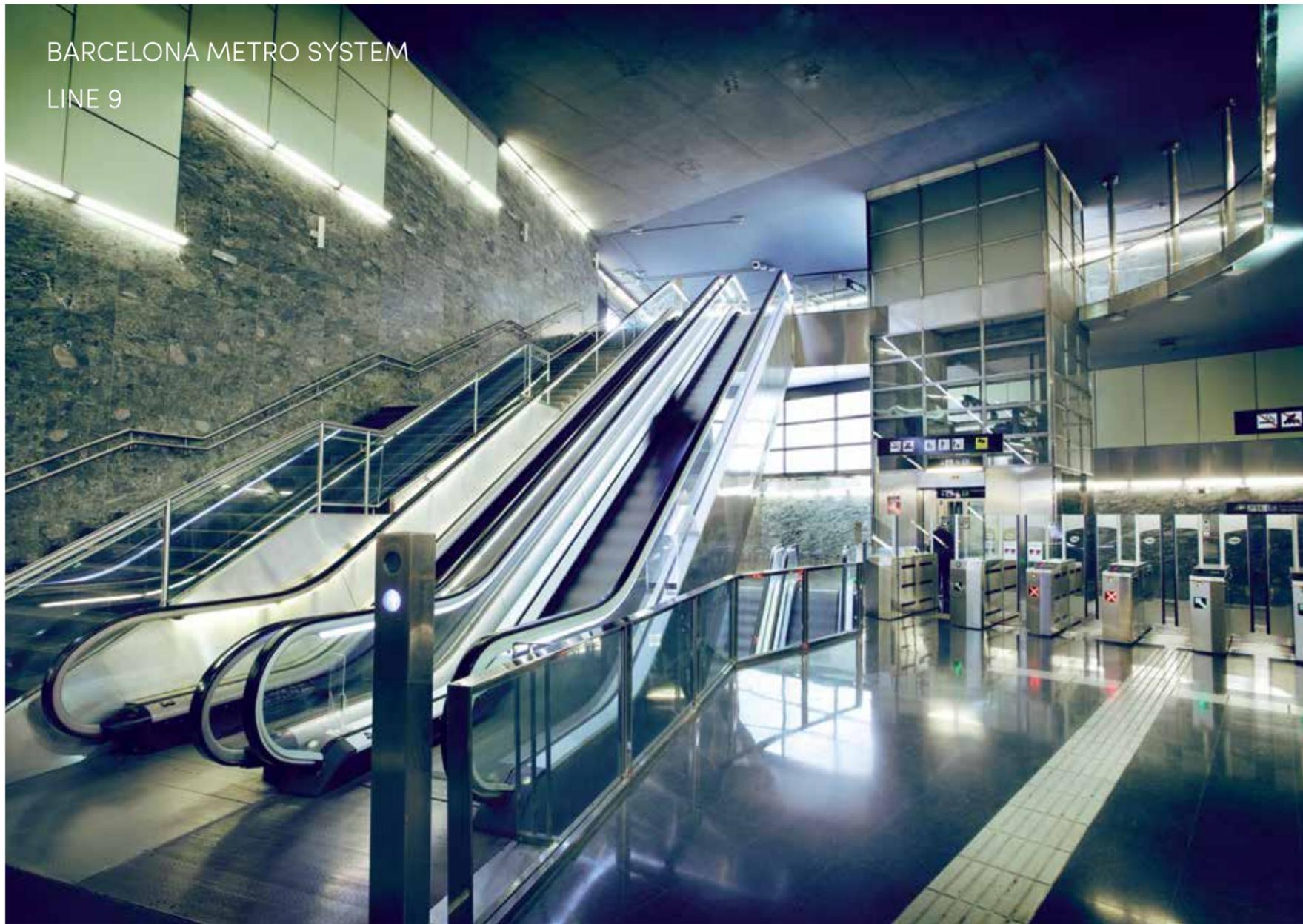
DURATION
2013 - 2014

LINE KM
26.4 km

No. OF STATIONS
28 Under and over ground

BARCELONA METRO SYSTEM

LINE 9



In December 2008 the department of Railway Infrastructures of Catalonia (FERCAT) signed the public work concession contract for the construction, conservation, maintenance and exploitation of certain infrastructures of section IV of line 9 of the Barcelona metro system. The concessionaire turned out to be Linea Nueve Tramo Cuatro Ltd.

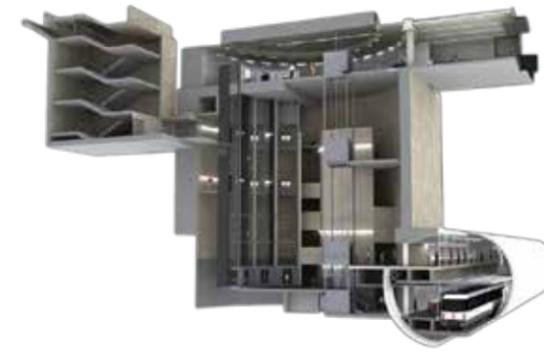
The concession contract included the following benefits:

- + Project preparation and construction of certain infrastructures of section IV of line 9 of the Barcelona underground.
- + Urbanization of the area
- + Exploitation of the infrastructures
- + Maintenance and conservation of the infrastructure as a whole
- + Adaptation, refurbishment and modernization of the line 9 infrastructures of the Barcelona underground.

Idom, as well as being in charge of the site supervision, also designed the station of Can Peixanet.

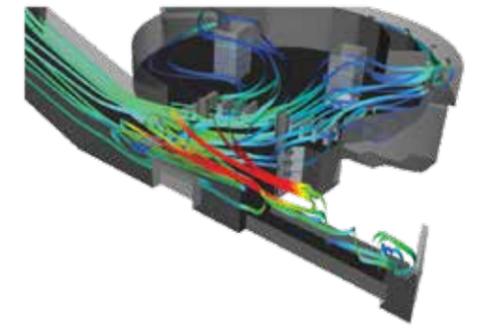
Line 9 of the Barcelona metro system runs at great depth and has an innovative double-height tunnel design that allows for a train to run "on top of the other". This system, which represents an important saving construction-wise, introduces complex variables in the flow and circulation of air.

Already in the design stage of the line, it became apparent that in order to ensure the conditions of air temperature and health standards, detailed ventilation studies would be needed - both for normal functioning conditions and in the event of fire. Only with a profound understanding of the behaviour of smoke in the intricate underground network could the safety design of tunnels and stations be optimized.



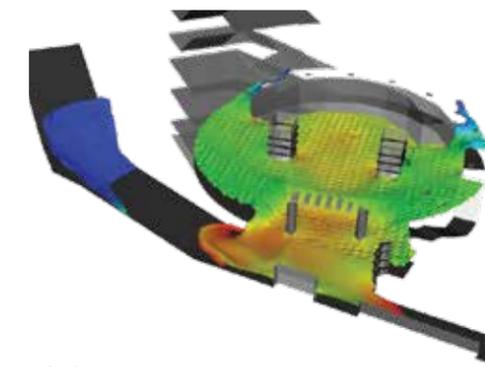
01

Virtual image of the section through a pit-like station.



03

Current paths in the foyer of the Singuerlin station in Barcelona.



02

Current paths in the foyer of the Singuerlin station in Barcelona.

This analysis was carried out by doing three types of modelling: unidimensional, three-dimensional and experimental tests.

By means of CFD technology (Computational Fluid Dynamics), Idom elaborated a three-dimensional model that represents the movement of air and smoke. Finally, the results of the simulations were validated by experimental tests done in the tunnels and the station, confirming that the ventilation system worked as expected.

FUNCTIONS

- Site supervision
- Architectural design
- CFD simulations in tunnels and stations

CFD TECHNOLOGY CAN SIMULATE THE MOVEMENT OF AIR AND SMOKE

CLIENT
Infrastructures of the
Generalitat of Catalonia

LOCATION
Barcelona

COST
455.1 M€

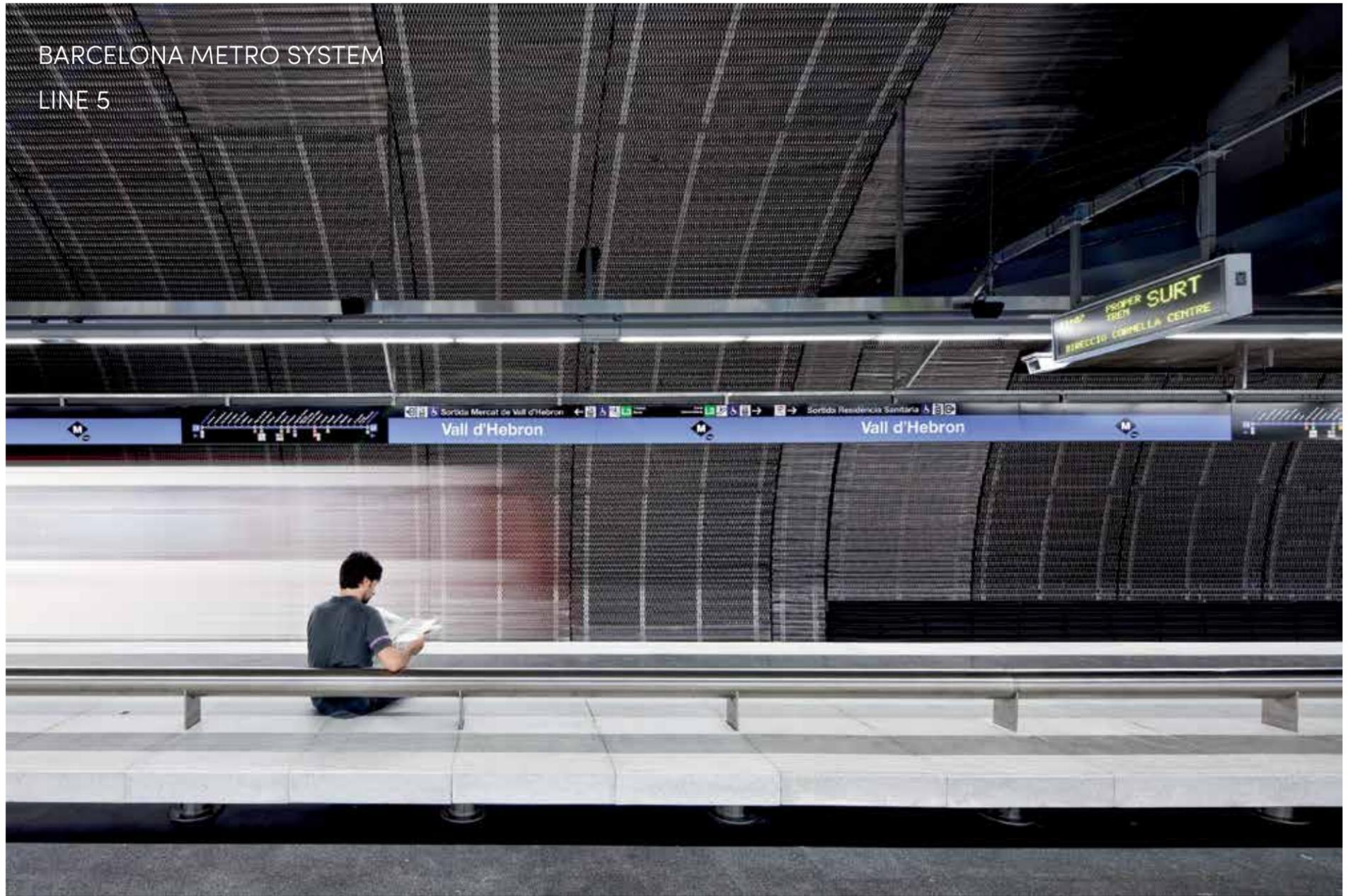
DURATION
2009 - 2014

LINE KM
26.4 km

DAILY PASSENGERS
300,000

No. OF STATIONS
1

BARCELONA METRO SYSTEM LINE 5



The project written up was framed by the extension works of line 5 of the Barcelona metro system through the Carmel neighbourhood, connecting Horta station (last station on line 5) and Vall d'Hebron station, belonging to line 3 which in turn became the linking station between these two lines.

The project for the infrastructure, starting point for our task, left the three stations of the extension (Carmel, Teixonera and Vall d'Hebron), the Sant Genis train depot and the Vall d'Hebron headshunt with uncovered walls, screens and vaults and with the intermediate slabs and the platforms already built, with the foresight of leaving enough room for pits and manholes. The goal of the project was fitting out the inside and the entrances of the three stations as well as the train depot and the headshunt.

CARMEL STATION

This station has two foyers, the Pastrana Square foyer and the one that leads to the market, with entrances on Llobregos St.

VALL D'HEBRON STATION

Vall d'Hebron station, located where Coll i Alentorn Street meets the Ronda de Dalt, has two foyers, one on the mountain side and the other on the sea side, with two entrances on either side of Jorda Avenue.

TEIXONERA

Teixonera station also has two foyers, the Batet foyer and the Crispi one. The Batet vestibule is at the crossroads of Llobregos St. and Batet St. and also has an entrance, through a horizontal gallery, on Beat Almato St., thus considerably extending the area covered by the station. The Crispi foyer is located in the vicinity of Fastenrath St., San Crispi St. and Arenys Street.

FUNCTIONS

- Production information for architecture and building services
- Town planning projects
- Electromechanical equipment projects

CLIENT
Infrastructures of the Generalitat of Catalonia, S.A.U.

LOCATION
Barcelona

COST
101.4 M€

DURATION
2008 - 2010

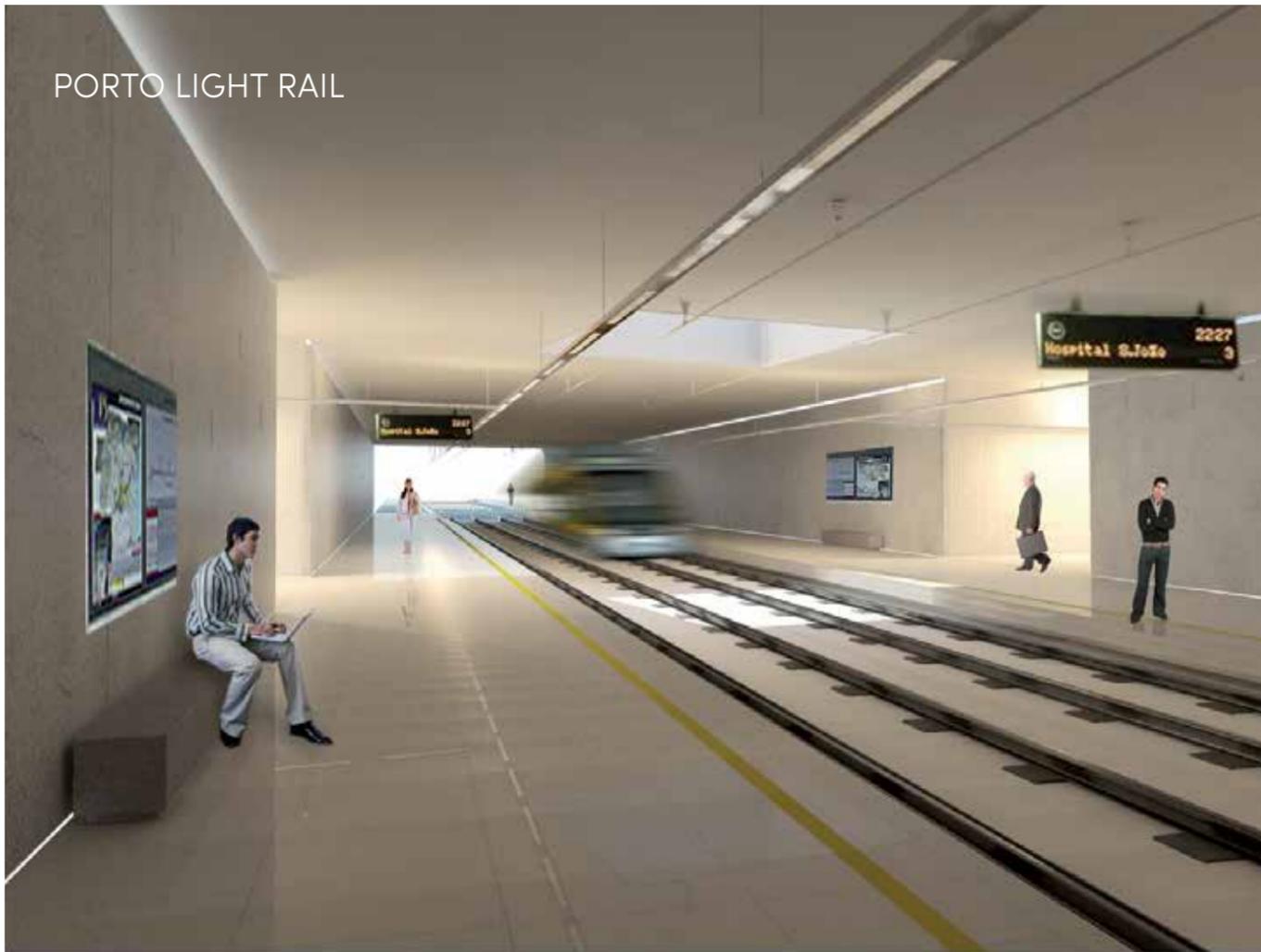
LINE KM
26.4 km

LAYOUT
Underground / Aboveground

No. OF STATIONS
3

TRANSFER STATIONS
1

PORTO LIGHT RAIL



The project was for the extension of the green line (C) between ISMA and TROFA, totalling 13 km. It included the renovation of seven existing stations as well as the urban integration of the whole line.

The recuperation and adaptation of the old stations of the CP of Trofa line intended to satisfy the new established requirements set by functional and comfort reasons, without disregarding a correct relationship between the existing architectural object and the new one.

FUNCTIONS

- Route project
- Construction
- Installation

CLIENT
Metro do Porto, S.A.

LOCATION
Porto

COST
210 Me

DURATION
2008 - 2010

LINE KM
13 km

No. OF DAILY PASSENGERS
300,000

No. OF STATIONS
7

SEVILLE METRO SYSTEM



Idom carried out the detailed design and the production information stages for the 19 stations of the new line 3 of the Seville metro system. Two stations are semi-surfaced, one is surfaced and 16 are underground, two of which are transfer stations. All the stations follow a cut and cover typology and are highly influenced by the characteristics of the urban mesh in which they are integrated.

The design of the station aimed for an easy understanding of the internal space and the different levels, with atria spaces several floors high that would allow for the simultaneous view of the different flow paths and for an easy understanding by the customer. The distances between the outside and the platforms were reduced to a minimum once adequately sized spaces were set for the development of these itineraries.

FUNCTIONS

- Detailed design
- Production information

CLIENT
Public Works Agency of the Regional
Government of Andalusia

LOCATION
Seville

COST
1,179.4 M€

DURATION
2007 - 2012

LINE KM
133.3 km

No. OF STATION
19

TRANSFER STATIONS
3

HO CHI MINH METRO SYSTEM



LINE 5	LINE 6
No. OF PASSENGERS PER YEAR	
272 million	75 million
LINE KM	
29.5 km (with extensions to Thu Thiem and TSN Airport)	7.1 km
LAYOUT	
Underground: 16.7 km Overground: 11.9 km	7.1 km underground
STATIONS	
Underground stations: 17 Overground stations: 9	6 underground stations
TRANSFER STATIONS	
8 transfer station	7 transfer stations with other lines, one of which connects with TSN Airport
FUNCTIONS	
<ul style="list-style-type: none"> • Feasibility study • Detailed design 	<ul style="list-style-type: none"> • Feasibility study
CLIENT	
Management Administration for Urban Railways (MAUR)	
LOCATION	
Ho Chi Minh	
COST	
2,500,000 M€ (both lines)	
YEAR	
2009 - 2013	

With a population of 6.2 million, Ho Chi Minh City was in the middle of a very important adaptation process. It needed to react to the needs of a great metropolis that is thought to soon become an economic and financial centre of South East Asia. The ongoing development was bringing about, amongst many other changes, a rapid growth of private motorized transport. In turn, the existing public transport system, based mainly on buses, was insufficient and inadequate to attend the growing demand.

It was in this context that the planning of a new public urban transport system was conceived. It would imply the implementation of a whole metro system with 6 lines, three peripheral light rail and tram lines and the new structuring of the city buses network.

In July 2009, Idom began to work on the feasibility study for line 5 of the HCMC underground in Vietnam. Line 5 has 23.5 km in its main line and another 3 km for a branch to the airport. A total of 26 stations were planned, for which several sections were designed that minimized the impact to

the urban environment and the cost. Thus, there are viaduct like elevated sections, a tunnel made by a tunnelling machine, cut and cover between diaphragm walls and a transition from elevated lines to underground ones and vice versa.

The scope of the feasibility study included, amongst other things, the design of the civil works needed for the underground line and the architecture of the stations, the power, security and communications services, the sizing of the treading material as well as the workshops and the train sheds and the definition of the management system for the selling of tickets. All the above was complemented by the required environmental studies and others of a more economic-financial nature and the construction schedule for the building of the underground line.

The possibility of the underground system being financed under PPP models was also considered.

Based on the results of these studies, Idom was commissioned with the detailed design of Phase 1 of the underground's Line 5, with a length of 8.9 km and 8 stations, 4 of which were transfer stations.

The scope of the detailed design included the preparation of the reference regulatory frame (Standard Frame), the environmental impact study for its approval by the environmental department of the Ho Chi Minh City Council and the preparation of the rehousing plan and the affected services report with the required field findings.

Additional specific studies were needed linked to the following specialities: travellers and traffic demands, geology and geotechnics, hydrology, topography, environment and third party conditions. The target perspective for the service start-up of Phase1 of Line 5 is the year 2022.

Idom was also commissioned with the feasibility study for the construction of Line 6, with a similar scope to that already described for Line 5.

IDOM STUDIED A TOTAL OF 33.6 KM OF LINE AND 32 STATIONS



The project for the extension of the Moscow Metro System was one of the most ambitious rapid transit extension projects in its day.

The works on a second ring track, of approximately 80 km, added around 160 km to the existing network, turning it into one of the most important networks in the world.

Idom, invited by BUSTREN, contributed with the production plan for the North-East branch, one of the sections into which the project has been divided. The commissioned scope included the engineering of 7.7 km of tunnels plus the architecture and structure of 3 stations.

FUNCTIONS

- Production information
- Urban integration

CLIENT
Bustren

LOCATION
Moscow

COST
924 M€

DURATION
2014 - 2015

LINE KM
7.7 km

No. OF STATIONS
3

SÃO PAULO METRO SYSTEM





With a population of over twenty million, Sao Paulo has a 74.3 km metro system with 64 stations that dates back to 1974. Following its ongoing expansion process, over 100 km are planned and being built.

The 17.6 km long 17-Ouro line, presently under construction, with a clear integrating approach, will connect Congonhas Airport with underground lines L1-Azul, L5-Lilas and L4-Amarela and the CPTM railway network through Line 9-Esmeralda. The first stage, the priority, is Congonhas Airport – Morumbi (CPTM).

The construction of this new line – the second of this type in the city – has the peculiarity of being an elevated monorail line, which allows for quick planning and execution when compared with metro systems. Amongst other reasons, it minimizes expropriations and affected services.

The system involves electrically powered trains with pneumatic lift, gliding along a beam with side tyres that offer support and guidance. The new line 17 will have an estimated demand of 20,000 passengers per hour each way.

Idom is developing the construction project and the construction stage technical coordination for four stations and the line's railyard and workshops. Over a 60,000 m2 plot, the railyard project, due to its complexity, is unique. It is raised two levels over a lamination pool of city avenues.

FUNCTIONS

- Detailed engineering
- Urban integration
- Construction stage technical coordination

In association with Engevix (1/3) and Concremat (1/3)

CLIENT
Metro do São Paulo

LOCATION
Sao Paulo

COST
500 Me

DURATION
2013 - 2016

LINE KM
17.6 km

No. OF PASSENGERS PER YEAR
84 million

No. OF STATIONS
4

ISTANBUL METRO SYSTEM



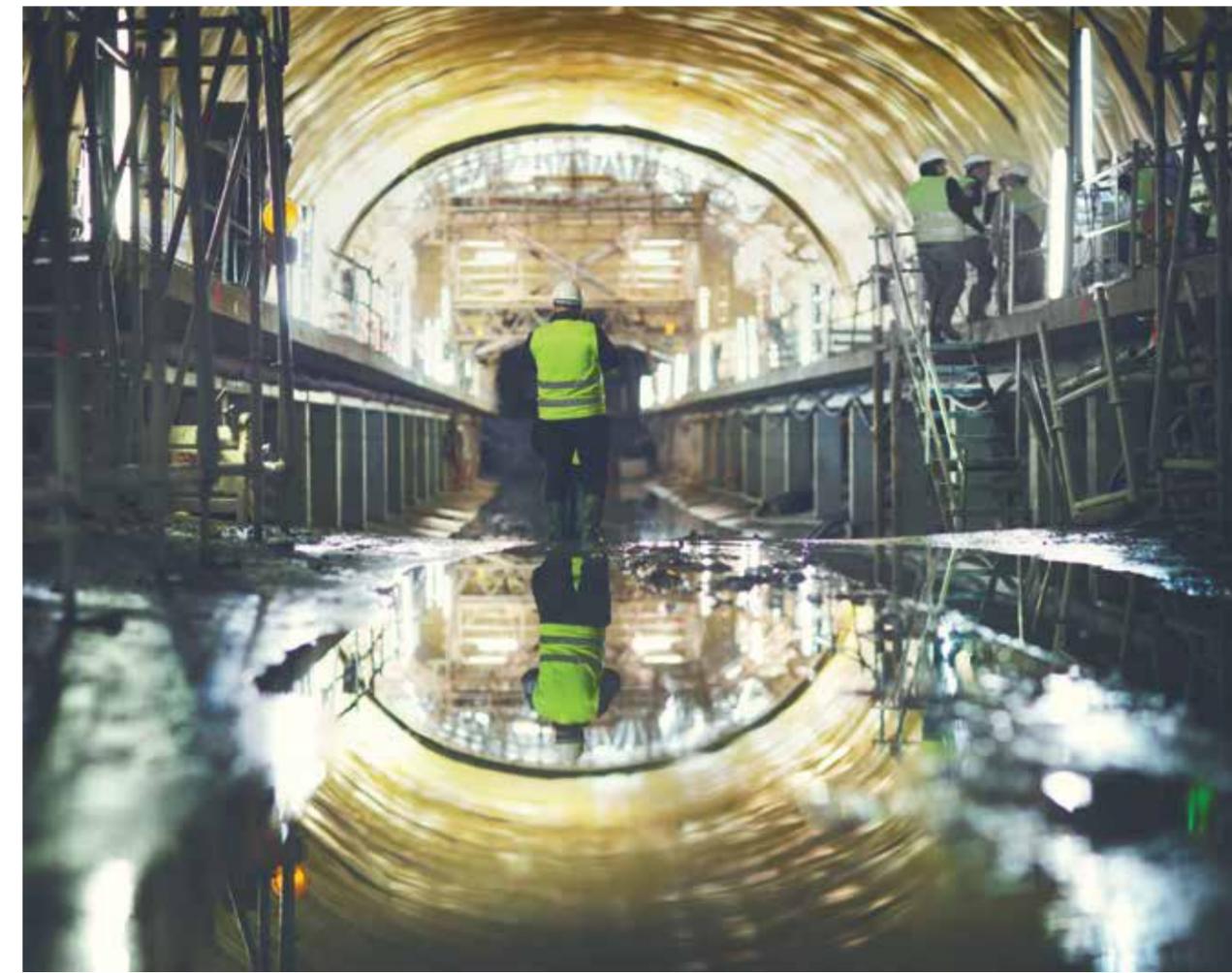
A keystone of the Turkish economy and the most populated city in Europe, Istanbul, with a population of over 14 million, had over 11 million tourists in 2014.

In order to satisfy the needs of massive transport, the city has an metro system since 1989 which has undergone extension works to reach its current day size. Presently, three lines are being built on the Asian side of the city and four on the European.

One of the lines being designed will run under the city from South to North, and towards the third airport, from Vezneciler to Sultangazi, along 17 km, with a total of

15 stations and passing under the district of the famous Fatih mosque.

The scope of the work, including the 15 stations and the depot, includes among other things the preparation of an alternatives study, a route and transport study, the geotechnics research, the feasibility study, the structural and architectural projects, the electromechanical projects and the tendering documents.



17 UNDERGROUND KILOMETERS AND 15 NEW STATIONS FOR A NEW LINE THAT WILL TRAVEL ALONG THE CITY FROM SOUTH TO NORTH PASSING UNDER THE FAMOUS FATIH MOSQUE DISTRICT

CLIENT
IBB; ISTANBUL BÜYÜK EHİR BELEDİYESİ
(Istanbul City Council)

LOCATION
Istanbul

COST
700 Me

DURATION
2014 - 2016

LINE KM
17 km

No. OF PASSENGERS PER YEAR
40 million

No. OF STATIONS
15

METRO SYSTEMS



15

🌐 COUNTRIES

17

📍 CITIES

📍 X METRO SYSTEM PROJECTS

📍 OTHER TRANSPORT PROJECTS



222

📍 STATIONS

250

📍 KM OF RAPID TRANSIT SYSTEM

39

📍 METRO SYSTEMS

PROJECTS SCOPE TABLE

PROJECT

PROJECT		SCALE INDICATORS					TENDER DESIGN AND PROCESS				SITE SUPERVISION		
		Extension of Existing Line	New Line	Route Km	Nb. of Stations	Viaduct Stations	Transport Hubs	Feasibility and Demand Studies	Detailed Design	Production Information	Tendering documents	Project Management	Site Supervision
RIYADH METRO SYSTEM, Red Line	ARABIA	●	●	41.2	22	●	●	●	●				
ALGIERS, Line 1	ALGERIA	●		6.1	6	●	●		●				
HO CHI MINH CITY, Line 5	VIETNAM		●	23.5	26	●	●						
HANOI, Line 3	VIETNAM		●	12.5	8	●				●			
SEVILLE, Line 3	SPAIN		●	13.3	19		●	●					
HO CHI MINH CITY, Line 6	VIETNAM		●	7.0	6	●	●						
BARCELONA, Line 5	SPAIN	●			3		●	●					
BARCELONA, Can Peixanet Station, Line 9	SPAIN	●			1		●	●			●		
PORTO, Line C	PORTUGAL	●		13.0	7		●	●					
SANTIAGO DE CHILE, Line 6	CHILE		●	15.8	10		●	●	●	●	●		
BOGOTA, Line 1	COLOMBIA		●	26.4	28		●	●	●				
SAO PAULO, Line 17	BRAZIL		●		18	●	●	●			●		
SANTIAGO DE CHILE, Lines 6 and 3 systems	CHILE		●	37.4	28		●	●				●	
MOSCOW	RUSSIA		●	7.7	3			●	●				
BARCELONA, Line 12	SPAIN		●	16.0	12								
ISTANBUL	TURKEY		●	17.0	15		●	●	●				
BARCELONA, Line 2	SPAIN	●		6.3	6			●					
SEVILLE, Line 1	SPAIN	●		3.3	5				●				

PROJECT

PROJECT	SPECIALIZATION AREAS													
	Specific Studies	Architecture of Stations	Urban blending / Landscaping	Route, Track	Electrification	Environmental Impact	Safety & Signalling	Public Information Campaigns	Telecommunications	Operative Studies	Workshops and Sheds	Treading Material	Signage	UTO Systems
RIYADH METRO SYSTEM, Red Line	●	●	●	●							●		●	
ALGIERS, Line 1		●	●					●						●
HO CHI MINH CITY, Line 5		●	●	●	●	●	●		●	●	●	●		
HANOI, Line 3	●	●	●	●	●	●	●	●	●	●	●	●		
SEVILLE, Line 3	●	●		●	●	●	●		●	●				●
HO CHI MINH CITY, Line 6		●	●	●	●	●	●		●	●	●	●		●
BARCELONA, Line 5		●	●											
BARCELONA, Can Peixanet Station, Line 9	●	●	●											●
PORTO, Line C	●	●	●						●					
SANTIAGO DE CHILE, Line 6		●	●										●	●
BOGOTA, Line 1		●	●	●	●		●		●		●	●		●
SAO PAULO, Line 17		●	●							●				
SANTIAGO DE CHILE, Lines 6 and 3 systems	●			●	●		●		●					●
MOSCOW		●	●											
BARCELONA, Line 12														
ISTANBUL	●	●	●	●	●	●	●	●	●	●	●			●
BARCELONA, Line 2					●	●	●				●			
SEVILLE, Line 1	●	●		●	●	●	●		●	●				

TRAMWAY NETWORKS

TROLLEYBUS OF CASTELLON

CARRERA 80 IN COLOMBIA

CONSTANTINE TRAM, ALGERIA

BARCELONA TRAM

FOUR RIVERS TRAM IN ECUADOR

TRAM SHEDS IN VITORIA

SKOPJE TRAM IN MACEDONIA

SEVILLE TRAM

AYACUCHO TRAM IN COLOMBIA

LUND TRAM IN SWEDEN

MURCIA TRAM

LUAS TRAM IN DUBLIN



Barcelona Tram

TRAMWAYS

Urban Integration

- Masterplan
- Mobility studies
- Landscaping
- Stations - stops
- Synthesis with other transport modes

Workshops and Sheds

- Operational analysis
- Layout
- Architectural design
- Treading material requirements

Electrification

- Life cycle costs
- Overhead power cable, low visual impact design
- Electrical simulations
- Efficient energy design

Communications

- Interface management
- Smart transport
- Control centre
- Visual information

Safety and Signalling

- Traffic analysis
- Ram studies
- Journey time estimation

Layout

- Tracks
- Vibrations studies
- Acoustics
- Environmental impact

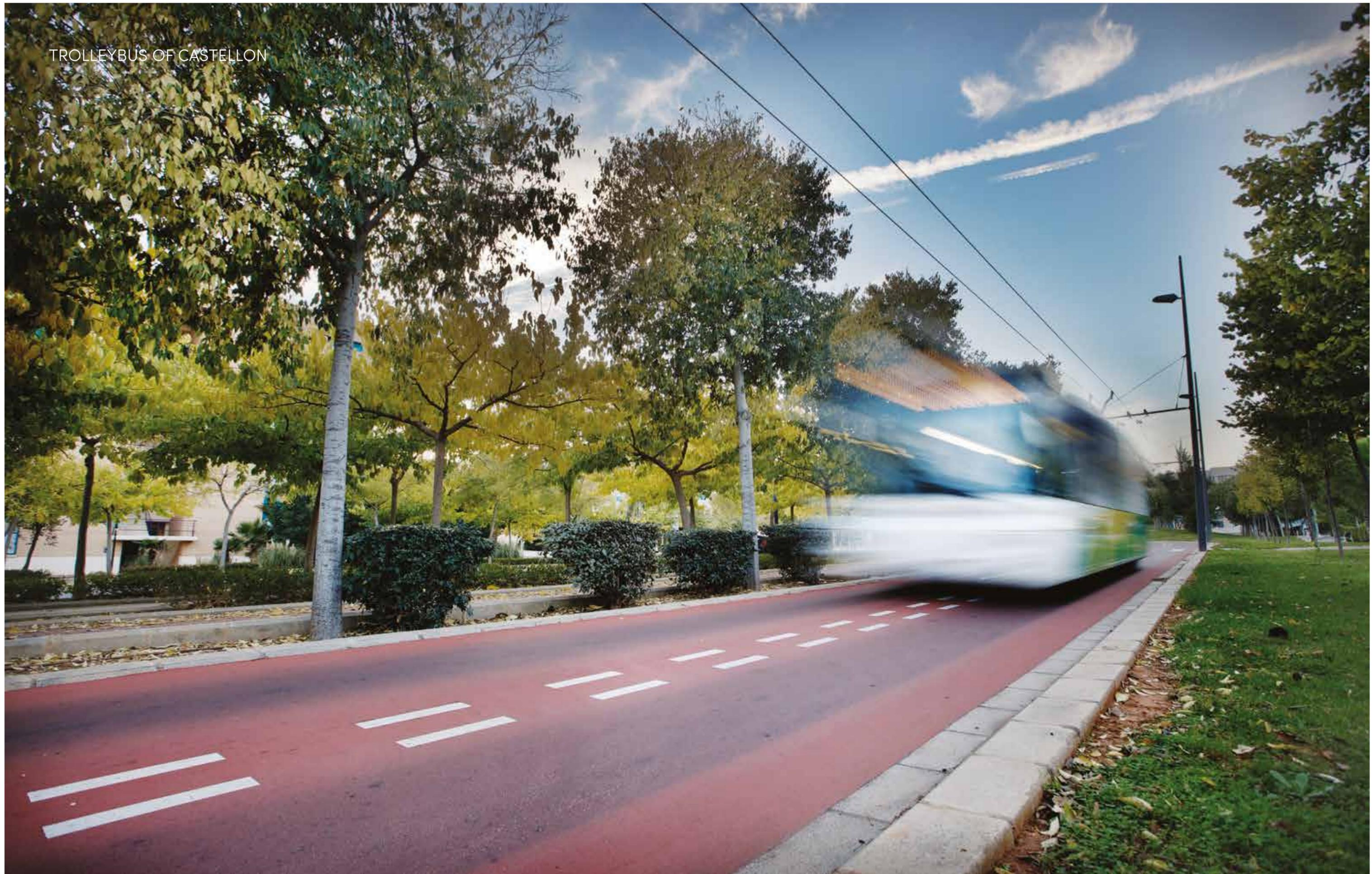


Seville Tram



Murcia Tram

TROLLEYBUS OF CASTELLON





The area in which the intervention took place includes the towns of Castellon, Villareal and Almassora, in the province of Castellon. The intervention ran through urban area as well as through unplanned development sites.

The new transport system consists of a platform reserved exclusively for public transport and destined for electricity driven vehicles, powered by overhead power cables with pneumatic treading elements. The reserved platform is conceived as a two way one, built with a rigid bed and stops every 400-500 m.

The system has traffic light preference at same level crossings, as well as an optical guiding system based on the reading of horizontal signs on the pavement by means of a camera on board the vehicle.

During the work, the following jobs were carried out:

+ Informative study, including demand study, mobility patterns between the considered towns, alternative routes study, singular structures, encouragement of intermodality with the ADIF stations both in Castellon and in Almassora, exploitation parameters, Planning impact, multi-criteria evaluation of the best alternative, description of the chosen option and economic evaluation and improvements of the journey times, comparing the present situation with the hypothesis of implementing the transport system on a reserved railway.

FUNCTIONS

- Alternatives/informative studies
- Environmental impact study
- Landscaping
- Acoustic study
- Patrimonial study

CLIENT	Energy agency of Valencia
LOCATION	Castellon
COST	42 M€
LINE KM	35 km
YEAR	2010-2011
No. OF PASSENGERS PER YEAR	4 million

CARRERA 80 IN COLOMBIA



In the mobility Master Plan (2006-2020), Metro of Medellin, the massive transport company from the Aburra Valley (Colombia), identified the green corridors as the perfect way to extend the underground network. The Carrera 80 tram corridor came about as a transport system to amplify the coverage of the metro system, to cover the demands of the passengers and at the same time, offer improved accessibility.

It is a conventional tram, 1435 mm wide, with a 750 Vdc power source, 14.2 km long and 19 stops.

Along its route, the tram occupies the central axis of the street, with two lanes on either side and pavements over 4 m wide. What makes the tram special is that it has three hubs that connect with the metro system and another three that connect with the bus network.

The project included the design of the workshops and sheds as well as the civil works, driving system, signage, communications and treading material specifications, amongst other things.

FUNCTIONS

- Track layout, stations design, signage, communications, power supply, workshops and patios.
- The urban integration of the project is also designed.
- Workshops and Sheds projects.



CLIENT
Massive Transport Company of the
Aburra Valley Ltd (ETMVA)

LOCATION
Medellin

COST
465 M€

LINE KM
14.2 km

YEAR
2010-2011

No. OF DAILY PASSENGERS
9,000-15,000 passengers / rush hour

CONSTANTINE TRAM





THE CONSTANTINE TRAM INTRODUCES AVANT-GARDE TECHNOLOGY IN AN URBAN MESH OF GREAT HISTORICAL VALUE

Supporting the tram as a means of public transport capable of renovating both the urban configuration and the way in which people move, intends to connect the Wilaya complex (Constantine, Zouaghi, Ali-Mendjeli and El Khroub) with a million inhabitants and contribute to the transformation of the historical city of Constantine, with its privileged natural location, its bridges and its heritage, into an international cultural reference.

The extension of line 1 of the Constantine tram is a structuring project for the Wilaya complex of Constantine. Idom has been involved with the project preparation and the construction stage technical coordination of two sections of double tramway. The first one (9.7 km and 11 stops) departs from the multimodal station of Zouaghi and connects the city of Constantine with the new urban development of Ali-Mendjeli, which has a population of 200,000 and two universities. The second stretch (2.8 km and 4 stops) links the Zouaghi station with the airport of Constantine, old and new terminals.

The commission includes all the disciplines involved in tramway projects: civil works and platform, urbanization, tracks, electrification, signalling and systems. The spirit of the project also includes the foresight of future extensions and the different possible exploitation schemes in its development in stages.

On the Ali-Mendjeli esplanade a boulevard and an urban park are planned that should enhance liveliness and become an area for recreation, with a great festive and landscape appeal. It will be a great urban park for citizens to enjoy and a green lung in a lineal axis almost a kilometre long.

The great slope in the 50 m width of the boulevard characterizes the project, giving way to wave-shaped platforms that are held back by white stone walls. Each one of these platforms seeks the appeal of a function for the recreation of the citizens: infants playing area, sports, tram arrival square, fountains area, sitting areas, landscaped gardens...



FUNCTIONS

- Route projects
- Construction
- Installation
- Site supervision technical input
- Urban project
- Landscape project
- Urbanization project

CLIENT
EMA, Entreprise Métro d'Alger

LOCATION
Constantine, Algeria

COST
340 M€

LINE KM
12.5 km

YEAR
2012-2016

No. OF PASSENGERS PER YEAR
60 million

BARCELONA TRAM





The concession project, called Tramvia Baix Llobregat included the finance study, the construction and the exploitation of a 14 km long tram line with two branches in order to connect Francesc Macia Square in Barcelona with several towns in the Baix Llobregat region.

11 million passengers a year were hoped to be gained as well as increasing and improving the integration with the urban public transport system thanks to connections with the rest of the public transport system (Barcelona underground, buses and railways)

The management, the design, the finance, the construction and operation of the project is the responsibility of the concessionaire company Tramvia Metropolitana.

FUNCTIONS

- Project and concession model supervision
- Site supervision
- Exploitation follow-up

ONE OF THE PIONEERS IN SPAIN UNDER THE CONCESSION MODEL

Idom developed its work in three phases:

PHASE A PRIOR TO THE FINANCIAL SETTLEMENT

- + Review of the contract documents: conditions, tender, concession contract, contracts between the concessionaire and the construction and the operation consortiums.
- + Analysis of the planning and the budget taking into account the risks of no compliance.
- + Review of the executive construction projects and the exploitation project.
- + Analysis of the permits, licenses affected services and expropriations situation.

PHASE B CONSTRUCTION

- + Tracking of the construction process with a monthly report on the main problems encountered onsite, with an evaluation of the advance of the certifications and a biannual report analysing in detail all the construction process.

PHASE C OPERATION

- + Follow up during the first two years of exploitation, evaluating the objective transported passengers and the fulfilment of the exploitation indicators.

CLIENT Tramvia Metropolitana, S.A.	LINE KM 14 km
LOCATION Barcelona	YEAR 2001-2004
COST 205 M€	No. OF PASSENGERS PER YEAR 11 million

FOUR RIVERS TRAM IN ECUADOR

The Four Rivers Tram constitutes the core axis of the transport system integrated in the city of Cuenca, UNESCO World Heritage Site.

There are 10.5 km of double tracks, with a total 20 stops each way, set approximately every 400 metres. The tram foresaw, during its first year, carrying 120,000 passengers out of the 400,000 that use public transport on a daily basis. The commercial speed was designed to be 20 km/h with a total journey time of 35 minutes, needing 14 tramcars.

The project blends in with the urban surroundings in keeping with the local architecture, thanks to green tracks and extending the pedestrian areas in the old quarters.

In the centre, it uses a system without the overhead power cable. The electrical power of the other sections is provided through a 750 V aerial cable, making it necessary to have six substations (five along the line and another in the workshop).



The latest technology was used for the track and tram signalling, communications, safety, etc. An integrated control centre was to be located in the yards and the workshops.

For the maintenance of the tramcars, a workshop in the tram shed was considered. It would have five maintenance tracks, 32 metres long, and a storage capacity of 20 units. The architecture of the building imitates that of the surroundings by using similar finishings and supporting a green roof.

FUNCTIONS

- Feasibility studies
- Planification studies
- Scheme / detailed designs
- Concession / tendering stage
- Project management / property engineering
- Exploitation and maintenance plans
- Workshops and sheds projects

CLIENT
Euskal Trenbide Sarea / Decentralised Municipal Government of Cuenca

LOCATION
Cuenca, Ecuador

COST
232 M€

LINE KM
10.5 km

YEAR
2011-2012

No. OF PASSENGERS PER YEAR
43.8 million

VITORIA TRAM SHEDS



The design of the building, agreed upon by the ETS (Euskal Trenbide Sarea) and EUSKOTREN, was understood as an opportunity to bring architecture to a purely rail infrastructure building. It was located in a residential area, next to the city's green ring, a natural area that oxygenates the daily life of the Vitoria-Gasteiz citizen. This urban peculiarity made the external image of the building gain a significant importance, for on the one hand the building had to be useful and fulfil its function and on the other, we thought that its visual impact should not, under any circumstance, be a threat to the domestic and agreeable character of its surrounding neighbourhood.

For this reason we decided to alter the normal warehouse design as if it were a metamorphosis. The building's envelope would reinterpret a known geometry, but with a somewhat different language this time. The different parts of the building were broken up transversally with the idea of gaining uninterrupted sunlight between façades and the roof. In turn, successive light arches would decompose the mass of the warehouse, putting forward a new perception of it both from the inside and the outside.

The site on which the workshops and the sheds are built is located within a plot in the Lakua neighbourhood, on the west side of the city.

The needs programme was outlined in its basic features by ETS (Euskal Trenbide Sarea and EUSKOTREN), definitively taking shape as Idom prepared the different construction

stages. This project is framed by a superior one which entailed the whole infrastructure of the first tram branch that the city was going to go through with (tracks, diversions, substations, etc)

Aligned with normal practices, the site supervision was carried out by ETS and Idom took care of the technical coordination for the developer.

FUNCTIONS

- Architecture and engineering projects
- Construction stage technical coordination
- Track infrastructure

CLIENT
ETS - Euskal Trenbide Sarea

LOCATION
Vitoria, Alava

COST
100 M€ the entire project

YEAR
2004-2008

AREA
6,724 m²

SKOPJE TRAM IN MACEDONIA



In the image:
Sanchinarro Metro, Madrid

In November 2008, the city of Skopje commissioned Idom with the supervision of the detailed design of its tramway project. It included civil work, traction systems, signalling, communications, control post and mobile material specifications.

FUNCTIONS

- Project management
- Property engineering

CLIENT
City of Skopje

LOCATION
Skopje, Macedonia

COST
111 M€

LINE KM
7 km

YEAR
2009

SEVILLE TRAM





In the sphere of the construction project of the Aljarafe Tram, in the Coria – Mairena stretch, the urban integration and landscape design of the tracks affected by the tram's layout was developed. Idom was responsible for the in keeping, the architecture of the stops and the adaptation of the underpasses.

A complex integration proposal was established, in accordance with the different natures of the different tracks that join together in that stretch. The intervention followed the idea of achieving an adequate insertion of the overhead cables and wires within the existing mesh. A single solution was put forward for the whole route which would highlight the image of the new transport system making it easily recognizable and identifiable, both for its direct components and those others that indirectly make up the image of the set: paving, street furniture...

FUNCTIONS

- Comprehensive restructuring of public areas, architecture and engineering projects
- Stops and site supervision

URBAN INTEGRATION AND LANDSCAPING IN THE ANDALUSIAN CAPITAL

CLIENT
Public Works Agency for the
Regional Government of
Andalusia

LOCATION
Seville

COST
33 M€

YEAR
2007-2008

LINE KM
11 km



In the mobility Master Plan (2006-2020), Metro of Medellin, the massive transport company from the Aburra Valley in Colombia (ETMVA), identified the green corridors for transport for the extension of the underground network. The green corridor of the Ayacucho tram came about as a transport system to extend the coverage of the underground system, to cover the demands of the passengers and at the same time, offer improved accessibility.

The work entailed the preparation of the detailed engineering design studies.

Due to topographical problems in the area where the corridor was to be built and the insertion difficulties with around 12% slopes, a guided system with pneumatic wheels was chosen.

The corridor has a 750 V dc power source, three electrical substations, a length of 4.5 km and nine stations.

This project includes civil works, energy supply, signage and treading material specifications, command post and communications. The different systems designed are: the tickets system, the control system access, the surveillance system, the loudspeaker systems, the SAEIV system, the SIGF system, the SLT system, the detection system, the chronometry and the GTC-GTE fire system.

FUNCTIONS

- Urban integration
- Engineering of public works, power, signalling and control post.
- Detailing of control centre

CLIENT
Massive Transport Company of the Aburra Valley

LOCATION
Ayacucho

COST
120 M€

YEAR
2004-2008

LINE KM
4.5 km



Since 1999, the Swedish city of Lund (with a population of 115,000) has had a strategic plan to gradually reduce the use of private vehicles in favour of public and sustainable transport.

The first achievement of this plan was the creation in 2003 of a bus system (called Lundalåken) that carries nearly 7,000 daily passengers to the main work and study areas.

The Council decided to build a tramway that would connect the city centre, of medieval origin, with the northeast area, where the main research and educational centres are located, as well as the public natural parks.

As a first stage for this tram, Idom carried out the infrastructure studies for the 5 km line, including the urban integration, rails, power, overhead power line and communication and signalling systems.

Along most of its layout, the tramway runs on a reserved track – independent from road traffic, bicycles and pedestrians –, over grass on many strips and surrounded by trees, with modern road safety systems and an illumination that helps structure the city.

FUNCTIONS

- Preliminary design
- Public works, power and systems

CLIENT
Lunds Kommun

LOCATION
Lund, Sweden

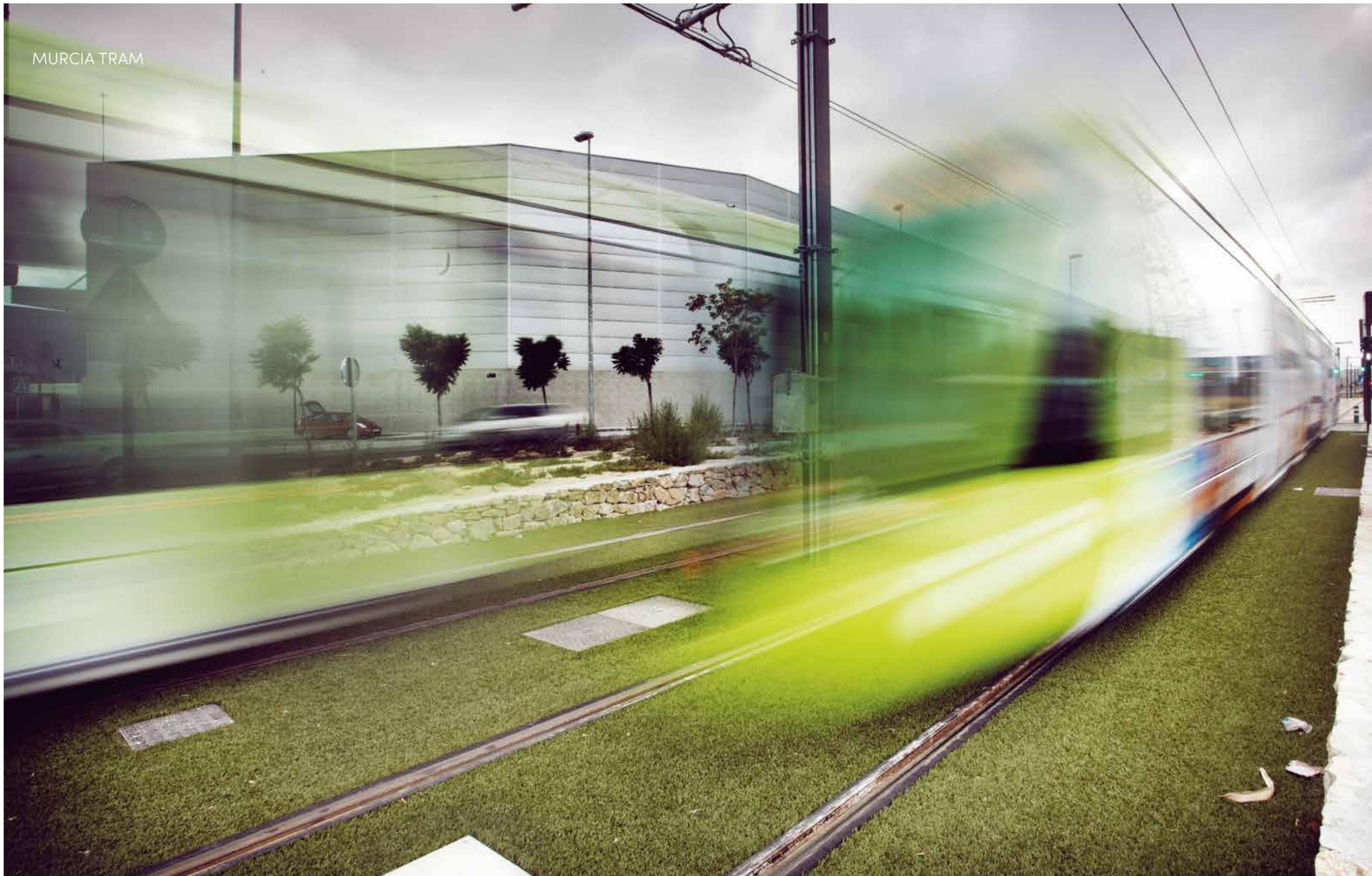
COST
33 M€

YEAR
2013-2014

LINE KM
5.9 km

No. OF DAILY PASSENGERS
10,000 passengers year 2020
20,000 passengers year 2030

MURCIA TRAM





IMPROVING MOBILITY IN ONE OF THE LARGEST CITIES IN SPAIN

The work carried out entailed from the construction management through to all the jobs related with quality control, projects supervision, budget control and planning for the laying of 16 km of double tracks for the tram and its coexistence with an experimental 2 km long section built in 2007. It includes civil works as well as the overhead power cable and power source and the integration of all systems, and the workshops and sheds, located on a 22,000 m² plot.

It is a 1,435 mm wide standard tram, running on 750 V dc, which has to deal with a 6% slope. The average speed is 21 km/h and it serves 34,000 passengers a day.

FUNCTIONS

- Project management
- Property engineering
- Site supervision
- Service start-up
- Workshops and sheds

AS WELL AS THE 16 KM OF TRAMWAY, THE PROJECT INCLUDES THE WORKSHOPS AND SHEDS

CLIENT
Murcia Tram Concessionaire
Society

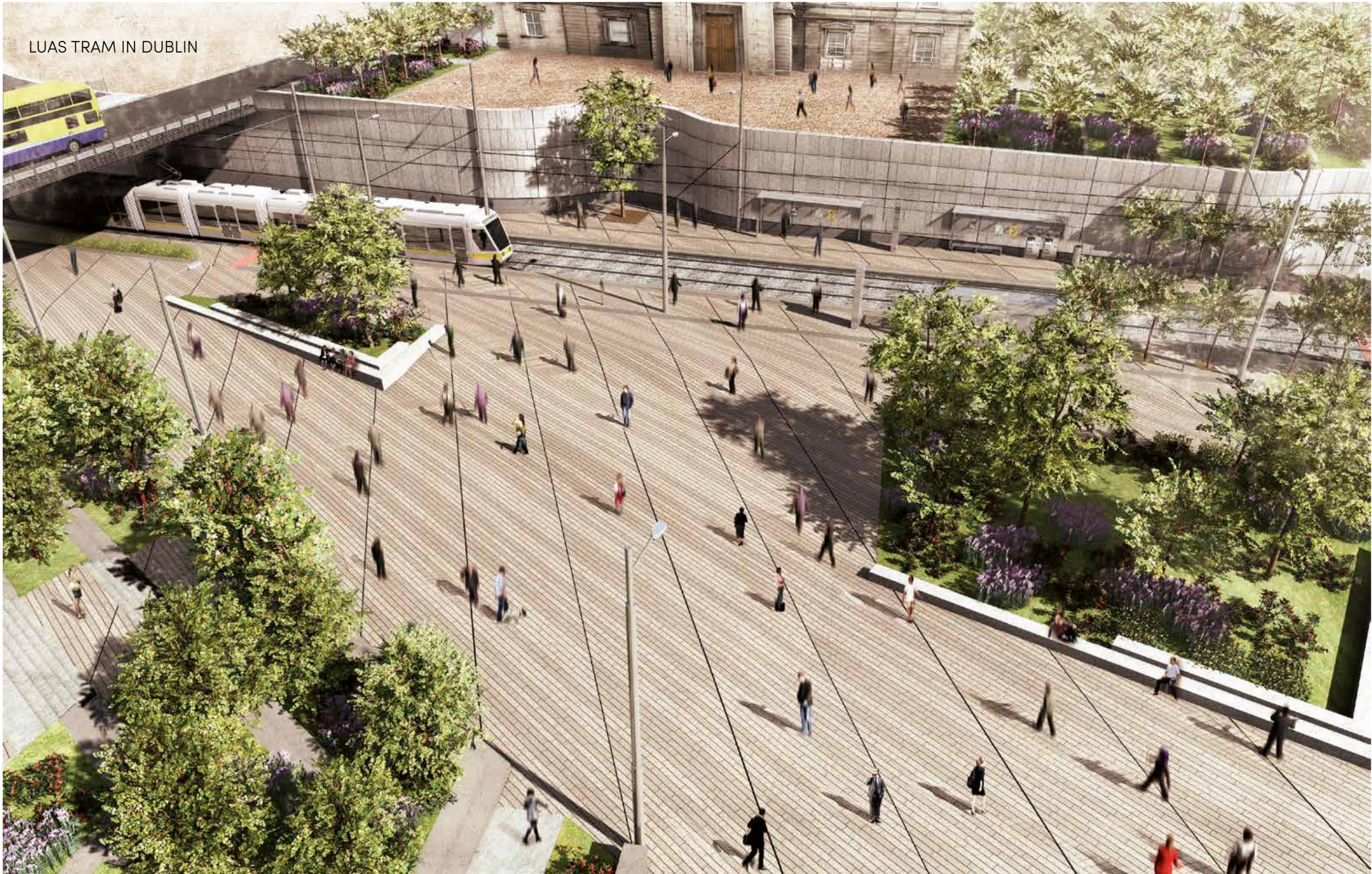
LOCATION
Murcia

COST
232 M€

YEAR
2009-2011

LINE KM
16 km

LUAS TRAM IN DUBLIN





Idom has prepared design proposals for the new LUAS cross city, an extension to the Green line tram in Dublin. The design is a double track alignment, 5.6 km long with a width of 1,435 mm. running from the from stop at St. Stephen's Green in the Centre of the city to Broadstone, opposite the bus depot. From Broadstone until the end of the line, the track will run along the old railway cutting.

This new line will have 14 stops, depot building, and offices which will be completely integrated into the different urban environments.

The design proposal includes a geometric definition of the alignment in urban areas and cuttings, keeping the disruption of the Red line, already in operation, to a minimum during construction. Another challenge resolved in the proposal was the design and remodelling under the existing bridges and walls of the old rail embankment dating back some 200 years.

The stops are integrated into the urban environments by adapting the configuration of all the furniture elements and the materials used to the characteristic of the location. Power supply for the 750 Vdc line will come from the existing substations and two new substations located near Broadstone and in the Broombridge depot. Idom have also provided a concept design for the new Depot building which will provide an additional repair and maintenance facility for the tram system. This functional building is architecturally integrated into the environment and is inspired by the industrial landscape of the surrounding areas and the form of the tram car. The building has two maintenance tracks, office, and car parking.

FUNCTIONS

- Route and public works
- Urban integration
- Workshops and sheds

A 5 KM LONG LINE CROSSING THE CENTRE OF DUBLIN

CLIENT
OHL (Obrascon Huarte Lain)

LOCATION
Dublin

YEAR
2014

LINE KM
5.6 km

TRAMWAY NETWORKS

13

🌐 COUNTRIES

37

📍 CITIES

📍 X TRAMWAY NETWORK PROJECTS

📍 OTHER TRANSPORT PROJECTS

553

📏 KM OF TRAMWAY NETWORK



PROJECTS SCOPE TABLE

PROJECT

PROJECT		SCALE INDICATORS	TENDER DESIGN AND PROCESS				SITE SUPERVISION			
		Total Route Km	Feasibility and Demand Studies	Detailed Design	Production Information	Tendering document	Project Management	Site Supervision	Follow-up and Start-up	Audit
LRT Río de Janeiro	BRAZIL		●			●				●
Lund	SWEDEN	5.9	●							
Barceloa. Trambaix	SPAIN	14.0					●		●	●
Skopke	MACEDONIA	7.0		●						●
Madrid. Section 1	SPAIN	2.5	●	●	●					
Cuenca	ECUADOR	10.5	●	●		●	●			
Medellin. Ayacucho	COLOMBIA	14.2	●	●	●	●				
Carstellón BRT	SPAIN	35.0	●	●	●	●	●	●		
Constantine. Line 1	ALGERIA	12.5	●	●	●	●				
Side Bel Abbes. Line 1	ALGERIA	17.8				●				
Tianjin. Binhai	CHINA	35.0					●	●		●
Arad	ROMANIA	16.0	●	●	●					
Barcelona. Trambesós	SPAIN						●		●	●
Murcia	SPAIN	16.0					●	●	●	●
Seville. Metrocentro	SPAIN	11.0				●		●	●	
Aljarafe. Coira - Mairena	SPAIN	10.2			●	●	●	●		
Medellín. Carrera 80	COLOMBIA	4.5			●		●			
Bilbao Tram	SPAIN	6.5	●	●	●					
Vitoria	SPAIN	9.7	●	●	●					
Zaragoza. Line 1	SPAIN	12.8				●			●	●
Granada. Metropolitan	SPAIN	3.4		●	●	●				
Tenerife. Santa Cruz Tram	SPAIN	35.7	●	●	●	●				
Vigo	SPAIN	15.6	●	●	●	●				
Chiclana - Cádiz. Line 1	SPAIN	4.2			●					
Madrid. Parla	SPAIN	8.5		●		●				
LUAS Tramway-Dublin	IRELAND	5.6		●						
Ubeda - Baeza	SPAIN	26.0	●	●						
Odense	DENMARK									
El Caudal. Train - Tram	SPAIN	41.0	●	●	●	●				

PROJECT

PROJECT	SPECIALIZATION AREAS												
	Specific Studies	Landscaping and Urban blending	Architecture	Track, Noises and Vibrations	Electrification	Environmental Impact	Safety & Signalling	Telecommunications	Operational Studies	Workshops and Sheds	Treading Material	Public Information Campaign	Financial Studies
LRT Río de Janeiro					●								
Lund	●	●			●		●	●					
Barceloa. Trambaix		●		●	●		●	●	●	●	●		
Skopke	●	●		●	●		●	●	●	●	●		
Madrid. Section 1	●			●									
Cuenca	●	●		●	●		●	●	●	●	●		
Medellín. Ayacucho	●	●	●	●	●		●	●	●	●	●		
Carstellón BRT	●	●	●	●	●	●	●		●	●	●		
Constantine. Line 1	●	●	●	●	●		●	●	●	●	●		
Side Bel Abbes. Line 1	●												
Tianjin. Binhai					●			●					
Arad	●			●	●		●	●					
Barcelona. Trambesós		●		●	●		●	●	●	●	●		
Murcia		●		●	●		●	●	●	●	●		
Seville. Metrocentro		●		●	●		●	●	●	●	●		
Aljarafe. Coira - Mairena		●		●	●	●	●	●					
Medellín. Carrera 80	●	●	●	●	●		●	●	●	●	●		
Bilbao Tram	●	●		●	●	●	●	●	●		●		
Vitoria	●	●		●	●	●	●	●	●	●			
Zaragoza. Line 1		●	●	●	●	●	●	●	●	●	●		
Granada. Metropolitan		●	●	●	●	●	●	●	●		●		
Tenerife. Santa Cruz Tram		●	●	●	●	●	●	●	●	●	●		
Vigo		●	●	●	●	●	●	●	●	●	●		
Chiclana - Cádiz. Line 1		●	●	●	●	●	●						
Madrid. Parla		●	●	●	●	●	●	●					
LUAS Tramway-Dublin		●	●	●	●		●			●			
Ubeda - Baeza	●	●	●	●	●	●	●	●	●	●			
Odense	●												
El Caudal. Train - Tram	●	●	●	●	●	●	●	●		●			

STATIONS / TRANSPORT HUBS

JOAQUIN SOROLLA STATION

EXTENSION OF ATOCHA STATION

LEZAMA STATION

HIGH SPEED STATION POLAND

SAN CRISTOBAL INTERMODAL STATION

HIGH SPEED STATION BRAZIL

ATOTXA INTERMODAL STATION

PAMPLONA COACH STATION

HIGH SPEED TARRAGONA

AIN NAADJA TRANSPORT HUB IN ALGERIA

CALATAYUD COACH STATION

URBAN INTEGRATION OF THE HIGH SPEED

LINE IN VALLADOLID



STATIONS / TRANSPORT HUBS

Urban Integration

- Mobility studies
- Urban planning
- Macro and micro simulations
- Connection with other means of transport

Operation

- Demand studies
- Functional study
- Complementary activities business model
- Passengers' flow simulation
- Security/Access control

Architecture

- Landscape design
- Sustainability
- Illumination
- Wayfinding
- Comfort/acoustic protection

Public Works

- Viaducts / tunnels
- Construction processes
- Special structures
- Building

Communications

- Chronometry
- Information systems
- Security
- Control centres
- Signalling

Trackbed

- Provisional situations
- Overhead power cable
- Layout
- Shunting yard and platforms

JOAQUIN SOROLLA STATION





Joaquin Sorolla Station in Valencia arose as a provisional solution for the high speed rail, while the underground railway works were being finished. However, it ended up being permanent. Idom took care of the architecture and the engineering projects as well as the construction stage technical coordination.

Four decisions marked the project's 13,000 m2: dry joint construction, detachable structure, recyclable zinc and an envelope made out of polycarbonate.

The idea was simple: the roof over the platforms is prolonged and raised to protect the concourse. The result is quite pragmatic: a terminus station with a building at its head. The architecture is legible: folded longitudinal bands.

A naturally well lit and ventilated interior that reduces the need for HVAC. A neutral exterior lit up at night. And two scales: the platform, where the train and the passenger interchange and the foyer, where the traveller and the city come together.

The structure alternates modules with columns and ones without it that rely on the previous ones. The modular idea goes beyond its construction function to become the image of the station.

Its construction essence is repetitive and systematic. Its structural proposal has personality and character. Each year, around 5,800,000 passengers go through Joaquin Sorolla station.

A PROVISIONAL STATION THAT BECAME PERMANENT

FUNCTIONS

- Architecture and engineering projects
- Site supervision

CLIENT	Ministry of Public Works
LOCATION	Valencia
COST	36 M€
YEAR	2008 - 2010
AREA	13,000 m ²
No. OF PASSENGERS PER YEAR	5.8 M passengers
TRANSFER STATIONS	3 connecting with other lines or means of transport

EXTENSION OF ATOCHA STATION



The approach of this study went beyond the simple extension of the High Speed Terminal in Atocha, focusing also on the new possibilities that arose in the city as a consequence of the intervention in Madrid's main intermodal hub.

The detailed design included a proposal that, through complex town planning operations, made the most of the potential of the area and eased the economic viability of the intervention. During this stage, it was necessary to meet up with different public bodies and to coordinate with other city projects in the area.

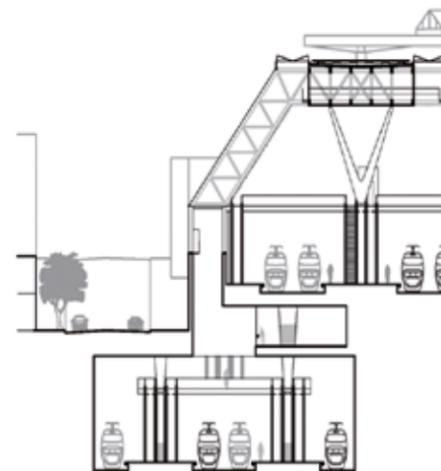
The new Railway Complex would have two foyers. The existing departures lounge would be refurbished and extended and a new one, for arrivals, towards the South, over the short distance railway tracks. The intervention also included the building of a four platform passing station under Mendez Alvaro Street and the first platform of the existing Puerta de Atocha station. Although it is an underground station, its design allows for natural ventilation and sunlight.

The project included the use of construction methods and construction stages that allowed for the station (High Speed Rail, long and short distance rail) and urban services to run uninterrupted.

The Railway Complex was complemented by an extension of the short distance railway station, the building of a large car park, the construction of new access roads and junctions that connect with the city, arrivals areas, taxi stands, etc. and the renovation of the urban surroundings.

FUNCTIONS

- Demand studies
- Traffic studies
- Detailed design
- Urban planning
- PPP model preparation



CLIENT	Ministry of Public Works
LOCATION	Madrid
COST	450 M€
YEAR	2002 - 2007
AREA	365,721 m ²
No. OF PASSENGERS PER YEAR	70 million
ASSOCIATED USES	Shopping Centre Hotel Business Centre

LEZAMA STATION



This work was framed by the Improvement Plan put forward by the Department of Transport and Public Works of the Basque Regional Government for the accesses to Bilbao. The new station was built over the planned central platform, allowing for a quick and direct access to the track areas. The upper level houses the different uses: ticket office, kiosk, changing room and foyer. The station itself covers the platform area sheltering it from the rain.

FUNCTIONS

- Architecture and engineering projects
- Site supervision



CLIENT	Basque Regional Government
LOCATION	Lezama
COST	0.9 M€
YEAR	1993 - 1994
AREA	480 m ²

HIGH SPEED STATION IN POLAND





The Polish national train company (PKP) selected Idom for the design of a new high speed rail station, a park & ride for 650 vehicles and a regional control centre in Nowe Skalmierzyce, in the centre of the country. The project, with a budget of 3.8 M€, was part of a larger plan for the creation of a high speed rail network in the country, with a total investment of 7,500 M€.

The 21,500 m² building envelope is made out of a translucent material that blurs the boundaries between the interior and exterior.

FUNCTIONS

- Architectural design
- Railway infrastructure

The design strategy, elaborated in collaboration with BPK Poznan, combined the three main functions: the station, the control centre and the car park in a single, compact volume, reducing its environmental impact in the surrounding woodland.

THE STATION, THE CONTROL CENTRE AND THE CAR PARK ARE GROUPED TOGETHER IN THE SAME TRANSLUCENT VOLUME

CLIENT
Plskie Linie Kolejowe S.A.

LOCATION
Poland

COST
3.8 Me

YEAR
2010 - 2013

AREA
21,500 m²

No. OF PASSENGERS PER YEAR
5 million

NEW SAN CRISTOBAL INTERMODAL STATION



The intermodal complex of San Cristobal includes the High Speed Station, a 40 bay coach station and an ADIF office building. Additionally, projects for other uses such as a hotel, a shopping and leisure centre and an office block will also be developed.

The project, carried out in collaboration with Cesar Portela, includes the planning of the urban surroundings to ease pedestrian access as well as its integration with the city roads and the future tramway.

Volume planning makes the central space available for the rail activity and concentrates the rest of complementary uses on the fringe of the intervention so that not only are there new urban spaces on the perimeter, but these also regenerate an area deteriorated by the barrier that the rail tracks represented.

The project also includes the restructuring of the shunting yard to adapt it to the High Speed requirements. To this purpose, Idom has carried out Rail Consultancy studies with the idea of analysing the capacity of the infrastructure in the different exploitation scenarios and the different construction phases that allow for the service to run uninterrupted.

Studies have been carried out to determine the needs for hotels, shops and offices as complementary uses to the railway, which would allow private capital to enter the investment, thus reducing the public expenditure. For this reason, Idom elaborated a business plan that eases decision taking when faced with investments to be made, taking into account the market analysis, operation, profitability, etc.

FUNCTIONS

- Architecture and engineering projects
- Urban project
- Business model

CLIENT
ADIF

LOCATION
A Coruña

COST
130 Me

YEAR
2011

AREA
107,200 m²

No. OF PASSENGERS PER YEAR
5.8 million

ASSOCIATED USES
Shopping Centre
Offices
Hotel

HIGH SPEED IN BRAZIL



of the high-speed railway, putting forward alternatives for the operation and exploitation of the new line. The Spanish-Brazilian consortium has worked combining Idom's experience in high-speed rail and Wilhelm's team's local knowledge of Brazil.

The encountered problems have been varied, including great stations in urban environments working as immense inter-modal hubs, like in Rio de Janeiro or Sao Paulo, and stations in smaller cities such as Barra Mansa or Volta Redonda. The blending in with the city and the future accessibility and transport needs have been considered, resulting in monographic reports for each station which include solutions, alternatives to the previous design and next steps in the development of the High-Speed Project.

FUNCTIONS

- Master plan
- Urban integration
- Traffic studies
- Railway layout improvements
- Functional study of stations

The government of Brazil is developing the country's first High-Speed railway, transforming surface transport which, up until now, has been done almost entirely by road.

The work carried out by Idom, together with Jorge Wilhelm's architecture and town planning studio, has entailed the urban planning and functional studies of eight high-speed railway stations in Brazil, based on a previous study developed by Halcrow.

Idom, based on data such as the number of passenger, has analysed the railway functional design and made suggestions for the improvement of the railway layout near the stations, of the sheds and maintenance yards

CLIENT
Terrestrial Transport National
Agency

LOCATION
Rio de Janeiro & Sao Paulo

YEAR
2011-2012

AREA
161 km²

No. OF STATIONS
8

ATOTXA INTERMODAL STATION





The proposal was conditioned by the inexistence of space for the new station and its access roads in a consolidated urban setting. The new foyer is located above the tracks, looking towards the city over the river and turning into an urban landmark. A projection over the street which protects the taxi stand, solves the connection with the future coach station and car park, constituting an intermodal centre in which there are other uses such as retailing, hotels and restaurants.

The elevated position of the vestibule allows for the dynamic interior flows of a building destined for the interchange of passengers to be seen from the street. A direct visual link is established between the moving trains, the escalators towards the platforms, the lifts that connect with the car park or the vehicles under the foyer, which eases the orientation of the customer.

The proposal incorporated the creation of an elevated public space, as a station access square, towards which all flows are directed and from which the first glimpse of the city would be offered when arriving or the last before departing, thanks to the exceptional views of the expansion district of San Sebastián.

As well as developing the detailed design of the station, all the railway scope of the intervention was defined: rail platform, superstructure, electrification, signalling and communications.

FUNCTIONS

- Scheme design
- Detailed design
- Market research

THE PROPOSAL CREATES AN ELEVATED PUBLIC PLAZA OVERLOOKING THE CITY

CLIENT	ADIF	YEAR	2011
LOCATION	San Sebastián	AREA	9,012 m ²
COST	81.6 M€	ASSOCIATED USES	Hotel
		No. OF PASSENGERS PER YEAR	3,200,000 just high speed

PAMPLONA COACH STATION





The new Coach Station of Pamplona, completely underground, is located next to Pamplona's citadel, a great defensive Renaissance fortification. The station has, on a first floor, circular bays for up to 28 coaches, a depot for another 24 coaches, a waiting area, ticket offices, a shopping area with 25 retail units of different sizes, restaurants, offices, services, etc and, on a second floor, a car park for 598 cars for residents, subscribers and the general public.

Due to its proximity to the citadel, the project included the archaeological recuperation of part of the remains by consolidating the ruins of Santa Lucia's Ravelin and its surrounding moat and the reconstruction of the green area that once surrounded it.

The only element visible from the outside is the entrance, made of glass on a single storey and 100 m long.

Idom carried out the site supervision and adapted technically and aesthetically the original project, written up by architects Manuel Blasco, Luis Tabuenca and Manuel Sagastume.

FUNCTIONS

- Production information
- Site supervision

CLIENT
Pamplona City Council

LOCATION
Pamplona

COST
38.6 M€

YEAR
2005-2007

AREA
42,000 m²

THE PROJECT INCLUDED THE LANDSCAPE AND
ARCHAEOLOGICAL RECUPERATION OF THE
CITADEL'S SURROUNDINGS



The new Central Station is located where the Mediterranean corridor meets the High Speed Madrid-Barcelona-French border line. It's between the cities of Tarragona and Reus, southwards from the airport.

The project intended to generate a unique and categorical building which, based on the track bed and acting as a bridge, would serve as a hub for all the means of transport that access the station. This idea was reinforced with the creation of a great reference roof, which extends from the platforms to the concourse and the vehicle access area, accompanying the travellers on their way and generating three great welcoming areas: one for the trains, another for travellers and another for vehicles.

The station is considered as a prominent element over the pronounced linearity of the track bed, located on an embankment around 5m high, in a very flat, open rural environment. The roof is built with Warren type flat triangular latticework, which sets the geometrical laws to articulate a roof topography used as a territory landmark.

The bends in the structure intend to mark the entrances and support the flow direction of travellers inside the station so that both aspects are noticeable from the access road when approaching the building and from the platforms.

The project enhances the orientation of passengers on their way through the station and the visual connections between the platforms, the concourse and the arrivals area.

Apart from the station, Idom developed the railway projects (tracks, overhead power cable, communications, etc.) and the access roads projects.

FUNCTIONS

- Functional plan and conceptual project
- Production information
- Rail infrastructure projects

CLIENT
Ministry of Public Works

LOCATION
Tarragona

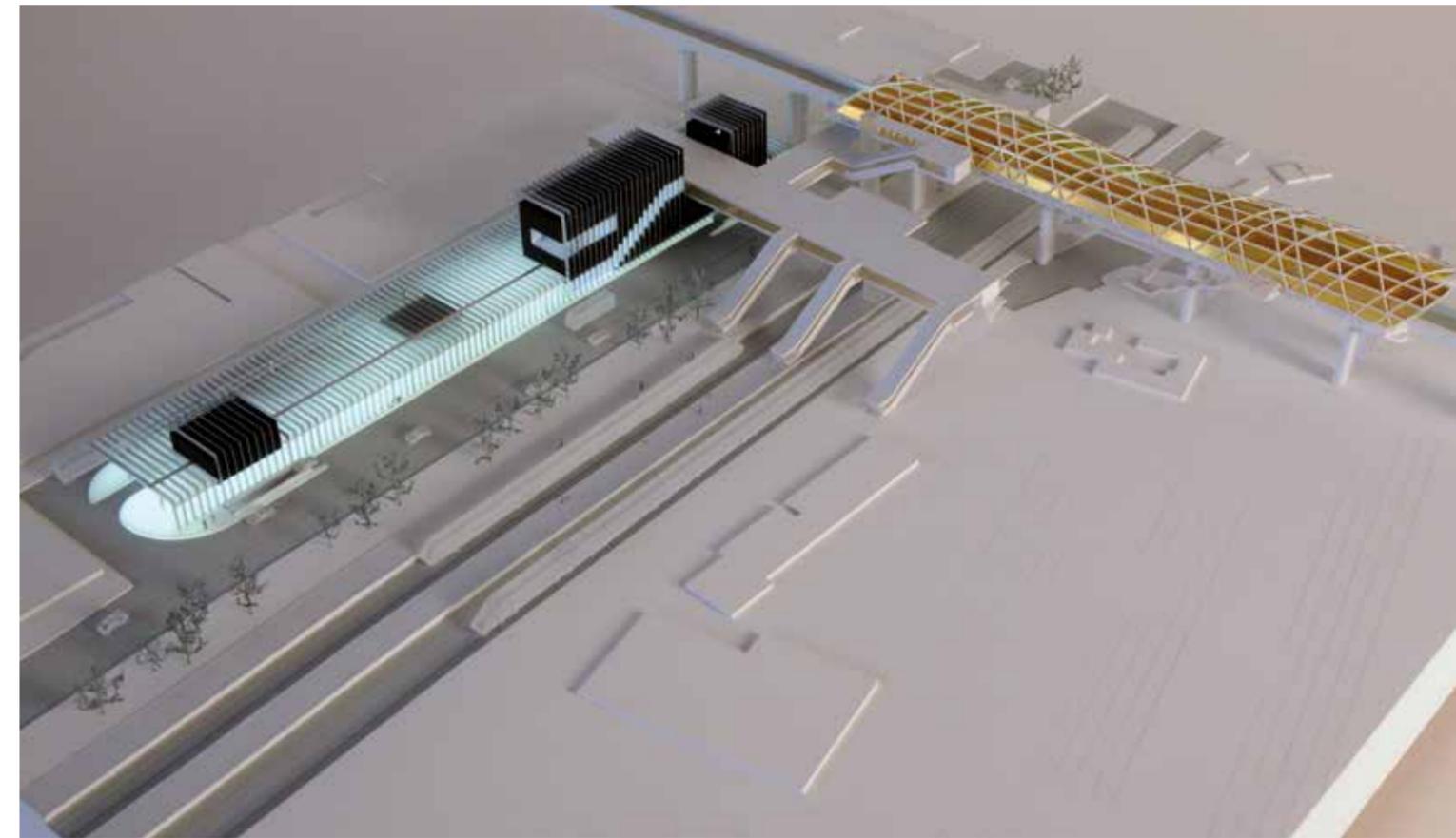
COST
55,400,000€

YEAR
2009

AREA
7,500 m²

No. OF PASSENGERS PER YEAR
4.2 million

AIN NAADJA TRANSPORT HUB
IN ALGERIA



Special attention was paid to the structuring of traffic around the building, in order to make transfers as swift and safe as possible.

So, the Ain Naadja hub will be a building capable of bringing together in one single location the underground, the railway, the buses and coaches, taxis, private vehicles and, of course, the people.

Idom carried out the work to define the routes, the public works, the architecture and urban integration and the demand and exploitation studies.

FUNCTIONS

- Preliminary studies
- Detailed design
- Urban integration

CLIENT
Entreprise Metro D'Alger

LOCATION
Algiers, Algeria

COST
45,000,000€

YEAR
2014

AREA
27,000 m²

No. OF PASSENGERS PER YEAR
11 million

The new Ain Naadja transport hub is part of the Line 1 extension project for the Algiers Underground that will connect the districts of Ain Naadja and Baraki. Part of this extension runs over a viaduct that overcomes the river and the floodable area of the valley of Oued El Harrach.

The hub will be located where the underground meets the SNTF (Société Nationale des Transports Ferroviaires) railway tracks, next to the Ain Naadja railway station. The Route Nationale N38, a road offering rapid connections between

the most important districts in the area, also runs alongside the tracks.

Ain Naadja Gare station will be a great transport hub linking railway and underground services. It will also have a coach station as well as bus stops. Beneath the complex, a car park for 500 vehicles is to be built. The building consists of a great canopy supported by metal ribs which shelters the different means of transport while at the same time adequately orientating the traveller.

CALATAYUD COACH STATION

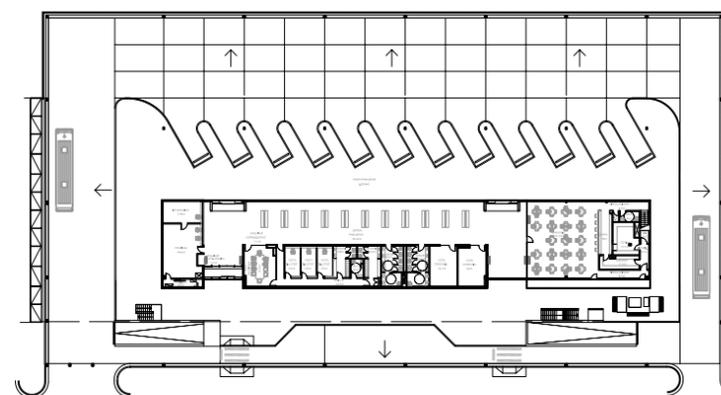




The station consists of a large canopy, measuring approximately 3,500 m², covering the platforms and parking bays and an enclosed area of 900 m² in which the waiting room, lockers and other station functions are located. The project also included a 1,200 m² underground car park and the urban development of the plot (4,900 m²), including the roads leading to the station and several pedestrian areas. To make it easy for users to get around the bus station, its different uses are grouped together in colour-coded operating modules.

FUNCTIONS

- Architecture and engineering projects
- Site supervision



THE STATION IS CONCEIVED AS A GREAT CANOPY THAT SHELTERS FUNCTIONAL MODULES

CLIENT
General Council of Aragon

LOCATION
Calatayud

COST
3.6 Me

YEAR
2005 - 2009

AREA
5,400 m²



URBAN INTEGRATION OF THE HIGH SPEED LINE



The city of Valladolid has an important urban barrier that affects its future growth. That is, the railway as it goes through the city. The arrival of the new high-speed rail and the foreseeable elimination of this barrier represent a great opportunity to develop an ambitious urban project that will bring value to the freed land and revitalize large areas of the city.

Idom was commissioned to undertake the feasibility studies, the urban consulting and the investment models for the urban development of the freed areas resulting from the elimination of the railway barrier in the centre and the south end of the city, a total of 80 Ha.

The generation of new green areas has been suggested, as well as the building of residential areas with retail uses and

leisure and shopping centres next to new recreational areas. At the same time, the study analysed the impact on the traffic and the mobility around the city of the new expansion area along with the building of new communication routes (a central boulevard), new North-South connection axes, etc.

From a railway point of view, the study included different alternatives for the elimination of the tracks on its way through the city. These included the moving of the railway underground and the creation of a by-pass for freight trains and non-stopping passenger trains. The viability of erecting an intermodal station that would bring together the different transport methods and improve the city and regional connections was also intended to be analysed. Lastly, the study considered the

most efficient financial and management models from an institutional and business point of view.

Afterwards, the public company Valladolid High Speed 2003 commissioned the Idom-Richard Rogers consortium to develop the Development Plan of the New Area of centrality. It included residential developments (more than 5,500 houses), tertiary development (120,000 m²) as well as green areas and social and cultural resources (235,000 m²).

The work also included the urban fitting of the new intermodal station, the moving of the old coach station and the creation of a new road and transport network that improved the city's articulation.

FUNCTIONS

- Master plan
- Urban integration
- Public works, tracks and systems
- Financial studies
- Environmental impact
- Traffic studies
- Alternative railway layout study

CLIENT
Valladolid High Speed

LOCATION
Valladolid

YEAR
2004-2009

AREA
80 Ha

STATIONS/ TRANSPORT HUBS



-  STATIONS / TRANSPORT HUBS PROJECTS
-  OTHER TRANSPORT PROJECTS



OVER
120 MILLION PASSENGERS

OVER
120 MILLION PASSENGERS

PROJECTS SCOPE TABLE

PROJECT		SCALE INDICATORS						TENDER DESIGN AND PROCESS				
		Extension of the existing station	New Station	Millions of passengers / year	No. of platforms	Consolidated urban surroundings	Modal hub	Complementary Uses (Hotel, Retail, etc)	Feasibility and demand studies	Detailed Design	Production Information	Tendering Documents
MADRID, Atocha Station	SPAIN	●		70	16	●	●	●	●	●		
VALENCIA, Joaquín Sorolla Station	SPAIN		●	5.8	5	●	●		●	●	●	●
NOWE SKALMIERZYCE, High Speed Station	POLAND		●				●			●		
A CORUÑA, Intermodal Station	SPAIN	●		5.8	5	●	●	●	●	●	●	
RIO, SAO PAULO, High Speed Station	BRAZIL		●			●	●		●			
TARRAGONA, High Speed Station	SPAIN		●	4.2	4				●	●	●	
SAN SEBASTIÁN, Atotxa Station	SPAIN	●		3.2	3	●	●	●	●			
VALLADOLID, High Speed Blending	SPAIN					●			●			
BURGOS, High Speed Station	SPAIN		●									
PAMPLONA, Coach Station	SPAIN		●				●		●	●		
PUENTE GENIL, High Speed Station	SPAIN		●									
CALATAYUD, Coach Station	SPAIN	●						●				
BOBADILLA, High Speed Station	SPAIN		●						●	●		
BARCELONA, Gracia Station	SPAIN	●						●				
ALGIERS, Ain Naadj Transport Hub	ALGERIA	●		11			●		●			

PROJECT	SITE SUPERVISION				SPECIALIZATION AREAS												
	Project Management	Site Supervision	Follow-up and Start-up	Audit	Specific Studies	Architecture of Stations	Landscaping and Urban blending	Railway yard layout	Electrification	Environmental Impact	Safety & Signage	Public Information Campaigns	Telecommunications	Operational Studies	Financial studies (profitability, PPT, etc)	Traffic Studies	Flow simulations
MADRID, Atocha Station					●	●	●	●	●	●	●		●	●	●	●	●
VALENCIA, Joaquín Sorolla Station		●	●			●	●	●	●	●	●		●			●	●
NOWE SKALMIERZYCE, High Speed Station						●	●	●									
A CORUÑA, Intermodal Station		●				●	●	●	●	●	●		●	●	●		
RIO, SAO PAULO, High Speed Station					●		●	●		●					●	●	
TARRAGONA, High Speed Station						●	●	●	●	●	●		●		●		
SAN SEBASTIÁN, Atotxa Station						●	●	●	●	●	●		●		●		
VALLADOLID, High Speed Blending					●		●			●					●	●	
BURGOS, High Speed Station		●	●														
PAMPLONA, Coach Station	●	●	●			●	●									●	
PUENTE GENIL, High Speed Station		●	●														
CALATAYUD, Coach Station						●	●										
BOBADILLA, High Speed Station		●	●														
BARCELONA, Gracia Station		●	●														
Ain Naadj Transport Hub						●	●	●					●				

RAILWAY NETWORKS

CHILEAN RAILWAY NETWORK
SANTIAGO - RANCAGUA

RAILWAY LINE LAS PALMAS

MEXICO - PUEBLA INTER-CITY TRAIN

WORKSHOPS AND SHEDS IN LEBARIO

HIGH SPEED IN POLAND

HIGH SPEED LALÍN - SANTIAGO

HIGH SPEED MADRID - EXTREMADURA



INTER-CITY AND LONG DISTANCE RAILWAY NETWORKS

Railway Engineering

- Commuter train networks
- High speed
- Rail freight
- Modernization

Feasibility Studies

- Master plan
- Mobility studies
- Strategy consulting
- Financial studies

Territory Planning

- Territorial planning of transport
- Alternatives analysis
- Informative studies

Environment

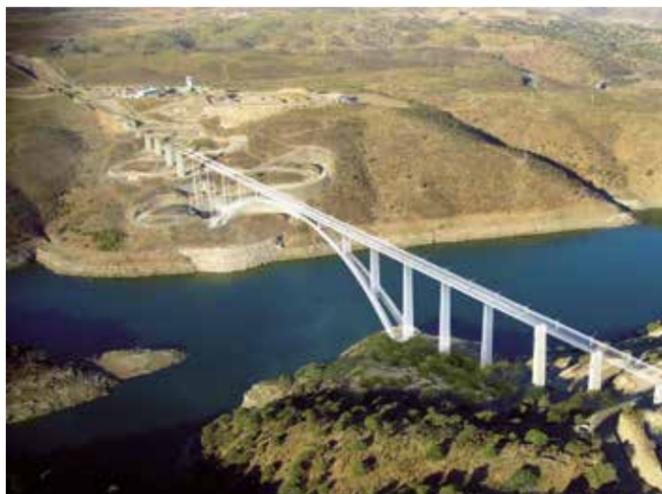
- Environmental impact
- Acoustics
- Landscape integration

Public Works

- Tunnels
- Viaducts
- Platform

Systems

- Electrification
- Control centres
- Signalling
- Communication
- Security



High speed in Spain



Workshops in Chile

CHILEAN RAILWAY NETWORK
SANTIAGO - RANCAGUA





FUNCTIONS

- Detailed designs
- Scheme designs
- Layout projects
- Construction
- Site supervision

CLIENT
State Railway Company (EFE)

LOCATION
Santiago de Chile

COST
213.5 M€

YEAR
2012 - 2013

No. OF STATIONS
10

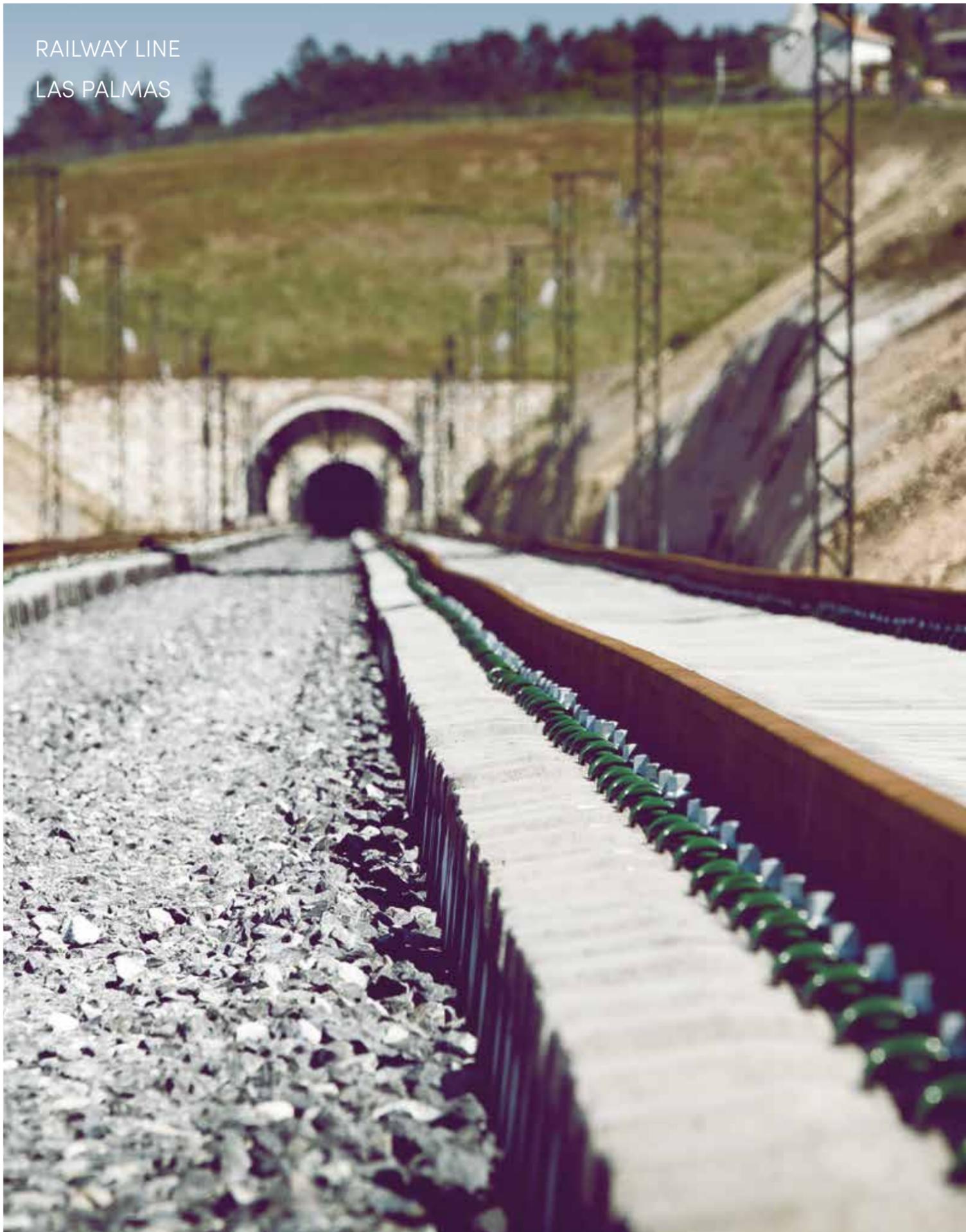
The project was part of the Investments Program, which in turn was part of the 2011 – 2013 Triennial Plan of the State Railway Company. Its main goal was to invest in infrastructures which would improve the coverage, the capacity and the reliability of the trains.

For this purpose, a \$ 260M investment was assigned, a part of which would be used to purchase 13 state of the art trains.

The multi-million investment also aimed at enhancing the safety of trains. Every year, around 60 people die at level crossings on the railway between Santiago and Rancagua.

The scope of the commissioned work included the basic engineering and the detailed design of the new shunting yards, the civil works, ten stations and other railway systems on the Santiago – Rancagua line. Idom produced all the documents for the different tendering packets of the whole intervention.

RAILWAY LINE
LAS PALMAS



The Council of Gran Canaria is developing an island railway that will connect Las Palmas de Gran Canaria with Maspalomas. It's a key infrastructure for the economic and social growth of the island.

With this scenario, it commissioned Idom to develop the project for the track bed of a 15.4 km long double track stretch between Barranco de Guayadeque and El Berriel. This stretch runs entirely above ground and has four viaducts that account for 2.51 km.

Furthermore, Idom developed the detailed design and the production information for a comprehensive workshop which would shelter the first and second level maintenance duties of the units, the maintenance of the fixed equipment and the railroad yard.

In addition to the workshop, a building will be erected which will house the Gran Canaria Railway Management, a crisis room and engineering and commercial areas. For this reason, the project intends to give the facilities a presentative image.

FUNCTIONS

- Track bed project
- Workshops and sheds project
- Environmental impact study

**PROJECT FOR THE TRACK BED,
WORKSHOPS, SHEDS AND
MAINTENANCE AREAS**

CLIENT
Transports of Gran Canaria

145

LOCATION
Las Palmas

COST
79.1 M€

YEAR
2012 - 2014

LENGTH
15.45 km



INTER-CITY PASSENGER TRAIN
MEXICO-PUEBLA



1,970 m

VIADUCT LENGTH

215.8 km

TRACK LENGTH

52.45 km

TUNNEL LENGTH



The general objective of the pre-investment study is the evaluation of the technical, economic, legal and environmental feasibility of the massive transport project in its train form between Mexico and Puebla. The Communications and Transport Secretariat will then have the key elements to make a decision about the analysed infrastructure.

The planned line is an electrified double track 107.9 km long, divided into two zones: a first urban one, with a project speed of 160 km/h, and an inter-city second one, with a foreseeable 200 km/h speed.

Among the work carried out, the following activities were included:

- + Preliminary studies needed for the starting of the work such as land surveying and geotechnical studies.
- + Demand study, including O-D and D-P surveys, a simulation model, etc.
- + The proposal of financial and structuring alternatives of the business model that would allow for the viability of the project.
- + A legal, environmental, socio-economic and financial study of the project.

FUNCTIONS

- Feasibility studies
- Alternatives studies
- Informative studies
- Architectural scheme design for sheds and stations

STRUCTURES

- 3 TUNNELS**
- 6 VIADUCTS**
- 12 OVERPASSES**
- 9 UNDERPASSES**
- 4 RAILWAY STATIONS FOR PASSENGERS**

CLIENT
Communications and Transport Secretariat.
Directorate General of Multimodal and Railway Transport

LOCATION
Mexico DF

COST
2,534 M€

YEAR
2012 - 2013

AREA
60,200 m²

WORKSHOPS AND SHEDS IN LEBARIO



The project for the urbanization and the construction of a building and workshops in Lebario included:

- The definition of sewage, rainwater, industrial waste and soil pipes, from the warehouse, the building and the estate. It also covered the water treatment prior to its mixing with the drainage system and the reusing of rainwater for its use in the washing machines and the lavatory system.

- The estate and its gardening, which translated into a parking area and a perimeter road surrounding the warehouse.

- The definition of the structure of both the warehouse (steel) and the planned building (reinforced concrete). The warehouse was to rest on a slab that in turn rests upon a series of variable-length piles 85 cm in diameter. However, the building's foundations are shallow because the rock is almost on the surface.

- The workshops and sheds warehouse were divided into three parts, one being the sheds (which has 4 tracks), another, the washing and painting area (where there are two tracks – one for the washing machine and the adjoining one for the two painting cabins with their corresponding pits) and another, the workshop. The latter one has an inspection pit (with four tracks to the West and three to the East, and an underfloor wheel lathe) and a lifting area to the North (with four tracks, three bo-

gies maintenance pits, a bogies dynamic press, the underfloor wheel lathe pit with the shunting cars and nine bogie turners). An annex is also included for the washing and painting of bogies, a workshop area and a stockroom.

- The yard has a total of 16 tracks. Fourteen of these run into the workshop; one runs South and another runs parallel to the access road. An access track was also defined from the Traña-Lebario stretch to the traction power station (built by others) which was within the Lebario complex. The location and diversions needed are defined.

The electrification for the whole tracks yard and the inside of the workshop were also defined.

Annexed to the warehouse, a concrete building was built which has offices, laboratories, kitchen and dining room, changing rooms, data and railway traffic control room (control post) and stockroom and houses an electrical substation which powers the complex located on the ground floor.

The finishing of both the warehouse and the building was done with a metal façade and roof.

From the West side of the warehouse protrudes a gantry that connects with the overpass from the stop in the Traña-Lebario stretch.

FUNCTIONS

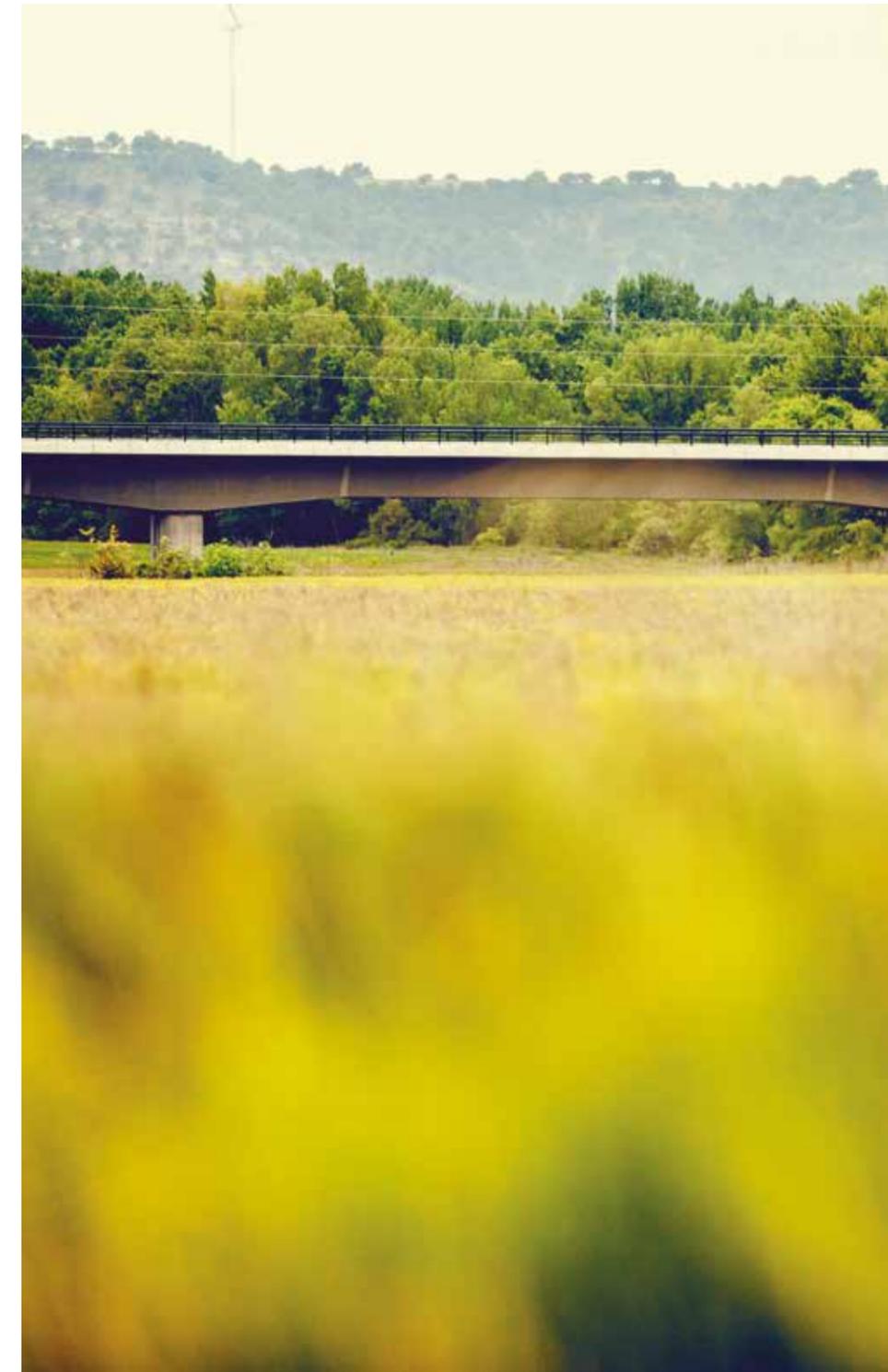
- Layout projects
- Production information for sheds
- Installation and site supervision

CLIENT
ETS - Euskal Trenbide Sarea

LOCATION
Bilbao

COST
32.3 M€

YEAR
2005 - 2008



The purpose of this Project was to define the viability of the first high speed railway in Poland, to which 10 million people have access and which connect the three main cities in the country: Warszawa – Lodz – Poznan/Wroclaw.

The line is 469 km long with characteristics compatible with speeds of up to 350 km/h and trains which set record journey times, ranging from 35 minutes for the Warsaw – Lodz to 95 for the Warsaw – Poznan or 100 minutes for the Warsaw – Wroclaw.

Of the total length of the railway, 14 km are run over viaducts and 10 km inside tunnels.

The study aimed to determine, among others, the following aspects: demand studies; basic definition of the line; modernization of the infrastructure; characteristics of the systems and the trading material and finance and management model of the infrastructure.

Furthermore, Idom carried out the layout, public works and environmental and urban integration works.

FUNCTIONS

- Feasibility studies
- Railway layout
- Systems
- Environmental impact

CLIENT
Polish Railway Infrastructure
Manager (PKP)

LOCATION
Warszawa - Lodz - Poznan/
Wroclaw

COST
5,19 M€

YEAR
2010 - 2013

LENGTH
469 km

**No. OF PASSENGERS
PER YEAR**
10 M

HIGH SPEED LALIN - SANTIAGO





It was a 43.7 km long track bed project that included a total of 13.2 and 9.7 km of tunnels (built following the New Austrian Method) and viaducts. It was designed following criteria that allows for speeds of up to 350 km/h.

The work carried out for the preparation of the project started with the Demand Analyses and the Multi-criteria Analyses for the selection of the best alternative and included the layout definition, the geology and geotechnics, the structures (viaducts, overpasses and underpasses) and tunnels, among others.

Afterwards, Idom were responsible of the site supervision and the quality and quantity surveying of the building works.

FUNCTIONS

- Feasibility studies
- Preliminary design
- Public works and infrastructure
- Site supervision

CLIENT
ADIF

LOCATION
Santiago de Compostela

COST
500 M€

YEAR
2003 - 2011

LENGTH
47 Km (10 viaducts and 18 tunnels)

No. OF PASSENGERS PER YEAR
10 M

HIGH SPEED
MADRID - EXTREMADURA



The High Speed line between Madrid and Extremadura crosses the Almonte River when it reaches the Alcantara dam thanks to the first arch-bridge in the world, with a 384 m span. This great arch constitutes the main stretch of a 996 m long viaduct, rising 80 m above the river water. The rest of the section is made up of 2 viaducts, 3 overpasses and one underpass. Drainage takes place through 7 drainage works, the biggest of which is made up of 2 4x3 frames.

FUNCTIONS

- Feasibility studies and preliminary design
- Public works and infrastructure
- Site supervision

CLIENT
Ministry of Public Works

LOCATION
Madrid- Extremadura

COST
106 M€

YEAR
2010 - 2012

LENGTH
6.3 km

RAILWAY NETWORKS



OVER

1,200

KM OF HIGH SPEED RAILWAYS

300

KM OF COMMUTER RAILWAYS

-  RAILWAY NETWORK PROJECTS
-  OTHER TRANSPORT PROJECTS



SITE SUPERVISION OF OVER

300

KM OF HIGH SPEED
RAIL LINES

50

COMMUTER RAILWAY
STATIONS

PROJECTS SCOPE TABLE

PROJECT

PROJECT		SCALE INDICATORS						TENDER DESIGN AND PROCESS			
		Existing Line Modernization	New Line	Total Route Km	Underground Route Km	No. of Stations	Modal transfer	Feasibility and demand studies	Detailed Design	Production Information	Tendering Documents
Santiago-Melipilla Railway Line	CHILE	●		60.8	0.0	10	●	●	●	●	
Inter-city Train Mexico DC - Puebla	MEXICO		●	108	52	4	●				
Santiago - Rancagua Railway Line	CHILE	●		81.8	0.0	19	●	●	●	●	
Gran Canaria Railway	SPAIN		●	15.0		4		●	●	●	
Warszawa-Lodz-Wroclaw High Speed Line	POLAND		●	469			●	●			
BioTrain Extension	CHILE	●		23.0	0.0	11	●	●	●		
Barcelona - Port Bou Line, section Vallbona - Montacada	SPAIN		●	5.2	5.2	1		●	●		
CR3 Marmaray Project, Istanbul	TURKEY	●		76.3		41					
Euskal Trenvide Sarea Sheds, Levario	SPAIN							●	●		
High Speed track bed project, Lalin-Santiago section	SPAIN		●	43.7	13.2		●	●	●		
Bilbao Metropolitan Train Service, Line 4	SPAIN		●	2.8	2.8	4	●	●			
Railway Line 2 in Sabadell	SPAIN		●	5.0	5.0	5			●		
Railway junction of Puerto de Seybaplaya and Uayamón station	MEXICO		●	10.7			●				
High Speed Line Madrid Extremadura	SPAIN		●	6.3			●	●	●		
Mediterranean Corridor High Speed Line. Section Villafranca-Olite-Tafalla	SPAIN		●	30	2.2				●		
High Speed line between Lisbon and Madrid. Section: Évora - Caia	PORTUGAL		●	100			●				
High Speed Line Tardienta-Huesca	SPAIN	●		25		1	●	●			
Suburban Railway system 3: Chalco-Santa Martha-Constitución 1917	MEXICO	●		23.4	3.6		●				
Mediterranean Corridor High Speed Line. Madrid-Barcelona-French border	SPAIN		●	29.6		1		●	●		
High Speed Access to Ávila	SPAIN		●	60			●				
High Speed Railway Node in Venta de Baños (Palencia)	SPAIN	●		24		1		●			

PROJECT

PROJECT	SITE SUPERVISION				SPECIALIZATION AREAS													
	Project Management	Site Supervision	Follow-up and Start-up	Audit	Specific Studies	Public Works (viaducts, tunnels, etc)	Architecture of Station	Landscaping and Urban blending	Tracks, Noises and Vibrations	Electrification	Environmental Impact	Safety & Signage	Telecommunications	Operational Studies	Workshops and Sheds	Treading Material	Financial Studies	
Santiago-Melipilla Railway Line						●	●	●	●	●	●	●	●	●	●			
Inter-city Train Mexico DC - Puebla					●	●	●			●	●	●	●	●	●	●	●	●
Santiago - Rancagua Railway Line		●				●	●	●	●	●	●	●	●	●	●			
Gran Canaria Railway						●		●	●	●	●	●	●		●			
Warszawa-Lodz-Wroclaw High Speed Line					●	●			●	●	●	●	●	●		●	●	
BioTrain Extension						●	●	●	●	●	●	●	●	●				
Barcelona - Port Bou Line, section Vallbona - Montacada						●	●		●	●	●							
CR3 Marmaray Project, Istanbul				●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Euskal Trenvide Sarea Sheds, Levario	●	●						●	●	●		●	●		●			
High Speed track bed project, Lalin-Santiago section			●	●		●	●		●		●							
Bilbao Metropolitan Train Service, Line 4						●	●		●		●			●				
Railway Line 2 in Sabadell							●		●		●							
Railway junction of Puerto de Seybaplaya and Uayamón station						●												●
High Speed Line Madrid Extremadura							●				●							
Mediterranean Corridor High Speed Line. Section Villafranca-Olite-Tafalla							●		●									
High Speed line between Lisbon and Madrid. Section: Évora - Caia						●	●		●	●	●	●	●	●				●
High Speed Line Tardienta-Huesca						●	●	●	●	●	●	●	●	●				
Suburban Railway system 3: Chalco-Santa Martha-Constitución 1917							●	●		●					●	●	●	
Mediterranean Corridor High Speed Line. Madrid-Barcelona-French border							●	●	●	●	●	●	●	●				
High Speed Access to Ávila							●		●	●		●	●		●			
High Speed Railway Node in Venta de Baños (Palencia)								●	●	●		●	●		●			

MOBILITY

MOTORWAY BETWEEN USA
AND CANADA
PRE-PYRENEAN TUNNELS
MOBILITY IN RIYADH
URBAN ROAD DESIGN
MOBILITY PLAN FOR TRUJILLO
COMPREHENSIVE PLAN OF
SUSTAINABLE URBAN MOBILITY
FOR LA PAZ

TERRITORIAL SCALE

USA. TRANSPORT SYSTEM IN CHARLESTON

With the idea of improving the communication between Summerville and Charleston, Idom carried out a mobility survey in the corridor that links both towns. Apart from the initial data gathering one, the survey required a detailed analysis and transport alternatives comparison: Bus Rapid Transit (BRT), Light Train Railway (LRT), High Occupancy Lanes (HOL), etc.

CLIENT
Berkeley Charleston
Dorchester Council
of Governments

YEAR
2013-2014

PERU. NEW TRANSPORT TECHNOLOGIES

Idom has collaborated in the operational improvement of the transport network through the implementation of advanced technologies and communication systems.

The development of the architecture and the master plan of the intelligent transportation systems (ITS) set the basis and nationwide reference frame for the implementation of ITS applications in Peru, as well as defining and establishing the associated programs and strategies.

CLIENT
Peruvian Ministry for Transport and Communications

YEAR
2013

INTER-CITY SCALE

PERU. CONSULTANCY EXPRESS ROADS CUZCO

A detailed analysis of the existing project for the Cuzco Express Road was carried out by Idom, paying special attention to the following aspects:

- Estimate of traffic and demand
- Urban integration
- Accessibility and socioeconomic impact
- Environment and costs

After this review, an alternative proposal was put forward. It intends to maximize the urban integration and the socioeconomic return. The alternative proposal includes a lane reserved for public transport.

CLIENT
World Bank \ Latin America
And Caribbean Region

YEAR
2013-2014

LAOS. SUSTAINABLE URBAN TRANSPORT SYSTEM IN VIENTIANE

The number of motor vehicles in the capital of Laos is growing rapidly and for some time now, there has been a need to create a Sustainable Transport System.

Idom has collaborated with that project by making suggestions to improve traffic management and its safety; to promote public transport and to increase the number of car parks in the city centre. The work was commissioned by the Asian Development Bank (ADB).

CLIENT
Asian Development
Bank -Adb

YEAR
2013

URBAN SCALE

PERU. MOBILITY PLAN FOR TRUJILLO

The work carried out by Idom has been focused on turning the city's Historical Centre – of great historical and cultural value – into a tourism development axis. It had a significant amount of traffic flowing through it and we proposed a series of measures that could turn the pedestrian into the true protagonist of the area, creating a set of walks, encouraging the use of bicycles and improving accessibility in public transport.

CLIENT
Inter-American Development Bank (IDB)

YEAR
2012

MACEDONIA. MOBILITY PLAN FOR SKOPJE

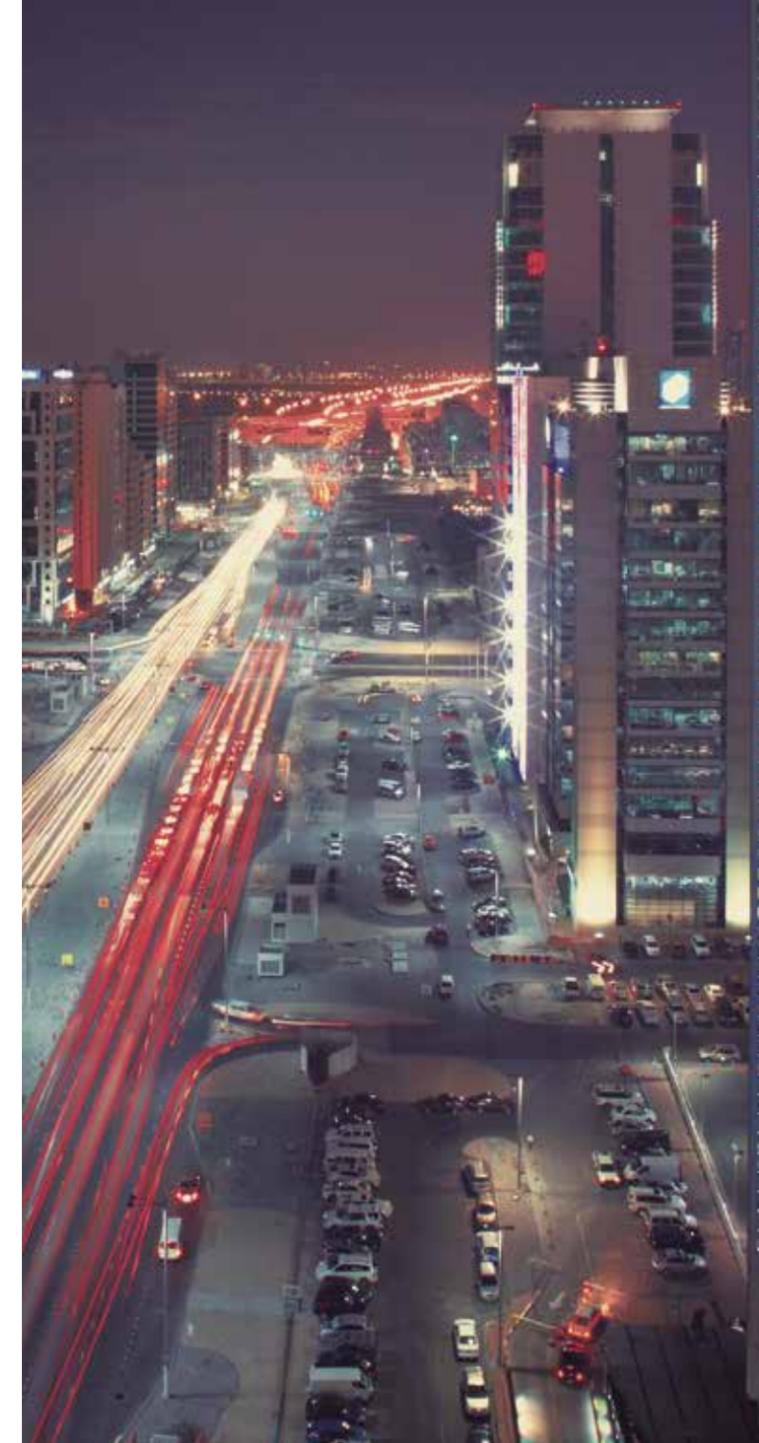
On completion of the Transport Master Plan for the city of Skopje, and the conceptual design of the avenues of the city between 2010 and 2011, for the Ministry of Transport; Idom subsequently carried out a traffic study and detailed design for the construction of one of the axis identified in the previous work carried out, that of an urban tunnel to connect the areas of the east of the city with those of the west, thereby completing the first ring road.

This tunnel infrastructure which runs parallel to the river Vardar is 1,200 m in length, and has two lanes in each direction.

All installations have been designed to comply with the Directive 2004/54 of the European Parliament on minimum safety requirements for tunnels in the trans-European road network.

CLIENT
Macedonian Ministry of Transport

YEAR
2002-2011



Geographic Information systems for the Department for Transport in Abu Dhabi

MOTORWAY BETWEEN USA AND CANADA



As part of an overall border renovation comprehensive solution to improve the connection between Canada and the U.S. in the Windsor-Detroit area, Ontario is delivering the access road portion called the Rt. Hon. Herb Gray Parkway, an 11 km motorway system stretching through Tecumseh, LaSalle, and Windsor, and will lead to the Canadian border.

Idom participated in the geotechnical studies, temporary works and engineering for the tunnel structures and installations, as well as the design of temporary diversions of both the traffic and services that were affected by the works. The project included 15 bridges, 11 tunnels, 3 gateways, 5.5 km of embankments and a complete drainage system with powerful pumping stations.

PRE-PYRENEAN TUNNELS



At present, Idom is applying the accumulated body of knowledge gained in the projects and works related to the eight tunnels of the pre-Pyrenean A-23 motorway (Huesca to Sabinanigo). This integral project by Idom included the longest tunnel of the eight, the Caldearenas Tunnel, stretching over 3,020 m.

The participation of Idom in major tunnel safety projects has given the professionals involved, the

opportunity to position the company at the forefront of this sector. This privileged position has allowed Idom to lead the reflection process on issues such as the high cost of implementing new legislation or regulations. Idom has proposed measures to achieve savings in the investment, by adopting design alternatives or making improvements in the operation of the infrastructure.

IDOM'S SPECIALIST EXPERIENCE PUTS US AT THE FOREFRONT OF THE SECTOR

LOCATION
Navarre

MOBILITY IN RIYADH

Idom is working on the construction of the Abi Bakr As Siddiqe Road in Riyadh. The design consists in the comprehensive transformation of 12 km of urban arterial road (80 km/h) into an urban motorway (100 km/h) with 3 level structures at the main junctions and a service road (50 km/h), as well as the improvement of the area's landscape and urban design.

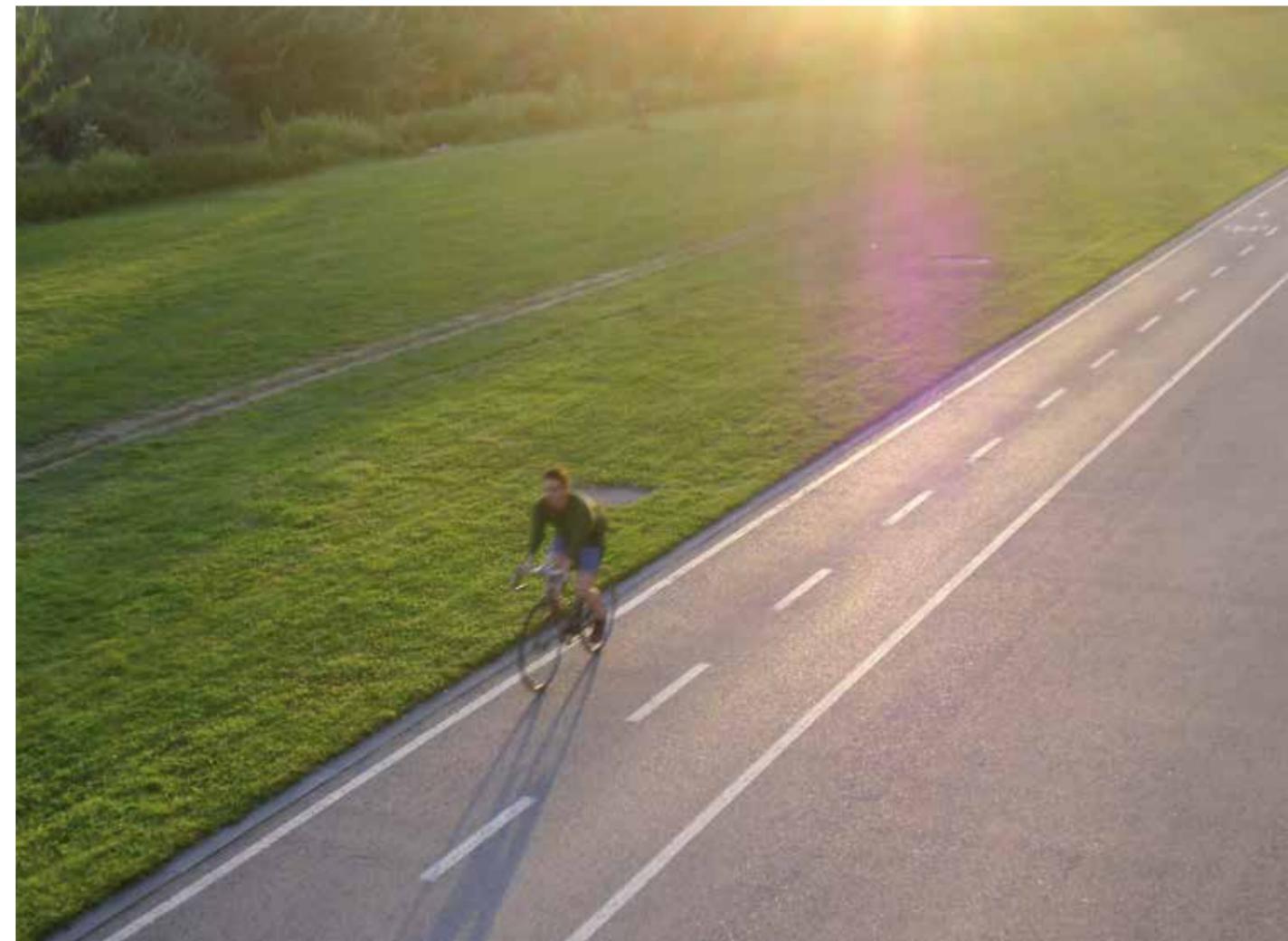
A characteristic of the project is "the dune" concept, which underpins a unitary idea in the whole intervention. This is patent mainly in the bridge over the Iman Saud Road junction, as well as in the rest of structures, footbridges, central reservations and the areas adapted for the different pedestrian needs. The intervention includes integration at telecommunications and traffic control level, besides the placing of bus stops and the planning of pavements and parking places.



LOCATION
Riyadh, Saudi Arabia

CLIENT
Arriyad Development Authority

YEAR
2016



CREATION OF A REFERENCE MANUAL

Public space has become a very competitive field of use among different mobility agents. As a result it is necessary to appropriately design in a way that new elements or new mobility agents do not become a negative factor on the current road.

There has been an analysis of reference standards and of organization publications on different levels (Catalonia, Spain and international) along with interviews with authorities, public transport operators, and other national and international mobility associations, which has allowed for the creation of a document that serves as a reference for the road design in order to create the best conditions for different mobility agents.

SERVICES PROVIDED

- Analysis of the current normative and others manuals.
- Benchmarking of good practices in Spain and Europe related with transportation and urban design.
- Drafting and design of the manual: Rules and recommendations for designing urban roads".

MOBILITY PLAN FOR TRUJILLO, PERU

LOCATION
Trujillo

CLIENT
IDB (Inter-American
Development Bank)

YEAR
2012



The work was focused on looking for favourable measures to improve motorized and non-motorized mobility in the city's historical centre, in line with historical conservation and urban development initiatives. To do this, Idom carried out a full mobility diagnosis based on field work (inventory and capacity of roads and junctions and surveyed pedestrian, private vehicles users and taxi drivers).

This information allowed for the building of a transport model and a simulation using software such as VISUM and VIS-SIM. The analysis of the results enabled us to make suggestions aimed at improving mobility (vehicle restrictions, parking, commercial vehicles, urban development, etc.), their impact having been tested based on the model. The project was carried out with a participative approach, both for within the municipality and for the main community representatives.

After the Sustainable Urban Mobility Plan for the city of Trujillo was done, Idom was commissioned to carry out two of the projects: the pedestrianization of the historical centre and the implementation of a public bicycle system.

COMPREHENSIVE PLAN OF SUSTAINABLE URBAN MOBILITY FOR LA PAZ



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Within the Emerging and Sustainable Cities Initiative by the Inter-American Development Bank, the importance of mobility and transport were identified as indispensable issues to be addressed to improve competitiveness and quality of life in the city of La Paz. The consequence of this was the appointment of Idom for the production of the Comprehensive Plan of Sustainable Urban Mobility (PIMUS) for the South Californian city.

Starting from thorough field work (12,000 phone surveys, as well as on-board transport units, at city entrances and to pedestrians) which served to generate a

mobility analysis and a public and private transport model, the main strategies were put forward. The premise of these was to give priority to non-motorized means of transport (pedestrians and cyclists) and the improvement of the global operation of the public transport system, proposing for the latter the creation of exclusive lanes and the management frame, based on the setting up of a sound transport company. Additionally, measures dealing with urbanism, socialization, legality and the institution were put forward to ensure the comprehensive vision of the study.



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PRIORITY TO NON-MOTORIZED TRANSPORT MEANS AND OPERATIONAL IMPROVEMENT OF THE EXISTING PUBLIC SYSTEM

LOCATION
La Paz, Mexico

CLIENT
IDB (Inter-American Development Bank)

YEAR
2013

AIRPORTS

CROSBORDER AT TIJUANA AIRPORT

EXTENSION OF THE SANTIAGO DE CHILE
AIRPORT

AUXILIARY BUILDINGS OF THE SANTIAGO DE
CHILE AIRPORT

NEW CONTROL TOWER
FUERTEVENTURA AIRPORT

SCHEME DESIGN AND OPERATIVE PLAN FOR
NATAL AIRPORT

HEATHROW AIRPORT, LONDON

CAR PARK EXTENSION AT HEATHROW
AIRPORT, LONDON

TERMINAL EXTENSION AT GRAN CANARIA
AIRPORT

HERMOSILLO AIRPORT, MEXICO

TABUK AIRPORT

SERVICES CORDOBA AIRPORT

RETAIL MALAGA

AUTOMATED LUGGAGE HANDLING SYSTEM

SPANISH AIRPORT TERMINALS



Heathrow Airport

AIRPORTS

Systems

GIS (Geographic Information Systems)
Obstacles and rights
Saos (Airport Satellite Orthoimagery System)

Operational

Passengers, aircraft and luggage processes study
Processes simulation
Security systems design
Operational security studies

Concessions

Design consultancy
Demand/capacity analysis
Investment plan

Master Plan

Demands prevision
Infrastructure plans consultancy
Capacity analysis
Master plan and design

Project and Site Management

Architecture

Passenger terminals
Cargo terminal
Auxiliary buildings
Programme definition
IATA criteria

Public Works

Runway design and layout
Airfield
Taxiways
Urbanization, entrances and apron

Gangways

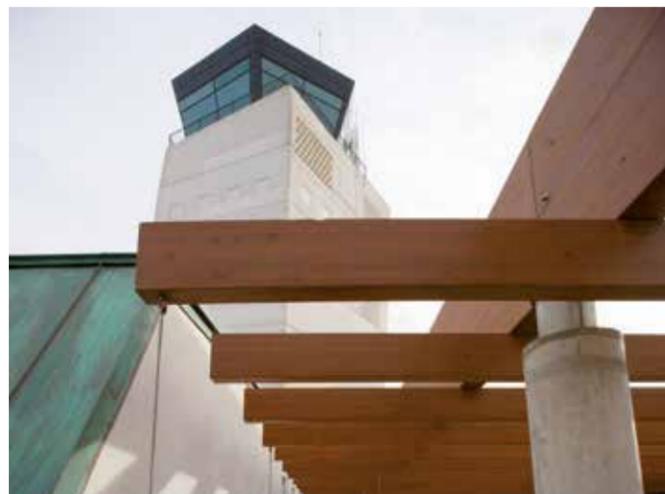
Sizing
Design

Retail

Layout and design
Feasibility studies
Benchmarking
Flow analysis

Luggage Control System

Design
Simulations
Sizing

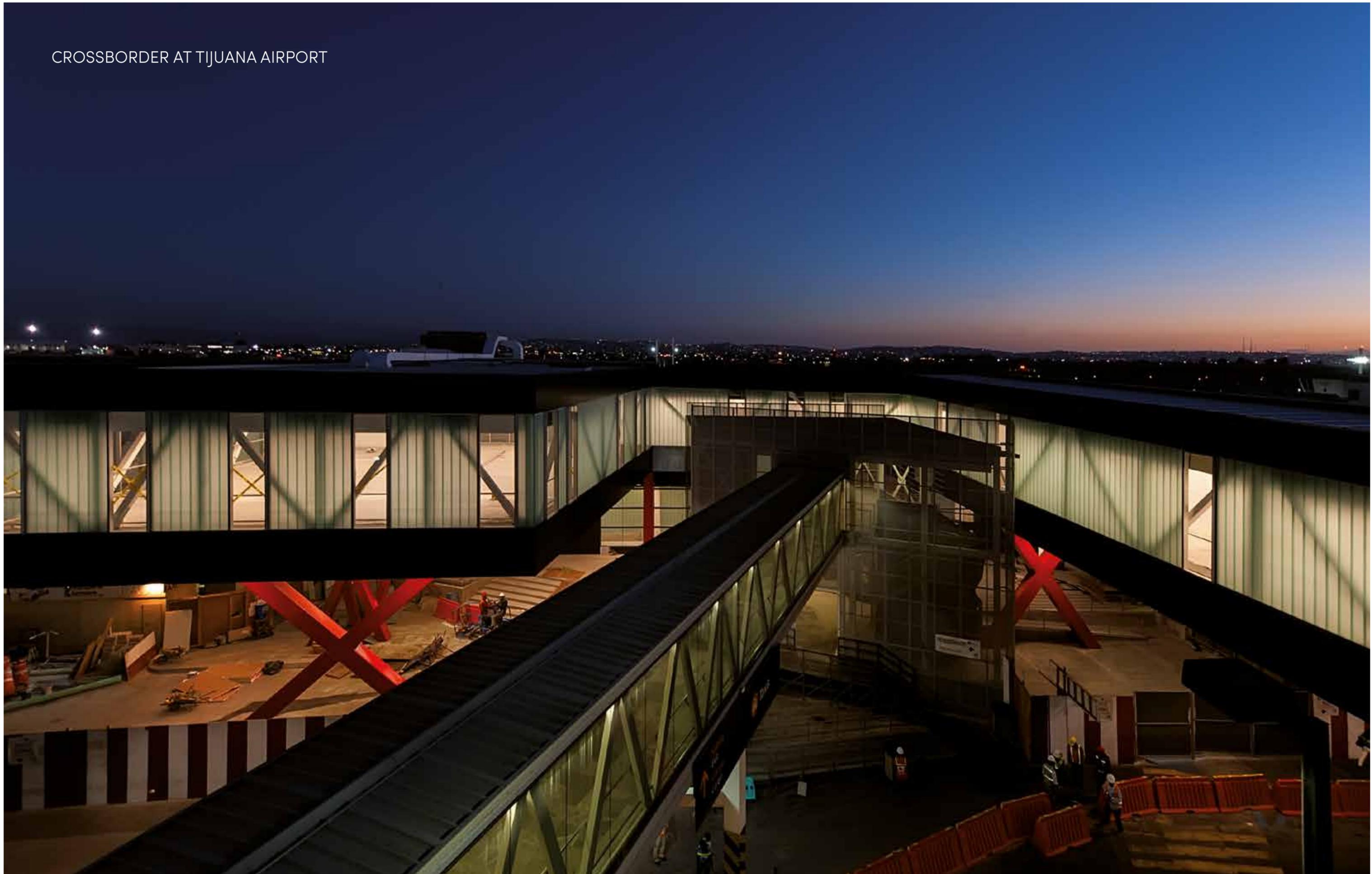


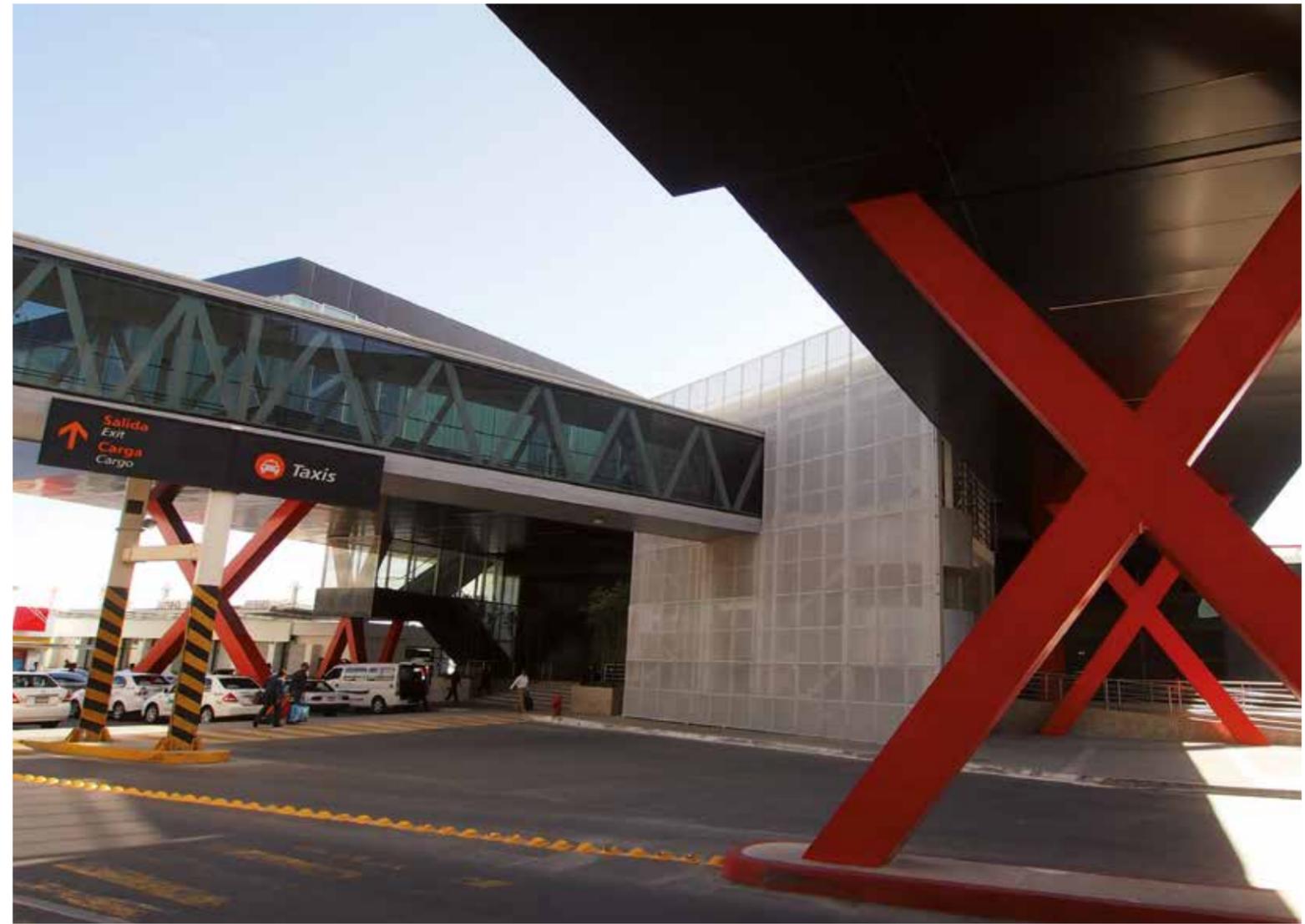
Fuerteventura Airport



Hermosillo Airport

CROSSBORDER AT TIJUANA AIRPORT





Tijuana International Airport is located 60 m away from the USA – MEX border, and just 204 km from Los Angeles. Nearly 60% of passengers that use this airport begin or end their journey in the United States. The airport in San Diego, the border city on the US side, was congested, while Tijuana's operated at 60% of its capacity. So, in 2010, permission by the President of the USA was granted to build, maintain and operate a bridge for people to cross. It was called San Diego – Tijuana Airport Crossborder Facility. This bridge is to be used exclusively by airport customers. Idom was commissioned by GAP (Grupo

Aeroportuario del Pacifico) to design the inclusion of this gangway in the area annexed to the airport.

The project unfolded like a lineal element, articulated in two pieces, joined by a similar façade. One piece connects with the existing terminal and the other collects the arriving passengers from the bridge and closes off an existing parking area.

FUNCTIONS

- Architecture and engineering projects
- Site supervision

A BRIDGE TO DECONGEST THE NEARBY SAN DIEGO AIRPORT

CLIENT
Grupo Aeroportuario Del Pacifico, S.A.

LOCATION
Tijuana

COST
9 M€

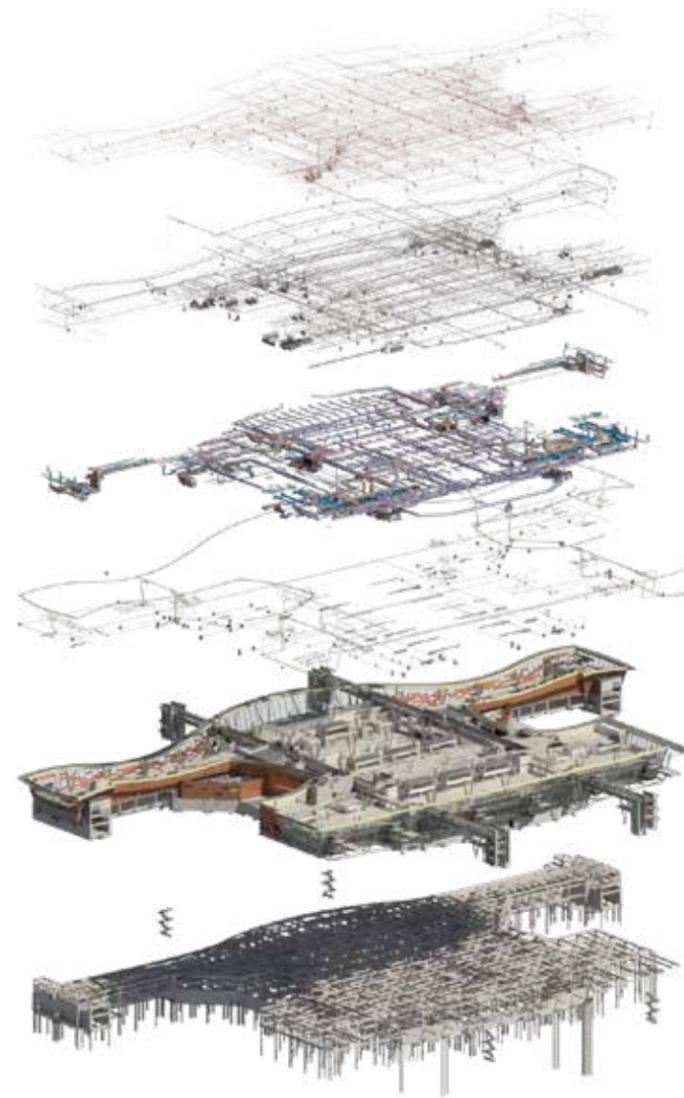
YEAR
2012-2013

AREA
2,788m²

No. OF PASSENGERS PER YEAR
4.2 million

EXTENSION OF THE SANTIAGO DE CHILE AIRPORT





Arturo Merino Benítez International Airport in Chile is an important connecting hub between America, Oceania and Europe and is among the most efficient and modern in Latin America. The growing flights demand has obliged the Chilean Ministry of Public Works (MOP) to set a project in motion for the extension of the infrastructures which includes the renovation of the existing terminal, the construction of a new international terminal, car park and other auxiliary buildings, water treatment facilities and a power plant. The project will be developed under an administrative concession model granted by the MOP. Idom was selected by the main contractor in charge of the building works to contribute to the design stage of the different building services projects.

In the same way, Idom is working on the design of the exterior networks and the modification of services, roads and landscapes (External Works). The project, which is being carried out with BIM technology (Building Information Modelling), covers an area of approximately 350,000 m² and is to be completed in 10 months' time. Around 60 professionals from Idom are working on this ambitious project, 40 from the Madrid office and 30 from Chile.

DUE TO ITS STRATEGIC POSITION, IT IS AN IMPORTANT HUB CONNECTING AMERICA, OCEANIA AND EUROPE



CLIENT
CJV (consorcio Vinci Astaldi)

LOCATION
Arturo Merino Benítez Airport,
Santiago de Chile

YEAR
2015-2016

AREA
350,000 m²

No. OF PASSENGERS PER
YEAR
29 million (year 2030)

AUXILIARY BUILDINGS OF THE SANTIAGO DE CHILE AIRPORT



The Investigation Police (PDI) and the Customs Guard buildings fall within the Master Plan for the extension of the Santiago Airport, near the entrance and next to the recent Customs building. Idom developed the Architecture and the MEP for the Auxiliary Buildings belonging to the Extension of the AMB Airport project in Santiago, which include the buildings for PDI, Customs Guard, Security Points, Transport Hub and Power Plant.

The Customs Guard building shows a clear difference on the ground floor between the areas destined for kennels, access and cells, offices and canteen. On the upper floor, there is a clear symmetry in the area corresponding to the men's and women's dorms. The building is perceived as a clear concrete volume,

its ground floor protected by latticework. On the façade there are two great flared windows that lighten up the general impression.

The ground floor of the PDI building includes a veterinary clinic, with kennels set clearly apart. On the first floor, there's the head office and the living, classroom, kitchen and dining areas. The second floor includes the dormitories, symmetrically arranged. This floor also includes terraces which make a void formally recognisable in the general volume of the building, the ground floor also presenting a slight setback. The concrete façades boost the elevated body character of the set.

As well as these buildings, Idom carried out the architecture projects for the rest of auxiliary buildings framed by the extension works of the Santiago Airport, amongst which there's the transport hub and several security points, as well as the power plant, the substation and water treatment facility.

FUNCTIONS

- Production information and MEP
- Site supervision
- BIM LOD 300

CLIENT
CJV (Consorcio Vinci-Astaldi)

LOCATION
Arturo Merino Benitez Airport,
Santiago de Chile

YEAR
2015-2016

AREA
PDI Building: 1,778 m²
Customs Guard Building:
1,832 m²

No. OF PASSENGERS
PER YEAR
29 Million/year 2030

NEW CONTROL TOWER AT
FUERTEVENTURA AIRPORT





The control tower is part of the different interventions planned for the extension of Fuerteventura airport. The air-traffic control room is located 33 m high, and the rest of the building follows a programme that includes technical areas, offices and restrooms.

The geometry of the building is portrayed through the white concrete walls and the copper sloping roofs, elements which outline the trace, limit the spaces and in an uninterrupted gesture, hoist the tower without it becoming detached from the set.

The building is organized spiralling around a patio. While the outwards opaque wall is perforated at some points turning the concrete into a great lattice, the inside opens up through great glazed areas. The patio is covered by a great wooden pergola, which changes its density in certain areas.

The courtyard also serves to separate the technical and building services rooms from the administrative and office uses. The space that holds the latter uses rises slightly over the former ones and overlooks the sea, with a greater sense of lightness and easiness. The first one however, doesn't hide its technical character, heavier and more opaque.

The roof, made of copper just like the terminal, rises at each stretch climbing towards the tower. A staircase runs along the entire perimeter of the shaft. For safety reasons, it had to be exterior. That is why the concrete is perforated on every side and the shaft is lightened and textured.

FUNCTIONS

- Architecture and engineering projects
- Construction stage technical input

CLIENT
AENA

LOCATION
Fuerteventura

COST
5.6 Me

YEAR
2005-2008

AREA
3,200 m²

No. OF PASSENGERS PER
YEAR
5 million

SCHEME DESIGN AND OPERATIVE
PLAN FOR NATAL AIRPORT



The Brazilian government, through an international call for tenders, was going to grant a concession over the new Natal airport. The GAP – FIDENS consortium (a Mexican airport operator and a Brazilian building company respectively) tendered and needed to elaborate a technical proposal. This proposal involved the scheme design and the airport's operative plan. For this purpose, Idom was hired.

On the one hand, the task involved carrying out a study of the foreseeable air traffic according to the different aircrafts used in Brazil, including annual, monthly and peak time movements. It also inclu-

ded the functional design, the scheme design, the capacity-demand analysis and the extension, during the concession, of the passengers' terminal, with an architectural proposal; the cargo terminal; the entrances and the urbanization; the runways, taxiways and the fire brigade building; the apron area; the approach and beacon systems; the power plant and the utility plant; the car park; the infrastructure system: clean and used water systems, waste treatment, communications and power systems and the maintenance offices and back-up areas.



On the other hand, an investment plan was drafted for the entire concession period, an analysis and planning of environmental aspects related with the construction and running of the airport and an operational plan, which includes the description of, among others, the following services: arrival and departure processes of passengers, support of air-freight businesses, information related to flight protection activities, landing, take off and taxiing processes support and the design of passenger flows and times associated to each of these processes.

FUNCTIONS

- Scheme designs
- Concession
- Investment plan
- Operational plan

CLIENT
Consortium formed by GAP (Grupo Aeroportuario del Pacífico S.A. de C.V.) and FIDENS (Brazilian building company from Belo Horizonte) for the tendering of the new Natal Airport

LOCATION
Natal

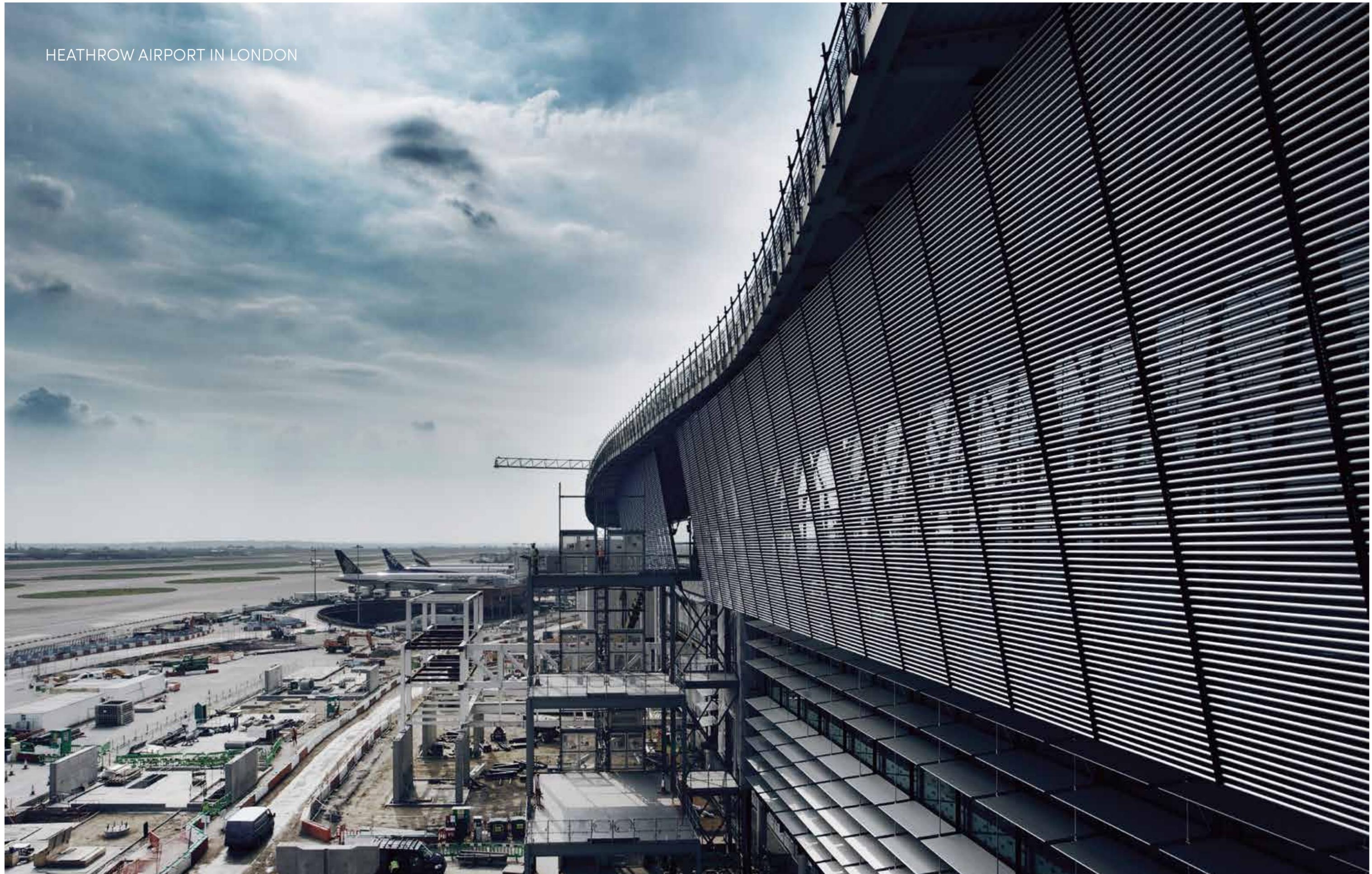
COST
240 M€

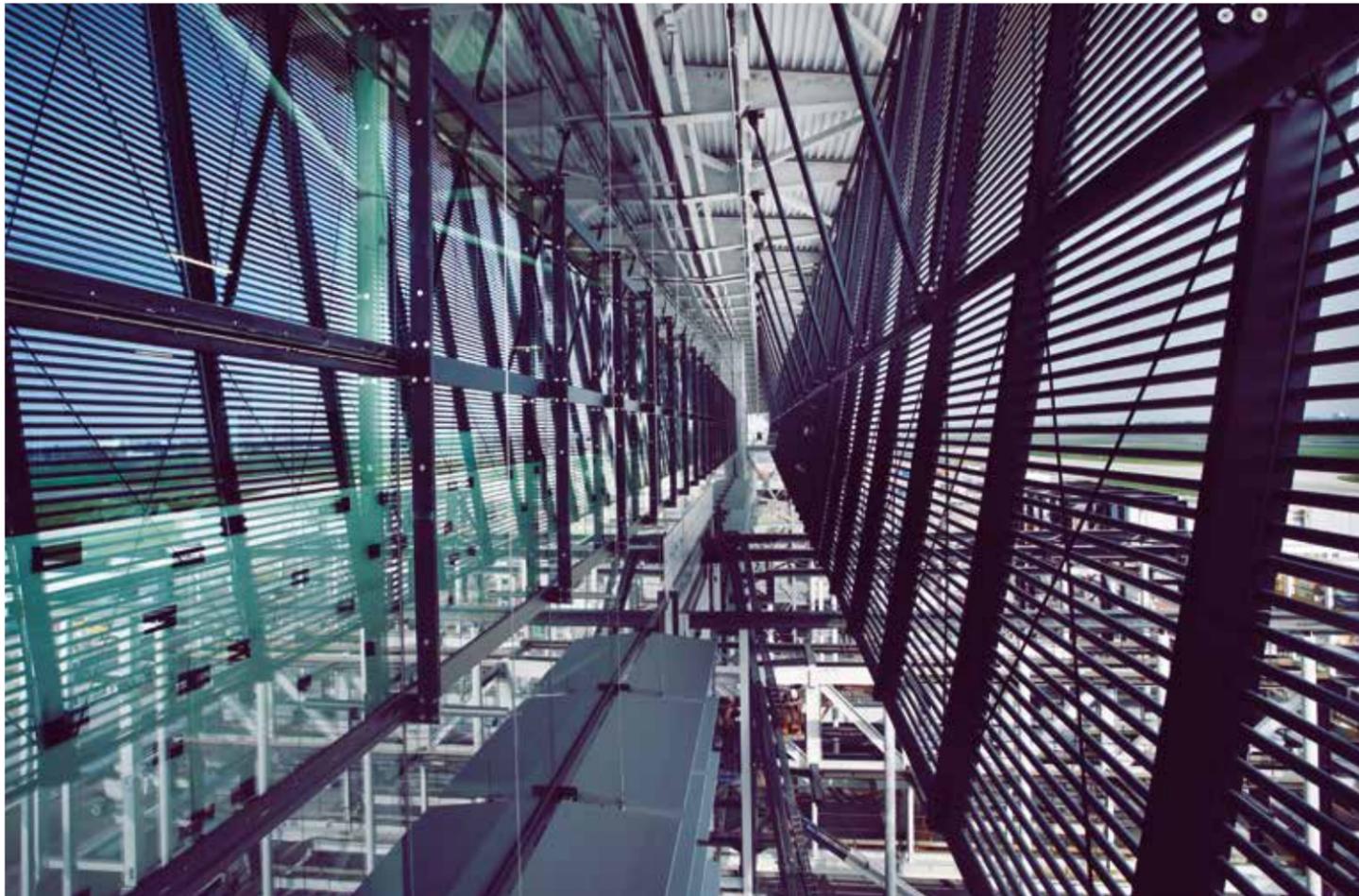
YEAR
2011

AREA
2,788m²

No. OF PASSENGERS PER YEAR
10 million by 2040

HEATHROW AIRPORT IN LONDON





As part of the investments plan for Heathrow Airport for the improvement of customer services, Idom has taken part in the design of the new terminal 3 baggage handling integrated building (T3IB), which opened at the end of 2013. The T3IB is a cutting edge luggage facility that allows for the terminal's baggage direct management and transport, under the same roof.

The project will be able to manage 7,200 items of luggage every hour; it will offer integrated management of luggage transport between each terminal and it will

include a direct connection to the underground link between the new baggage building of the new terminal 5 and the Western Interface Building (WIB). The design team used 3D modelling software to ensure the adequate space coordination between the structure of the buildings and the M&E services and the complex baggage system provided by Vanderlande.

THE T2A BUILDING WAS SHORTLISTED FOR THE BRITISH CONSTRUCTION INDUSTRY AWARDS (BCIA) IN THE 'MAJOR BUILDING PROJECT OF THE YEAR' CATEGORY (OVER £50M), IDOM BEING THE MAIN ENGINEERING COMPANY.

THE NEW T2 AT HEATHROW

The New Queens Terminal (T2A) at Heathrow Airport designed by Luis Vidal + Architects, represents a new base for the Star Alliance airlines operating from Heathrow.

Idom have been involved in key aspects of the project, including overall responsibility for the structural design of the main terminal building and of some of the associated operation areas, including the passenger transfer facilities (FlaNs), a baggage transportation bridge, and a vertical circulation structure.

The building consists of a concrete structure below the Aircraft stands level mainly for services including baggage handling, and a steel superstructure that contains the passenger and staff facilities. Various studies for the configuration of these areas were carried out by Idom's architectural team, to respond to changes in the clients brief. These were done as independent studies and fed back into the main project.

CLIENT
HETCo for Heathrow, Airport Limited

LOCATION
London

COST
77 M€

YEAR
2009 - 2014

AREA
50,000 m² (approx) / 1340 spaces

No. OF PASSENGERS PER YEAR
26 million

CAR PARK AT HEATHROW AIRPORT IN LONDON





Idom were appointed for the analysis of options for the car park building of the New Queens Terminal which was carried out in coordination with the client. The process defined the main characteristics of the building: the design of the car park levels, the volume, the definition of the spiral ramps, the façade proposal and the inclusion of a central plaza and gardens.

The project, in collaboration with Grimshaw Architects, included the conceptual design and the definition of the design guidelines for the sizing of the project, as well as the study of the project's integration with the airport road network.

In collaboration with GRIMSHAW Architects (Architectural Concept Design Advisors) Photos © LHR Airports Limited see photolibrary.heathrow.com

A CAR PARK FOR 2,000 VEHICLES DESIGNED IN CLOSE COLLABORATION WITH THE CLIENT

FUNCTIONS

- Scheme design for car park building and terminal connection
- Road verification
- Modelling and simulation of public and private transport demand

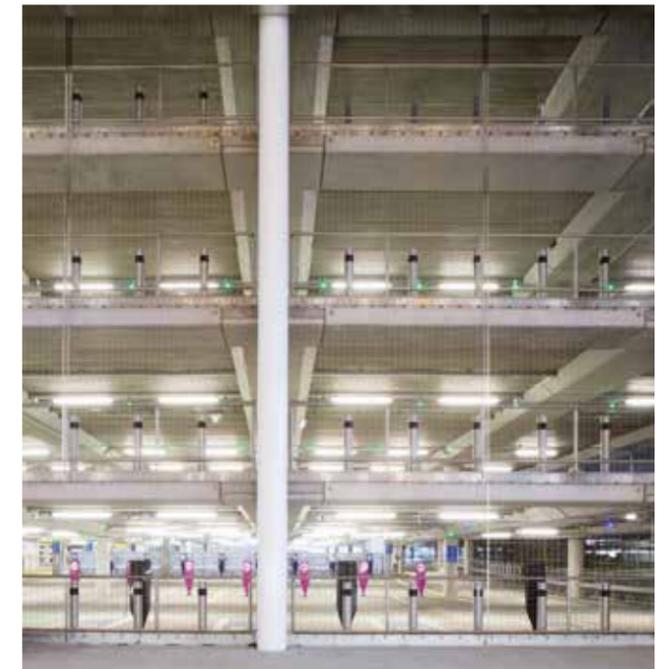
CLIENT
HETCo (FERROVIAL
AGROMAN LAING O'ROURKE)

LOCATION
Terminal 2A, Heathrow Airport

YEAR
2009

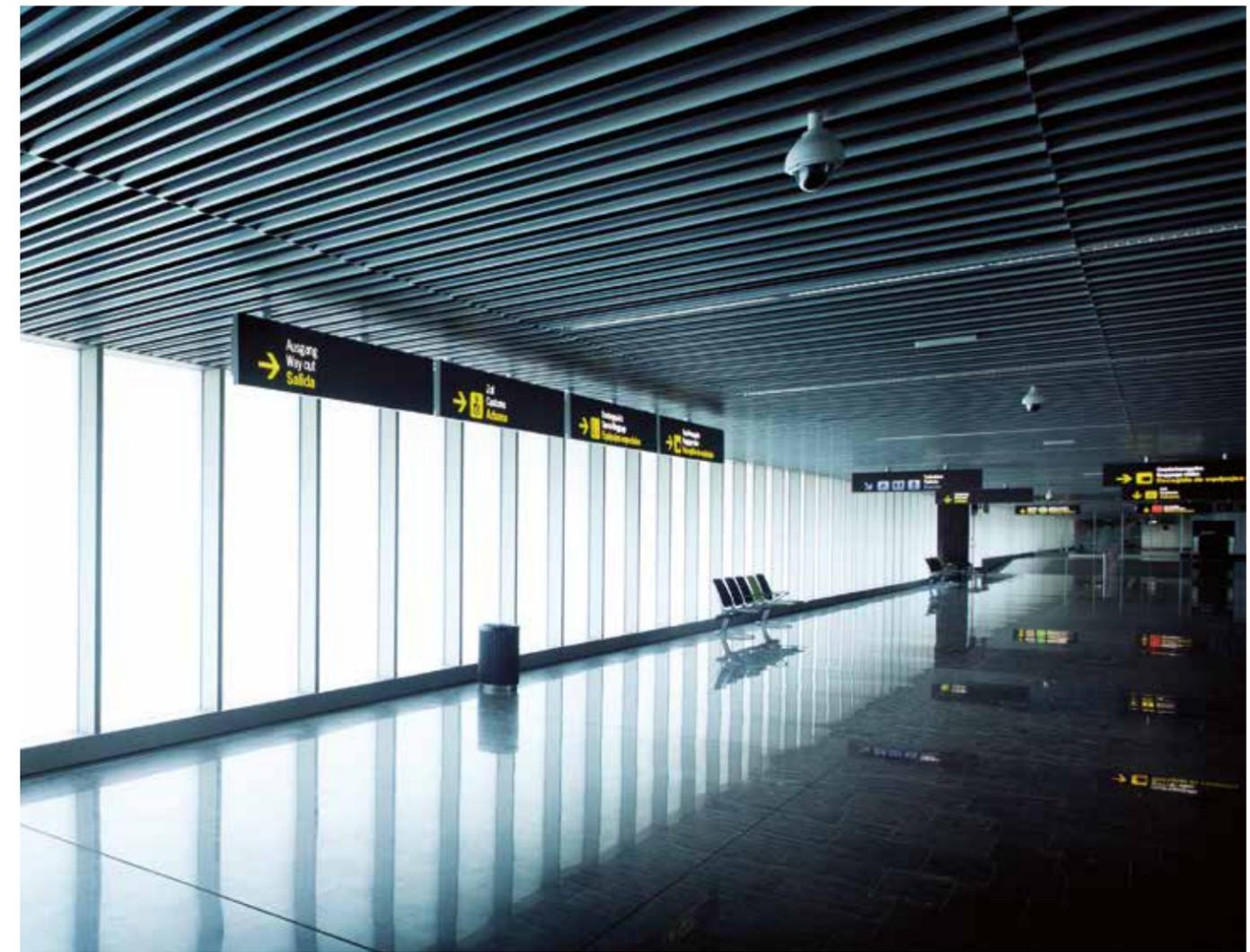
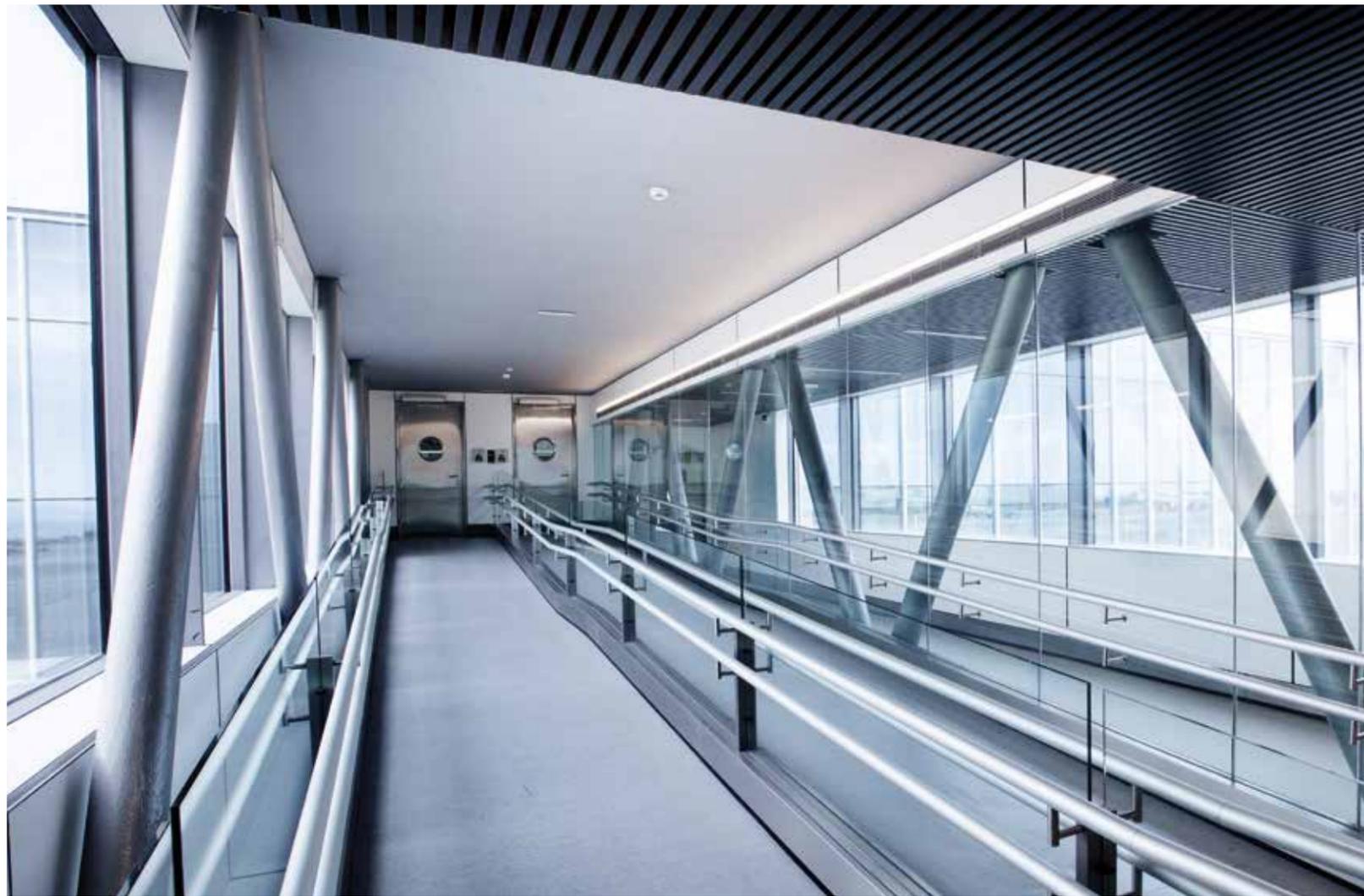
AREA
50,000 m²

No. OF PASSENGERS PER YEAR
75 million





TERMINAL EXTENSION AT GRAN CANARIA AIRPORT



The airport of Gran Canaria is considered as the 5th biggest in Spain, with a volume of 10,300,000 passengers, 37,545,000 kg of freight and 114,355 operations each year.

Among the actions taken to carry out its Master Plan, the extension work involved the development of the infrastructures linked to the provision for future capacity; the improvement of security and the quality of services, as well as the optimization of management, exploitation conditions, replacement investments, etc.

The work considered extending the terminal building in three directions:

- 01 To the North, occupying an area of about 14,600 m², over which the extension of the pre-existing building was to be erected, along with a new aircraft stand with several jetways.
- 02 To the West, occupying an area of 6,700 m², extending the check-in lounge and also building two new elevated roads.
- 03 To the South, occupying an area of 5,200 m², extending the building.

The work was carried out with the airport fully operational and maintaining service uninterrupted at all times.

FUNCTIONS

- Construction stage technical input

CLIENT
AENA

LOCATION
Gran Canaria

COST
18.9 Me

YEAR
2009 - 2013

AREA
26,500 m²

No. OF PASSENGERS PER YEAR
10.3 million

EXTENSION OF THE PASSENGERS TERMINAL
AT HERMOSILLO AIRPORT, MEXICO



Hermosillo, capital of the State of Sonora, is located to the northwest of the Mexican Republic. The city of Hermosillo is considered one of the five best cities to live in in Mexico, just 270 km away from the US border and 95 km from the Gulf of California coast.

Hermosillo has an extreme climate, reaching temperatures of almost 50°C during summer and enjoying mild winters. Taking into account the population that uses Hermosillo Airport, its influence area covers its own municipality and the four adjoining ones. In total, that adds up to a population of around one million.

GAP (Grupo Aeroportuario del Pacifico) operates 12 airports along the Mexican Pacific region. These airports previously belonged to the Mexican Government and were handed over as concessions owing to a national initiative to privatize and improve the quality and security of the country's airports. GAP commissioned Idom to carry out the Conceptual Design, the Detailed Design and Production Information for the extension of the Terminal Building, the extension of the CREI (acronym for their fire brigade) and the renovation of the existing car park. This terminal extension will take up a new area of approximately 4,200 m² and the total investment required for all the work is 7 million euros. Idom completed these jobs in around 6 months.

This extension will imply the operational capacity of the airport to grow, from the 1.2 million passengers it handles today to 2.1 million in the next 15 years.

FUNCTIONS

- Conceptual design
- Detailed design
- Production information

CLIENT
GAP
(Grupo Aeroportuario del Pacifico)

LOCATION
Sonora

COST
7 M€

YEAR
2015

AREA
7,000 m²

No. OF PASSENGERS
PER YEAR
2.1 million

EXTENSION OF TABUK AIRPORT



IDOM ADAPTS THE AIRPORT'S DESIGN TO THE PLANNED INCREASE OF FLIGHTS

In 2011 the new Prince Sultan bin Abdul Aziz Airport began to operate commercial flights. The airport is located within a commercial area of a farming city, in the north of Saudi Arabia. Having a military base next to it, the construction of the airport intended to be in keeping with the great investment and the continuous and rapid urban development of the Tabuk area. The significant increase of domestic and international flights in recent years have called for a review of the estimations gathered in the existing Master Plan, which included the required actions to cover airport services until 2041. Idom, as an airport expert, along with the Saudi companies IMAR and GACA,

is in charge of developing the projects for the extension of the entire airport, which includes the Terminal Building, the Cargo Terminal, the platform, the taxiways, car parks and entrances and infrastructures, as well as other auxiliary buildings.

FUNCTIONS

- Analysis of capacity and demand
- Options study
- Production information

CLIENT
General Authority of Civil Aviation (GACA)

LOCATION
Tabuk, Saudi Arabia

YEAR
2015 -2016

AREA
25,000 m² (terminal building)

POWER PLANT AND SERVICES BUILDING
AT CORDOBA AIRPORT





The Master Plan for the airport of Cordoba proposed starting the extension works with a new power plant and an administrative building that would guarantee the correct functioning of the premises during the building works of the new runway and the new Terminal Building.

The airport's small size made it possible to maintain its organization, which is structured around an elliptic plaza with abundant lush vegetation. The chosen locations in the Master Plan for these two first buildings called for the possibility of linking all the buildings and their auxiliary elements in order to create a tiered backdrop, which would be completed by the future terminal.



The entrances to the administrative building, the flying school and the cafeteria are situated in the centre of the plot, around a courtyard, which creates a bright background which contrasts with the shadow cast by the entrance canopy. From the main vestibule, located on the East corner, it's not only possible to control the access to the inside of the building, but also to the airside during the night. The classrooms constitute a self-standing body, with access from the common courtyard. Its three classrooms look eastwards and are protected from the sun by setbacks.

FUNCTIONS

- Architecture and engineering projects
- Construction stage technical input

CLIENT
AENA

LOCATION
Cordoba

COST
2,700,000 €

YEAR
2003-2005

AREA
1,500 m²



The work involved the remodelling of the retailing area in Malaga's airport, with the idea of broadening the commercial spectrum and increasing revenue. The main tasks were defining the socioeconomic profiles of passengers through surveys, passenger flow studies, benchmarking, the definition of a new commercial mix, the concept options and design and an estimate of the rate of return.

FUNCTIONS

- Profiling users
- Flows analysis
- Benchmark
- Advanced scheme design retailing area
- Profitability study

CLIENT	AENA
LOCATION	Malaga
COST	4,8 Me
YEAR	2012
AREA	18,000 m ²
No. OF PASSENGERS PER YEAR	30 million



AENA is gradually implementing the SATE (Automated Baggage Handling System) with integrated inspection in all the Spanish airports it manages.

In that process, Idom were commissioned to develop and manage the construction of the SATE in 14 airports (phase II): Barcelona, Malaga, Gerona, Reus, Ibiza, Menorca, Bilbao, Seville, Jerez, Lanzarote, Gran Canaria, Fuerteventura and North and South Tenerife.

The implementation is structured in several phases:

- PHASE A** Design of the luggage management in Systems and Technical Specifications
- PHASE B** Projects supervision
- PHASE C** Installation work supervision
- PHASE D** Preparation and implementation of an Acceptance Tests Plan and system evaluation reports.
- PHASE E** Operation and maintenance supervision once the facility has been provisionally accepted

FUNCTIONS

- Luggage management design
- Projects supervision
- Assembly supervision
- Operation supervision

CLIENT	AENA
LOCATION	Barcelona, Málaga, Gerona, Reus, Ibiza, Menorca, Bilbao, Seville, Jerez, Lanzarote, Gran Canaria, Fuerteventura and North Tenerife and South Tenerife
COST	100 Me
YEAR	2003 - 2006
AREA	Several
No. OF PASSENGERS PER YEAR	10.3 million

SPANISH AIRPORT TERMINALS

A CORUÑA TERMINAL

CLIENT
AENA

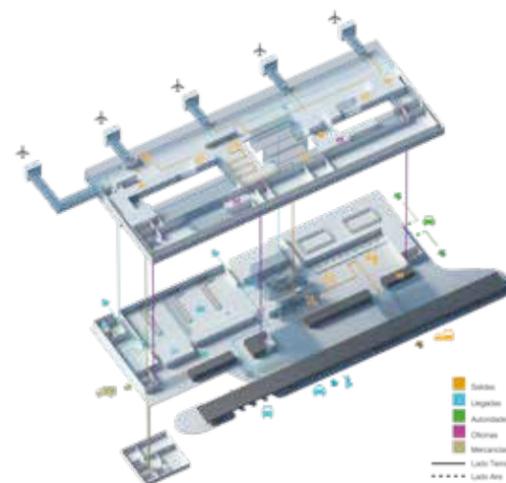
LOCATION
A Coruña

COST
100 M€

YEAR
2003-2006

AREA
18,300 m²

FUNCTIONS
Scheme design



REUS TERMINAL

CLIENT
AENA

LOCATION
Reus

YEAR
2007

AREA
52,000 m²

No. OF PASSENGERS PER
YEAR
4.4 million

ASSOCIATED USES
Parking for 1,800 vehicles

FUNCTIONS
Scheme design



NORTH TENERIFE TERMINAL

CLIENT
AENA

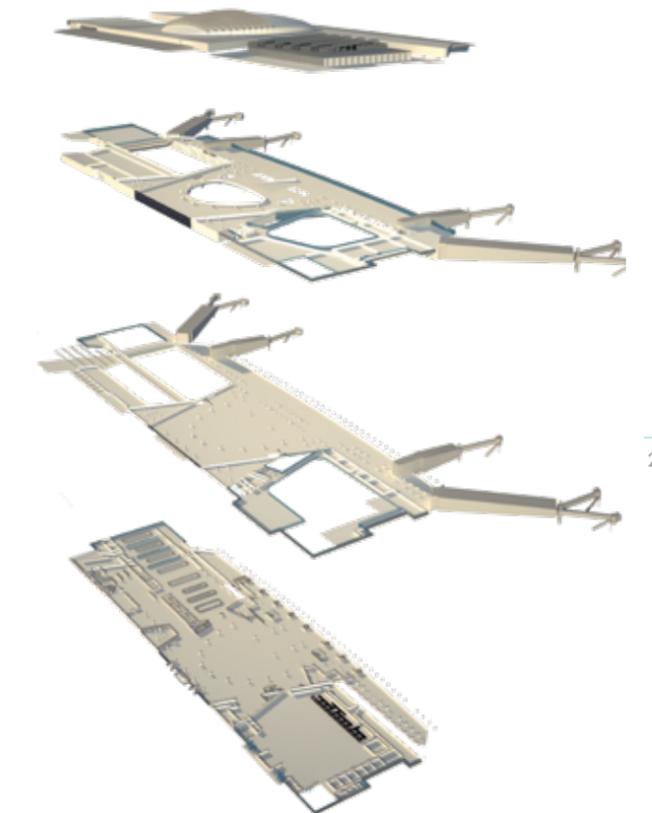
LOCATION
Tenerife

YEAR
2009

AREA
7,000 m²

No. OF PASSENGERS PER YEAR
2.18 million

FUNCTIONS
Scheme design



AIRPORTS



-  AIRPORT PROJECTS
-  OTHER TRANSPORT PROJECTS

INTERVENTIONS IN OVER

52

 AIRPORTS

40

 AIRPORT
ENGINEERING
PROJECTS

PROJECTS SCOPE TABLE

PROJECT

PROJECT		SCALE INDICATORS				TENDER DESIGN AND PROCESS				SITE SUPERVISION			
		Extension/renovation in existing building	New build	Millions of passengers / year Airport	Area Intervention (m²)	Functional Study and Programme	Detailed Design	Production Information	Tendering Documents	Project Management	Site Supervision	Follow-up and Start-up	Audit
Natal Airport	BRAZIL		●	10.10	40,000	●	●						
Gran Canaria airport extension	SPAIN	●	●	9.77	26,500					●	●		
Tijuana airport extension	MEXICO	●		4.20	3,500		●	●		●	●		
LONDON, Heathrow Terminal T2A	UK		●	20.00	185,000			●					
FUERTEVENTURA, Control Tower	SPAIN		●	4.26	3,200		●	●		●			
BRAZIL, Design and investment plan, airports of Guarulhos, Brasilia and Viracopos	BRAZIL	●		54.00	265,000	●							
BARCELONA, Capacity-demand analysis during investment period of the concession.	SPAIN	●		35.22	670,000	●							
Luggage Systems (18 references)	SPAIN	●	●	-	-	●	●	●	●	●	●	●	
Boarding fingers (6 references)	SPAIN	●	●	-	-		●	●	●	●	●	●	
MALAGA, Commercial optimization study	SPAIN	●		12.93	12,000	●							
MALAGA, Telecommunications Plan	SPAIN		●	12.93	250,000		●	●	●		●	●	
BARCELONA, Security Systems Terminal 1	SPAIN		●	35.22	550,000		●	●	●		●	●	
Platforms (Airports of Asturias, A Coruña and Bilbao)	SPAIN	●		-	160,000	●	●	●	●		●		
GRANADA, Fire Brigade Building	SPAIN		●	0.64	1,500		●	●	●	●			
CORDOBA, Services building and power plant	SPAIN		●	0.007	1,430		●	●		●			
VITORIA, DHL Cargo Terminal	SPAIN		●	-	5,100	●		●					
DUBLIN, platform renovation and extension	IRELAND			35	80,000	●	●	●	●	●	●	●	
HERMOSILLO	MEXICO	●		2.1	7,000	●	●	●	●				
TABUK	SAUDI ARABIA	●		3.5	25,000	●	●	●	●	●			
CHILE, Extension Santiago airport	CHILE	●	●	29	350,000			●	●				

PROJECT

PROJECT	SPECIALIZATION AREAS													
	Architecture	Landscape Design	Structures	Building Services	Luggage	Security	IT	Gangways	Retail	Environmental Impact	Operativity	Signage	Platform / Air Field	Parking and access
Natal Airport	●	●	●	●	●	●	●	●	●		●		●	●
Gran Canaria airport extension	●		●	●							●	●		
Tijuana airport extension	●	●	●	●		●	●			●	●	●		
LONDON, Heathrow Terminal T2A	●		●	●	●								●	●
FUERTEVENTURA, Control Tower	●	●	●	●		●	●			●		●		
BRAZIL, Design and investment plan, airports of Guarulhos, Brasilia and Viracopos	●			●	●	●	●	●	●	●	●		●	●
BARCELONA, Capacity-demand analysis during investment period of the concession.	●			●	●	●	●	●	●	●	●		●	●
Luggage Systems (18 references)			●	●	●	●	●				●			
Boarding fingers (6 references)				●				●			●		●	
MALAGA, Commercial optimization study									●		●			
MALAGA, Telecommunications Plan						●	●							
BARCELONA, Security Systems Terminal 1				●	●	●	●				●		●	
Platforms (Airports of Asturias, A Coruña and Bilbao)				●						●			●	
GRANADA, Fire Brigade Building	●		●	●						●			●	
CORDOBA, Services building and power plant	●	●	●	●						●				
VITORIA, DHL Cargo Terminal	●		●	●										
DUBLIN													●	
HERMOSILLO	●	●	●	●	●	●	●	●			●	●		
TABUK	●	●	●	●	●	●	●	●			●	●	●	●
CHILE, Extension Santiago airport	●	●		●			●							●

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