2015 Management Report

August 2016

Transports Metropolitans de Barcelona

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1 Introduction

The Transports Metropolitans de Barcelona Group comprises:
—The parent company, **Ferrocarril Metropolità de Barcelona, SA,** which prepares the consolidated financial statements.
Fully consolidated group companies:
—**Transports de Barcelona, SA**
—**Projectes i Serveis de Mobilitat, SA** (formerly Telefèric de Montjuïc, SA).
—**Transports Metropolitans de Barcelona, SL:** this company began operating on 1 July 2015.
—Companies consolidated using the equity method: **Transports Ciutat Comtal, SA**.

Ferrocarril Metropolità de Barcelona, SA provides passenger transport services in coordination with Transports de Barcelona, SA, under the collective name of Transports Metropolitans de Barcelona (TMB). The former company operates the metro network and the latter operates surface services, with common management of the business.

The companies Projectes i Serveis de Mobilitat, SA and Transports Metropolitans de Barcelona, SL also form part of the TMB Group. The consolidated financial statements are prepared by Ferrocarril Metropolità de Barcelona, SA, for the following reasons:
—The Group's transport strategy is developed around this company.
—The activities of Transports de Barcelona, SA are complementary to those of Ferrocarril Metropolità de Barcelona, SA.
—Ferrocarril Metropolità de Barcelona, SA therefore leads the Group's transport policy.

This company is also the largest in terms of passenger numbers, turnover and asset values.

This **Management Report of the Consolidated Transports Metropolitans de Barcelona Group for 2015** includes the Group's Income Statement and Statement of Financial Position at 31 December 2015, together with the main operating figures of the companies Ferrocarril Metropolità de Barcelona, SA, Transports de Barcelona, SA. and Projectes i Serveis de Mobilitat, SA. This information is provided in greater detail in the respective management reports of each of these companies for 2015. It also includes a summary of the activity of the company Transports Metropolitans de Barcelona, S.L., for the year 2015.

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TMB Strategic Lines

TMB Strategic Lines

As the operator of Barcelona's bus and metro networks, the mission of Transports Metropolitans de Barcelona (TMB) is to provide a quality public transport network which also contributes to the sustainable development of the metropolitan area, ensuring that customers receive the best service and implementing socially responsible policies as part of an operation which is efficient and financially viable. TMB also aims to be one of Europe's leading public transport companies, emphasising its international profile and competitiveness. TMB's frame of reference will thus depend increasingly on the model developed through compliance with European regulations on passenger transport.

The efficient use of technology over recent years has allowed us to make great leaps forward in terms of improving service and efficiency. This will continue to be important in the future. To ensure the success of this strategic vision, the Balanced Scorecard management model was implemented, a strategic management system which allows an overview of the entire business. This system measures business performance from 4 key perspectives: 1) user/public satisfaction, 2) process performance and innovation, 3) human resource development and growth, and 4) financial results.

1. Users/public

The ultimate strategic goal must be user satisfaction. Work continues on restructuring the Bus network, with new lines and high-performance services designed to match supply and demand.

2. Processes

Processes are key to obtaining the desired outcomes. TMB will focus this year, therefore, on rationalisation, sustainability, efficiency and quality.

These include all the work involved in rolling out the new L9 Sud line which will link Barcelona's Zona Universitària and Barcelona airport Terminal 1 (19.7 km and 15 new stations). Like the rest of Line 9/10, this section will be driverless and operated automatically.

TMB also worked with the ATM on the T-Mobilitat project. This is a pioneering and innovative project to implement contactless technology across the transport system, which, together with other complementary services and a set of virtual tools (web and app), will make travel easier for users.

3. People

Without people excellence cannot be achieved in other areas. Our human resources strategy includes ensuring good industrial relations based on dialogue and competitiveness with a view to developing commitment and engagement. This requires a gradual shift in the culture of the company, in order to improve productivity.

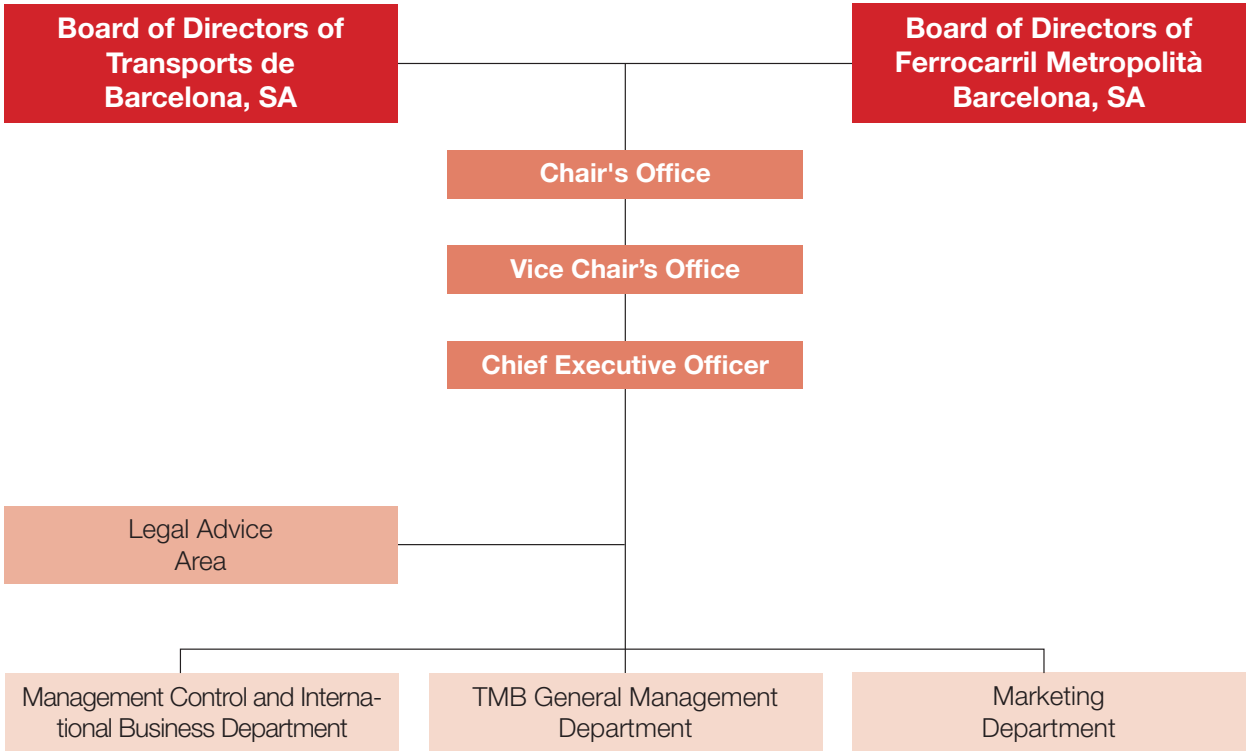
4. Financial

Our financial strategy is the mechanism necessary to achieve the ultimate objective of increasing user satisfaction. The main points on which it is based are increasing ticket and additional revenues and managing resources effectively and efficiently in all parts of the organisation.

3

TMB Administration and Management Bodies

TMB Administration and Management Bodies



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31.12.2015

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Sr. Enric Cañas Alonso

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Sr. Joaquim Balsera García

Executive Chief Officer of Innovation,
Technology and International Business
Sr. Ramon Bacardí Gascon

Chief Officer of Legal Advice
Sr. Marc Grau Mancebo

Chief Officer of the Metro Network
Sra. Marta Labata Salvador

Chief Officer of the Bus Network
Sr. Albert Casanovas Mon, who is also
Secretary of the Management Board

Chief Corporate Human Resources Officer
Sr. Manuel Barriga Muñoz

Chief Officer of Management Control,
Budgets and Internal Auditing
Sr. Adolfo Céspedes Martín


Highlights
of the year

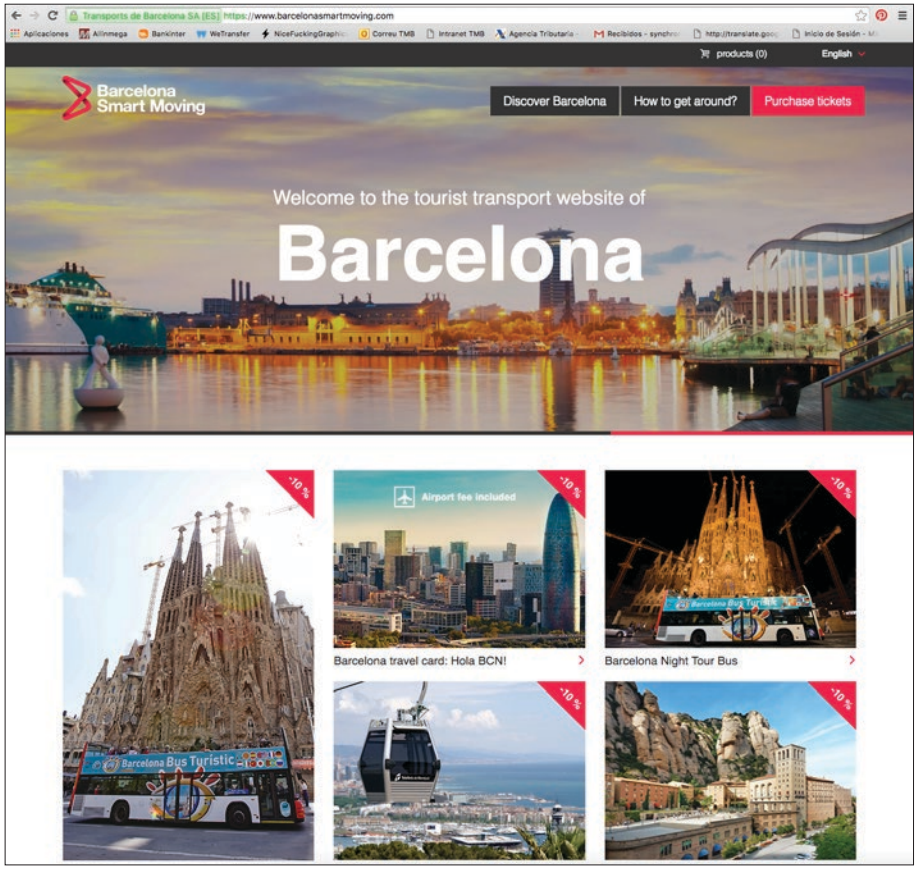
The year's milestones for TMB

New e-commerce channel: Barcelona Smart Moving

Barcelona Smart Moving is the name of the new e-commerce channel launched on July 7, enabling visitors to find out about the means of transport available in Barcelona and to plan their trip, as well as buy exclusive transport products at attractive prices.

The website (www.barcelonasmartmoving.com/ca) is available in six languages (Catalan, Spanish, English, French, German and Italian) and contains three sections: "Discover Barcelona", "How to get around" and "Purchase tickets". The first section gives information on Barcelona's most famous sights.

In the second section, users can find out about the features and advantages of Barcelona's various public transport services and, once they have browsed the site, they can obtain more information about buying tickets. Hola BCN! multi-day travel cards, tickets for the Barcelona Bus Turístic (BBT) and the Montjuïc cable car can currently be purchased from the site. New products will be added soon, such as the Barcelona Bus Turístic de Nit night-time service, combinations of different transport tickets and cultural and gourmet excursions throughout Catalonia.



Barcelona Smart Moving replaces and improves on the two previous e-commerce channels: an external channel operated by the company Community Internet selling Hola BCN! travel cards and an in-house channel based on the Barcelona Bus Turístic website selling tickets for this service.

The new channel contains features that the two former channels could not provide, including:
— Sale of all kinds of TMB products and services.
— Sale of third party products and services, including travel tickets and other products, such as admission tickets.
— Creation of packages and apply different types of discount.
— Management passenger numbers (limiting sales in response to capacity) for different transport services.
— Issuing of controlled purchase vouchers that can be redeemed in a range of outlets.
— Sale to companies via B2B channels.
The decision was taken to reactivate the then inactive company TMB, SL in order to operate this sales channel. The back office operation of this channel is carried out by the Sales and Revenues Logistics Department, and the channel's sales and revenues have been incorporated into the OciCommerce application, also developed in 2015, which is used to manage all the business units linked to leisure transport.

With the launch of Barcelona Smart Moving, sales of tickets for the Montjuïc cable car, Barcelona Bus Turístic and Hola BCN! travel cards were transferred from conventional channels to the new platform, bringing a number of advantages:
— The tracking of sales and revenues is simpler, as payments are only made using bank cards, making it possible to control every transaction on an individual basis.
— A reduction in the sale of pre-printed tickets, eliminating stock controls and production and distribution costs.
— The issue of purchase vouchers that can be exchanged in a range of outlets using a centralised control system.

Collaboration agreement between Àrea Metropolitana de Barcelona, the Catalan Agency for Development Cooperation and TMB

The Government of Catalonia's Agency for Development Cooperation, Àrea Metropolitana de Barcelona (AMB) and Transports Metropolitans de Barcelona (TMB) signed an agreement on 15 June to draw up an annual work plan to ensure closer and more coordinated cooperation, focusing on gender issues and human rights, and on the priorities established in the Government of Catalonia's 2015-2018 Master Plan and the Cooperation and Solidarity Master Plans of the AMB and TMB.

The framework agreement established areas of joint effort intended to improve the effectiveness and efficiency of their respective programmes and projects, including:

—Coordinated communication, awareness and incident response strategies.

—Use of the communication channels of the three entities, especially those of TMB.

—Institutional, administrative and technical coordination of the monitoring of actions and projects in the countries where the three institutions operate.

—Training to make employees aware of the 2015-2018 cooperation master plan, in particular its integrated approach to gender and emphasis on human rights. The aim is to publicise the master plan among local bodies, while the Agency will provide support for AMB direct cooperation projects that apply this approach.

—Strategic alliances, e.g. to obtain international financing for development cooperation projects.

—Drawing on expertise in the management of the AMB's common services and infrastructures.

Agreement between the ONCE, Vodafone and TMB foundations to develop a public transport accessibility project

Under a cooperation agreement to foster the social inclusion of people with disabilities the Vodafone Spain Foundation, the ONCE Foundation and the TMB Foundation, will develop a technological R&D project to help the blind or visually impaired to use public transport more easily. This initiative also has the support of the Mobile World Capital Barcelona Foundation.

Under the agreement, presented on 17 July in Barcelona's Diagonal metro station, the three foundations will carry out two pilot tests of different technological solutions to help disabled people find their way around in metro stations and at bus stops, using applications in mobile devices and radio frequency transmitters. Service prototypes will be developed and tests will be carried out in real environments: an underground station and a bus stop in the city of Barcelona.
In the metro, transmitters will be installed that will communicate with an app on the blind user's mobile device, guiding them safely from the station entrance to the train and vice versa. Following a path defined by tactile paving on the station floor, the system will direct the user along every variation of the route.

At the bus stop, the number and destination of the bus pulling up will be automatically sent to the user's mobile phone so they can decide for themselves whether to board it. At the same time, the driver will be informed that there is a blind person waiting at the stop.

These R&D projects, which will be rolled out across TMB's transport networks if they prove successful, are the first measure planned under the framework cooperation agreement signed by the three foundations.

The year's milestones for TB

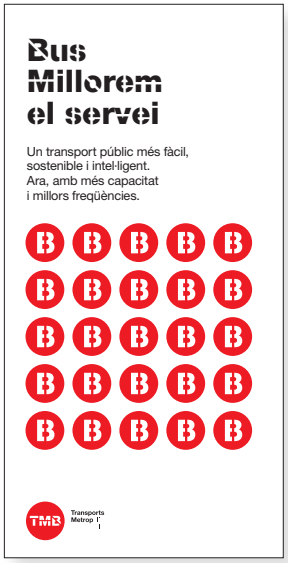
Bus service improvement plan

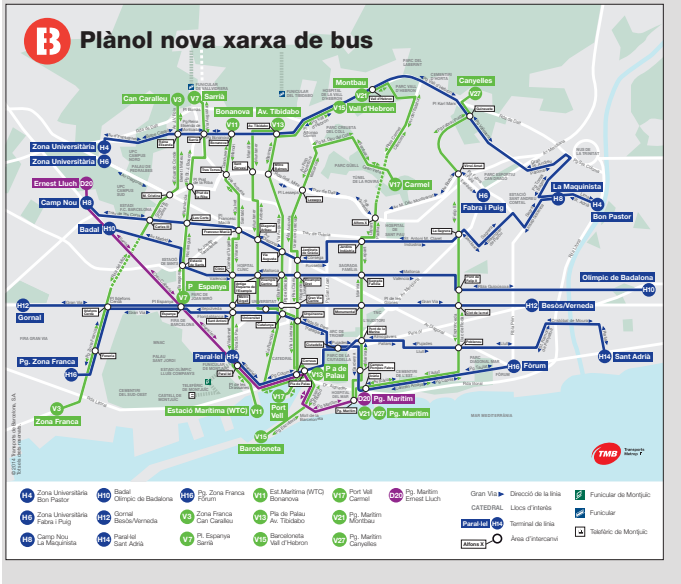
After several years of adjustments and streamlining of the services provided in the current network of conventional bus lines, efforts in 2015 focused on adapting supply to the renewed growth in demand.

This included:
— A 7% increase in the bus network's transport capacity.
— Shorter waiting times for buses on weekdays, Saturdays, and holidays on 37 lines. The lines on which the service has been improved are:
  — Weekdays: 7, 22, 24, 27, 32, 34, 36, 37, 39, 42, 45, 46, 47, 54, 59, 63, 64, 68, 76, 78, 79, 95, 116, 155, 165, 185, D20, H12, H6 and V7.
  — Saturdays: 6, 14, 22, 24, 27, 32, 33, 34, 37, 42, 47, 59, 63, 64, 70, 78, D20, H12 and V7.
  — Public holidays: 7, 14, 24, 32, 33, 34, 37, 39, 40, 46, 59, 64 and D20.

In addition, several routes were significantly extended:
  — Line 79 was altered on 9 February to run via the La Marina de Port district and La Pedrosa industrial park in L'Hospitalet de Llobregat.
  — Line 78 was extended to Ciutat Esportiva Joan Gamper in Sant Joan Despí on 24 March.
  — Line 59 was extended to Poble Nou on 14 September.
  — Line 116 was extended to the La Salut district on 14 September.

Simultaneously, tools and services were implemented to provide information and customer services via interactive screens at bus stops and in vehicles, the TMB mobile app and the Internet. The public was informed via leaflets distributed together with the new network map, advertisements on the sides and backs of buses, illuminated panels at bus stops and in metro stations, an ad on MouTV and social networks.





Fleet replacement plan for 2015

Following a call for tenders issued in December 2014, TMB awarded contracts to four manufacturers to supply 43 buses needed to replace vehicles that had reached the end of their working lives. These vehicles (except for six double decker buses which are pending delivery) were delivered during the year but are still being tested and have not yet been released into the operational fleet.

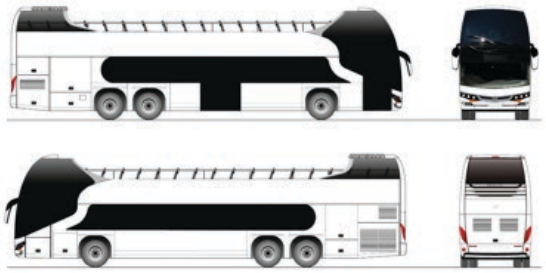
The new vehicles are of three different types:

—Hybrid articulated buses for regular lines:
The largest batch of 27 articulated buses to run on regular lines includes two models from two manufacturers: 15 Solaris Urbino buses and 12 Volvo 7900 buses. They all have hybrid engines (an electric propulsion system combined with an internal combustion engine that generates electricity) and will be the first 18-metre vehicles using this technology to operate in Barcelona.

These will be the first articulated hybrid buses in Spain and include a number of innovations such as four doors (two entrances and two exits), USB points for charging mobile phones and smart passenger counters. Both the interior and exterior design of the buses is completely new, and they are designed to operate on high performance lines.

—Minibuses for local lines:
For local services six 6-metre minibuses based on the Mercedes Benz Sprinter L6 were acquired from Indcar. These high-floored vehicles are specially designed for hilly routes. Their clearance above the ground allows them to be used on routes with very steep slopes. Like the rest of the fleet, these buses are adapted for people with reduced mobility (PRM), but the design of the access platform is quite different as ramps are not suitable for this type of terrain.

—Double-decker open top buses for the Barcelona Bus Turístic:
The Barcelona Bus Turístic is being updated, and TMB has taken delivery of four new 14-metre, three axle, double-decker vehicles manufactured by Sercar using Volvo chassis and mechanics. Six more units will be delivered in 2016. These buses run on diesel and comply with the Euro 6 environmental standard. These new double-decker buses have a larger passenger capacity than the current vehicles and have a very innovative new look.



TMB's bus fleet awarded environmental quality seal

This year TMB's buses have been included in the Government of Catalonia's environmental quality seal of approval scheme. This category of the Catalan eco-labelling system, developed by the Ministry of Territory and Sustainability, is based on environmental criteria including management of the fleet, efficient driving practices, the type of vehicle and its condition, and other environmental measures. The seal certifies that the fleet has met certain environmental quality requirements beyond those required under current legislation.

It recognises TMB's efforts to apply European directives and air quality improvement plans, and its involvement in the project to introduce an all-electric bus. The transformation of the urban bus fleet, which now includes compressed natural gas vehicles, buses with environmentally improved diesel engines, hybrid and electric buses, has reduced annual nitrogen oxide emissions by 75% and particle emissions by 88%. These are the contaminants considered to be most harmful to health.

The conversion process, which began in 2012, has made Barcelona's bus fleet one of the cleanest in Europe. TMB is also playing a leading role in the ZeEUS Project to promote emissions-free public transport.

Installation of smart bus stops in Passeig de Gràcia

At the start of the year eight examples of a new model of smartshelters were installed, equipped with new technologies that allow the public to find information easily and intuitively about the local area and nearby services, such as transport.

TMB and Barcelona City Council worked together to install smart street furniture that makes life easier for members of the public, providing them with local information and services. Each smartshelter has a touch screen providing information on public and TMB services, interactive advertising, a Wi-Fi connection and downloadable municipal apps using QR codes and contactless technology.

These smart bus shelters allow the public to connect to the Council's Wi-Fi service free of charge, find out what the shops and businesses in this major shopping street offer and even recharge their mobile phones using one of three USB ports.

Renewal of the operating contract for Lines 80, 81, 82 and 83 in Nou Barris

Based on the good service provided by Bus Nou Barris and its fulfilment of the contract terms, in 2014 the contract was extended for a further three years (an option contemplated in the contract and the calls for tender).

The contract will now terminate on 31 December 2017. A new call for tenders will be issued in 2017 so that the operator awarded the contract can take over on 1 January 2018.

KanGo! Campaign to promote the use of public transport by school children

The Sarrià-Sant Gervasi district has one of the greatest numbers of schools in Barcelona, making transport a complex issue when pupils are arriving at and leaving school. From January 2015 until the end of the academic year in June the district ran a pilot project in partnership with TMB, Barcelona's Municipal IT Institute and the Abertis Foundation, designed to make it easier for children over eight years old to travel independently to school by bus. The project, entitled KanGo!, was set up with families that showed interest and registered to participate on-line.

TMB's Network Operations Department and the TMB Education project team took part in the design and progressive implementation of the pilot project. The bus lines involved were the V3 and V7 in the new network, and the conventional Lines 22, 60, 64, 66, 73 and 75. There were 15 signposted stops along the main routes of Passeig de la Bonanova, Avinguda del Tibidabo, Via Augusta and Can Caralleu. At the end of the pilot project a survey of the participating families showed that they viewed it positively, and the scheme will return for the new 2015-2016 academic year, with six new schools joining in.

The year's milestones for FMB

Start of refurbishment of 2000-series trains

The 2000-series trains were originally intended to run on Line 2, but in fact began operating commercially on Line 3. The six units (30 coaches) were received between the years 1992 and 1997. They brought in a new era of continuous trains, being the first to have interconnecting corridors between the carriages. In recent years these trains have been used on Line 3, together with the already refurbished 3000-series trains and some 5000-series units.

In January 2015 the first train to be refurbished went to the Tradinsa workshop in Lleida. Its technology was updated and the train made more reliable and comfortable. In December 2015 the fully refurbished train was returned and is currently in the recoupling and testing phase. The train is expected to go into service in February 2016. The second S2000 unit has been in the Tradinsa workshops for refurbishment since December.

The work includes technical changes and updating the train's look and fittings. The most visible measures include changing the seat layout so the seats run longitudinally along the carriages, replacing the interior lighting with LED technology and relocating the handgrips. Two areas will continue to be reserved for persons with reduced mobility, at either end of the carriage. A button will allow users of these areas to alert the driver of their intention to disembark from the train. The doors close to this area are fitted with lights to indicate that they are closing. A new type of corridor between coaches is also being fitted that will make maintenance work much easier. On the safety front, the mechanisms on all the doors are being tested and a new video surveillance system fitted that will record events throughout the train if the emergency handle is pulled. The driver's cabin is also being updated. It will be more airtight and have its own air conditioning system, and intruder detectors are being installed in the rear cabins to improve security. In addition to work to improve safety and functionality, the flooring is also being replaced.

Refurbishment of the Montjuïc funicular railway

Work began in early November 2015 on updating and thoroughly servicing the Montjuïc funicular railway, which involved closing it down for around four months. This was required as the service had been in operation for over 22,500 hours since it its launch 23 years ago for the Barcelona Olympics. The work included dismantling and inspecting, and in many cases replacing the infrastructure and rolling stock.

Removing the trains is a complex operation requiring cranes and special platform trucks, using an open air stretch of line. Once removed, the carcasses were sent to the Tradinsa workshops, where they were repaired, repainted and their interiors refurbished in a style matching that of the trains on the metro network. The bogies, however, were sent to Italy for intensive maintenance. The wheels were serviced and turned in another specialist workshop in Germany. The parts were reassembled at the end of the process and the trains tested prior to the reopening of the service.

Work on the rolling stock included replacing the hydraulic braking system and the electrical train controls. All the controls were replaced across the entire system, work was carried out on the infrastructure and the upper and lower traction cables and counterweight cables were replaced.

During the closure, users were recommended to use an alternative special bus service or one of the regular bus lines to Montjuïc.

First five metro stations with Wi-Fi connection

Under Barcelona City Council's plan to roll out Wi-Fi access in public spaces, work began in the first quarter of 2015 on a pilot phase to install Wi-Fi in the metro network. Five stations were covered: Espanya, Universitat, Arc de Triomf and La Sagrera, on Line 1, and Diagonal, on Line 5.

A basic Internet connection is available with a bandwidth of 256 kbps, the maximum allowed under telecommunications regulations, allowing users to surf, update social networks and check their e-mail, for example. When users connect for the first time, they must register with the Barcelona Wi-Fi service.

Wi-Fi services will subsequently be rolled out to a further 16 stations.

Launch of the Improve LIFE project to assess and improve air quality in the metro

The first phase of the Improve LIFE project began in late January 2015 to assess and improve air quality in the metro. The first visible measure involved taking samples in La Sagrera station on L5. The aim is to analyse the air before, during and after track replacement works being carried out near the station. Samples will be taken from a range of locations throughout the metro network until September 2016. The concentrations of suspended microparticles (PM) and their chemical composition will be measured in both stations and train interiors. Laboratory tests will be performed on components which are susceptible to environmental damage, such as the blades on electric motors, tracks, brake pads, ballast stones, wires and catenary contact strips.

The aim of the project, which is being developed and promoted by the Spanish National Research Council (CSIC) and TMB, is to assess the air quality in the metro and propose measures to achieve a cleaner public transport system for the benefit of both users and employees. The project is co-financed by the European Commission's LIFE + Environment Policy and Governance programme. The results of the study will be published and made available to public rail transport operators around the world, as its recommendations can be applied to other transport networks beyond the Barcelona metro network.


5
Sustainable
mobility, mainstay
of the organisation

Passengers carried by TMB

A key figure for 2015 is the significant increase in the number of travellers using the ATM integrated fare system and all the networks operated by Transports Metropolitans de Barcelona (TMB).
TMB carried 572.79 million passengers (excluding the Montjuïc cable car), 12.75 million more than in the previous year (+ 2.3%).

Passengers carried by TMB (in millions)

(millions)	2015	2014	Diff.	%
Total Ferrocarril Metropolità de Barcelona	**385.002**	**375.722**	**9.280**	**2.5**
Bus network	182.255	178.346	3.909	2.2
Bus Turístic	5.361	5.751	-0.390	-6.8
Tramvia Blau	0.171	0.216	-0.044	-20.6
Total Transports de Barcelona	**187.787**	**184.313**	**3.474**	**1.9**
Total TMB	**572.789**	**560.035**	**12.754**	**2.3**

Although passenger numbers for both companies rose, the increase was more pronounced in the metro network, where the number of passengers rose by 9.28 million (up 2.5%). This increase in demand for the metro reflects improvements in the country's economy.

The growth in passenger numbers for Transports de Barcelona, which includes the regular bus network, the Barcelona Bus Turístic and the Tramvia Blau, was generated on the regular bus network, with 3.91 million passengers more than the previous year (+2.2%). This increase may be attributed to improvements in the service, following the implementation in the first quarter of the year of the plan to increase passenger capacity on certain lines, together with the consolidation of the lines that came into operation in the previous three phases of the new bus network, as well as to general improvements in the economic climate.

However, in the case of leisure transport, there was a drop in passenger numbers on both the Barcelona Bus Turístic and the Tramvia Blau. In both cases the fall in numbers was most notable in the high season (Easter week and summer). This may be due to a surplus of tourist services, which means tourists and visitors must choose between a wide range of options (museums, transport, leisure, events, concerts, etc.) and adjust their spending accordingly.

The following chart of demand for TMB services (including Barcelona Bus Turístic and Tramvia Blau) in the last ten years shows clear variations:

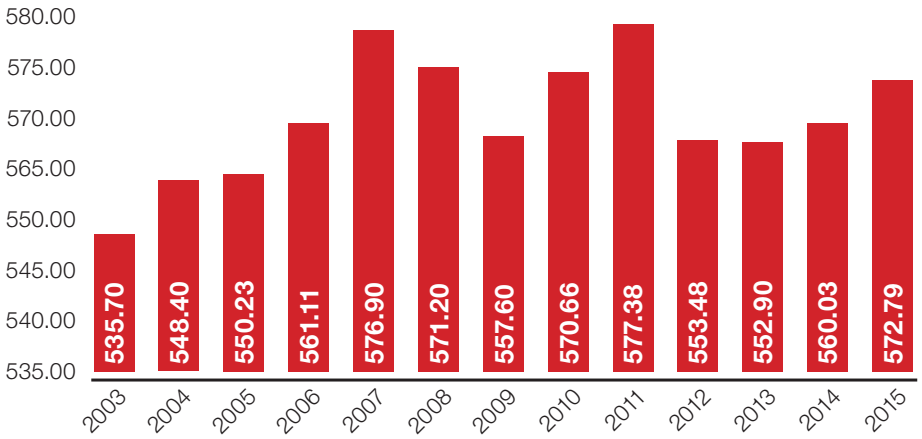
1) Passenger numbers fell in the three years from 2007 to 2009, coinciding with the financial crisis and the corresponding decline in economic activity and transport usage in general.

2) Passenger numbers increased in both 2010 and 2011, when the metro network was extended (with extensions to Lines 2, 3 and 5 and the opening of the first section of L9/L10), culminating in the highest passenger numbers ever reported on the Barcelona metro in 2011.

3) The figures fell once more in 2012 and 2013, to their lowest levels in recent years.

4) From 2014 demand began to recover, the recovery continuing in 2015 as the country's economy continues to improve.

TMB passengers (including leisure transport)



It is worth noting that, despite cost-cutting measures implemented in recent years, the level of service provided has remained high, as demonstrated in the results of customer satisfaction surveys. The average score given by users of the metro service was 7.46 out of 10 in 2015, while for buses the average score was 7.52 out of 10.

Passengers carried by Transports de Barcelona (TB)

A key figure for 2015 is the significant increase in travellers using the ATM integrated fare system and the metro and bus networks operated by Transports Metropolitans de Barcelona (TMB). TMB carried 572.8 million passengers, 12.8 million more than in the previous year. Passenger numbers on the networks operated by Transports de Barcelona increased by 3.5 million (1.9%) compared with 2014, to reach 187.8 million in the year.

Passengers carried by Transports de Barcelona (in millions)

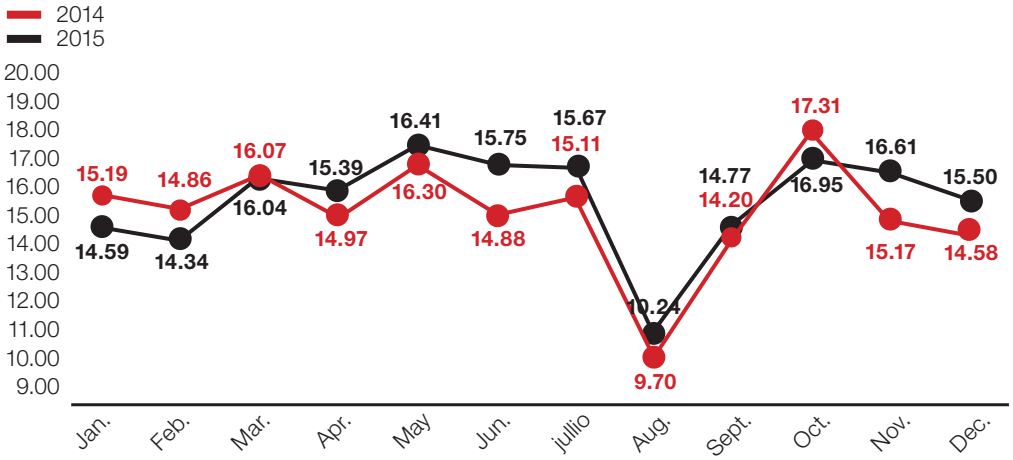
	2015	2014	Diff.	%
Bus network	182,255	178,346	3,909	2.2
Bus Turístic	5,361	5,751	-0.390	-6.8
Tramvia Blau	0.171	0.216	-0.044	-20.6
Total TB	**187,787**	**184,313**	**3,474**	**1.9**

The table shows that the increase in demand was concentrated entirely in the regular bus network, where passenger numbers grew by 3.91 million. This increase may be attributed to improvements in the service, following the implementation in the first quarter of the year of the plan to increase passenger capacity on certain lines, to the consolidation of the lines that came into operation in the previous three phases of the new bus network, as well as to general improvements in the country's economic climate.

In the case of leisure transport, there was a drop in passenger numbers on both the Barcelona Bus Turístic and the Tramvia Blau. In both cases the fall in passenger numbers was most notable in the high season (Easter week and summer). This may be due to the ever growing selection of tourist services available, which means tourists and visitors must choose between a wide range of options (museums, transport, leisure, events, concerts, etc.) and adjust their spending accordingly.

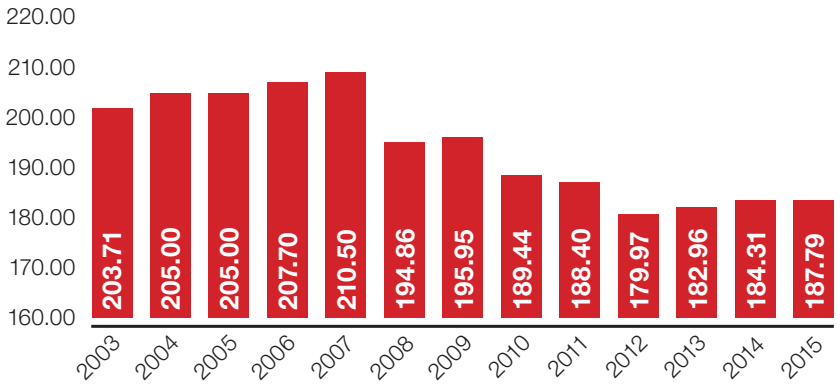
The chart below shows monthly passenger figures on the regular bus network over the last two years. In the first quarter of the 2014 the increase in passenger numbers was 1.02 million (+1.10%), while in the second half of the year the increase was less, specifically 0.62 million passengers (0.72%).

Monthly passengers on regular bus network (Millions of ticket validations)



The following chart shows changes in demand over the last two years for Transports de Barcelona services.

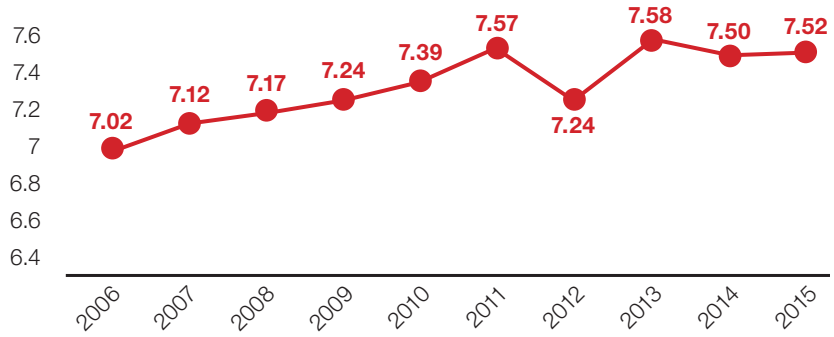
Bus network passenger numbers (including leisure transport services)
(Millions of passengers)



Two distinct periods can be identified:
—In the years 2007-2012 there was a drop in demand due to the extension of the metro network and the impact of the recession.
—This trend was halted in 2013 following the launch of the new bus network in October 2012 together with a slight improvement in the economic climate, leading to three consecutive years of growth in passenger numbers.

Despite the adjustments made to the service, in particular since 2012, the quality of the service provided has been maintained and it is well regarded by the public. In 2015 customers gave the TMB bus service an average satisfaction score of 7.52 out of 10. The decline in 2012 was due to strikes and service stoppages that affected passengers' perceptions of the service.

Bus and metro satisfaction scores



Finally, there has been an increase in the use of subsidised travel cards (for pensioners, the unemployed, large and single-parent families, etc.) in recent years. While 26.8% of journeys were made using subsidised travel cards in 2008, by 2015 the figure was 33.9%.

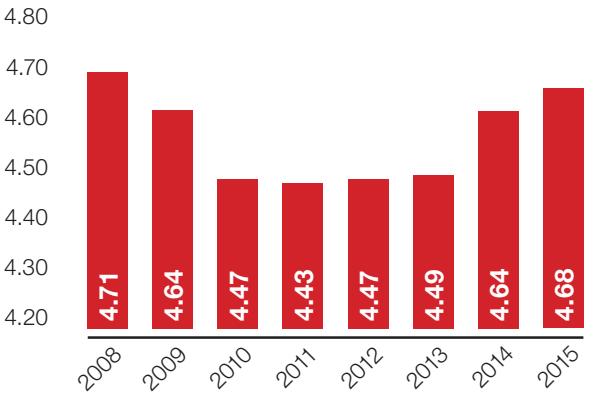
Passengers per vehicle-km in operation

Passengers per vehicle-km in operation grew by 0.9% to 4.68 passengers per vehicle-km in operation. This is due to the increase in demand (1.9%) outstripping the increase in vehicle-km in operation (0.9%).

	2015	2014	Diff.	%
Passengers	187.79	184.31	3.47	1.9
Vehicle-km in operation	40.11	39.73	0.38	1.0
Total vehicle-km in operation	**4.68**	**4.64**	**0.04**	**0.9**

As shown below, the ratio of passengers per vehicle-km in operation on the bus network declined each year until 2011, when it reached a minimum of 4.43 passengers per km in operation. After this, thanks to measures designed to rationalise the availability of places in order to reduce the company's financial needs, the trend was reversed and the indicator began to rise again, especially in the last two years, reaching levels close to those reported in 2008.

Passengers/vehicle-km in operation in TB
(Passengers/vehicle-km in operation)



Passengers carried by Ferrocarril Metropolità de Barcelona (FMB)

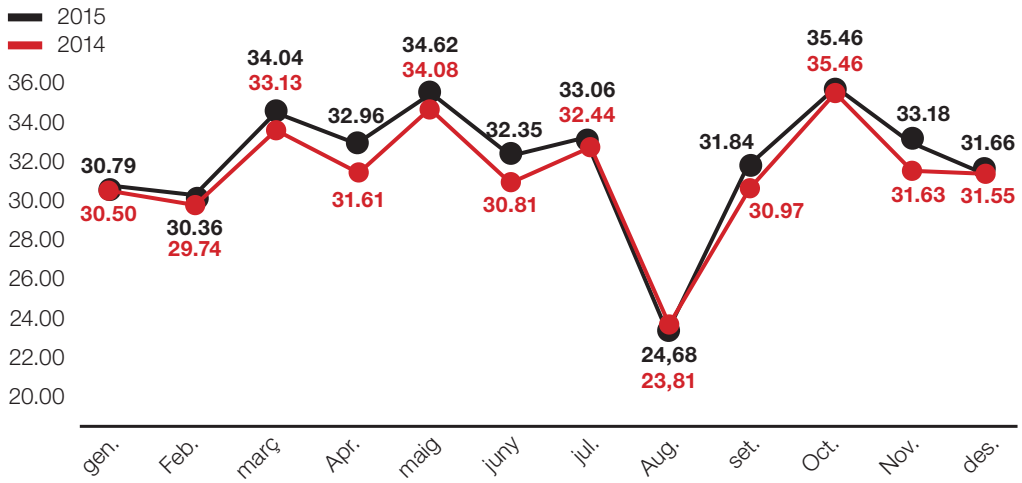
A key figure for 2015 is the significant increase in the number of travellers using the ATM integrated fare system and the metro and bus networks operated by Transports Metropolitans de Barcelona (TMB). The number of passengers using the metro network increased by 9.3 million (2.5%) with 385 million ticket validations.

Metro passengers (in millions)

	2015	2014	Diff.	%
Passengers	385.00	375.72	9.28	2.47

The chart shows that passenger numbers were higher in every month in 2015 than in the corresponding month in 2014. In the first half of the year 5.2 million more passengers were carried on the network (2.76%) while 4.0 million more passengers used the network in the second half (2.17%).

Passengers monthly metro
(Millions of ticket validations)



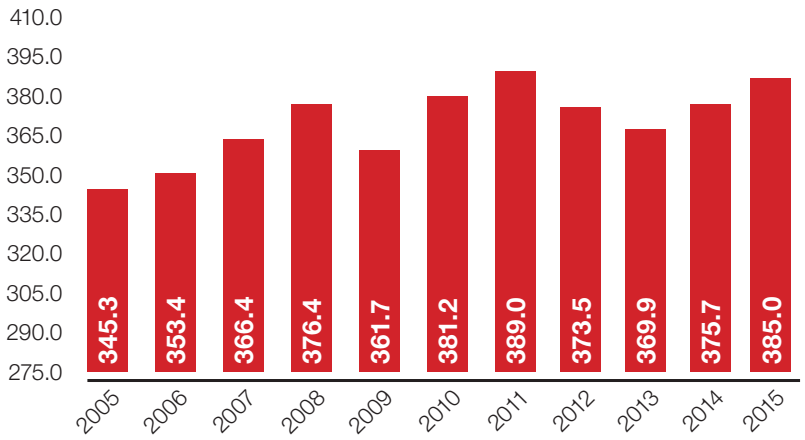
The growth in passenger numbers has occurred on all metro lines except L9/10 and the Montjuïc funicular. It should be noted that two sections of line on L9/10 were closed from 5 to 18 August for maintenance work, near La Sagrera station and at the Bon Pastor junction.

The funicular railway was closed from 2 November 2015 for a complete service and modernisation of the infrastructure and rolling stock. These works are expected to take approximately four or five months. This year's technical stoppage was longer than usual as the service had been in operation for over 22,500 hours and additional maintenance work was required to comply with the regulations on cable car services. In the meantime, Paral·lel and Miramar are connected by a special bus service.

Passengers carried by metro line (in millions)

Line	2015	2014	Diff.	% chg.
L1	105,630	103,051	2.579	2.50%
L2	41,643	40,397	1.247	3.09%
L3	83,809	82,033	1.776	2.16%
L4	54,055	52,368	1.687	3.22%
L5	89,959	87,904	2.054	2.34%
L9 and L10	8,141	8,224	-0.083	-1.01%
L11	1,216	1,161	0.055	4.73%
Funicular	0.549	0.583	-0.034	-5.82%
Total	**385,002**	**375,722**	**9.280**	**2.47%**

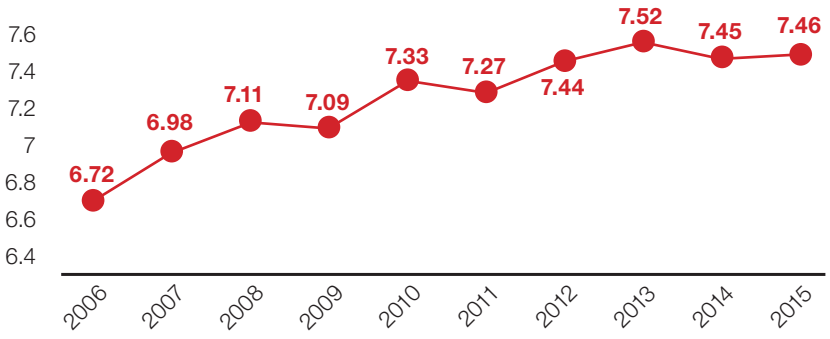
Metro passenger numbers 2006-2015 (in millions)



The chart above shows passenger numbers over the last ten years, highlighting a number of points:
—Passenger numbers increased steadily until 2011, with the exception of 2009.
—In 2012 and 2013 the numbers dropped.
—In 2014 and 2015 passenger numbers recovered significantly, and were almost back at 2011 levels, when a record number of people travelled on the metro.

This increase in demand for the metro in the last two years reflects improvements in the country's economy. According to figures from the Idescat active population survey, the unemployment rate in Catalonia fell from 24.45% in the first quarter of 2013 to 17.73% in the fourth quarter of 2015. Furthermore, despite cost-cutting measures implemented in recent years, the level of service provided has remained high, as shown in the results of customer satisfaction surveys. The chart shows the increase in customer satisfaction scores which have stood at around 7.5 out of 10 in recent years.

Metro satisfaction scores



It should also be noted there has been an increase in the use of subsidised travel cards (for pensioners, the unemployed, large and single-parent families, etc.) in recent years. While 10.8% of journeys were made using subsidised travel cards in 2008, by 2015 the figure was 17.6%.

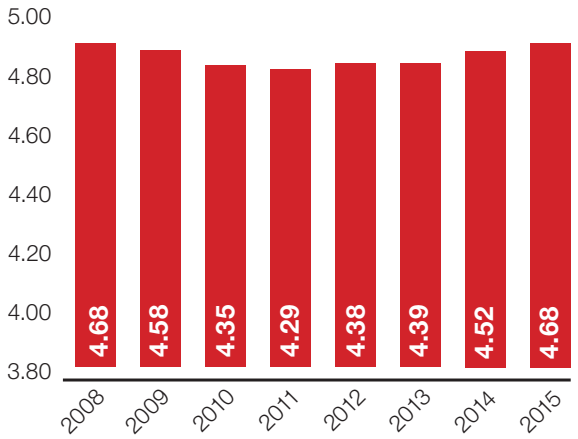
Passengers per coach-km in operation

As a result of the measures introduced to bring supply into line with real levels of demand, thus making better use of resources, the average number of passengers per coach-km in operation was 4.68, an increase of nearly 3.6% over the previous year. Although the number of coach-km in operation was down 1.0% on 2014, the number of passengers increased by 2.5%, pushing up this indicator of resource use.

	2015	2014	%
Passengers (millions)	385.00	375.72	2.47%
Vehicles-km in operation (thousands)	82,295.51	83,160.46	-1.04%
Passengers/coach-km in operation	**4.68**	**4.52**	**3.55%**

The chart below shows that this ratio declined from 2008 to its lowest value in 2011 when the metro network was extended and L9/10 was opened. Since then, with the introduction of the service availability rationalisation plan in 2012, the figure for this indicator has risen each year, reaching 4.68 passengers per coach-km in operation in 2015, the same ratio as in 2008.

Passengers/coach-km in operation on metro



Passengers carried by Projectes i Serveis de Mobilitat, SA

2015 was the eighth consecutive year of operation of the Montjuïc cable car. after its complete renovation. It provides 55 fully glazed cars each able to hold eight passengers. They are adapted for users with reduced mobility.

With three stations (Parc de Montjuïc. Mirador and Castell de Montjuïc). the cable car can carry over 2.000 people/hour/direction. the figure varying according to demand. It operates every day of the year from 10.00 am to 9.00 pm (peak season). except when essential maintenance work is being carried out. which in 2015 took place from 2 to 22 February.

In late 2014 work began on remodelling ticket barriers and the ticket sales and validation system. This work continued in 2015. with the addition of an extra sales point at the driving station. Improvements to the system include the introduction of credit card payments at sales points and new turnstiles with QR code readers in readiness for a future contactless system.

A PA system with pre-recorded passenger announcements was installed. controlled centrally from the driving station. with loudspeakers on pillars throughout the facility.

During 2014 the Montjuïc cable car launched its own website www.telefericdemontjuic.cat. with information on the service. tourist sights and a photo gallery. In 2015 tickets for the cable car went on sale via the website www.barcelonasmartmoving.com. a six-language platform designed to promote leisure transport in the city of Barcelona and the sales of products such as the Montjuïc cable car.

On the marketing side. promotional campaigns were carried out with advertisements for the Montjuïc cable car on the backs of Barcelona Bus Turístic vehicles.

The key operating figures for the cable car are as follows:

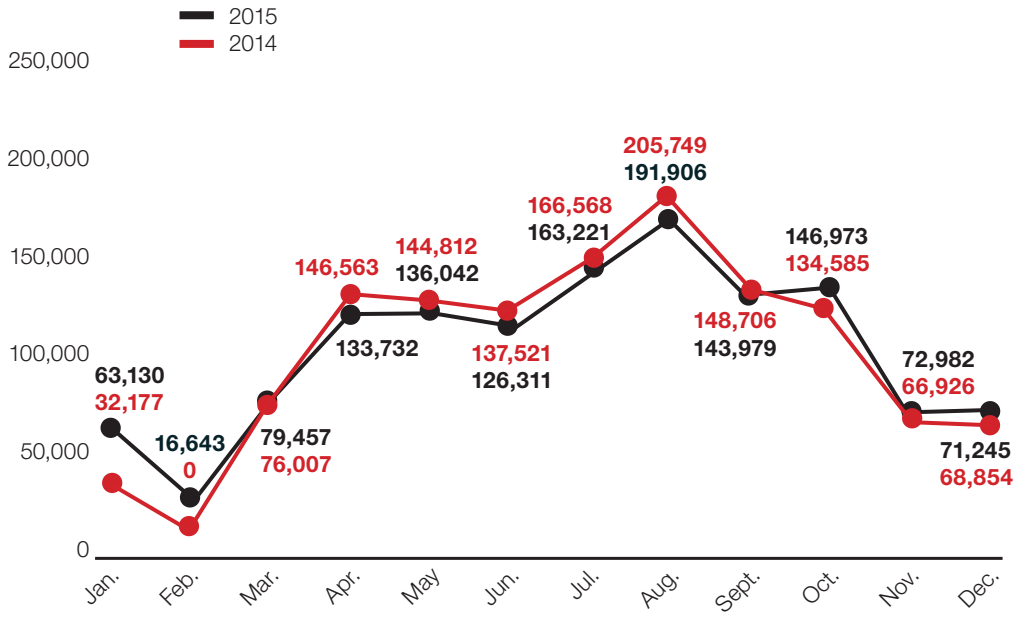
—*Passenger numbers*

In 2015 1.345.621 passengers were carried. a year-on-year increase of 1.3%.

	2015	2014	Diff.	%
Passengers first semester	555,315	537,080	18,235	3.4
Passengers second semester	790,306	791,388	-1,082	-0.1
Total	**1,345,621**	**1,328,468**	**17,153**	**-1.3**

The following chart shows that passenger numbers were higher in the first and fourth quarters of the year. It should be borne in mind that the first quarter of 2014 was affected by the longer service stoppage for maintenance required because the cable car had been in service for over 22,500 hours.

Monthly Montjuïc cable car passengers



Cable car key figures

Length (metres):	752
Elevation gain (metres):	84.55
Number of supports:	12
Number of cars:	55 (fully glazed)
System capacity (people/hour):	2,000
Minimum distance between cars (metres):	48
Speed (metres/second):	2.5-5.0
Traction (kVA):	400
Counterweight:	Hydraulic tension

Services

TMB services

The main milestone in 2015 was the introduction of a plan in February and March for improving the quality of the bus service. This involved increasing the service frequency on weekdays, Saturdays and public holidays on a number of lines.

Between 1 January and 31 December 2015 the Montjuïc cable car operated for 3,212 hours. The summer months from June to September accounted for most of these hours (45% of the total). The cable car operated for 99.11% of the hours programmed. Service interruptions were due to external causes, mainly adverse weather conditions (0.78%), and internal technical problems (0.11%).

—Coaches-km/vehicles-km in operation

The figure for coach-km in operation in 2015 fell by 1% for the metro while vehicle-km in operation increased by 1% for surface transport.

Vehicles-km in operation (thousands)

	2015	2014	Diff.	%
Metro	82,295.51	83,160.46	-864.95	-1.0
TB	40,111.66	39,729.88	381.78	1.0

In the case of Metro, the policy introduced in previous years was maintained, planning the availability of services in line with real demand with a view to making efficient use of the resources available. For example, the service was reduced by 5% every day from 1 July to 13 September (from 23 July to 6 September for automated lines). In winter, a similar adjustment to the service was applied at Christmas and Easter. In the case of Transports de Barcelona, the service provided increased following the implementation of the quality plan detailed above.

—Coaches-km/vehicles-km in operation

Figures for TMB metro and buses have both declined for the reasons described previously, with a fall of 0.7% compared with the previous year.

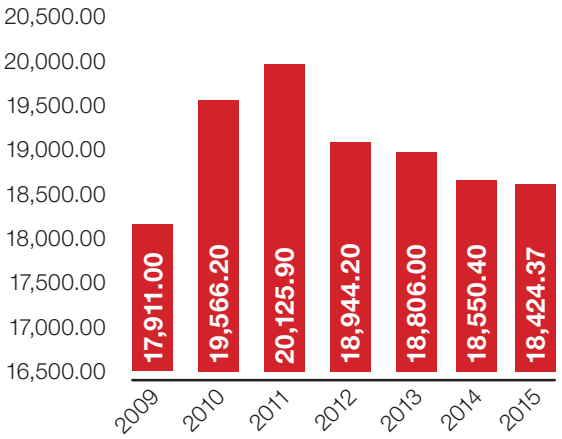
Places-km provided

	2015	2014	Diff.	%
Metro	15,086.12	15,236.10	-149.98	-1.0
TB	3,338.25	3,314.29	23.96	0.7
TMB	**18,424.37**	**18,550.40**	**-126.03**	**-0.7**

The following chart shows changes in places-km provided on all TMB vehicles (excluding the Montjuïc cable car). From 2012 the service provided was cut as a result of measures introduced in that year to streamline the metro and bus services in line with reduced demand. It should be noted that three phases (13 lines) of the new bus network were launched in 2012 in order to rationalise the network, moving from an accumulation of routes to an integrated network which is more efficient, comprehensible and useful.

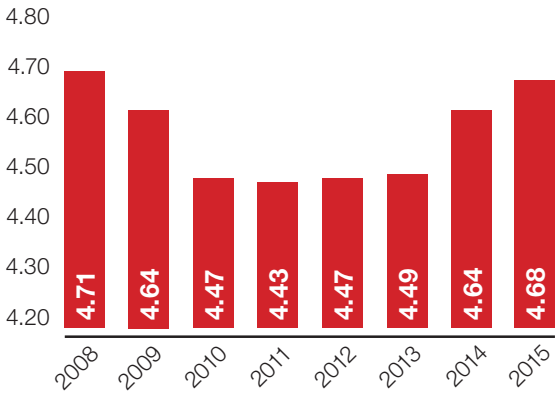
On 29 February 2016 the fourth phase will be implemented with three new lines: one horizontal line (the H4) and two vertical lines (the V11 and the V13).

Places-km provided by TMB (excluding Montjuïc cable car)

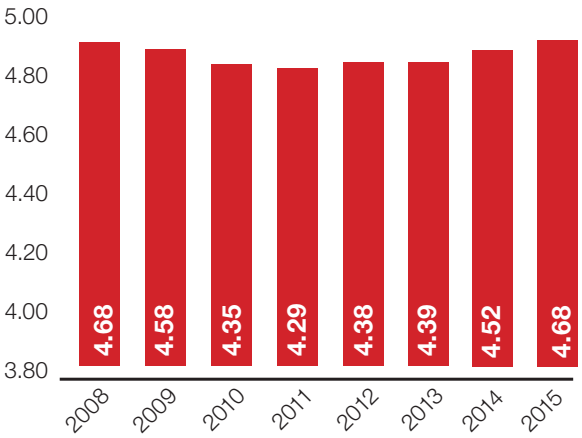


These measures to rationalise the network have led to an increase in the ratio of passengers carried per vehicle-km/coach-km in recent years on the bus and metro networks (see charts below).

Passengers/vehicle-km in operation in TB



Passengers/coach-km in operation on metro



On both networks the ratio of passengers to vehicle-km in operation has been increasing since 2012, reaching 4.68 in 2015, similar to the figure reported in 2008.

Services provided by Transports de Barcelona

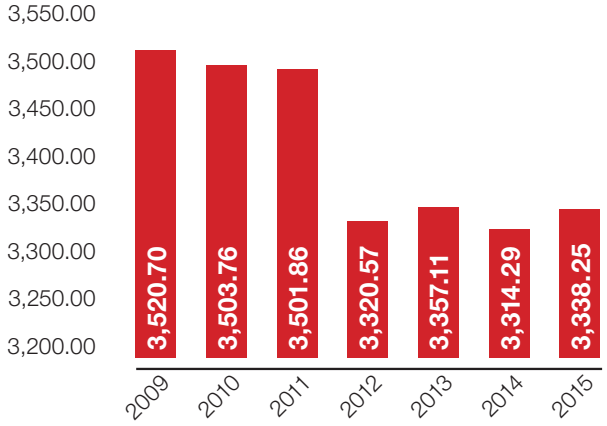
On the supply side the main milestone in the year was the implementation of a new quality improvement plan in February and March 2015. This involved increasing the service frequency on a number of bus lines on weekdays, Saturdays and public holidays.

Places-km provided by TB (in millions)

	2015	2014	Diff.	%
Places-km provided	3,338.25	3,314.29	23.96	0.72

The plan to increase service frequency resulted in the number of places-km growing by 0.7% to 3.338 million.

Places-km provided in TB
(Millions of places-km)



In recent years the availability of bus services has been adapted to demand, especially with the introduction of metro Line L9/10 and the extension of lines L2 and L5 in the years 2009-2010. The drop in 2012 was due to strikes in that year together with the launch of a programme of rationalisation measures to bring services into line with demand and make more efficient use of resources.

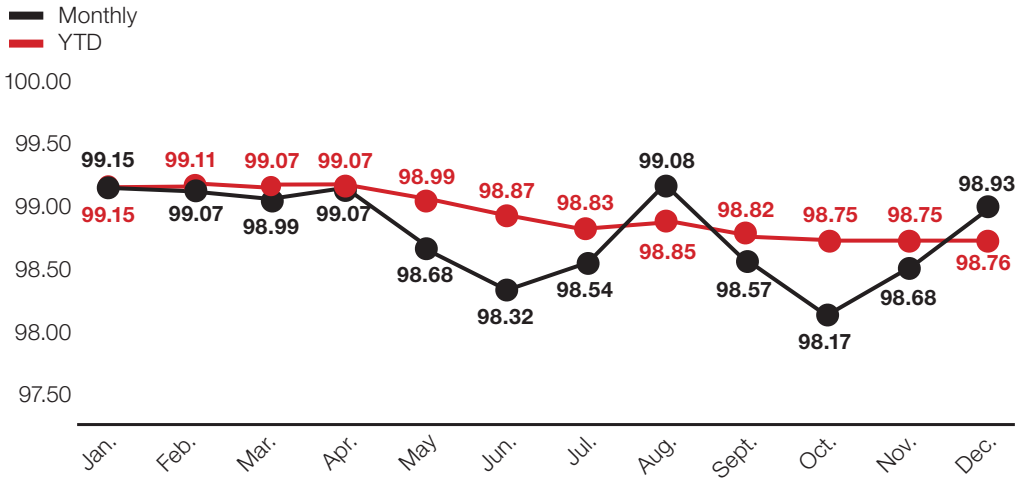
The increase in vehicle-km in operation in 2015 is also due to the bus improvement plan implemented in the year. Total vehicle-km in operation was 40.1 million, an increase of 1% on the previous year.

Vehicle-km in operation by TB (in thousands)

	2015	2014	Diff.	%
Vehicle-km in operation	40,111.66	39,729.88	381.78	0.96

Average fulfilment of scheduled service (vehicle-km in operation as percentage of total scheduled) for the year was 98.76%, very slightly lower than the figure for 2014 (98.86%).

% compliance with service targets in 2015



The service provision study provides assessments of various qualitative aspects of the bus service. Average scores for 2015 (on a scale of 0 to 10) for fulfilment of service, cleanliness, conservation, information and customer services were as follows:

				Score (2015)
Competition				
		Compliance of service provided		9.89
Comfort	Cleanliness	Passengers travelling in vehicles which are sufficiently clean		8.05
		Passengers waiting at bus stops which are sufficiently clean		8.73
	Maintenance	Passengers travelling in vehicles which are adequately maintained		9.31
		Passengers waiting at bus stops which are adequately maintained		6.47
Total comfort cleanliness				**8.28**
Total comfort maintenance				**8.21**
Information		Passengers on buses who are adequately informed		9.94
		Passengers at stops who are adequately informed		9.84
Total information				**9.88**
Customer services		Passengers receiving appropriate service		9.85
		Passengers receiving correct responses		9.99
		Passengers travelling with appropriately dressed personnel		10.00
		Passengers travelling in properly driven vehicles		9.97
		Complaints and claims:	Average response time	9.65*
			Responses within target time	8.72*
Total Customer services				**9.81**

* Average response time was 15.53 days (the target is 15 days or less) with 87.22% answered within the limit.

Ferrocarrils Metropolitans de Barcelona services

—Places-km provided

In 2015 the company continued with the policy, established in earlier years, of ensuring supply matches demand as efficiently as possible. For example, the service was reduced by approximately 5% every day from 1 July to 13 September (from 23 July to 6 September on automated lines). In winter, a similar adjustment to the service was applied at Christmas and Easter.

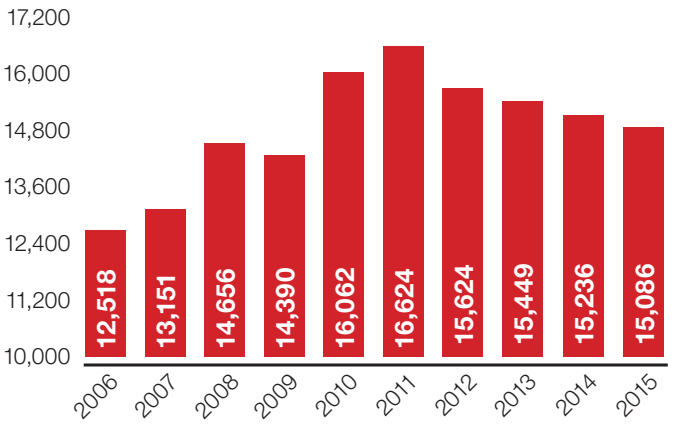
Places-km (in millions)

Line	2015	2014	Diff.	%
L1	3,540.59	3,575.46	-34.87	-0.98
L2	1,927.53	1,915.85	11.68	0.61
L3	2,684.88	2,733.63	-48.76	-1.78
L4	2,336.28	2,373.59	-37.30	-1.57
L5	3,077.28	3,116.82	-39.54	-1.27
L9/10	1,446.04	1,447.26	-1.22	-0.08
L11	73.52	73.49	0.03	0.04
Total	**15,086.12**	**15,236.10**	**-149.98**	**-0.98**

15,086 million places-km were provided on the metro service in 2015, 1% less than in the previous year. This reduction occurred mainly on Lines 1, 3, 4 and 5, as a result of the measures to streamline services detailed above. Despite this reduction in the number of seats-km provided, passenger numbers grew by between 2.2% and 3.2% on these lines.

Figures for the last ten years show a significant increase up to 2011 because of the growth of the network following the introduction of Line L9/L10, the extensions to lines L2, L3 and L5 and improved service intervals. This growth stopped in 2012 following the implementation of the service rationalisation plan.

Places-km
(Millions of places-km)



—Coaches-km in operation

This change is also reflected in the figure for coaches-km in operation in 2014, which fell by 1.36% to 83.16 million.

Coaches-km in operation (in thousands)

Line	2015	2014	Diff.	%
L1	17,690.42	17,884.14	-193.72	-1.08
L2	10,555.88	10,492.23	63.66	0.61
L3	16,290.47	16,581.73	-291.25	-1.76
L4	13,239.44	13,462.66	-223.22	-1.66
L5	16,688.36	16,902.66	-214.30	-1.27
L9 /L10	7,415.60	7,421.84	-6.25	-0.08
L11	415.33	415.20	0.13	0.03
Total	**82,295.51**	**83,160.46**	**-864.95**	**-1.04**

The measures to streamline the service, together with increasing passenger numbers, have led to a better use of resources, as demonstrated by the improvement in the ratio of passengers carried to coaches-km in operation on almost every line:

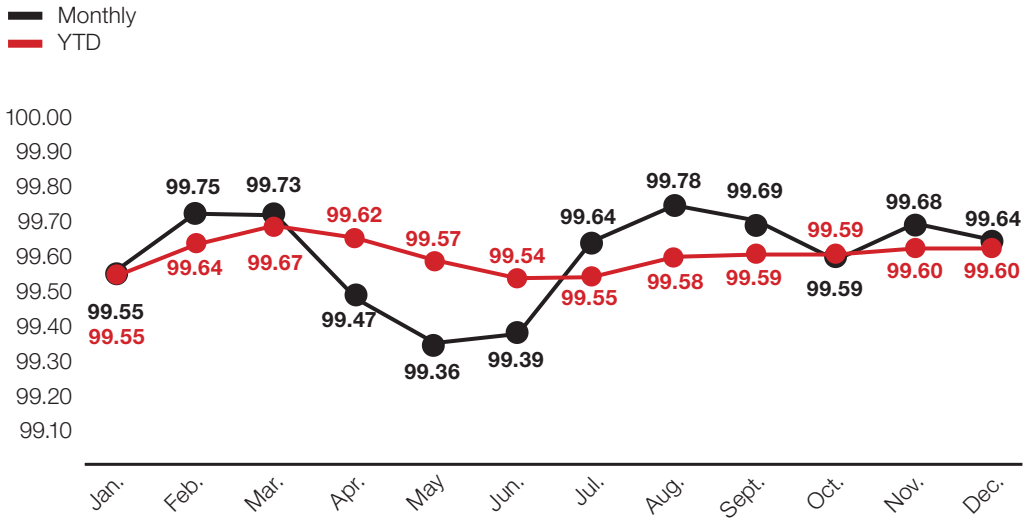
Passengers/Coach-km in operation by line

Line	2015	2014	%
L1	5.97	5.76	3.62%
L2	3.95	3.85	2.46%
L3	5.14	4.95	3.99%
L4	4.08	3.89	4.96%
L5	5.39	5.20	3.65%
L9 /L10	1.10	1.11	-0.93%
L11	2.93	2.80	4.70%
Total	**4.68**	**4.52**	**3.55%**

Average service fulfilment (coaches-km in operation as a percentage of the total scheduled) was 99.6%.

The following chart shows monthly and cumulative figures for this indicator in 2015. Although the average service fulfilment indicator declined in spring, it stood at over 99% in every month of the year, with the highest scores reported in August and February, respectively.

% compliance with service targets in 2015



—Provision of trains in service in winter during peak hours (weekdays)

The number of trains in service during the morning peak hours on a weekday in winter (including the Montjuïc funicular) at the end of the year was 134. This figure was unchanged from the previous year.

Trains at peak times (weekdays)

Line	2015	2014	2013	2012	2011
L1	26	26	26	26	26
L2	19	19	19	22	22
L3	26	26	26	27	27
L4	19	19	19	19	19
L5	30	30	30	30	30
L9	6	6	6	6	6
L10	4	4	4	4	4
L11	2	2	2	2	2
Funicular	2	2	2	2	2
Total	**134**	**134**	**134**	**138**	**138**

—Commercial speed

The chart below shows the commercial speed on each metro line during peak hours on a weekday in winter. As can be seen, in 2015 the same speed was maintained on all lines as in the previous year.

Commercial speed (km/hour)

Line	2015	2014
L1	26.8	26.8
L2	25.7	25.7
L3	26.6	26.6
L4	28.4	28.4
L5	26.3	26.3
L9	29.3	29.3
L10	32.4	32.4
L11	24.0	24.0
Funicular	18.0	18.0

—Other service quality indicators

The service provision study provides assessments of various qualitative aspects of the metro service. Average scores for 2015 (on a scale of 0 to 10) for accessibility, information, safety, conservation, cleanliness and customer services were as follows:

			Score (2015)
Accessibility	Customer perception of availability of lifts		7.79
	Customer perception of availability of escalators		7.14
	Customer perception of availability of lobbies		8.10
	Customer perception of availability of ticket barriers		6.84
Total Accessibility			**7.47**
Customer services	Passengers receiving appropriate service		9.59
	Passengers travelling with appropriately dressed personnel		9.98
	Passengers receiving correct responses		9.75
	Complaints and claims:	Average response time	10.00 (*)
		Responses within target time	8.98 (*)
Total customer services			**9.70**
Information	Passengers appropriately informed about trains		9.88
	Passengers appropriately informed about stations		9.92
Total information			**9.90**

(*) Average response time was 13.85 days (the target is 15 days or less) with 89.79% answered within the limit.

		Score (2015)
Safety	Accidents per million ticket validations	5.21
	Accidents per million ticket validations	6.31
Total safety indicators		**5.75**
Comfort: Maintenance	Passengers passing through stations which are adequately maintained	9.86
	Passengers travelling in trains which are adequately maintained	9.71
Total confort: Maintenance		**9.79**
Comfort: Cleanliness	Passengers passing through stations which are sufficiently clean	9.74
	Passengers travelling in trains which are sufficiently clean	9.68
Total confort: Cleanliness		**9.71**

Cost per passenger carried

Cost per passenger carried and per bus hour

—Cost per passenger carried

The company has continued to apply measures to save resources and rationalise expenditure, so that its financial requirements remain within budgetary limitations. This is reflected in the total cost per passenger carried, which was 1.6 euros in 2015, a 0.8% reduction on the figure for the previous year, as expenses increased by less than the rate of growth in passenger numbers.

Operational costs per passenger carried last year were 1.47 euros/passenger, an increase of 1.5%. mainly due to higher provision costs per passenger and higher staff costs. The cost of fuel and external services fell by 14% and 0.7% respectively. In the case of fuel this was because of lower oil prices, resulting in a reduction in the cost of diesel and natural gas for buses.

Other items include a reduction in net amortisation per passenger to 0.92 euro cents and in financial costs per passenger of 2.56 euro cents.

Cost per passenger carried (in euros)

Item		2015	2014	Change in euro cents	%
Operating expenses	Supplies	0.052	0.050	0.19	3.7
	Electricity/fuel	0.110	0.128	-1.79	-14.0
	Personnel	1.104	1.093	1.14	1.0
	External services	0.181	0.182	-0.14	-0.7
	Changes in provisions	0.021	-0.006	2.75	
Total Operating expenses		**1.468**	**1.447**	**2.14**	**1.5**
Other expenses	Taxes other than income tax	0.003	0.003	0.04	14.1
	Net amortisation and depreciation	0.119	0.128	-0.92	-7.2
	Impairment losses and gains/losses on disposal of assets	0.000	0.000	0.00	
	Pensions	0.003	0.002	0.03	13.6
Total other expenses		**0.125**	**0.133**	**-0.85**	**-6.4**
Financial expenses	Write-off of contract programme	0.000	0.000	0.00	
	Structural financial expenses	0.002	0.028	-2.56	-92.3
Total Financial expenses		**0.002**	**0.028**	**-2.56**	**-92.3**
Total cost/bus hour		**1.595**	**1.608**	**-1.27**	**-0.8**
Total bus service hours (thousands)		187,787	184,313	3,474	1.9

— Total cost per hour of the bus service

A supply side analysis of unit costs (cost per service hour) shows similar trends to those for costs per passenger, with a drop in the total cost per hour in 2015 of 0.7% This was because the number of service hours increased by 1.8% while the company's costs increased by 1.1%.

Operating costs per hour rose by 1.6% to 73.26 euros/hour. The most significant growth in this case was also in staff costs and provisions, while fuel costs fell. Other items include reductions in net amortisation per hour of 0.45 euro and in financial costs per hour of 1.28 euros.

Cost per hour of the bus service (in euros)

Item		2015	2014	Diff. in euros	%
Operating expenses	Supplies	2.603	2.507	0.10	3.9
	Electricity/fuel	5.480	6.368	-0.89	-13.9
	Personnel	55.079	54.451	0.63	1.2
	External services	9.026	9.084	-0.06	-0.6
	Changes in provisions	1.069	-0.300	1.37	
Total Operating expenses		**73.258**	**72.109**	**1.15**	**1.6**
Other expenses	Taxes other than income tax	0.153	0.134	0.02	14.2
	Net amortisation and depreciation	5.934	6.386	-0.45	-7.1
	Gain/loss on sale of fixed assets	-0.002	-0.003	0.00	-21.3
	Pensions	0.141	0.124	0.02	13.7
Total other expenses		**6.225**	**6.641**	**-0.42**	**-6.3**
Financial expenses:	Write-off of contract programme	0.000	0.000	0.00	
	Structural financial expenses	0.107	1.384	-1.28	-92.3
Total financial expenses		**0.107**	**1.384**	**-1.28**	**-92.3**
Total cost/bus hour		**79.590**	**80.135**	**-0.54**	**-0.7**
Total bus service hours (thousands)		3,764	3,699	66	1.8

Cost per passenger carried and per coach-total km in operation in FMB

—Cost per passenger carried

The total cost per passenger carried fell by 5% to 0.79 euros per passenger. This was due, firstly, to the cost-cutting measures implemented and, secondly, to a 2.5% increase in the number of passengers carried.

Operating costs per passenger also fell by 4.3% to 0.66 euros per passenger. There were reductions under every cost heading with the exception of external services, the most notable reductions being reported for power costs and provisions. The decrease in power costs is due to both lower electricity consumption and a decrease in the average price per kWh. Measures to save energy on the network and in metro facilities continued this year, and will be detailed later in this report.

Other costs per passenger also fell across the board, with net depreciation and amortisation and structural financial expenses decreasing most notably.

Cost per passenger carried (in euros)

Item		2015	2014	Change in euro cents	%
Operating expenses	Supplies	0.020	0.021	-0.07	-3.1
	Electricity/fuel	0.073	0.079	-0.65	-8.2
	Personnel	0.420	0.434	-1.36	-3.1
	External services	0.153	0.146	0.66	4.5
	Changes in provisions	-0.005	0.011	-1.59	-143.3
Total operating expenses excluding train leases and L9/L10 charges		**0.662**	**0.692**	**-3.01**	**-4.3**
Other expenses	Taxes other than income tax	0.000	0.001	-0.01	-19.9
	Net amortisation and depreciation	0.081	0.090	-0.88	-9.8
	Impairment losses and gains/ losses on disposal of assets	0.002	0.000	0.23	
	Pensions	0.000	0.001	-0.06	-63.5
Total other expenses		**0.084**	**0.091**	**-0.72**	**-7.9**
Financial expenses	Write-off of contract programme	0.042	0.040	0.19	4.8
	Structural financial expenses	0.004	0.011	-0.66	-62.4
Total financial expenses		**0.046**	**0.050**	**-0.47**	**-9.3**
Total cost/passenger carried		**0.792**	**0.834**	**-4.20**	**-5.0**
Passengers carried (thousands)		385,002	375,722	9,280	2.5

Note: Train leases and charges for L9/10 are not included.

—Cost per coach-total km in operation

FMB's total cost per coach-km in operation also fell, although to a lesser extent in percentage terms than the cost per passenger carried, with a unit cost (excluding train leases and charges for L9/L10) of 3.64 euros per km, 1.7% less than the previous year. This is because, while the number of passengers in 2015 rose by 2.5%, the number of coach-total km in operation fell by 1% during the year, thanks to the continued application of measures to save resources.

Operating costs per coach-km in operation totalled 3.04 euros per km, a decrease of 1%. This decrease, as previously commented, is due to reductions in fuel costs and provisions.

Further details on company expenditure are disclosed in the income statement.

Cost per coach-total km in operation (in euros)

Item		2015	2014	Diff. in euros	%
Operating expenses	Supplies	0.094	0.094	0.03	0.4
	Electricity/fuel	0.335	0.353	-1.75	-5.0
	Personnel	1.933	1.927	0.58	0.3
	External services	0.704	0.651	5.34	8.2
	Changes in provisions	-0.022	0.049	-7.14	-144.9
Total operating expenses excluding train leases and L9/L10 charges		**3.044**	**3.074**	**-2.93**	**-1.0**
Other expenses	Taxes other than income tax	0.002	0.003	-0.05	-17.1
	Net amortisation and depreciation	0.373	0.399	-2.63	-6.6
	Impairment losses and gains/ losses on disposal of assets	0.011	0.000	1.06	
	Pensions	0.002	0.004	-0.25	-62.2
Total other expenses		**0.387**	**0.406**	**-1.87**	**-4.6**
Financial expenses:	Write-off of contract programme	0.191	0.176	1.51	8.6
	Structural financial expenses	0.018	0.047	-2.86	-61.1
Total financial expenses		**0.210**	**0.223**	**-1.35**	**-6.1**
Coach-km total cost		**3.641**	**3.703**	**-6.16**	**-1.7**
Coaches-total km covered (thousands)		83,695	84,577	-882	-1.0

Note: Train leases and charges for L9/10 are not included.

Revenues

Bus revenues

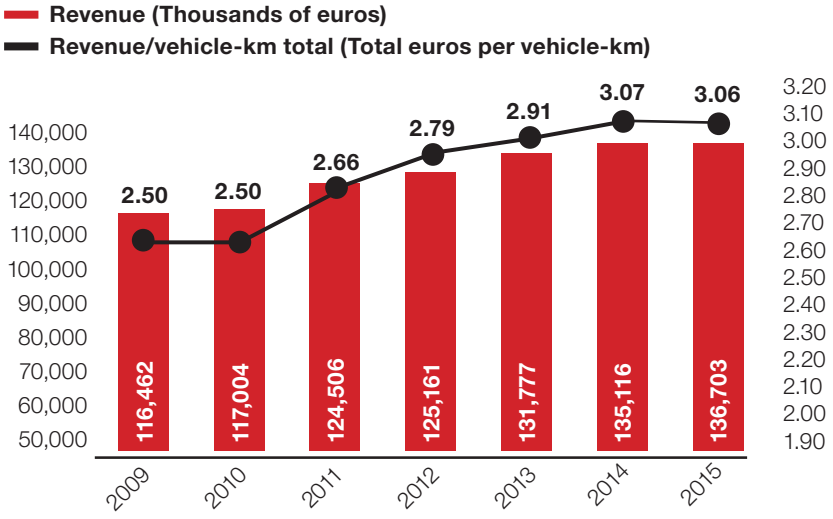
Ticket revenues (before commissions, discounts and volume discounts) grew by 1.2% despite the fare freeze in 2015 and the reduction in the price of the T-10 integrated travel card and other subsidised travel cards such as the T-Trimestre for unemployed people and the T-70/90 for large and single-parent families. This growth was therefore driven by growing passenger numbers in the year.

Revenue per vehicle-km (euros)

	2015	2014	% Diff.
Revenue (thousands of euros)	136,703	135,116	1.17
Vehicle-total km covered (thousands)	44,638	44,066	1.30
Revenue/vehicle-km	**3.062**	**3.066**	**-0.12**

The indicator linking ticket revenues to supply, revenue per vehicle-km in operation, is in line with that of the previous year at 3.06 euros per vehicle-km.

Revenue



The chart shows that revenues from ticket sales have increased in every year since 2010. Revenue per vehicle-km in operation also increased in every year except 2015, when the indicator was in line with that of the previous year as a result of the aforementioned fare freeze.

Metro revenues

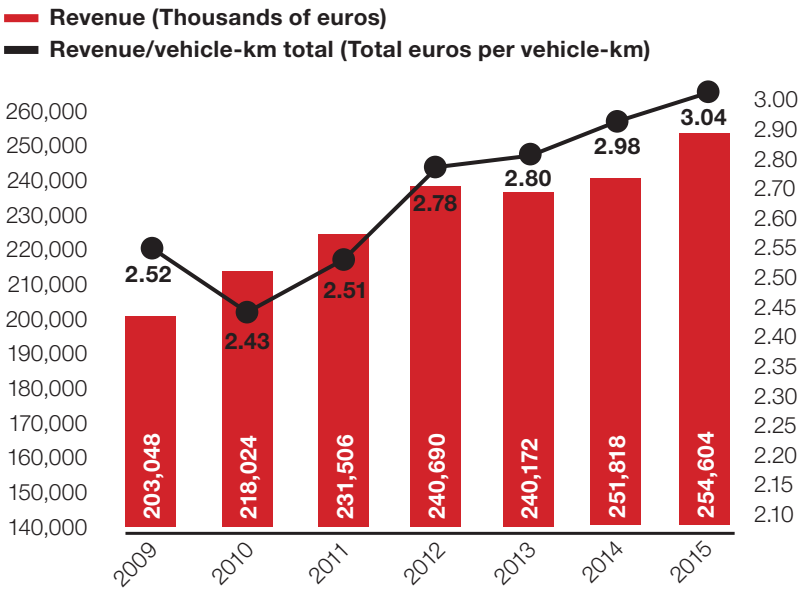
FMB's ticket revenues (before commissions, discounts and volume discounts) grew by 2.8 million euros (1.1%) despite the fare freeze in 2015 and the reduction in the price of the T-10 integrated travel card and other subsidised travel cards such as the T-Trimestre for unemployed people and the T-70/90 for one-parent and large families. This increase in revenues was entirely driven by growing passenger numbers in the year.

Revenue per coach-km in operation increased by 2.2% to 3.04 euros per coach-km thanks to higher ticket revenues combined with a reduction in coach-km in operation.

Revenue per coach-km (euros)

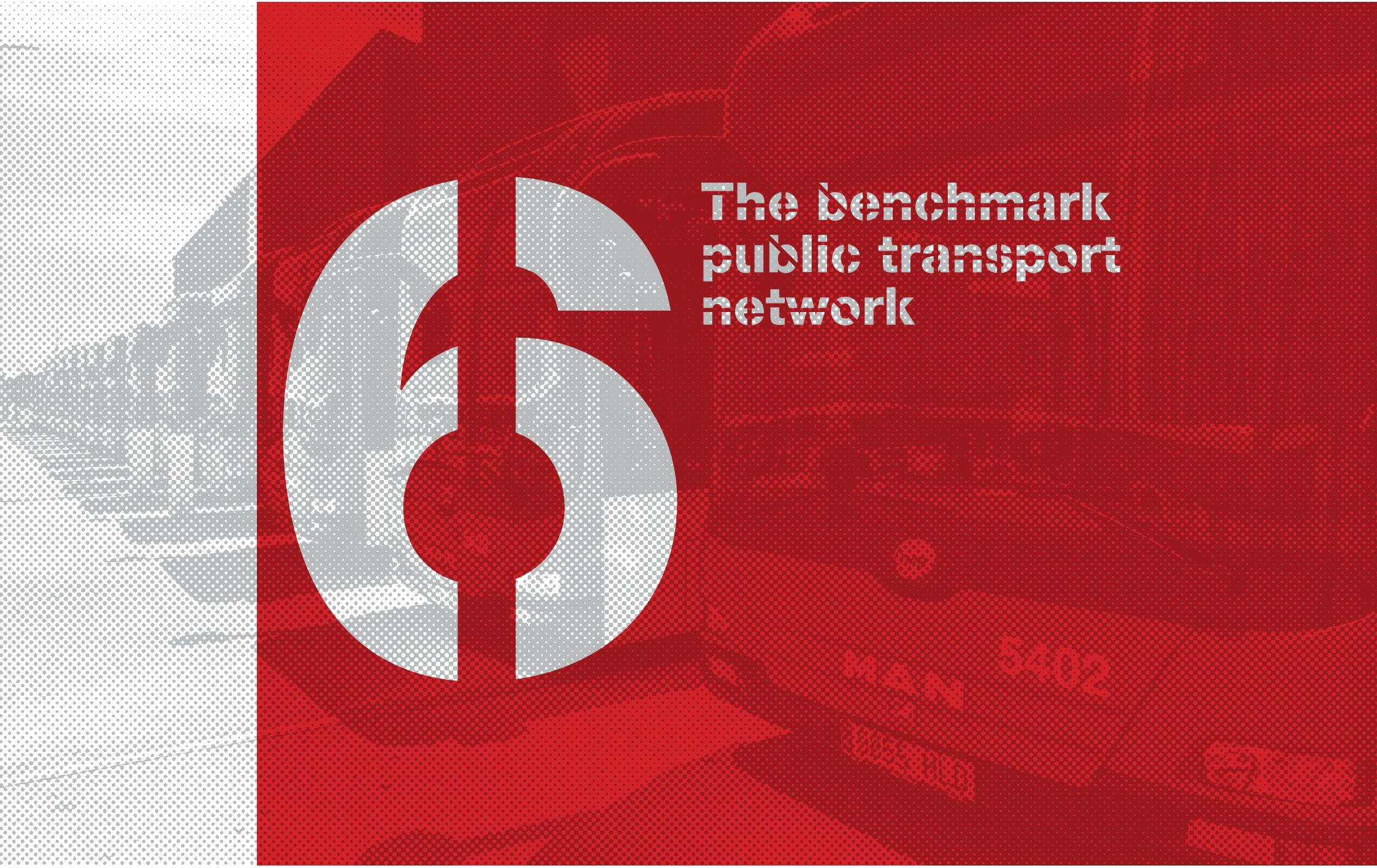
	2015	2014	% Diff.
Revenue (thousands of euros)	254,604	251,818	1.11%
Coaches-total km covered (thousands)	83,695	84,577	-1.04%
Revenue/coach-km	**3.04**	**2.98**	**2.17%**

Revenue



The chart shows that revenues from ticket sales have increased every year, reaching 254.6 million euros in 2015. Since 2009 revenues have increased by 51.6 million euros, a cumulative increase of 25.4%.

Revenue per coach-km in operation has increased every year since 2011, reaching 3.04 euros per coach-km in 2015, a cumulative increase of 20.6% since 2009.


The benchmark
public transport
network

Changes to rolling stock and service

Bus

—Developments, improvements and projects

Projects carried out in respect of the bus network in 2015 include the following:

1. To improve efficiency and protect the environment:
—TMB's bus fleet obtained the Government of Catalonia's environmental quality seal.
—Eco-driving support for efficient driving.

2. Further work to develop greener buses:
—ZeEUS (Zero Emissions Urban Bus System) project.
—New ultra-fast charging station in the street.
—Proposal to develop an electric minibus.
—Development of a procedure for the SORT (standardised on-road test) cycle for plug-in hybrid vehicles in order to measure and compare the consumption of this type of vehicle.
—Partnerships with vehicle manufacturers: testing a new electric minibus.

3. Commitment to technology. main technological projects in progress:
—Improvements to the Central Operation Aid System.
—Ticket vending machines (DAE). Implementation of a guidance system for the blind.
—Service planning and provision project.
—Infomobilitat: user information system.
—Infomobilitat: change of channel used for user information screens.
—Smart bus stops in Passeig de Gràcia.

4. Projects to coordinate fleet programming and maintenance:
—Work carried out as part of the ROMMI project.
—New model to analyse maintenance costs (allocation of materials to work orders).
—Projects for technological improvements geared to improving maintenance
—Development of analytical tools for ISO 50001 certification.
—Tecnibús project (multimedia documentary database of vehicle technologies).

5. Infrastructure projects

6. 6Continuation of work to implement the new bus network (phases IV and V).

7. Key measures in Business Operations Centres.

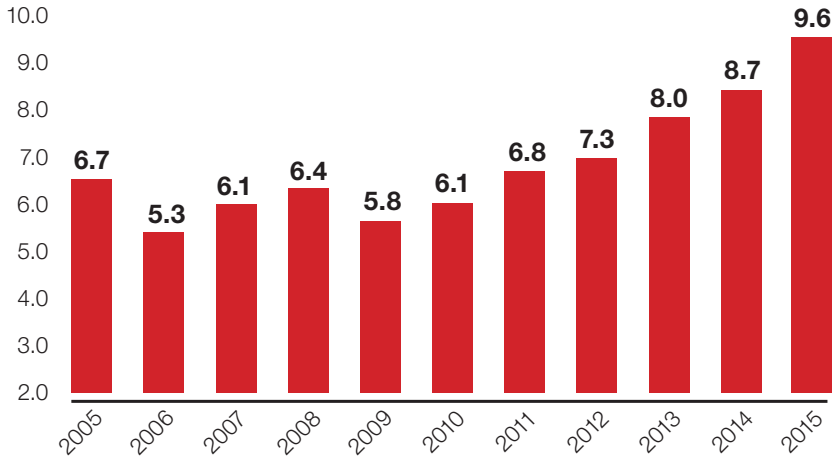
8. Key measures in Network Support Centre.

—Average age of bus fleet

At 31 December 2015 the bus fleet consisted of 1,060 vehicles as follows:
—630 standard buses
—284 articulated vehicles
—23 midibuses
—47 minibuses
—3 bi-articulated buses
—67 double-decker buses (Barcelona Bus Turístic)
—6 open-top buses (Barcelona Bus Turístic)

Changes in the composition of the fleet resulted in an average age of the fleet of 9.64 years at 31 December 2015.

Average age of the bus fleet
(Years)



The average age of the fleet over the last ten years reflects a progressive ageing of vehicles, coinciding with the onset of the recession and the introduction of cost-cutting plans, which have affected the company's policy of investing in replacement buses. The current fleet is 81% older than ten years ago. When new buses come into service in 2016 the fleet will be both younger and greener.

—Operational reliability

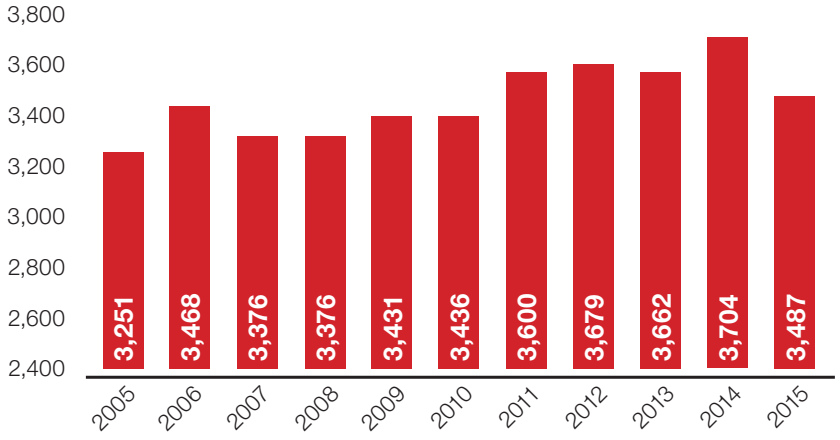
The reliability of the fleet (average mileage without damage) dropped 5.9% over the previous year and reached 3.487 km, below the goal set for this year, which was 3,650 km.

	2015	2014	Diff.	%
Average km without breakdowns	3,487	3,704	-217	-5.9

This decline in the indicator was due to a 7.6% increase in the number of breakdowns in the year, particularly in the hottest months from May to August, when the average increase was 19.5%. The breakdowns mainly affected engine cooling systems and air conditioning equipment, bearing in mind that in these months temperatures were considerably higher in 2015 than in the same period in 2014.

By vehicle type, the greatest increase in breakdowns was for double-decker buses and midibuses, with increases of 21% and 19%, respectively. The average age of these two types is particularly high, the double-decker vehicles being an average of 11.7 years old and the midibuses 12.4 years old.

Kilometres covered without breakdowns

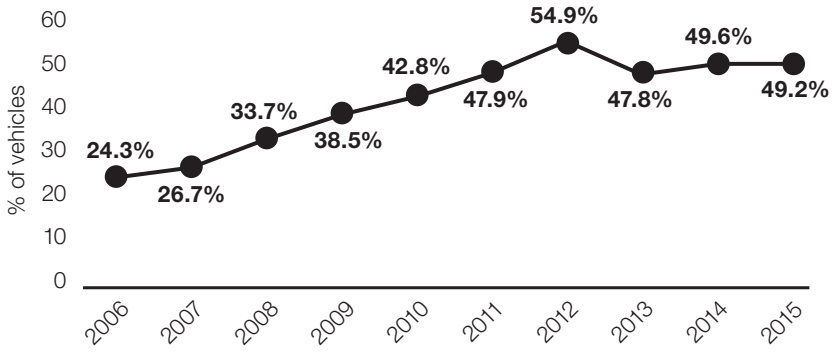


The chart above shows the fleet reliability indicator over the last ten years. It had been increasing steadily, particularly from 2011 onward, but dropped back in 2015 to levels similar to those of 2009 and 2010.

—Fuel consumption

Caring for the environment has been a key aspect of TMB's operations for many years now and Barcelona is at the forefront of research and innovation in zero emissions urban transport (it was the first city to introduce electric buses as part of the ZeEUS Project). In addition, in 2015 TMB's bus fleet obtained the Government of Catalonia's environmental quality seal.

% CNG, hybrid and electric vehicles



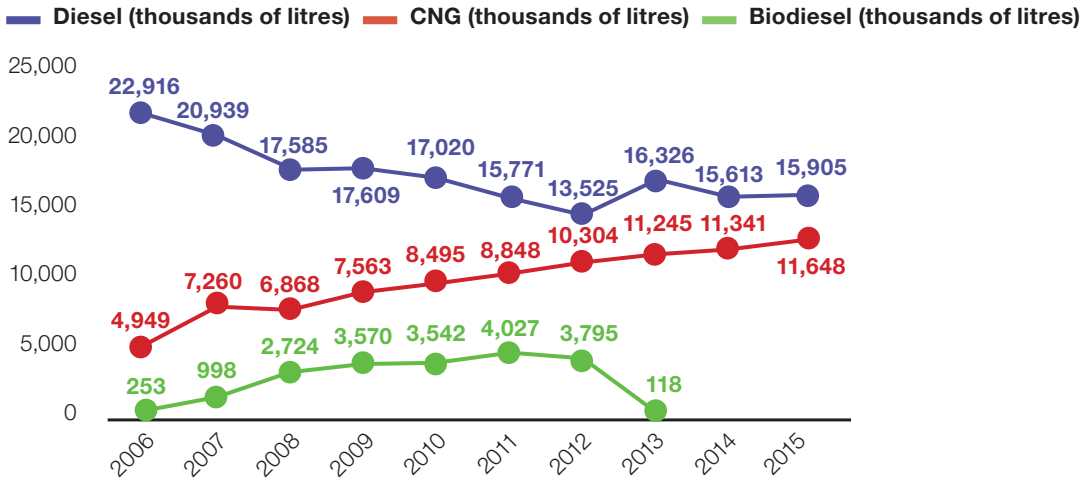
In recent years TMB has been progressively increasing its fleet of more environmentally friendly vehicles (including CNG, biodiesel, hybrid and electric vehicles). In 2006 only 24.3% of the fleet used green fuels (CNG and biodiesel), but in the last two years almost half of the fleet are more environmentally friendly vehicles. The dip in 2012 occurred as Transports de Barcelona stopped using biodiesel as fuel, mainly because the government subsidy from which it benefited was withdrawn. Vehicles powered by biodiesel also used more fuel than those using diesel, making them less efficient.

Consumption of different types of fuel during the year was as follows:

1. Diesel: buses running on diesel consumed a total of 15.91 million litres, 1.87% more than the previous year. due to a 1.9% increase in the average unit consumption of diesel to 59.66 litres per 100 km in operation. This was mainly due to 2015 being much hotter than 2014, particularly in the summer months.

2. Natural gas consumption: CNG-powered vehicles consumed 11.65 million kg, 2.7% higher than in the previous year. This increase was due to the higher number of kilometres covered by CNG buses in 2015 (3.0% more than the previous year), while the average consumption of natural gas per vehicle was very similar to the previous year. CNG consumption per 100 km totalled 65.09 kg, compared to 65.29 kg in 2014.

Fuel consumption by fuel type



Developments, improvements and projects. Bus

To improve efficiency and protect the environment:

—Eco-driving support for efficient driving

To support drivers, TMB has developed a device to detect efficient driving patterns. The system instantly informs the driver if fuel consumption, slowing or idling times are excessive. Thanks to this device and regular training sessions on eco-driving, TMB is achieving fuel and energy savings of between 3% and 5% depending on the vehicle.

Work continues to develop greener buses:

—ZeEUS Project

The Zero-emission Urban Bus System project is part of the EBSF (European Bus System of the Future) project, consisting of an observatory of eight European cities which, subsidised by the European Community, are testing various types of electric and hybrid buses using different recharging methods to demonstrate the viability of these technologies in real operating conditions. The results of these studies will be public and they will help transport in cities to evolve towards a model without local emissions.

As part of the ZeEUS project, TMB and the city of Barcelona are showcasing new electric vehicles. Specific projects in 2015 include:

—Road testing two 12-metre electric vehicles manufactured by Irizar. These buses are fully recharged overnight at the Triangle Business Operations Centre. The aim of the tests is to determine whether the buses can be charged sufficiently to run all day under TMB's normal operating conditions. The current results are similar to those obtained for the vehicle produced by the Chinese manufacturer BYD.

—Operational testing of two Solaris electric vehicles with ultra-fast charging systems. These 18-metre vehicles will be charged at the ends of the route with enough power for each one-way journey. The tests will determine whether the buses can operate according to expected schedules.

—Bus-control centre communications: the aim of this project is to develop and implement a communications system that will send operating data from electric buses to the control centre so incidents can be anticipated. Once implemented, this will represent a qualitative leap in the management of this type of bus.

—New ultra-fast charging station in the street

Part of the ZeEUS project, this charging station uses a pantograph to supply power to the bus and is being tested for operation on line H16, using two Solaris articulated electric vehicles. It is planned to install two charging stations, one at either end of the line (in Zona Franca at the corner of Carrer del Cisell and Plaça del Nou, and at the Fòrum). The work to install the first station in Carrer del Cisell was carried out in partnership with Barcelona City Council. The Fòrum station will be installed in the first quarter of 2016.

The electric vehicles' batteries will be recharged using a fast charging system during the time the bus is waiting at each end of the line. The high power chargers (400 kW) take 5 to 8 minutes to charge the batteries, depending on the timetable for the line. This will form part of a pilot project and it is expected that, if the results are satisfactory, the H16 will be the first line in Europe to operate entirely using articulated hybrid vehicles.

—Proposed electric minibus project

A project team led by TMB has applied for funding under the RIS3CAT subsidy programme to develop an electric minibus to provide services to urban districts. The other partners in the project are AMB, IDIADA, Indcar, Eurecat, Masats and MILLOR. If the project receives funding, a prototype vehicle will be built in 2016-2017.

—SORT cycle procedure for plug-in hybrid GNC and training vehicles

As part of its activities with the International Association of Public Transport (UITP), the Engineering Department is working on the development of a procedure to measure and compare the consumption of these types of vehicle. This procedure, which is already partially developed, will have Europe-wide applications and is intended to become a European standard.

—Partnerships with vehicle manufacturers: testing a new electric minibus

As it has done on previous occasions, the Horta Business Operations Centre pilot tested a 100% electric, zero emission bus ceded by the manufacturer Car-Bus, which could be suitable for neighbourhood bus lines. Route tests without passengers and simulated tests with passengers were carried out in the depot area. The Wolta minibus ran a number of times along the routes of lines 120 and 121 to assess consumption, performance and battery autonomy.

The Wolta, an original 6-metre minibus, has mechanics by the Italian firm Rampini, a Siemens engine and bodywork assembled in Manresa by the Catalan Car-Bus company. It can carry 25 passengers (11 fixed seats) and is adapted for persons with reduced mobility. The batteries are housed in the roof.

Commitment to technology.
Key technological projects:

—Improvements to the Central Operation Aid System (OAS)

— On-board Operation Aid System:
A number of updates have been made to the system during the year, both to correct problems and to improve performance.
— Central Operation Aid System: Implementation of measures to regulate operations:
A project was launched in the year to build real-time information on the measures needed to operate the bus service out on the road into other internal channels and information systems. Details of these measures, and thus the state of the service, will be available online and in real time, through existing internal and external channels (the driver information system, user information screens, the user information system, MouTV, iBus and TMB App). The project is in the testing phase and is expected to be implemented in the first quarter of 2016.
— Update of Central Operation Aid System core:
To keep systems up to date and improve the reliability of the location function, the Central Operation Aid System core must be kept updated. Functional and technical tests were performed on the new platform to detect and report problems which must be fixed before the new core can be put into operation.
— Migration to Android of the Central Operation Aid System Mobile application:
The current Central Operation Aid System Mobile application was migrated from the old, now obsolete, Windows Mobile operating system to a new version developed for the Android operating system. This allowed improvements to be made to the application and new functions added, giving users tools to regulate buses on the road, operate the service or check on the service status (with a map or topographic view) from their mobile devices.

This migration was coordinated with a change of mobile operator (Vodafone) and the issue of new mobile devices as a result of this change.

—Ticket vending machines. Implementation of a guidance system for the blind

The three ticket machines installed on bi-articulated buses were adapted for the blind via a voice navigator that improves on the system installed to date in the Barcelona metro network. The ticket machines, which use contactless technology, were already installed on the three bi-articulated buses that operate on line H12. They now include a new function that allows blind people to buy single-ride tickets.

This improved version was developed by TMB's Technology Division supported by technical advisers from ONCE. It continues to allow passengers to buy single-ride tickets using coins, conventional bank cards and contactless cards, with new functions such as Braille labelling and a voice navigation system in four languages (Catalan, Spanish, English and French). It is planned to roll this technology out to other ticket machines.

— Service Planning and Provision Project

This wide ranging project began in 2015 and is expected to be completed in 2017. The Service Planning and Provision Project is a new application run on an SAP platform with the aim of handling three main blocks of information:

— Phase 1: Timetable information and management, currently managed via the timetables database.

— Phase 2: Service control panels for drivers and support staff (supervisors, Business Operations Centre staff, etc.), currently managed via HASTUS and tools such as Excel.

— Phase 3: Dynamic vehicle management, replacing the current TBKC computer application.

Phase 1 involved reviewing the data held in the existing timetable database, and carrying out the checks needed to allow it to be migrated to the Service Planning and Provision Project in the first quarter of 2016. The service control panels for drivers (phase 2) are currently under study and are expected to be migrated to the new system in late 2016. Fleet management data will be the last to be migrated, in phase 3.

— Infomobilitat: user information system

Improvements to the user information system were implemented in the year to allow information on planned alterations to be sent out. In addition to developing the software required, all the messages displayed on the screens inside buses had to be configured to ensure that each message is visible for a suitable length of time.

— Reconfiguration of user information system data
The contents of the user information system were modified to free up sending time. As a result, the time needed to display the details of the next stop and transport links was reduced, the "At stop" message was eliminated and the stop requested indicator changed to a pictogram without text.

— Incorporation of messaging in the user information system
The Technology Division coordinated the integration of the user information system channel into the service changes manager, allowing changes to transport services to be announced via this channel from December onward. This represents an important step forward in terms of information to the user.

— Improvements to information on transport links
The messages about transport links at interchanges with more than one possible connecting bus stop were fine-tuned.

— User information system audio audit

The user information system's sound system was audited by staff from the CSX company. The audits were carried out on board 801 buses while they were in operation (95% of the fleet in operation on weekdays, excluding the Barcelona Bus Turístic, which uses a different information system). A total of 59 lines were audited, excluding neighbourhood bus lines.

The audit allowed a detailed understanding of how the system works from a customer perspective, bearing in mind that it is a critical system for blind passengers.

— Infomobility: change of channel used for user information screens

As part of a partnership with the Barcelona Municipal Institute for the Disabled begun in 2014, which involves updating the hardware and software of Transports de Barcelona's information systems to make them more accessible, modifications were made to user information screens.

This work was completed in the third quarter of 2015 and involved changing over 200 information screens to ensure that, when a blind person activates their accessibility device at the stop it will not simultaneously activate traffic lights, devices on buses and information panels, thereby causing confusion.

Projects to coordinate fleet programming and maintenance

— Work undertaken as part of the ROMMI Project

— Monitoring the rolling stock technical assistance model in the Traffic Regulation Centre:

The results obtained in the year were as follows:

– There were 1,805 (6.3%) more incidents logged than in 2014. These positive results mean that the cumulative reduction since 2010 is 1,231 (down 3.9%).

– Meanwhile, the number of vehicles withdrawn from service and vehicle substitutions increased by a total of 10.4%.

– In 2015 vehicles operated without a breakdown for an average of 3,487 km, a drop of 217 km from the figure achieved in 2014 and 163 km less than the target for the year of 3,650 km without a breakdown.

— ROMMI project: Predictive inspections plan and plan for training in and optimisation of preventive maintenance for the bus fleet

2,709 inspections were carried out, 90.5% of the 2,995 initially planned.

The ROMMI Project considers predictive inspections as a key process prior to carrying out the tasks in the maintenance plan. They complement the services programmed at regular intervals based on kilometres or time, in order to identify faults which need to be corrected. The time spent working on vehicles is minimised, as these additional tasks can be performed during regular inspections, while the number of incidents is significantly reduced, thereby improving reliability indicators.

Preventive maintenance plans continued to be implemented for the new vehicles which use hybrid/electric technology.

Eight training programmes were carried out during the year, involving 49 sessions attended by 316 people.

— New model to analyse maintenance costs (allocation of materials to work orders)

This project was launched and implemented in 2012 in order to accurately assess the cost of maintaining vehicles by allocating materials costs to the work orders generated when work is carried out on vehicles in the Business Operations Centres' Rolling Stock Workshops.

67% of the cost of materials used in fleet maintenance was allocated to works orders in 2015, compared with a planned allocation limit of 70%. These figures confirm that the materials allocation processes are now fully implemented.

Various training sessions were organised for Business Operations Centre staff who are responsible for stores (materials managers and store assistants) to update them on materials allocation procedures, the criteria established and the tools available, with a high degree of engagement and interest in the subjects dealt with.

The third technical analysis report on maintenance costs for 2015 is currently being prepared.

—Technological improvement plan. Plan for technological improvements geared to improving maintenance

– The project began at the end of 2014 as a result of the need to adapt vehicle structure and breakdown cause catalogues to SAP according to new technological changes incorporated in new vehicles (hybrid, electric and GNC). It envisages the introduction of a new cataloguing system for the causes of breakdowns, in order to improve the identification of these causes when revising T2 alerts.

All the project milestones set for 2015 were met. Improvements to the maintenance record input process were required to ensure the viability of other projects in the future, such as entering inspection times on maintenance orders:
— New technical location structures.
— A new query routine for planning preventive maintenance alerts.
— A new query routine for work done in the past.
— Preventive operations records adapted for touch screens.
— Creation of a record of inspections by operators of external companies.
— Data on measures taken by ROMMI Management added to breakdown alerts.
— Validation of the new catalogue of the causes of breakdowns.

The work detailed below is still pending and is planned for the first half of 2016:
— Implementation of a new integrated interface for the management of maintenance orders and vehicle availability and entering operation details and inspection times.
— Implementation of a new interface for the classification of T2 alerts.

—Development of analytical tools for ISO 50001 certification

This joint project with the Ministry of Territory and Sustainability and the Technology Division on the development of monitoring indicators and charts, uses the SAP Business tool to make a monthly presentation (using charts and tables) of consumption data for the fleet and our premises. Queries were set up in SAP Business to allow monthly power consumption to be tracked for the current year, the previous three years and against the power base line, which can be filtered by Business Operations Centre, groups of vehicles and lines.

Three new queries will be developed in 2016 to allow in-depth analysis.

—Tecnibús Project

Design, development and implementation of a multimedia documentary database to ensure all staff have basic knowledge of the technologies used in the vehicles in the fleet, with content indices that help users search the Tecnigraf database for more specific technical information.

Infrastructure projects

In 2015 a total of 4,711 measures were taken in the following areas: 97 TB infrastructure projects, 709 procurement requests, 3,845 corrective measures and 60 preventive measures related to TB infrastructure. The total cost of these measures was 5.2 million euros (capital and operating expenses).

Key investments included the following:
—Extension of the existing electrical charging infrastructure at the Triangle Business Operations Centre, as part of the ZeEUS European project, for the two Solaris articulated electric buses.
—Implementation of phase II of the new walkways to work on the roofs of buses in the annex of the Zona Franca Business Operations Centre.
—Preparing documentation and ensuring the requirements were met prior to inspections for ISO 14001 certification at the Zona Franca Business Operations Centre and ISO 50001 certification at the Horta Business Operations Centre, and carrying out any works needed at these facilities.
—Works to make new offices suitable for the new trade union sections formed following elections at the Zona Franca Business Operations Centre.
—Installation of new biological waste water treatment plants at the Horta and Zona Franca Business Operations Centres and works to upgrade the plant at the Triangle Business Operations Centre. Only the plant at the Ponent Business Operations Centre remains to be installed.
—Installation of a complete system of emergency water sprinklers at the Triangle Business Operations Centre, plus phase III of the installation at the Horta Business Operations Centre and the installation of a new fire protection system at the Ponent Business Operations Centre.

—Installation of a polluting emissions analyser on the testing and assay bench at central workshops.
—Works to refurbish offices at the Horta Business Operations Centre and rolling stock workshops at the Triangle Business Operations Centre to bring them into line with the new model.
—Work to improve the vehicle entrance to the depot at the Triangle Business Operations Centre and pedestrian access to the car park at the Horta Business Operations Centre.
—Works to improve the low voltage network (phase II) and the water supply to the Ponent Business Operations Centre, the covered facilities on the first floor of the operations building and offices at the Triangle Business Operations Centre and the heating and air conditioning (Phase B) at the Horta Business Operations Centre.
—Extension of the new diesel filling control system for buses at the Triangle and Zona Franca Business Operations Centres, the final phase of the project to implement the system at all the centres and for all buses of this type, including the auxiliary fleet.
—Finally, the contracts for preparing the draft project and executive project for the first phase of works on the rolling stock workshop at Zona Franca Port were awarded, so the contract for the works themselves can be awarded this year, as soon as the project is delivered.

Continuation of work to implement the new bus network

Continuing the work to transform the network begun in 2012, it was planned to implement phase IV of the new network in October 2015, with three new routes (one horizontal and two vertical):

—**H4:** Zona Universitària - Bon Pastor
—**V11:** Estació Marítima - Bonanova
—**V13:** Portal de la Pau - Av. Tibidabo

In the end, in the light of changes in the city government and in the company's senior management, the City Council decided to postpone the introduction of the new routes and carry out a public consultation process in the last half of the year to collect suggestions and opinions about the proposals. It is planned to implement the results of this process on 29 February 2016.

As part of phase IV, some of the lines in the existing bus network will be redesigned (changes to the routes of lines 22, 60 and 92) and some lines will be withdrawn from service (14, 58, 64 and 73).

A range of key measures are associated with this phase, including more bus lanes in many of the city's streets (Carrer de Ganduxer, Passeig de la Bonanova, Passeig de la Vall d'Hebron and others), and more green parking zones and special traffic light phases for buses. The introduction of these three lines will also bring 15 new interchange hubs into operation in addition to the 35 already in existence. The new bus network will thus have a total of 50 interchanges, each with tailor-made signage to guide passengers. With the creation of these three lines, 16 of the 28 planned will be in operation.

In 2016 studies will be carried out for phase V, the design work completed for all the changes to be introduced and a wide-ranging public consultation process will be launched on the remaining 12 lines and alterations to the conventional network, thereby completing the project. The following lines in the new bus network are pending introduction:

— **Horizontal:** one line: H2
— **Vertical:** nine lines: V1, V5, V9, V19, V23, V25, V29, V31 and V33
— **Diagonal:** two lines: D30 and D40.

Once the new bus network has been fully rolled out, it will include a variety of services as follows:

High-performance network	Horizontal lines
	Vertical lines
	Diagonal lines
Conventional network	Urban lines
	Intercity lines
Local network	Bus del Barri
	Feeder lines

The next phases will involve restructuring the weekend bus service to adapt it to the new configuration of the high-performance lines, reducing waiting time at interchanges and also, either subsequently or in parallel, the rationalisation of the neighbourhood bus service.

Key measures in Business Operations Centres

1. Horta Business Operations Centre:

The projects carried out or in progress at the Horta Business Operations Centre in 2015 included the following:

—ROMMI project: work continued on implementing the predictive inspections plan and plan for training in and optimisation of preventive maintenance for the bus fleet
—Infrastructure projects: work to improve heating and air conditioning equipment, renewal of some installations and refurbishment of the centre's offices.
—Testing of the all-electric BYD bus and Wolta minibus.

2. Ponent Business Operations Centre:

The projects carried out or in progress included the following:

—Completion of works to adapt the fire extinguisher system for the Fènix building, workshop and yard. The centre's Self-protection Plan must subsequently be updated.
—Renewal of the 5S project at the Business Operations Centre office.
—Start of installation of Wi-Fi in the fleet (pilot testing has been completed).
—Improvements to the availability of the on-board information system.
—Improvements to the breakdown reclassification process in coordination with the Technical Division.

3. Triangle Business Operations Centre:

Projects carried out or in progress include the following:

—Comprehensive refurbishment of workshop installations. Application of the 5S philosophy.
—Driver observations under the Accident Prevention Plan: an agent was deployed to the centre part-time with the aim of improving the number of driver observations carried out under the Accident Prevention Plan.
—Electric vehicles: tests are now being carried out under real working conditions and recharging stations have been installed in the Business Operations Centre car park. Work has started on the construction of new charging terminals.
—Articulated hybrid vehicles: the first hybrid vehicle from Volvo was delivered to the Centre together with the Solaris vehicles.
—The centre is working in partnership with the Engineering Department on a project to introduce all-electric articulated buses with ultra-fast charging stations in the street.

4. Zona Franca Business Operations Centre:

The projects carried out or in progress included the following:

—Design of improvements to bi-articulated buses in anticipation of new acquisitions.
—Renewal of the complaints and claims system as a key component of continual improvement.
—Monitoring and development of the Retrofit project (converting internal combustion engines into CNG-electric hybrids).
—Refurbishment and adaptation of the Zona Franca Business Operations Centre (Carrer A area) and continuation of works on the new depot in the Zona Franca Port area.
—Completion of the implementation of the 5S methodology in the store and workshop.

5. Major transversal projects covering all the Business Operations Centres:

—In order to obtain certification for the entire Network Operations Division, the common procedures book for all the Network Operations Divisions is currently being reviewed and updated. New model to analyse maintenance costs (allocation of materials to work orders). ISO 14000 and ISO 50001: work required prior to certification.
—A service improvement plan for a number of lines was launched, covering weekdays as well as weekends and public holidays, and timetables were reviewed and prepared to improve the operating speed, regularity and punctuality of the lines.
—Phase four of the new network was designed and implemented, leading to changes in the scheduling of lines and the launch of new lines.
—5S management project: a project addressing the general maintenance of the company's premises with the aim of creating and maintaining a clean, safe and friendly work environment that makes employees' day-to-day work easier and helps them provide quality products and services. The Business Operations Centres are implementing this system in a range of work areas.

Key measures in the Network Support Centre

The main projects and activities carried out by the departments of the Network Support Centre were as follows:

—Works to improve the on-board and central Operation Aid System and the user information system.
—User information screens: an agreement was reached with the maintenance contractor for a premium service for responding to incidents at weekends covering a package of approximately 55 units. To minimise the time taken to detect outages in the system, a user information screen and a solar information panel were installed in the Traffic Regulation Centre so the devices can be monitored 24 hours a day.
—Relocation of ticket machines: at the end of February the ticket vending machines in Plaça Universitat and Gran Via/Plaça Espanya were moved to new locations to provide more alternative outlets for buying tickets. The machines were installed at bus stops located at Diagonal/Muntaner (lower side) and Diagonal/Francesc Macià (upper side). This resulted in an increase in sales from these two ticket machines of over 200% compared to their previous locations.
—Audits of smart bus stops: throughout the year weekly audits were carried out of the 16 smartshelters installed and the company continued to work with the supplier in order to complete the pilot phase of the Smartcity2 model (eight shelters installed in Passeig de Gràcia).
—Application to deactivate bus arrival time forecasts: a new application was implemented allowing arrival time notifications to be deactivated at a bus stop, a group of stops or along an entire line. This means users will not be able to consult arrival times via any channel (user information screens, the Internet, TMB app, etc.).
—Development of the GeoPortal: new features were added to the GeoPortal such as new layers for districts and postcodes, a new bus lane layer, visible on a larger scale than bus routes, corrections to make the coordinates shown on the map more accurate, etc.
—Service disruptions manager: a new version was developed and validated which allows it to be integrated into the user information system channel, and integrated for testing purposes with the GeoPortal. Some templates and the areas in which they are used were also modified.
—Configuration of interchange hubs created in phase four of the new network: in coordination with Customer Services and Information, work was carried out in the second half of 2015 on defining and configuring the interchange hubs and their signage (horizontal and vertical) and all the associated documentation.
—KanGo! project: See section 1.14
—Inspection devices: new Motorola MC75 inspection devices were developed with the Project Coordination Department. The advantages of these devices include the ability to download activity data via Internet at the end of the route or to collect fines by credit card.
—Work began in September on the development of a dynamic fraud map in cooperation with the Studies and Analysis Department, using information provided by auxiliary staff.

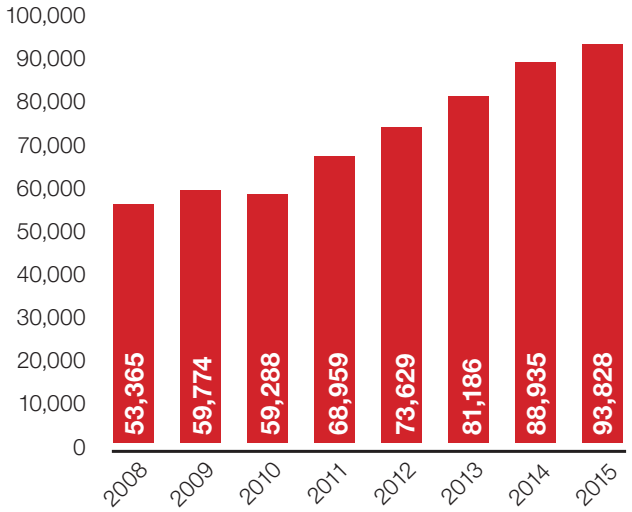
New developments, improvements and projects. Metro

Metro operational reliability

The average number of kilometres travelled without a breakdown is the indicator that measures the operational reliability of the train fleet. In 2015 the figure was 93,828 km without a breakdown, representing a 5.5% improvement in the reliability of the fleet, thanks to measures to improve maintenance processes and organisation.

The chart shows that the reliability of the fleet in service has improved year-on-year and was at its highest ever in 2015. The indicator has increased by a cumulative total of 76% since 2008.

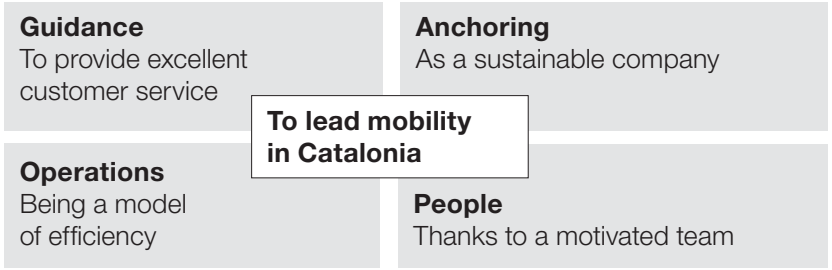
Fleet reliability
(Coach-km without breakdowns)



Key Improvement Targets for the metro in 2015

A number of work sessions and discussions were held at the start of 2015 to establish strategic lines for Metro business over the next few years and determine their usefulness in terms of how they fit with TMB's mission, vision and values.

At the same time the overall direction in which the Metro team would like to see the company moving was defined:



Based on these premises, work began on implementing a new project development methodology for the metro network, known as Key Improvement Targets.

The targets selected for 2015 were chosen in agreement with the entire Metro team. Multidisciplinary, autonomous groups were created to work on defining and implementing measures to bring about effective improvements in a range of different areas. The targets identified in 2015 were:

1. Improving the efficiency of maintenance and operations.
2. Reducing absence from work.
3. Reducing fraud.
4. Commitment to safety.
5. DarWIN Project.
6. Review of organisational model.
7. Maintaining the level of quality and service.
8. Line 9.

Improving the efficiency of maintenance and operations

The aim is to develop a new global indicator to encourage greater efficiency and to implement measures in the short term intended to bring about improvements. This indicator is referred to as "overall equipment effectiveness" (OEE).

The expected benefits of this project are:
—To develop an efficiency indicator based on a comprehensive vision of the organisation.
—To increase efficiency.
—To optimise/reuse resources.
—To optimise and improve the service.
—To achieve cost savings.
—To improve internal knowledge by identifying areas for improvements and weak points in respect of efficiency.
—To develop an improvement plan to which the entire Metro team have contributed and agreed.

The work carried out throughout the year on this target focused on two areas: defining and developing the indicator and drafting a short-term improvement plan to improve efficiency while reducing costs in a number of areas.

—Definition and calculation of the indicator

OEE is a new indicator designed to measure the overall efficiency of the metro network. Work was carried out throughout 2015 on defining the indicator and making a preliminary advanced and detailed version of it available. The target for 2015 was a 2.5% improvement in the indicator compared with 2014.

A matrix of indicators and weightings was developed. The rows correspond to the main processes identified, and the columns to the components of OEE (availability, performance and efficiency).

The processes or services identified in the rows are:
—Transport process (operation and maintenance): subdivided into train movement and stations.
—Customer Services and Information.
—Safety.
—Planning system.

The analysis is based on the point where the efficiency and cost curves intersect, producing a total of 35 indicators of many types. The weighting of each indicator was determined (its contribution to the final value and to the process to which it refers). Each indicator is aggregated at different levels (line, network, process, etc.) to produce an overall monthly and annual OEE value.

Not all the indicators that were defined as necessary existed previously; work is currently underway on obtaining them, while there are some which are not considered viable at present. The global indicator for 2015 was calculated to be 95.3%, slightly lower than the 96.7% obtained for 2014.

—Short-term improvement plan

With respect to the efficiency targets set, over 30 measures and projects were implemented to improve efficiency and reduce costs, affecting a range of areas:

a) Trains:
—Matching supply and demand: in 2015 new timetables were drawn up for summer, (July, August and September), winter (applicable from October) and for the Christmas and Easter periods to ensure the service is as closely in line with users' needs as possible.
—Train occupancy: it is vital to know the load actually carried, based not just on ticket validations. An initial analysis was completed by the end of the year of all the lines based on the weights of trains, measured using weighing equipment installed on one train on every line. Work will continue on this project in 2016.
—Loop analysis: a full analysis was carried out of the journey time and operational performance of the Line 3 and Line 4 loops, leading to the conclusion that better coordination between timetabling and traffic regulation is needed. In the short term work will be carried out to adjust boarding and disembarking times.
—Energy savings (see section on stations).
—Condition of trains: meetings on the MPS service provision quality indicator were resumed, leading to demands for a number of improvements and more training.
—Stoppage time due to external causes: work continued to reduce the length of stoppages, including improving communication to customers, training and raising employee awareness, improving information and records and the CAT 0 project to improve the safety of metro premises.
—The first 2000-series trains were refurbished in 2015.
—Maintenance plans: Studies of RCM (reliability-centred maintenance) were carried out on the air conditioning, air production and auxiliary pneumatic systems in the 2000, 3000, 4000, 2100 and 500 series. The results of these studies show that costs can be significantly reduced. This will be further validated for a number of pilot systems in 2016. Based on an expert assessment plan, measures were implemented on a range of systems on all train series. The aim was to define the optimal frequency for replacing equipment or parts.
—A test bench for performing entry and exit tests on train bogies at the La Sagrera workshop was designed during the year. This bench uses vibrations to perform dynamic tests on the bogies' bearings.
—Work continued on the project to monitor the trains on conventional lines via the Internet. This system has been installed in three S6000 trains on L1, one S9000 train on L2, two S5000 trains on L3, one S9000 train on L4 and three S5000 trains on L5. The system extracts data on the status of the train and sends it via 3G to a central computer in the rolling stock workshop. The system supplies real time data on the train's movement and power consumption and will help to make the system more reliable in future, reducing stoppage times and optimising preventive maintenance routines.

b) Operational improvements:
Work was carried out to improve the efficiency of certain operational and maintenance processes which were considered to require assessment and measures to improve them, including:
—The redefinition of operating procedures and criteria. Work will continue on this area in 2016.
—Staff working on tracks on L9: a new access code was introduced, a safety zone was defined and work was carried out on the design and location of barriers.
—Location: the short-term goal is to implement measures to allow signal operators and depot staff to be located using RFID (radio frequency identification) technology. This project is currently in the implementation phase. In the medium term this location technology will be rolled out to all staff.
—Driving limits: studies have been carried out into alternative solutions for making better use of customer service agents in the light of two limits on drivers: the three hours continuous driving time limit and the 60% daily driving time maximum. Simulations using different assumptions were carried out and now it only remains to select the solution to be presented to staff for negotiations.

c) Planning system:
The planning system division also worked on ideas for improving operations and maintenance, including:
—An audit of planning outcomes for customer service agents. An initial analysis was performed and work will continue in 2016.
—Review of the planning model, assessing each phase of the process. The Technology Division worked on a new tool to help reduce response times. Work will continue on this project in 2016.
—Day-to-day practices of zone operations managers: good practice guidelines were established to ensure these employees work in a standardised, uniform manner.
—Review of the timetable drafting system: a protocol for drawing up timetables was established which must be shared across all operations and its implementation overseen.
—Optimisation of maintenance routes: a geographical analysis of incidents was carried out and new unit maintenance routines proposed.
—Calculation of optimal staffing levels: a methodology for calculating staffing levels at each site was defined. Starting with the hours of service to be provided at each site, parameters are added to calculate the staff hours needed.

d) Organisation of work:
—Technical Operations Managers' work system and Metro Control Centre model: a full analysis of the workload required for Technical Operations Managers was carried out. This allowed a range of work models to be identified so short-term work cover decisions could be taken and a basis established for future practices.
—Non-driver customer service agents: a proposal was developed to distribute employees who do not drive more evenly between zones.
—Work shifts: work was carried out on a new proposal based on five shifts for customer service agents. This is currently being negotiated within the framework of the collective agreement.
—Weekend staff: a study of weekend staffing levels was conducted, leading to the conclusion that the resources available need to be increased. Work is being carried out on this area in conjunction with the work on new shift patterns.

e) Stations:
—Classification of stations: a model was developed to classify stations according to their different features. This is used for a wide range of purposes, including determining staffing, prioritising investments and defining the desired customer service model.
—Automation of station opening and closing: a protocol was prepared to allow stations on conventional lines to be remotely opened and closed. This will be implemented in 2016.
—Basic maintenance: an ambitious plan was launched to involve all customer service agents in the basic maintenance of all areas of stations and to report incidents directly via the SAP IT system.
—Improving customer service: the aim is to increase the number of customer service agents available outside train cabins, especially when passengers need them. A campaign was run throughout the year via the management structure, using it to offer training sessions on special tickets for tourists to boost the sales of said tickets.
—Premises: meetings of the service provision study were resumed, leading to demands for a number of improvements and more training.
—New customer service agent assignment structure: the distribution of staff and workloads was reviewed, leading to the conclusion that a new structure for assigning customer service agents is required, within the constraints of the new shift structure.
—Staff flexibility during special events: work was carried out to review the management of special events and the flexible hours pool.
—Work continued in the year under the Metro Energy Efficiency Plan with the aim of reducing the company's power costs. Measures were taken in a range of areas:

1. Reducing the fixed costs included in the electricity bill.
2. Reducing power consumption during traction, in stations and in workshops.
3. Energy recovery.
4. Smart energy management.
5. Project for the future Metro power network (220 kV connections).

The measures taken under each of these headings are summarised below:

1. Measures to reduce fixed costs (demand tariff)
During 2015 the second phase of the plan for reducing the contracted capacity of the high voltage power supply was implemented, a process which started in 2013. Meters were replaced at fifteen high-voltage supply points and the distributor was requested to further reduce the power contracted at all of these points. In 2016 the project will be terminated with requests for power reductions at fifteen additional points. Once complete, the work in this area will lead to significant savings in standing charges for high-voltage power.
The power contracted for low voltage auxiliary connections at stations was also reduced at a total of 116 supply points, another measure to generate annual savings.
To reduce the financial penalties for exceeding power limits in exceptional circumstances, a daily record of excesses was kept and appropriate measures were taken on various occasions during the year, resulting in a 14% reduction in the cost of excess use of power compared with 2014.

2. Measures to reduce the power used for traction and in stations
The aim of this project was to implement efficient speed profiles on L1 and L3, as a continuation of the project for L2 and L5 implemented in 2013, which led to substantial savings. Work is expected to begin in 2016 and it is hoped that reductions of 10% to 15% in the power used for traction will be achieved on each of the lines.

Current fleet, work has continued on the application of a schedule to adjust on-board air conditioning more closely to real temperature needs, thus limiting power requirements.

Stations, a new application has been launched allowing operators to disconnect lighting, escalators and lifts during the night-time maintenance period, automatically and centrally from the Metro Control Centre, so that only essential facilities are consuming energy.

Lighting on the platforms of five stations was drawn up, using high efficiency LED or similar lights. A project was commissioned for the replacement of the lighting in all the network's workshops, which will also include high-efficiency technology. Consideration is being given to replacing conventional fluorescent tubes with LED lighting to increase efficiency and facilitate maintenance. A comparative study of various types of LED tube is being carried out and a test was conducted on the platforms of Plaça de Sants station. Conventional emergency lights which have broken down and required replacement this year were replaced by a model with similar characteristics but using LED technology.

Finally, work has continued on promoting the **European SEAM4US project,** aimed at using sensors and automating equipment in stations.

3. Measures to recover traction power
In 2015 tenders were invited for a project to install two units to recover energy from the braking of trains, one on L3 and the other on L4. The energy recovered will be reinjected and consumed by the stations themselves, and the surplus will be exported to the high voltage distribution network. This is the first phase, and the one which is expected to produce most benefits, in a comprehensive energy recovery plan under which ten to twelve sub-stations will be equipped with energy recovery systems.

Technical cooperation with Infrastructures, SA, continued on a project for the installation of a power recovery system at the Església Major traction substation on L9.

4. Measures for intelligent energy management
Energy management software was introduced to monitor consumption on the network in real time, obtain, store and preserve data, generate reports on consumption and trends, and define and track energy efficiency indicators. These features are essential to the development of an energy management system according to the ISO 50001 standard.

Regarding the infrastructure needed, the installation of measuring equipment at sub-stations was completed (430 installed to date), so that consumption on each line can be precisely determined, distinguishing between energy for traction and energy used for stations and workshops. A project has also been commissioned for the installation during 2016 of the measuring equipment needed to determine the consumption of individual stations and maintenance workshops (315 additional measuring units are envisaged).

5. Project for the future Metro power network (220 kV connections)
A draft technical project was drawn up internally for the construction of a new 25 kV distribution network connected to the two input substations on L9. The first phase of the work was completed, comprising a total of 13 sub-stations, applying the criterion of maximum profitability (return on investment in less than two years).

The main objective of the project is to take advantage of the existing electric infrastructure on L9, which has sufficient excess capacity, to reduce the energy costs of the conventional metro system via the procurement of very high voltage (220 kV) supplies, at prices which are much lower than those for 25 kV. It is estimated that overall savings will be greater than 5 million euros per year (over 18% of power costs).

In addition to reducing costs, this project will provide the advantages of a powerful smart electrical grid in the metro service. These include management of its own power network (independently of the distributor), increased reliability of supply, a reduction in consumption for traction, most notably by maximising the recovery of braking energy, supplying power to the TB electric bus, exporting energy for other mobility services in the city (e-mobility) and connecting to TMB's own renewable energy generation plants.

Reducing absence from work

The aim is to reduce the rate of absence for temporary disability by two and a half points compared with 2014. To achieve this a work team was set up with representatives from all Metro divisions, as well as representatives of the corporate sector (occupational health, technology and payroll). The measures to be implemented fell into three areas:

1. Increasing motivation: development of an internal communication campaign to foster a sense of belonging to FMB. Staff were encouraged to get involved in finding solutions to this issue, and the DarWIN project also aimed to help supervisors improve their team leadership skills. More specifically, work was undertaken with groups displaying high rates of absence from work in a series of focus groups and systems were proposed to help improve work-life balance and increase motivation, thus encouraging their presence at work.

2. Management policy: work focusing on clarifying certain types of behaviour by employees and command centres (setting up and reviewing procedures), and clarifying, generating and facilitating access to data on absence from work, so that the issue can be analysed from each command centre and appropriate decisions taken. In the field of maintenance, a revised procedure for investigating workplace accidents helped to reduce accident rates.

3. Stricter control: the most serious cases of absence from work were identified in order to monitor them more closely, especially from the medical viewpoint.

Although the initial target has not been achieved, absenteeism rates were reduced by 0.61 points from 2014 and there was a clear improvement in the trend in the first part of the year, so the target for next year is therefore considered achievable.

Reducing fraud

The target was defined as "reducing fraud to 2012 levels, improving the efficiency of existing resources, reviewing the model for intervention and raising awareness among customers, while avoiding any risk for employees".

Six main areas of study were established and work on these continued throughout the year, with a new approach to making tackling fraud part of the daily management of operations and treating it as a security issue:

— Raising awareness among employees and customers.
— Discouraging passenger fraud.
— Combating fraud.
— Making use of technology.
— Review of the role of inspection staff.
— Management of information related to fraud.

A series of tasks were set in motion within each of these areas:
—A procedure for managing cases of fraud was proposed along the lines of the current protocols for dealing with other incidents, and the involvement of groups not currently working in this area was suggested.
—A mechanism for communication between the Safety and Civil Defence Unit and the units handling cases of fraud was established so that they can be tracked with the employees involved.
—During the summer a temporary scheme for inspection staff was introduced, during which they did work normally carried out by customer service agents, while a new summer substitution activity was introduced combining inspection and customer service work.
—All the measures related to coordination with management, customer communication campaigns, the launch of measures aimed at staff themselves and improvements and updates to the application of inspection staff route management were postponed to 2016.
—The resources for security on lines remained similar to those for 2014. Work to combat fraud was programmed in those ticket halls where most cases of fraud were detected and where second-generation automatic two-way gates were installed. This scheme led to a shift of attention from L1 to L5 and L3 to L2. A total of 10,783 hours were scheduled for security personnel to accompany inspectors (a total of 2,696 shifts).

Commitment to safety

The work in this area focused on three aspects:

a) Prevention of occupational hazards

To reduce the frequency of accidents strict monitoring was carried out of the measures included in the annual management plan for accident prevention, which deals comprehensively with the prevention of occupational hazards in all Metro work areas.

—*Risk assessment activities:*
— Updating risk assessments for the workplace as a result of modifications to working conditions and updating the workplace risk assessments.
— Risk assessment on the network's technical premises.
— Ergonomic studies: analysis of ergonomic conditions of staff working in rolling stock workshops.
— Study of health conditions: analysis of exposure to noise in rolling stock workshops, exposure to noxious fumes and gases, exposure to dust during track maintenance.
— Solitary and isolated work: identification of exposed groups and proposal for preventive measures. Implementation of risk assessment for signal operators (organisational and technological).

— *Training activities:*
  — Monitoring of indicators for training units in occupational health and safety: compliance and scope of training indicators.
  — Updates to preventive resources: identification of preventive resources and updating according to scope of training.
  — Work involving electrical hazards: defining needs and authorisation or qualification according to tasks.
  — Review of the health and safety training model: training proposals for specific risks (operations with machinery, work in confined spaces, work at height, etc.).
  — Definition of training in prevention of occupational hazards for new staff and those changing their place of work.

— *Emergency and self-protection plans:*
  — Review and update of centres' plans: update of documentation, descriptive material and personnel forming part of emergency teams.
  — Evacuation drills: practical training of team members on the activation and implementation of emergency plans.
  — Procedure for emergency plans and head of emergency procedures: adapting emergency equipment to regulations, criteria for cover provided by teams and appointment of the person responsible for the plan.

— *Work processes and instructions:*
  — Procedure for investigating accidents: drafting instructions to improve monitoring and the involvement of the command structure in work-related accidents.
  — Update of the list of machinery (Royal Decree 1215/1997 and Royal Decree 1644/2008). Maintenance of the inventory and start of periodic review cycle.
  — Technical instructions for maintenance in the Maintenance and Projects Division (preventive and corrective). Definition of a model to include risks and the preventive measures to be taken when performing maintenance tasks.
  — Standard signage in work centres: implementation in workshops of the signage procedure, initiated at Can Zam.
  — Monitoring of the implementation of the new model for safety approved drivers in Maintenance and Projects. Application of the new categories of safety approved drivers (external staff).

—*Business activity coordination:*
— Monitoring of activity with the technical assistance provider and coordination of health and safety while work is in progress, according to Royal Decree 171/2004 and Royal Decree 1627/1997.
— Review/update of the model for contractor activity (TMB contractor): compilation and identification of tasks carried out by FMB together with contractors, analysis of situations and determination of measures to be applied or changed in the contractual relationship.

—*Machinery and equipment certification:*
— Certification of machinery according to Royal Decree 1215/1997 and Royal Decree 1644/2008: periodic review of machines and equipment to ensure compliance with safety requirements.
— Ensuring that machines and similar equipment comply with Royal Decree 1644/2008: upgrading equipment manufactured internally and other equipment that does not have the required documentation.
— Annual certification of life-lines, harnesses, slings, anchor points: periodic review of auxiliary equipment for work at height, auxiliary equipment for lifting loads and personal protective equipment (PPE).

—*Prevention of accidents at work:*
— Health surveillance: monitoring performance of scheduled health surveillance protocols.
— Monitoring accidents: monitoring accident frequency rates and analysing accidents.
— ABC of 2013-2014 accidents/Training: analysis of past accidents and determination of specific measures or refresher training to prevent accidents.

—*Safety inspections in work centres: monitoring the application of scheduled health surveillance protocols.*

—*Monitoring and tracking the plan for preventive activities: conducting meetings in different areas to monitor occupational health and safety.*

—*Audits of the health and safety management system:*
— Monitoring the work of the services in the work group.
— Internal audit of the health and safety management system in units (document control).
— External audit of the health and safety management system carried out every two years.

— Renewal of contracts:

— Renewal of contract for business activity coordination/Health and Safety Committee (Royal Decree 171/2004 and Royal Decree 1627/1997). One year extension to the current contract with Applus until October 2016 (1 + 1, 2014 and 2015).

— Renewal of contract for machines (Royal Decree 1215/1997 and Royal Decree 1644/2008): from September 2013 to September 2015, renewal for four years (2 + 2) with Capresa.

— Renewal of the contract for safety ropes, anchors, harnesses and slings (UNE-EN 795:2012, UNE-EN 363:2009 and UNE-EN 365:2005): one-year extension of the current contract with Spanset until May 2016 (1 + 1, 2014 and 2015).

— Health and Safety Committee: monitoring in Group meetings of issues dealt with in the Health and Safety Committee by Metro representatives.

b) Procedures

The main action taken was to adapt the 11 current procedures in the field of maintenance to the new records management model following the proposal made by the Altran company. As a result of this review 35 documents were created, comprising 8 guidelines, 17 procedures and 10 sets of technical instructions.

In the area of operations, the procedures adapted were as follows: opening and closing of stations (P300) and intrusion on tracks (P189). This task was carried out with a view to updating information, maintaining a consistent structure, improving the verification and approval circuit, improving the safety of tasks, standardising documents and improving the training of their recipients.

c) Railway safety

The measures carried out within the framework of the Railway Safety Management Department can be divided into three areas: human, technical and organisational.

— *The main activities regarding the human factor:*
  — Update on the process for obtaining driving certification for rolling stock workshops, infrastructure and cleaning staff. Work focused on the development of a guide, a syllabus for training and records.
  — Certification of traffic and station operators in the Metro Control Centre: definition of the route, process and content for Metro Control Centre in transit areas and at stations on conventional and automated lines. Work was done on the preparation of a document that will be implemented in 2016 on the basis of agreements between management and staff.
  — Certification for driving the vintage train: specification of the itinerary, the process and content for FMB staff driving the S300 train. The list of topics and the appendices were finalised together with initial criteria.
  — Update of the procedure for granting certification as a certified safety driver.
  — Design/implementation of the auditor-in-chief course to unify standards for Safety Auditors and the conducting of Safety Audits.

— *Main activities regarding technical issues:*
  — Changes in the FMB rail system: a checklist was drawn up to determine whether a change has an impact on railway safety and whether it is significant or not.
  — Definition of operating criteria for unique features of FMB: 16 different points were identified and an audit was carried out to determine the status of each of them. In 2016 an action plan will be prepared.
  — Definition of technical criteria for the introduction of a support system (Tren Stop) at unique points. Regulation of the type of operation applicable to Tren Stop support systems in the event of a malfunction of the ATP-ATO system.
  — Update of fixed mechanical signalling in tunnels: production of a manual specifying the nature of all signals used in the network. Speeds and the location of warning signals are also specified.
  — Definition of operating and rail safety criteria for restrictions to operations on conventional lines.
  — Update of the procedure for railway safety inspections and audits in FMB (to be completed in 2016).
  — Update of the safety research process and establishment of methods for notifying and investigating incidents, and managing them in FMB.
  — Monitoring the safety audit of the Tramvia Blau. In 2016 the measures considered necessary according to the report submitted by the Directorate General for Rail Safety will be implemented.
  — Safety audit conducted on the funicular railway, as requested by the Directorate-General for Land Transport Infrastructures, to analyse the risks associated with a fall from a platform onto the track. The necessary measures will be completed in 2016.

— Installation of signals and derailers on the link line at Passeig de Gràcia on L3, and plans for an identical installation on L4, to be completed in 2016.
— Planning and implementation of work to improve signalling systems on L1 and L3 to allow braking in M+25, to be completed in 2016. In 2015 work was completed at Fondo on L1 and in January tests will be carried out at Zona Universitària on L3.
— Regulations for the introduction and standardisation of a centralised phone blocking system in the Metro Control Centre (authorisation, duration, human reliability, etc.) using a password which can be entered on site if circulation rules are modified. This point will be reviewed in 2016.
— The movement of trains at Sant Genís is to be made incompatible with that of trains on the general line: the technical specifications were drawn up and work will continue during 2016.
— Changes in the conditions for establishing automatic loops in six points systems on L4, to be completed in 2016. In 2015 documentation was prepared and work contracted.
— Coordination of the delivery and commissioning of the ZAL depot.

—*Main activities related to operational issues:*
— Implementation of the guide to applying the safety management system for signalling and communications: a higher level document was prepared corresponding to the application guide and instructions regarding signalling.
— A protocol was established for coordinating FMB rail safety activities with the Directorate-General for Land Transport Infrastructures (DGIMT), one copy being delivered to the DGIMT and another to Metro management.
— Review and legalisation of siding at Catalunya (L1): it was agreed with ADIF that this siding should be dismantled and eliminated. Work on dismantling the line is expected to begin in 2016.
— Design of a process for withdrawing rolling stock and WATO equipment to carry out inspections of changes in driving mode between M+25 and bypass. The Directorate-General for Rail Safety is concluding a draft of the necessary procedure. Work will be carried out in 2016 and 2017.
— Research was carried out and an assessment made of the overall safety indicator for automated lines; weighting of the different factors remains pending.
— Work on a style guide for rolling stock was initiated with Civil Defence, to be completed in 2016.
— Emergency dossier for L9 revised: update of operations and maintenance manual.

Finally, with regard to the drafting of safety reports and technical notes, the following should be noted:
—52 safety events with 114 actions established: safety reports with analyses, establishing and monitoring corrective actions for trains proceeding without authorisation, breach of regulations and incidents/ accidents related to railway safety.
—29 technical notes issued. Assessment and authorisation of changes regarding equipment, software, functions, instructions, modifications to rolling stock, etc.

d) Security measures

A number of measures were taken with a view to protecting trains from graffiti and ensuring the security of premises and the safety of workers:

—In liaison with the Cleaning Service, security was reinforced to protect the areas where trains are cleaned, while security resources for the static protection of depots and workshops were improved, and more mobile security resources were made available to provide external support for these services.
—The strategic plan for combating organised vandalism was revised and updated, and a strategic committee and tactical committees were created, to improve and facilitate coordination between the main divisions, services, units and departments in combating graffiti.
—Police files were created on all premises where intrusions regularly occur so that they could be put at the disposal of the Mossos d'Esquadra.
—A national benchmarking project was undertaken with Renfe local rail services to increase understanding of the economic impact of damage caused by graffiti, working jointly with the Legal Department and the Metro Cleaning and Image Service, in order to apply the best practices identified in the assessments carried out by Metro.
—With the Mossos d'Esquadra, a range of devices were installed in workshops and depots, in order to identify the perpetrators of vandalism on trains (graffiti). In 2015 work was carried out at the following locations: Santa Eulàlia, Can Boixeres, Vall d'Hebron, La Pau and Fondo (L1).

In 2015 the number of mural graffiti on trains increased by 17% with respect to the previous year and the number of square metres painted by 31%.

The main measures related to cleaning the results of vandalism during the year were the following:
—Removing mural graffiti from the outside of 2,377 coaches, cleaning over 63,205 m^2 of the exterior area of trains.
—Maintenance teams removed over 6,610 tags from the inside of coaches, cleaning a total of 10,205 m^2 of the interior are of trains. At stations, 28,835 tags and small painted marks were removed, which involved cleaning 60,180 m^2.
—Antiscratching maintenance and stainless steel wall coverings: a total of 4,404 m^2 of vandal-proof coating inside trains and 4,943 m^2 of protected glass partitions in stations, and a total of 478 m^2 of stainless steel surfaces were cleaned.

The following table shows the development of security operations on the network. In 2015 there was a slight reduction in the operations carried out by security teams. Figures for 2014 and 2015 include the new services on L9, except 24-hour services in the ZAL workshops and those in T1 on the southern section of L9.

Security operations on the network in recent years:

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Morning	16	44	55	55	63	79[1]	84[1]	67[1]	58[1]	57[1]	54[1]
Afternoon/evening	28	44	55	55	63	93[1]	104[1]	86[1]	77[1]	74[1]	72[1]
Night	5	18	24	25	26	35	34	24	19[2]	19[2]	19[2]
Operators	2	3	4	6	8	8	9	8	8[3]	8[3]	8[3]

[1] Includes anti-fraud service hours.

[2] Weekly average: 14 on weekdays, 24 on eves of public holidays and 35 continuous.

[3] Five excluding metro service.

—Cooperation with security forces:

The planning and execution of specific security systems was carried out in partnership with the Barcelona Mossos d'Esquadra and Guardia Urbana.

Operació Xarxa, which began at the end of July 2011, has completed its fourth year in operation and (as a result of the acts of terrorism that have occurred in other countries and have led to an increase in the threat level) was strengthened with the presence of both uniformed and plainclothes officers. The self-protection plan for terrorist threats in the pre-alert phase was activated over the course of the year, with the increased presence of security personnel.

Work was carried out on training and coordination with Mossos d'Esquadra specialists in deactivating explosive devices (TEDAX) in our railway system and on procedures in order to increase the efficiency and effectiveness of any potential intervention.

In June joint operations with the Guàrdia Urbana were discontinued (it is hoped that they can be resumed in 2016, given the good results obtained).

On an international level, TMB took part in the European project Critical Infrastructure: Improve Security Control Against Terrorist Threat, funded by the European Commission's programme Prevention, Preparedness and Consequence Management of Terrorism and Security-related Risks.

—Security incidents:

During the year a total of 52,469 security incidents were detected and logged, an increase of 11.21% with respect to 2014, continuing the rising trend detected in 2014, when there was an 8.9% increase compared with 2013.

During the year security operators downloaded a total of 7,855 video-surveillance images of security incidents and other matters related to TMB's interests. The number of surveillance cameras continued to rise (currently there are 7,400).

In accordance with the conditions and general rules for use of Ferrocarril Metropolità de Barcelona, SA, published in the Official Journal of the Government of Catalonia no. 5770, of 7/12/2010, FMB security staff reported a total of 5,792 incidents to the administrative authorities.

Internal indicators reflected a further increase in reports of incidents:
—19,529 reports of pickpockets, 31.91% more than in 2014.
—2,893 thefts, 49.28% higher than in the previous year.
—21,113 lost property items, 33.90% higher than in 2014.

In June, with the support of the Mossos d'Esquadra, special patrols by security guards began with the aim of identifying pickpockets and submitting the relevant report to the authorities if they did not hold a valid ticket.

—Civil defence:

The Metro Civil Defence Department continued to promote the prevention, detection and proper management of risk situations by internal employees and external associates. During the year the latest proposals for improvement indicated by the Directorate-General for Civil Defence with regard to updating the self-protection plan were modified. These are expected to be delivered in January 2016 and approved in the first quarter of 2016.

At the same time, the communication and information system for activation of the Metro internal and external self-protection plan in response to terrorist threats was created and implemented. The new stations on L9 were upgraded and included in the self-protection plan for automated lines. Work on this project is expected to be completed in the first quarter of 2016.

The work on updating emergency dossiers for stations continues on schedule and projected delivery dates are being met. According to the work plan set, all the dossiers for the network will have been updated within two years. Work has also begun on producing emergency dossiers for the new stations on the southern section of L9 that will be opened in 2016.

Finally, the emergency drill required by law was conducted (simulating vandalism and a fire in a ventilation shaft).

DarWIN Project

The aim of the DarWIN project is to strengthen managers' leadership skills, with targets for the four following areas:
—**Communication:** the construction of matrices to identify case studies, classify cases by type and brainstorm possible communication approaches.
—**Training:** analysis of the current situation and proposals for training to be included in the 2016 training plan.
—**Management responsibilities:** identifying the range of posts in the management reporting structure, analysis of the feasibility of establishing common profiles and links between them and generating proposals for groups.
—**Support:** identification of key competences and profiles, review of the induction programme for new supervisors, design and implementation of the new modular support plan, knowledge management, etc.

As a result of this work method, the members of the multidisciplinary team carried out a series of measures envisaged in the action plan: a table of responsibilities for each job, focus groups for Operations Division and Maintenance and Projects Division supervisors, information and training on disciplinary procedures, labour regulation coordination sessions for managers and supervisors and, finally, the preparation of a support plan for supervisors and drafting of the manual.

At the same time, a series of measures directly related to members of the Metro team was implemented. These included:
—Preparation of the management platform for negotiating the 26th collective agreement, presented on 17 November to the representatives of the workers on the panel negotiating the agreement. The works committee had rejected the collective agreement on 20 September. Subsequently, the negotiating panel was set up and meetings with employees began on 20 October. Seven meetings took place between management and workers' representatives in 2015.
—During the year work continued on implementing the Cret@ project in TMB. This involved reviewing internal processes and decentralising tasks associated with the management of time, with the ultimate goal of moving to a new system for paying salaries and recording activity in the current month and not after the end of the month.
—In June the Ferrocarril Metropolità de Barcelona, SA, disciplinary regime was published together with details of procedures for sanctions, and employees were duly informed. During the year a number of training sessions dealing with this process were held.
—55 complaints were submitted to the Work Inspectorate, of which 43 have so far been resolved. 35% of rulings were in the company's favour. In 44% of cases the company was required to make an improvement or was subject to an administrative sanction. 22% of complaints are pending resolution.
—During the year 41 conciliation orders were received from the Centre for Mediation, Arbitration and Conciliation (CMAC). 39 conciliation meetings were held and a total of 42 legal summons received.

Review of organisational model

The development of this model was intended to bring about benefits in improved processes, interrelationships and coordination, identifying and clarifying responsibilities, and increasing the organisation's efficiency and adaptability.

During the year work was carried out on the following processes: a) training, b) coverage, and c) incident management in stations and trains.

a) Training:

The ultimate goal of the analysis carried out was to avoid duplication and work towards achieving a universal training model for Metro which guarantees the quality of training. Work involved reviewing and proposing adjustments in the roles of those participating in the identification of training needs.

The most significant activities in the area of training were:
—Completion of 342 courses with 12,752 employees attached to the metro network, and the management of the documentation needed to process the allowances envisaged in regulations.
—A total of 14 individual staff training permits were processed for the Operations and Maintenance and Projects divisions.
—Consolidation of the functioning of the Training Committee in the Operations Division, through the participation of management, the network support service, the Training Unit and the Metro Personnel

Development Unit, by channelling and tracking the training requirements envisaged in the plan.
—A continuous assessment programme was put in place to monitor supervisors' performance throughout the year. The total number of people subject to performance reviews during the year was 686 (663 the previous year).
—The Maintenance and Projects Division offered work placements to seven university students from UPC-Barcelona Tech. The Personnel Development Unit was involved in the analysis of alternatives for cooperation with the School of Engineering in Vilanova i la Geltrú, to provide work experience for students on the master's course in railway systems and students following doctoral programmes, as well as organising occasional visits by these students to operations and maintenance units.
—Security and Civil Defence coordinators conducted a total of 22 training sessions on self-protection for groups of 15-20 employees, primarily drivers and customer service agents.
—Jointly with the transport division of the Mossos d'Esquadra (Metropolitan Transport Security Division, or ASTMET), training was provided for all members of the mobile security teams in the area of awareness raising and specialisation in the operational, legal, administrative and criminal prosecution of organised groups of vandals.
—In the field of civil defence, 1,053 employees (197 external and 856 internal) received 259 hours of training. The company continues to be strongly committed to internal training. The largest number of hours of training were devoted to the self-protection plan, with 131 hours and 456 students.
—Regarding labour regulations, there were five training sessions, given to a total of 70 supervisors in the Operations and Maintenance and Projects divisions.
—In connection with rail safety, 31 training sessions in group dynamics were given, attended by 250 people for a total of 105 hours.

b) Procedure for covering posts:

The purpose of revising the procedure is to reduce the time elapsing between the beginning (formulation of the budget) and the moment when the employee signs the contract and takes up the post. Work was done on the review and proposed modification of procedures for identifying staffing needs, drawing up budgets and procedures for covering posts. During the last quarter of the year work on the preparation of staffing budgets was carried out within the framework defined by this working group.

There was an increase in hiring compared with other years, as a result of the incorporation, after several years, of new customer service agents to work temporarily throughout the summer, and the start-up of the new southern section of Line 9. A total of 86 requests for staff were received. The vacancies were the result of partial retirements, the start-up of the new southern section of L9, the employment of customer service agents and motor-cycle instructors in summer, seven of them because of extensions to working hours, and other reasons. A total of a thousand contracts were processed.

c) Incident management:

Work continued on laying the foundations for the incident management model for stations and trains, intended to achieve improvements in three areas: users (to reduce the impact of incidents on passengers), reducing costs (efficiency in the management of incidents) and communication (improving both internal and external communication).

The main measures taken in this field were:

—**Data Audit Protocol** (intraday, daily and monthly control). A scheme was defined for monitoring quality in recording incidents according to their symptoms. A model for monitoring reports was created and this will be sent to management each month to determine the quality of incident records.
—**Level two specialists.** Certain critical points were defined: failure to meet forecasts in all systems and lack of Metro Control Centre specialisation in systems that add value.
—The information used in the Beagle incident management projector **reinforcing remote control systems** was retrieved. A new table of the improvements detected was drawn up to make them more functional, with the benefits that they will contribute to the second level of maintenance or specialisation. This study, which involves the implementation of new roles, will need to be incorporated in the tasks for 2016 within the framework defined for maintenance by 2020.

—**Mobility prototype** (online closure of notifications by maintenance staff/access to incident log) in order to reduce the time elapsing between the detection of the incident and its closure. In the field of operations a prototype was defined which will allow customer service agents to visit all parts of the station to check the state of equipment and other items using a mobile device to inform the SAP system if there is an issue with any item. In the case of maintenance, the device must enable maintenance staff to close incidents in SAP without returning to maintenance bases. Currently, the Technology Division (ATEC) has made prototypes available to check and close incidents. In the case of operations, testing is about to begin, and in the case of maintenance, development is in the final phases.

—**Breakdown of time taken by different participants in the event of an incident:** the need was detected to record details of those dealing with incidents— in some cases using clearer procedures —in order to manage the different areas involved more quickly. During the year the measures concerning stations and trains requiring implementation in SAP routines were defined and transferred to the Technology Division.

—**Response time in the event of an incident:** the response time for each unit in the metro network—maintenance (super/infra), rolling stock, operations and Metro Control Centre—in the event of an incident was analysed. The analysis led to a series of recommendations regarding the improvement of response time. It is yet to be determined how they will be applied in 2016 to the maintenance programme for 2020.

—**Functioning of incident analysis:** procedure P340 was revised and implemented. This aims to describe forms of communication and the role of the parties involved in an incident, so that the events occurring can be analysed in the greatest detail.

—**Criteria for establishing partial services/interruptions to service:** criteria for action when partial services were applied did not comply with the procedures that were defined. During the year procedures 187 and 190 were reviewed, updated and published.

—**Study of partial services and entry to and departures from depots:** the study carried out in 2009 was reinstated, regarding the need to install points on the network to facilitate the entry and departure of trains and train maintenance. An agreed review was carried out by the staff involved and the findings were incorporated in the "maintaining the level of quality and service" (investment) target.

—**Review of the procedure for incident disclosure:** a table was drawn up with proposals for the disclosure of incidents, both during and outside office hours. This table still has to be approved by the different committees.

—**Clarifying departmental responsibilities (borders):** an inventory was drawn up of situations where there are possible demarcation issues between different departments. It defines how each case should be handled, and instructions were established for cases where there were none.

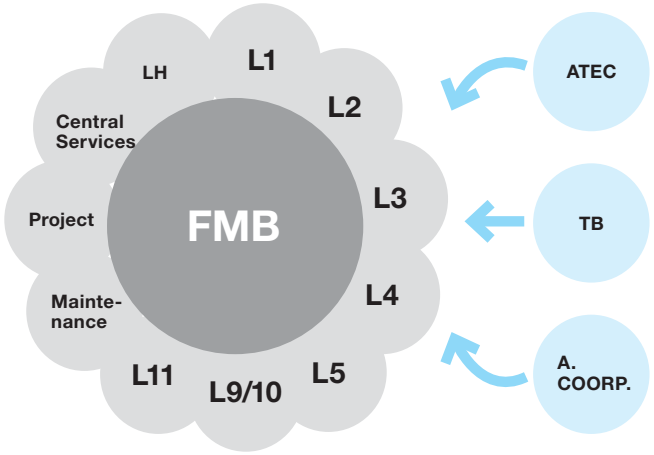
—**Establishing "official" criteria to determine whether, according to the incidents affecting it, a train may continue in service:** technical criteria were agreed for malfunctions affecting each series of train. They will be publicised next year, as they have been included in the CTO training programme.

—**Criteria for minimum information which must be included in an incident report:** the information appearing in rolling stock notifications issued by Metro Control Centre was revised and the information which should appear was specified. The technical modifications that would need to be carried out were proposed by the Technical Division.

At the same time, the Maintenance and Projects Division, in conjunction with the Quality Department, worked on a project for the period 2014-2015 to review the management system and the processes and models for this area. This task concluded with the awarding of ISO 9001 certification to the Maintenance and Projects Division.

Maintaining the level of quality and service

Within the Key Improvement Targets project, the goal of "Maintaining the level of quality and service" is the basis for the Metro Investment Master Plan (PDIM) for forthcoming years and until 2031. The main mission is to anticipate, define and plan for future needs in all areas. Work was carried out with the participation of all Metro divisions, and corporate and business areas external to FMB, in order to obtain the fullest definition possible in line with business strategy.



The method used to reach the final document was based on different meetings and guidelines produced during the different phases of the project. Measures were defined at each phase in order to produce a single action document for the future.

The following strategic lines were identified:
1. Improved security: infrastructure and tracks, signage, fire prevention and intruders.
2. Progressive automation of traffic in the network.
3. Management of obsolescence and the incorporation of new technologies.
4. Bringing installations into line with current regulations.
5. Improvement of the station environment: the "smart station" concept, improving the comfort and management of the station.
6. Greater efficiency in operation and maintenance.
7. Guarantee of full accessibility to the metro network: total accessibility and renovation of stairs and lifts.
8. Renewal and modernisation of the train fleet and management of renting contracts.
9. Optimisation of energy use: energy saving, new contracts and energy services to third parties.

All the measures proposed and studied are based on a series of objectives that needed to be aligned to maintain quality and service. These objectives are:

a) *Functional improvement, better maintenance and operation:*
—Measures affecting functional and aesthetic aspects of facilities in order to improve the state of conservation, to minimise maintenance and improve operations.
—Renovation of track material subject to heavy loads for its maintenance (working life of more than 50 years).
—Provision of a robust, reliable and configurable network, allowing efficient internal management.
—Provision of a power network (high voltage and traction) that enables a malfunctioning system to provide service on trains and at stations.

b) *Safety:*
—Improved safety in the use of facilities, both in cases of emergency and in normal service, ensuring the structural safety of the infrastructure.

c) *New needs or functions to meet new requirements:*

d) Update of obsolescent equipment.

e) Upgrading equipment in response to changes in current and future regulations (safety and prevention of occupational hazards).

f) Accessibility:

—Completing the modification of the metro system for PRM. Improving the functionality and comfort of facilities.
—Need for centralised control of systems.
—Making information available in the Metro Control Centre, offices and rolling stock workshops on different systems for making decisions more easily and with more information.

Based on these, the process of defining needs led to the production of an action map, classified according to the following criteria: legal/ regulatory, obsolescence, health and safety, energy efficiency, civil defence and security.

This will require an estimated investment of 4,500 million euros up to 2031. Excluding rolling stock, in order to maintain the system in accordance with quality and safety standards, Metro needs to invest a minimum of 38 million euros each year. This is the amount assigned to Metro in the past, while in order to respond to the overall needs of the rail system no less than 100 million euros per year would have to be added. If needs are prioritised, a total investment of 158 million euros per year is required (without L9 infrastructure).
Next year there will be a review of the 2016-2021 investment master plan to prioritise measures according to the financial estimates of the new programme contract.

In 2015 work continued on measures to maintain the level of quality and service in the network across a range of areas, taking the general economic situation into account. These included:

—**Measures to improve accessibility**
Poble Sec station on L3 and Rambla Just Oliveres station on L1 were wheelchair adapted.

Work is in progress at three stations: Poble Nou, by the Directorate-General for Land Transport Infrastructures, and Zona Universitària and Collblanc, by Ifercat, as part of work on L9.

Work at the following stations is at the planning stage: Plaça de Sants (L1/L5), Espanya (L1/L3), Urquinaona (L1/L4), Clot (L1), Vallcarca (L3), Maragall (L4/L5), Verdaguer (L4/L5), Jaume I (L4) and Ciutadella - Vila Olímpica (L4).

Improvements for people with reduced mobility in 2015 are summarised in the following table:

Offer December 2015
State of wheelchair adaptation

	L1	L2	L3	L4	L5	L9/10	L11	
Total number of stations on line	**30**	**18**	**26**	**22**	**26**	**12**	**5**	**139**
Number of stations adapted	26	18	23	16	22	12	5	**122**
Number of stations with work in progress			1	1	1			**3**
Nuber of stations in project design phase	4		2	5	3			**14**

- The following stations were adapted in 2015:

  Poble Sec (L3): April
  Rambla Just Oliveras (L1): July

- 88% of stations are wheelchair adapted
  - 122 stations adapted with lifts
  - 3 have work in progress:
    Zona Universitària (L3)
    Poble Nou (L4)
    Collblanc (L5)
  - 14 are in the project design phase

—Measures to maintain the quality of infrastructures in stations and offices
The main measures were tactile paving at Collblanc and Espanya, raising the platform at Diagonal (L3) and projects to raise platforms at Barceloneta and Passeig de Gràcia stations.

Other measures include waterproofing Espanya station (platforms and hall), the metal staircase at Catalunya (L1), the renovation of stone steps, the repair of leaks and structural defects on escalators, and bringing facilities into line with regulations.

A series of measures were also carried out to maintain quality and avoid accidents on Metro premises: in the Triangle (upgrade of the staircase leading to the office), at Sant Genís (improvements to the infrastructure of the washing tunnel), at Roquetes (upgrade of the washing tunnel), at Vilapicina (improvements to infrastructure, installation of a shelter in the car park, installation of safety handrails on mezzanine floors), at La Sagrera (extension of the inspection pit on track 3), Hospital de Bellvitge (structure to facilitate work at height on the top of draisines), at Can Boixeres (application of 5S methodology in track stores), etc.

—Measures to maintain the quality of structural infrastructures
Action was taken to prevent or delay the deterioration of structural or functional features of the infrastructure. A total of 33 stations and 48 tunnel sections were inspected and repair work was carried out in 7 stations and workshops, on 6 bridges and in 6 tunnels.

—Action to maintain quality in safety and traffic control
Work was carried out to modify signage in order to increase the safety of traffic flows. The main improvements were: modifications to the link line at Passeig de Gràcia, modifications on L1 and L3 to prevent trains passing signals at red, and changes to prevent the simultaneous movement of trains on general service tracks and in the workshop at Sant Genís on L3.

—Action to maintain the quality of tracks
The work done to ensure that tracks are in optimum condition and avoid accidents to trains during service is detailed below.
During the year a project was drafted for the renewal of 2,000 metres of track on L4, between Barceloneta and Ciutadella.

Platform fastenings were renewed at Passeig de Gràcia on L3 and Van der Weijden fasteners were replaced at Les Corts (L3). The La Bordeta train washing track was also renewed. Sidings at the Vilapicina workshop which were obsolescent were renewed (phase one) and buffers were installed at the end of the track.

Forty-two complaints were dealt with, 20 of which were solved by means of maintenance work. A further 18 were referred to track assembly and 4 did not reveal significant levels of vibration or were not related to TMB. Track auscultation was carried out on all lines with the Krabb system and work is continuing on the definition of the nominal track value to set tolerances for use and maintenance.

Quarterly analysis of reports from signal operators continued, with a view to identifying problem points or points where there are chronic

problems, carrying out maintenance work or projects, and reviewing the frequency of maintenance under the plan.

The track machinery maintenance plan was revised and extended, specifying the elements available, safety requirements and extensions to the systems that need to be maintained. An overall study of all track and overhead lines was launched.

The initial study of rail breaks was completed. Following on from this, Barcelona Tech has developed and carried out a metallurgical study of rail welding breaks, and a study has begun with the Ineco company of sections with high numbers of rail breaks.

A master plan for the maintenance of tracks and overhead lines was drawn up and this will be completed in 2016. A dictionary of track defects and anomalies was also produced, with inspection and performance criteria to order and unify the language of the Department.

With the assistance of Bombardier, an audiofrequency track circuit was introduced, allowing their 50 Hz track circuits on L4 to be replaced.

Metro services had to be interrupted during the year to carry out the following major works:
—The repair of the crossover at Vall d'Hebron on L5 (service interrupted for four weeks in August).
—Repairs to sidings on Line 9: La Sagrera and Bifurcació Superior (service interrupted for two weeks in August).
—Installation of Vanguard anti-vibration fastenings on the Sant Antoni-Universitat section of L2: in this phase 200 metres were installed on track 1 and 200 metres on track 2 (service interrupted for three weeks in August).

—Measures to maintain the quality of high-voltage electrical installations

A number of tasks were carried out, including completion of the installation of surge arresters at workshops on L3 and L4 to comply with the UNE-EN 50122:2011 standard for all workshops and the overhead line load switch for general service tracks and the Roquetes workshop on L4 was moved.

—Action to maintain quality in remote control of stations, signalling and civil defence

A number of tasks were carried out in 2015:
—Re-engineering of the electric operation, local control and remote control of fire protection systems using water mist.
—Migration of software in programmable automated units on Metro premises to the new Rx3i family to cater for possible problems of obsolescence.
—Work continues on initiatives to improve "condition-based" signal maintenance. These stem from the existing system to monitor points operation, patented by FMB and UPC-Barcelona Tech with marketing rights ceded to Thinking Forward. The following projects were carried out with this company, in which TMB has a holding:

— The development of a system to monitor power levels on track circuits in real time. The aim is to anticipate possible circuit failures resulting from deterioration of the track or environmental factors. Monitoring software was centralised and track circuits are being monitored at the Boixeres and Cornellà points systems. The system will be marketed in 2016 and various operators have already shown an interest.

— The design of a device to measure the clearance of check bars on point change motors using computer vision. This is an improvement over the existing system as it does not require initial calibration or regular maintenance and allows images to be sent from inside the activation mechanism. The system was patented in 2015 (TMB has a 50% stake) and is being marketed (it has also been installed on FGC and ADIF). In 2015 equipment was bought to be installed on section 1 of L9.

— New Bombardier TI21 track circuit receivers were also installed at the Can Serra and Trinitat points systems to cater for new equipment that includes monitoring track circuit measurements. Work has started on centralising these measurements so that they can be viewed on the help system for managing the maintenance of points.

—Measures to maintain the quality of low voltage installations and electromechanical systems

Detailed construction projects were carried out, and works and technical specifications completed for subsystems.

The following measures were implemented with regard to low-voltage installations:

—Bringing the business premises on the metro network into line with regulations.
—Design, definition and implementation of lighting on the platforms of five stations in the network, applying the best technology and studying the financial impact in terms of investment and return via energy saving, and complying with regulatory requirements for lighting levels. Work is expected to be carried out during 2016.
—Gradual replacement of air conditioning equipment that operates with R-22 gas and upgrade of electrical and air conditioning equipment in the data processing centre in Carrer d'Estivill.

—The maintenance of air conditioning equipment in the metro network and workshops was improved through a new classification of equipment based on systems (critical, equipment rooms, rest rooms and offices), and maintenance plans and operations were reviewed and updated in accordance with the regulations currently in force (Regulations on Thermal Installations in Buildings and Royal Decree 138/2011).
—The High-voltage Power Maintenance Unit has conducted a study for the substations in the network to optimise maintenance tasks in accordance with the RCM (reliability, condition, maintenance) philosophy. Implementation from 1 January 2016. Work also began on an RCM-based study for transformer and switching centres.
—An action plan was introduced for critical drainage wells. This plan makes available all the information, tools and procedures needed to react quickly in the event of breakdowns, when time is very limited. Options for intervention and contingency measures were defined for individual wells, in order to avoid interruptions to service. This study also allowed us to identify points for improvement in our installations. Some of these improvements have already been partially implemented.

In the field of **electromechanical systems work** continued on the measures normally carried out each year, for example:
—The partial renovation of lifts in the network (Universitat, Trinitat Vella, Liceu, Drassanes and Marina stations), the total renovation of four lifts (Fondo, Hospital de Bellvitge, Tetuan and Sant Antoni stations) and upgrading of escalators to meet the requirements of UNE-EN 115-2 and Royal Decree 1544/2007.
—An individualised maintenance study (working with the manufacturer Thyssen) for more than 400 escalators, classifying equipment according to age, model, reliability and conditions of use. This has made it possible to set up a schedule for each maintenance operation, moving from systematic plans to plans tailored to the real needs of each unit. Work has begun on an analysis of 65 escalators to assess their performance.
—Measures were identified which are not included in regular maintenance but which are necessary to extend the working life of escalators and lifts to maintain or improve current levels of reliability and safety, mitigate technical obsolescence and extend their working life. The application of these measures to lifts between 15 and 20 years old will extend their working life to 30 years, and escalators that are between 20-25 years old will have their working life extended to 35 years.
—Technical audits were carried out of a sample of lifts of various models and ages, by an internationally accredited body for the certification of lifts, escalators and their components. The key components that need to be replaced were identified. These measures have been initiated in seven lifts in the network: one lift at Trinitat Vella, Marina and Universitat (L2) stations, and two lifts at Drassanes and Liceu, respectively.
—The maintenance of escalators and lifts has begun with the systematic use of the RAMS approach (reliability, availability, maintainability and safety). The analysis of accidents on escalators was completed and a study was published by Metro jointly with the ThyssenKrupp Elevator Innovation Center and LECS UK.

Line 9

Project activity was in the sections initially called 1 and 2, necessary for the launch of the scheduled service on the new southern section, referred to as L9 Sud. In the year leading up to the opening scheduled for February 2016, activity focused on testing and preparatory work. Line 9 Sud will link the metro to Prat del Llobregat, a significant milestone for the city, and will provide a connection with the airport. There will also be two stations at Fira de Barcelona, providing new access options for the fair precinct.

During 2015 work was carried out in different areas with Fira de Barcelona and with AENA. With regard to Fira de Barcelona, the Mobile Congress event was of special importance, highlighting the start-up of the L9 Sud.

The new section of the L9 Sud will run for 19.7 km with 15 stations, bringing the proportion of the metro network which operates automatically to 25%. The stations which will come into operation are Zona Universitària, connecting to L3; Collblanc (L5); Torrassa (L1); Can Tries - Gornal, which will connect with the branch to Zona Franca; Europa - Fira (FGC); Fira; Parc Logístic; Mercabarna; Les Moreres; El Prat Estació (Rodalies); Cèntric; Parc Nou; Mas Blau; Aeroport T-2 (Rodalies) and Aeroport T-1. Camp Nou, La Ribera and Ciutat Aeroportuària stations will not begin commercial operations at this stage, but will contain key subsystems which will need to be maintained, and will also provide emergency exits.

Parallel to the new section, 6.3 km of the Zona Franca branch (future L10 Sud) will come into operation without carrying passengers, so that trains can access the workshop area.

On 10 October 2014 the first train entered the ZAL depot. In the course of 2015 the fourteen trains that will form the planned fleet were moved to the depot, so that the necessary adjustments could be made for them to run on this section. Arrangements for the maintenance of the fleet were also put in place at the ZAL depot. Because of the movement of the new trains on the southern section of L9, mobile security services and services in the ZAL workshop continued to operate (initiated in October 2014). In 2015 new security services were introduced in the airport's Terminal T1.

In July the availability and standards of service envisaged by TMB were defined and publicised. The service is notable for its flexibility, as it allows the main loop of the new trains (7'23" service interval between T1 and Zona Universitària) to be reinforced by secondary loops with a service interval close to 3 minutes, in order to adapt to peaks in demand for travel to Fira de Barcelona and the airport.

—Sections 2 and 3

From the part of the line which is to be brought into service trains must be able to access the ZAL workshop via section 2, which is still under construction. One of the tracks (track 2) is ready and can be used by trains.

The ZAL workshop is still pending approval, although it is the site where the first trains were assembled and prepared, before being moved to the testing area in section 1.

The status of the installations delivered by Ifercat was checked to detect pending issues: the workshop suffers from several shortcomings (not related to Metro) that need to be resolved in 2016 and 2017. Action taken in 2015 comprised the basic measures required to carry out minimum preventive and corrective maintenance.
Civil engineering work on the tunnel and stations in Section 3 (between Zona Universitària and La Sagrera stations) has been halted. Currently there is no commissioning date.

—Project management

This strategic project marks a milestone in the history of the Barcelona metro, especially because of the length of network and number of stations, and is its most important launch ever. Because of its significance, TMB has managed it as a strategic corporate project, with representatives of all parts of the company in its management and monitoring bodies.

—Strategic objective

With a view to aligning all areas of TMB, in 2015 twenty measures were identified as key goals to launch the L9 Sud on time and provide a quality service. These measures, which were carried out satisfactorily, ranged from delivery of the ZAL workshop to the drafting of plans for operation and self-protection, the selection and training of staff, the transfer of trains, the integration of stations with the existing network, protocols for relations with AENA, etc.

7 Environmental protection

Management of quality and the environment in TMB, TB and FMB

In 2015 the Quality Department continued to work on developing a quality management model whose main aim is to ensure processes are managed in accordance with the ISO 9001 standard, enabling the organisation to focus at all times on users' needs in accordance with the UNE 13816 model.

At corporate level, internal and external audits were carried out on the following certified units: the Remote Support Centre (CST), the Punt TMB information and customer service centres and the Training Department. Certificates were successfully renewed for all these units. ISO 9001 certification was also obtained for the complaints and suggestions management unit. Training in quality was given to employees in the Network Operations Divisions of Metro (customer service agents) and Bus (drivers) businesses, as well as all staff promoted internally to ISO/UNE certified units. New training manuals have been produced, which are more in line with TMB’s current circumstances.

Quality in Transports de Barcelona

Work was carried out jointly by the Quality Department and the Bus Network Operations Department on standardising management models which focus on customer services and improvement. These models have now been defined for all Business Operations Centres and the target for 2015 is to obtain ISO 9001:2008 and UNE 13816:2003 certification for TB's Network Operations Department.

A range of measures were taken to move towards this goal:

1. Preparation/revision of the TB Network Operations Division process map.
2. The redefinition and creation of new operational procedures (TB Network Operations Department).
3. The setting up of an indicator scorecard.
4. The establishment of a methodology for monitoring indicators, targets and compliance with procedures.

At the same time all the support/consultation tasks related to maintenance of existing certificates were carried out.

Environmental sustainability

1. Comprehensive environmental management system according to ISO 9001, 14001 and 50001

— In 2000 the activity of the bus service on public roads was awarded ISO 14001 certification. There is an annual review and the certificate is renewed every three years (through an external audit).
— Energy audits of TB at the Zona Franca I (2008), Triangle (2008) and Horta (2007) Business Operations Centres with the corresponding proposals for measures to optimise energy use. The possibility of conducting an energy audit at the Ponent Business Operations Centre was ruled out, in view of the uncertain future of the centre, given its town planning rating.
— Water audit at Zona Franca I (2009): this audit was taken as a guide for the definition of measures to optimise water use in other centres. The need to conduct more audits in other centres was ruled out.
— Permits were obtained for the discharge of wastewater at the Triangle (September 2009), Horta (March 2011) and Zona Franca I (June 2011) Business Operations Centres. The permit for the discharge of wastewater at Ponent was not processed, as the centre cannot apply for an environmental licence because of its town planning rating. The permits are renewed every five or eight years, depending on the centre.
— Compliance with Bus infrastructure regulations (licences):
  — 2011-2013: start of processing of environmental licence for Zona Franca Llobregat (initial). The definitive licence is expected to be obtained.
  — 2013: start of processing of environmental licence for Zona Franca Port.
  — 2013: definitive licence for Horta and Zona Franca I Business Operations Centres.

In 2013 TMB management approved a comprehensive plan for energy efficiency and improving air quality. This goal is shared by the General Management of the Bus Network and the Department of Quality and Environment.

In 2013 a preliminary analysis was carried out for the introduction of the ISO 50001 standard for Transports de Barcelona, SA, with a view to identifying the main shortcomings for compliance with its requirements.

In 2014 a pilot test was carried out in Zona Franca I and Horta to identify and assess compliance with the relevant legal requirements using the specialised MIREC tool (module for identifying requirements and assessing compliance). The experience provided comprehensive up-to-date information on the level of compliance with the regulations governing these centres, enabling us to plan measures to make the centres compliant and begin the process for implementing ISO 14001 (Zona Franca I) and ISO 50001 (Horta Business Operations Centre) with a view to obtaining certification in the first quarter of 2016.

2014-2015: based on the results of the analysis to introduce ISO 50001 and the evaluation of legal requirements, the process of designing and implementing the environmental management system and the energy management system was initiated. The centres chosen for implementation of these systems were Horta for the energy management system (ISO 50001) and Zona Franca I for the environmental management system (ISO 14001). The design of these systems led to a review and new definitions of working procedures applicable to the whole of TMB. In December internal audits were carried out in both centres.

2. Optimisation of water management

There is a draft project to monitor water consumption at centres (using the SCADA software system). Horta and the Triangle have completed implementation of the SCADA system for tracking and monitoring consumption in water treatment plants at washing bays. This allows us to monitor mains water supplies, recycled water, osmosis-purified water, and water in fire-prevention tanks and pipes.

3. Optimisation of energy management

Commissioning of the cogeneration plant in the Triangle depot (for Irizar electric vehicles as part of the ZeEUS project). Work is proceeding on the second stage of the project, which involves the monitoring of data. Currently consumption of electricity and gas at all the Business Operations Centre is monitored manually by inspection of invoices and existing meters, but there is a draft project to monitor energy consumption at the centres using the SCADA system.

In 2013 TMB management approved a comprehensive plan for energy efficiency and improving air quality. That year a preliminary diagnosis was carried out for the implementation of the ISO 50001 standard with the aim of identifying the main shortcomings for compliance with this standard. In 2014, on the basis of the results of the analysis, the process of implementing an energy management system according to ISO 50001 began, with the following targets:
— Definition of the scope of the energy management system in TB.
— Establishment of bodies to oversee the energy management system.
— Definition of a TMB energy policy.
— Presentation of the energy review for each centre.
— Definition of the energy baseline.
— Definition of and consensus regarding the table of energy indicators.

4. Selective waste collection and recycling points

A system of selective waste collection was implemented in 2006-2014 with a recycling storage facility (Punt Verd) at each centre.

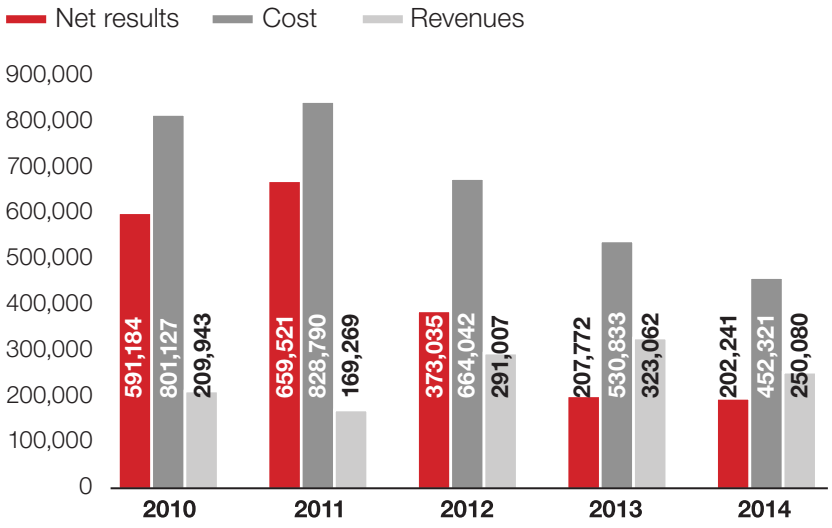
In 2012 the tender was awarded for the integrated management of TMB's waste, including the management of storage, transport and waste treatment for all centres.

In 2013, on the basis of the new contract for the comprehensive management of waste, the volume of transport and expenditure associated with each centre were monitored. Thanks to the creation of standardised command units for all centres and all types of waste, waste volumes can be tracked using the SAP Finance module. A series of indicators was also introduced for monitoring waste management and recording the movement of waste, as established in the technical specifications.

The effect of these measures can be seen in the fact that in 2014 expenditure on waste management was 43.5% lower than in 2010, 45.42% lower than in 2011 and 31.88% lower than in 2012 and 14.8% lower than in 2013.

Considering the overall balance (revenue minus expenditure), in 2014 there was a reduction in the shortfall of 65.8% compared to 2010, and 69.3%, 45.8% and 2.7% compared to 2011, 2012 and 2013 respectively.

Net results of waste management 2010-2014 (€)



5. Bus network emissions map

Since 2006 real emissions have been measured for various types of vehicle in the fleet depending on their capacity and technology and the fuel used, enabling emissions maps to be produced. These help with decisions regarding the distribution of the fleet and network planning in order to reduce pollution in the city.

In 2013 the Government of Catalonia presented an action plan requesting a moratorium from the European Commission on the terms established for reductions in NOx and PM levels. This plan also included the measures applied and planned by TMB.

In 2014 an agreement was reached with the Directorate-General for Environmental Quality on the methodology for calculating emissions from the bus fleet and a guide to calculating PM and NOx emissions was published. In the same year, maps of emissions were also completed for the European 3iBS project (intelligent, innovative, integrated Bus Systems): maps of consumption and emissions scenarios for 2012, 2014 and 2017 to quantify the reduction in atmospheric emissions achieved with the incorporation of the new fleet and the configuration of the new network. The emissions maps allow us to visualise the contribution of the new fleet and the new bus network to improving air quality in the metropolitan area now and in the future:

—2011-2014: 857 kg per day reduction in NOx emissions.
—2011-2017: 1,091 kg per day reduction in NOx emissions.

Currently the environmental programme for the Bus fleet is still in force and this should enable a reduction in atmospheric emissions from the surface network.

Work was carried out on the establishment of a programme of objectives for energy management in line with ISO 50001 at Horta as a pilot centre for reducing energy consumption and atmospheric emissions in TB.

6. Design, construction and maintenance of infrastructures with sustainability criteria

Sustainable infrastructure measures in TB include: :
—An inventory of 147 m^2 of solar panels and 148 m^2 of thermal solar panels.
—The treatment of water used in metro and bus washing bays and the use of this water, once treated, for sanitary installations in certain centres.
—From 2009 to 2012, work was carried out to commission the cogeneration plant for the Horta depot.
—September 2011: commissioning of a biological sewage treatment plant at the Triangle Business Operations Centre.
—2011-2012: provision of waterless high throughput urinals in drivers' rest rooms at the Triangle and Zona Franca depots. This brought about substantial savings in maintenance and reductions in mains and recycled water consumption (depending on the depot).
—2010-2013: installation of photovoltaic electricity generation system at Zona Franca and sale of electricity to the grid (2010). Introduction of own consumption (2013).
—2014: cogeneration plant for own consumption commissioned in the Triangle depot. Extension to four charging points at the Triangle Business Operations Centre for electric buses (ZeEUS project) and installation of five charging points for cars. Monitoring of the recharging points for these buses. Work is proceeding on the second phase of the project, which involves the monitoring of data.
—May 2015: commissioning of biological treatment plant for the washing bay at Horta Business Operations Centre; work is in progress on the biological treatment plants at the Zona Franca and Ponent Business Operations Centres. A project is in progress to reduce heat loss in facilities, make better use of solar panels and ensure better control of legionellosis.

7. Introduction of green criteria in the procurement of goods and services

In 2011 the proTRANS CONTROLAR module was launched to facilitate the coordination of business activities with a view to preventing occupational hazards. During the year a system was defined for classifying material according to its level of environmental compliance.

In 2013 and 2014 the tender for the procurement of office supplies, stationery and computer consumables included green procurement criteria.

8. Environmental education and communication plan

Activity in the field of communication and training in environmental issues included the following:

—The topics covered at the 19th Engagement Systems Conference held in 2015 included projects on sustainability and savings in consumption.

—The setting up of working groups to implement good environmental practices.

—Publicity for the new bus network, emphasising its environmental benefits and sustainability.

—Presentation of the new environmentally friendly fleet under the slogan "TMB, the cleanest bus fleet in Europe".

—Projects in TMB's Environmental Sustainability Master Plan were publicised:

- — The greening of the bus fleet and the new emissions maps.
- — The new bus network and its contribution to sustainability (more efficiency equals less pollution).
- — Environmentally responsible procurement in TMB.
- — Waste management in TMB.
- — Energy saving in TMB.
- — The use of groundwater.
- — Studies on the quality of air.
- — TMB's comprehensive plan for energy efficiency and improving air quality (ISO 50001).

—Based on the results of the 2012 study of customer perception to identify the impacts of transport on the environment that most concern users and find out their opinion of TMB's environmental efforts, it will be decided whether the same questions or new ones should be included to obtain a better understanding of customers' opinions and perceptions.

—Training of the TMB Environment Department team to audit energy management systems in line with ISO 50001.

—The process of training in energy management systems (ISO 50001) and environmental management systems (ISO 14001) of all staff at Horta and Zona Franca I has started.

9. Table of indicators for the environmental performance of TMB according to ISO14001/EMAS

An analysis was conducted of the availability and format of the data on energy consumption in the system for the configuration of the table of indicators for TMB's consumption and emissions (TMB Finance - Environment).

Specifications were established for the purchase of energy management software for TMB. The Technology Division will present the proposal. Once a decision has been made on the tool that best meets TMB's needs, implementation will need to be scheduled.
Work was carried out on the design of a scorecard to track TMB's environmental and energy performance.
A scorecard was introduced to track Horta's energy performance (with SAP Business Object).

The implementation of the energy management system for TMB started, beginning with Transports de Barcelona (ISO 50001). This will allow us to do the following:
—Analyse consumption, costs and emissions for premises and the fleet through indicators.
—Analyse the variables that affect the significant use of energy (route mileage, validations, driver, technology, etc.).
—Establish an energy baseline that allows the savings obtained to be quantified and cases to be detected when more energy than necessary has been consumed.
—Find out where it is more cost effective to invest in energy efficiency (premises and fleet), make decisions and set goals for improvement.
—Define tasks to be carried out to improve energy performance.
—Produce reports to track the savings obtained and monitor the objectives set.

Quality in Metro

1. Maintenance and Projects Division:

The Quality Department, in conjunction with the Maintenance and Projects Division, obtained ISO 9001 certification for the Maintenance Division management model. Various measures were taken to help us achieve this goal in 2015:

1. Training in quality for technical personnel in the division.
2. Internal audits by the Quality Department in all departments of the Maintenance and Projects Division.
3. An audit by an outside company.
4. Completion of a certification audit by a company accredited by the Spanish National Accreditation Body (ENAC).
5. Resolution of non-conformities detected in audits.

In May 2015 ISO 9001 certification was awarded to the Maintenance and Projects Division.

At the same time, in conjunction with Divisional Coordination and Maintenance Engineering, the Division continued working with representatives on the planning of a project to obtain IRIS (International Railway Industry Standard) certification for all rolling stock workshops and signalling activity, within a timeframe that is still to be decided. During the year an initial diagnosis/audit was conducted to identify areas for improvement next year, so that a successful application for IRIS certification can be submitted.

2. Metro Network Operations Division:

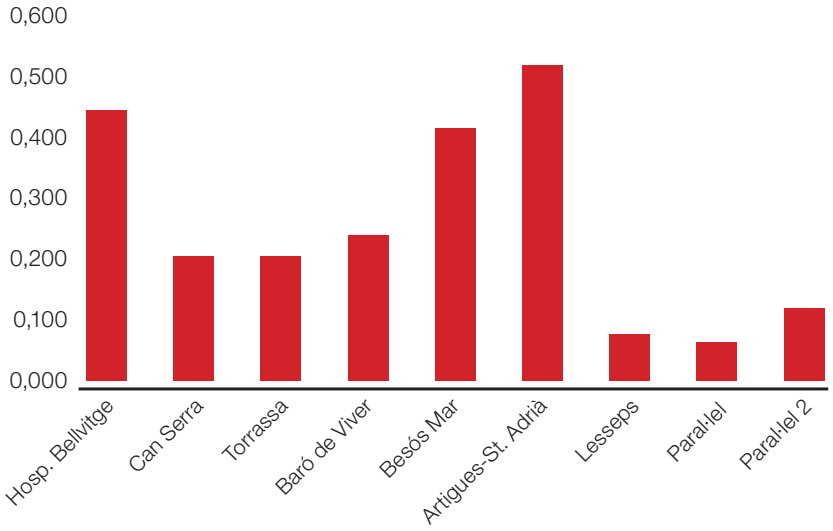
Metro's Network Operations Department, working closely with Metro management and representatives of the Management Committee, drew up, approved and published the Metro Service Charter, as specified in the 93200 standard. All necessary support and advisory work by Metro's Network Operations Department related to maintaining current certification (ISO 9001 and UNE 13816) was completed.

Environmental sustainability

1. Optimisation of water management

In 2013 the water in 26 wells collecting groundwater was studied and characterised. The situation of the use of groundwater in metro pumping shafts in 2015 is shown in the following chart:

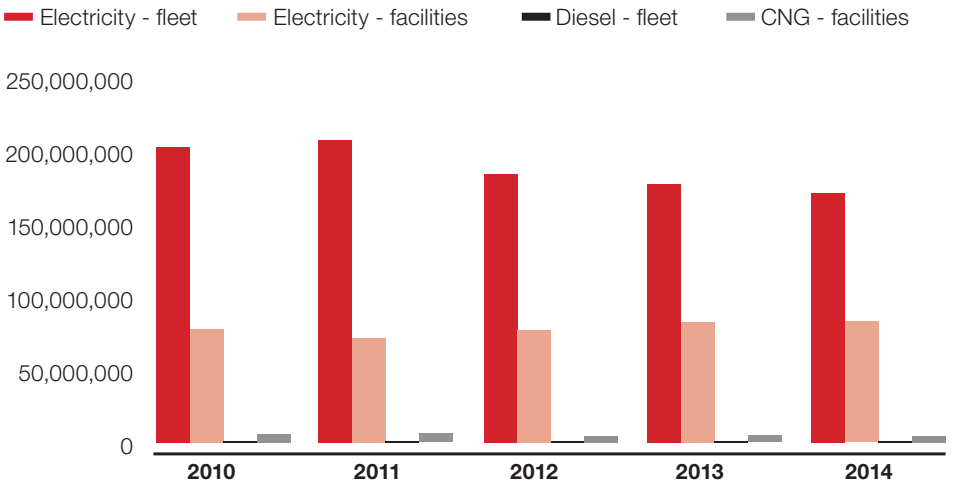
Hm_3/year of current use of groundwater per pumping shaft (2015)



2. Optimisation of energy management

Changes in energy consumption and expenditure in the period 2010-2014 are of special interest. These are subject to annual verification by an accredited environmental body:

Metro fuel consumption (kWh)



	2010	2011	2012	2013	2014
Electricity - fleet	207,949,043	212,688,475	189,037,954	181,735,585	175,329,516
Electricity - facilities	79,903,474	73,530,701	79,252,168	84,508,606	85,101,273
Diesel - fleet	717,449	698,226	757,102	745,543	702,131
CNG - facilities	5,662,026	6,179,608	4,297,639	4,796,706	4,418,252

3. Selective waste collection and recycling points

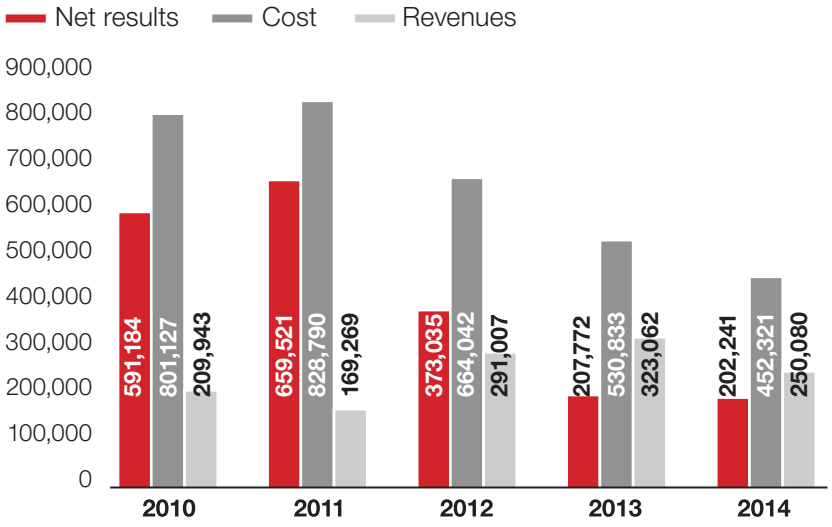
A system of selective waste collection was implemented in 2006-2014 with a recycling storage facility (Punt Verd) at each centre.

In 2012 the tender for the integrated management of waste was awarded and this includes warehouse management, transport and treatment of waste from all centres.

In 2013, on the basis of the new contract for integrated waste management, the volume of transport and expenditure associated with each centre were monitored, an indicator scorecard for waste management was implemented and the TMB waste movement register defined in the technical specifications was introduced.
In 2014 expenditure on waste management was 43.5% lower than in 2010, 45.42% lower than in 2011, 31.88% lower than in 2012 and 14.8% lower than in 2013.

Considering the overall balance (revenue minus expenditure), in 2014 there was a reduction in the shortfall of 65.8% with respect to 2010, and 69.3%, 45.8% and 2.7% compared to 2011, 2012 and 2013 respectively.

Net results of waste management 2010-2014 (€)



4. Emissions map for the network

In 2013 and 2014 further work was done on the comparative study of the air quality on the Barcelona metro automated and conventional lines by the Spanish National Research Council (CSIC) and TMB. Several articles were published.

In 2013 Ferrocarril Metropolità de Barcelona and the Spanish National Research Council (CSIC) jointly presented the LIFE-13ENV/ES/000263 project 'Implementing methodologies and practices to reduce air pollution of the subway environment' in response to the LIFE + 2013 call. The project was approved in 2014.

Various articles were published in scientific journals, detailing the results of the metro air quality studies conducted by the CSIC.
In February 2015 work began on a new campaign for air quality sampling in the metro linked to the LIFE13 ENV/ES/000263 project, "Implementing methodologies and practices to reduce air pollution of the subway environment" (LIFE + 2013 call) and on the presentation of the results. The project has a duration of three and a half years and air quality measurement will conclude in 2016.

5. Design, construction and maintenance of infrastructures with sustainability criteria

Beginning of implementation of the programme of corrective measures at Sant Genís, agreed with Barcelona City Council and the fire brigade (final design valued at 1,622,000 euros).The contract for the first phase, with a budget of 374,500 euros, was awarded in 2013 and in 2014 contracts were awarded for all remaining work. Due to budgetary restrictions, work is being carried out over several years, depending on TMB's investment capacity. It is expected to be completed in March 2016.

6. Introduction of environmental criteria in the procurement of products and services

In 2011 the ProTRANS CONTROLAR module was launched to facilitate the coordination of business activities with a view to preventing occupational hazards.

TMB's Procurement Committee has started procedures for the purchase of a consignment of 6,000 wooden sleepers to cover track infrastructure renewal needs on the metro network in the next three years, on condition that the wood comes from sustainable logging, a requirement that will remain in force for tenders of this type from now on.

According to the specifications, the wood for the sleepers should be oak, tanalised (chemically treated to prevent wood rot and premature deterioration), ready to withstand conditions of humidity and hold the track, and accredited with one of the sustainable origin certificates (FSC, PEFC or equivalent). 4,000 2.4-metre sleepers will be purchased for 1,435 mm international gauge tracks, and 2,000 2.6-metre sleepers for Line 1, which has a gauge of 1,674 mm. The estimated value of the order is about 450,000 euros.

7. Environmental education and communication plan

Activity in the field of communication and training in environmental issues included the following:

— In 2015 the 19th Engagement Systems Conference was held with the inclusion of projects in the category of sustainability and savings in consumption.

— The setting up of working groups to implement good environmental practices.

— Projects in the TMB Environmental Sustainability Master Plan were publicised:

  — The greening of the bus fleet and the new emissions maps.
  — New bus network and its contribution to sustainability (more efficiency equals less pollution).
  — Environmentally responsible procurement in TMB.
  — Waste management in TMB.
  — Energy saving in TMB.
  — The use of groundwater.
  — Air quality studies.
  — TMB's comprehensive plan for energy efficiency and improving air quality (ISO 50001).

— Internal and external communication of the results of the European project LIFE13 ENV/ES/000263, "Implementing methodologies and practices to reduce air pollution of the subway environment".

— Based on the results of the 2012 study of customer perception to identify the impacts of transport on the environment that most concern users and find out their opinion of TMB's environmental efforts, it will be decided whether the same questions or new ones should be included to obtain a better understanding of customers' opinions and perceptions.

—Training of the TMB Environment Department team to audit energy management systems in line with ISO 50001.
—The process of training in energy management systems (ISO 50001) and environmental management systems (ISO 14001) of all staff at Horta and Zona Franca I has started.

8. Table of environmental behaviour performance indicators for TMB in line with ISO 14001/EMAS

An analysis was conducted of the availability and format of the data on energy consumption in the system for the configuration of the table of indicators for TMB's consumption and emissions (TMB Finance - Environment).

Specifications were established for the purchase of energy management software for TMB. The Technology Division will present the software proposal.

Work was carried out on the design of a scorecard to track TMB's environmental and energy performance.

A scorecard was introduced to track the energy performance at Horta (with SAP Business Object).

The implementation of the energy management system for TMB started, beginning with Transports de Barcelona (ISO 50001).

Energy consumption in Metro

The power consumed by the train fleet in 2015 (excluding L9/10) was 170.88 million kWh, a reduction of 2.5% on the previous year. This was due to a 1.1% reduction in coaches-total km covered and lower unit consumption per kilometre following the implementation of energy saving measures. Last year average consumption was 224.1 kWh/100 coaches-total km, which represents a decrease of 1.4% on the previous year.

Quality on the Montjuïc cable car

Environmental sustainability of the Montjuïc cable car

When the environmental permit issued to the Montjuïc cable car service was renewed, the criteria of the Cims town planning project for the entire Montjuïc mountain were applied, the priority being to minimise the environmental impact of the facilities.

Accessibility

In 2011 the cable car service was audited for universal accessibility certification (UNE 170001 standard) by the certification company LGAI-Applus. Montjuïc cable car facilities obtained certification in December 2008, both for the accessibility of the environment (architectural aspects) and the accessibility management system (internal management). Accordingly, all cable car routes are adapted to the needs of people with reduced mobility. Wheelchair users can travel completely independently using ramps, gates, and platforms whose height exactly matches that of the cars. For the blind and visually impaired, signs are appropriately sized and there are walkways and touch-sensitive browsers on ticket vending machines, while written information is available for the deaf.

Staff on the Montjuïc cable car service also receive training and are made aware of the specific needs of disabled users. Both customer service and installation maintenance protocols are designed to ensure the service is accessible.

The Municipal Institute of People with Disabilities of Barcelona and the ECOM Federation, which represents over 150 groups for disabled people, contributed to the design of the cable car's accessibility features.


8
Studies

The work of the Research Board can be divided into two main types of study: regular and special. The first group includes all research which is conducted regularly over a period of several years. This type of research accounts for most of the Board's budget. The second type consists of studies in response to specific requirements at a certain time or those which, although repeated, do not qualify as regular. In 2015 the same strategy as in previous years was applied, i.e. increasing the efficiency of regular studies by automating tasks and reducing costs and increasing the value of special studies with a more business-oriented focus (optimising the use of resources, reducing expenditure, generating more income).

1. Regular studies:

The main regular studies carried out (accounting for 90% of the department's budget) are the following three:

Study	Aims	Key figures
Customer perception study	To assess the satisfaction of metro and bus users with the service provided by TMB.	About 4,000 in-person interviews with Metro customers and 4,000 in-person interviews with Bus customers.
Fraud study	To estimate the number of passengers who travel without tickets on the bus and metro networks operated by TMB.	261 metro lobbies and 110 buses were observed through virtually the whole service schedule.
Service provision study	To measure the gap between the service offered to users and the service really provided on bus and metro networks operated by TMB.	On every weekday during the year inspections of facilities and vehicles were carried out by one team on the bus network and one team on the metro network.
Service provision study	To measure the gap between the service offered to users and the service really provided on bus and metro networks operated by TMB.	On every weekday during the year inspections of facilities and vehicles were carried out by one team on the bus network and one team on the metro network.

In addition to these three studies, regular studies carried out during the year included the following: Barcelona Bus Turístic satisfaction study, Catalunya Bus Turístic satisfaction study, a complaints and suggestions study, a study of satisfaction with Punt TMB centres and studies of satisfaction with certified units. In relation to the latter, during the year there were studies of Metro management, the Metro Control Centre, the Security and Civil Defence Unit, Rail Safety and the Technology Support Centre.

2. Special studies:

1. Studies on additional revenues and TMB transport tickets

Support was given to the Commercial Promotion Division for various tasks to optimise policies concerning TMB's own tickets: A study of the fares under consideration for 2016, the effects of the airport fare on the Hola BCN! card, and the effects of the T-Mobilitat project on the card.

2. Studies related to the analysis and control of fraud

In 2015 a project was launched to produce a bus fraud map that will help us to determine the best areas for the work of the inspection units. Monthly monitoring of the process for handling fraud penalties continued. This covers the main areas of interest: inspection, penalties, payment by type and channel, receipts, allegations and the referral of cases to the authorities. It provides a monthly summary of the issue and allows us to make a preliminary assessment of the success of the measures contained in the Anti-fraud Plan (payments via the website, bank card payments to Metro inspectors, etc.).

3. Digital analytics and marketing

In the field of digital analytics, the consultancy and implementation phase was completed for Google Analytics for tmb.maps.cat, barcelonasmartmoving.com, noticies.tmb.cat and the BBT captive Wi-Fi portal. Work on the "City Wi-Fi" project is continuing so that TMB can take advantage of the leads generated by this new source. Work began on optimising the e-commerce portal www.barcelonasmartmoving.com to increase revenue from the platform by means of improvements to it and in the more effective capture of traffic.

The Research Board continued to support the Marketing Department in the management of data from JoTMBé, the customer panel and satisfaction surveys of its most significant activities (Sant Jordi and Subtravelling).

Other studies (Bus)

With regard to service planning, the main projects undertaken this year and those envisaged for 2016 are described below.

—Study and design of special services:

A number of special services were studied and designed for events involving TMB (Fira de Barcelona, concerts at Palau Sant Jordi and the Olympic Stadium, events on Montjuïc, and city events such as the Mercè and Gràcia festivals, and Christmas).

—Collecting passenger information using RFID technology:

The first new devices with RFID technology used to collect data for departure-destination surveys in the Bus network were received. The new equipment contains new features based on technological advances and our experience of the old equipment. These include: An intelligent central unit, remote units on doors, a GPS unit connected by Bluetooth to reduce the use of wires and a new, lighter battery charging system.

A couple of tests were conducted on buses in order to verify the correct operation of this equipment and the results were satisfactory. They will start to be used to collect data for departure-destination surveys in 2016, together with the old equipment.

—New Barcelona bus network (NXB):

Work was carried out on the definition of the fourth phase, which is scheduled to come into service on 29 February 2016, with three new lines: H4, V11 and V13. Work is also proceeding on a fifth phase, in which the full impact of the deployment of the network will be assessed. Existing modelling tools (TransCad and Aimsun) were used to prepare reports on the new bus network, together with tools developed in-house by the Planning Department.

The implementation of the new bus network will continue over the next few years at a pace and along lines that will have to be determined on the basis of the results of studies to be carried out in 2016.

—Remodelling of the bus network following the start of operations on the L9 Sud:

The start of operations on the new sections I and II of metro Line 9 (also known as L9 Sud), planned for February 2016, will be a very important step forward for public transport in the south of the metropolitan area and, at the same time, will have an impact on demand for bus services in the area. This impact was analysed in several studies in 2015.

The following lines were examined: 21, 23, 46, 65, 79, 109, 110 and 165. The impact of Line 9 Sud on demand on these lines was considered and proposals were studied for measures that need to be taken (changes to routes, relocation and installation of new stops, changes in the resources assigned to the service, etc.) in order to adapt bus services to the new metro line and supplement the service it provides.

—Ticket validation data by bus stop:

At present the ticket validating system on buses does not link to the Central Operation Aid System (OAS) so it is not possible to identify the bus stop where the ticket was validated. To make planning more effective, a process is being developed to allow the location where tickets are validated to be identified. This links the ticket details to the time it was validated and the time the bus left the stop, which is recorded by the Operation Aid System.

In 2015 tests were conducted to collect information on validations in real time, leading to the implementation of the system in the entire fleet in November. With this increase in precision the process of linking validation to the stop will be reassessed.

—NODES Project:

NODES (New Tools for Design and Operation of Urban Transport InterchangeS) is a European project, coordinated by the UITP and co-funded by the European Commission, designed to provide answers to the questions that may affect planners when building or improving a transport interchange. The project will lead to the development of a support tool for cities, operators and transport authorities to help them in the design and operation of new or refurbished interchanges.

The project involves five key aspects of interchanges:
1. Strategies for the integration of urban planning and infrastructure.
2. Innovation in the design of new and refurbished interchanges.
3. The operation of the interchange and the management of information.
4. Business and management models: the interchange as business centre, both in itself and for the local economy.
5. Energy efficiency and environmentally friendly interchanges.

In late September 2014 TMB organised the third meeting of the User Group in Barcelona, together with the Business Development and International Relations Division and with the support of other departments in the company. Practical examples of the integrated urban development and transport planning in the United Kingdom were presented and a first version of the web tool developed by the project was tested. TMB gave a presentation on the new Barcelona bus network, as interchanges are a key aspect of this project. The development over the last few years of one of the city's most important metro interchanges, La Sagrera, was also discussed.

In 2015 there were two meetings. At the first, in April in Stockholm, examples of the practical application of the project's tools were presented in relation to the following aspects: intermodality and information and communication technology, management and business models, and energy and the environment. Subsequently, work was done on the preparation of the final documentation and details of the web tool used in the project were finalised.

In September 2015 the last session of the project took place in Brussels. This meeting served to present the final results both to the participants and to a wider audience of mobility and transport experts from different countries.

The studies on the planning of the bus network carried out in the year included the following:
— Lines 70 and V3. Study of occupancy and analysis of route interchange.
— Proposals for improvement based on information in complaints and suggestions and variables affecting the availability of the service.
— Line 51. Analysis of change in route to Trinitat Nova.
— Line 27. Analysis of demand.
— Lines 50 and 51. Analysis of demand.
— Line 165. Analysis of the proposed service for weekends.
— Analysis of public transport in the light of the relocation of the headquarters of Agbar and the Tax Agency.

Other studies (Metro)

Special studies:

—Studies related to the sale and validation of tickets

Where necessary support was given to projects related to the dimensioning of the sale and validation system for new ticket halls and the redesign of those that already exist in the metro network.

—Analysis and control of fraud

During 2015 work was done on a project to improve customer care on the metro network by increasing the number of customer service agents at ticket barriers. In addition to ticket validation, sales and exchanges, they have a role to play in discouraging fraud. Levels are continuously measured using the resources of the service provision study.

Early in the year a new schedule was drawn up for the presence of security guards in ticket halls in the metro network to deter fraudulent users, and work continued on the project to redesign the application for planning the routes of the Metro Inspection Unit.

Studies continued to evaluate the two-way gate fraud counters. The resulting fraud indicators are reported to TMB management. The results of the reliability study were passed on to the Sales and Transport Access Technology and Metro Maintenance departments, which are equipped to identify appropriate technological solutions. Several suppliers of new counting systems were contacted. These systems go beyond observation and automatic two-way gates, with counters that use images and infrared detection.

Lastly, monthly monitoring of the process for handling fraud penalties continued. This covers the main areas of interest: inspection, penalties, payment by type and channel, receipts, allegations and the referral of cases to the authorities. This provides a monthly summary of the issue and allows a first assessment of the success of the measures contained in the Anti-fraud Plan (payments via the website, bank card payments to Metro inspectors, etc.).

—Studies on additional revenues and TMB transport tickets

Support was given to the Commercial Promotion Division for various tasks to optimise policies concerning TMB's own tickets: a study of the fares under consideration for 2016, the effects of the fare to the airport on the Hola BCN! card, and the effects of the T-Mobilitat project on the card.
Also noteworthy is our support for projects led by the Business Development and International Relations Division. These include a preliminary feasibility study of the electric freight train in Ecuador. Support was also given to the T-Mobilitat project in the area of customer information and assistance.

In the area of service planning, the main projects undertaken this year and those envisaged for 2016 are described below:

—Modelling of Line 9/10 to the airport:

A fresh assessment was made of the simulation model of L9/10, in the southern section that runs to the airport, taking account of TMB's experience of operating the other sections which have already been opened and the conditions at stations that will open in February 2016.

The section considered was that linking Zona Universitària (L3) and Aeroport T1, with connections to L5 at Collblanc and L1 at La Torrassa. Some sections needed to be replaced because of changes to the original route and certain stations were renamed during the project.

—Train occupancy figures:

The project is being carried out together with Metro management, Rolling Stock and the Metro Technical Division. It was first implemented when equipment was installed on trains for the collection and transmission of data from the train's internal network, giving details of the weight detected by its sensors. The system was installed on metro lines L1, L3 and L5 so that data for up to three lines would be submitted regularly and systematically as far as daily operations and maintenance work allow, as agreed. On L2 and L4 modification of the software needed to capture this information on the train is still pending. Work has almost been completed on the installation of equipment on three trains on each line. The devices are connected to the train communications network in listening mode and automatically read data and send it to a central computer. The results of the first tests on a pilot train were satisfactory.

The first analyses of train occupancy were made using the new system and it has proved more accurate than systems tested previously. In 2016 data will start to be stored on a regular basis for L1, L3 and L5, while L2 and L4 will be incorporated as soon as the necessary modifications have been made, and a system will be established for automatically transferring data collected by on-board units and importing them into a database, using software to analyse the data. Work will continue on the definition of the project so progress towards full implementation can be made.

—NODES Project:

NODES (New tOols for Design and OpEration of Urban Transport InterchangeS) is a European project, coordinated by the UITP and co-funded by the European Commission, designed to provide answers to the questions that may affect planners when building or improving a transport interchange. The project will lead to the development of a support tool for cities, operators and transport authorities to help them in the design and operation of new or refurbished interchanges.

The project involves five key aspects of interchanges:
1. Strategies for the integration of urban planning and infrastructure.
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4. Business and management models: the interchange as business centre, both in itself and for the local economy.
5. Energy efficiency and environmentally friendly interchanges.

In 2015 two meetings were held. At the first, in April in Stockholm, examples of the practical application of the project's tools were presented in relation to the following aspects: intermodality and information and communication technology, management and business models, and energy and the environment. Subsequently, work was done on the preparation of the final documentation and details of the web tool used in the project were finalised.

In September 2015 the last project session was held in Brussels. This meeting served to present the final results both to the participants and to a wider audience of mobility and transport experts from different countries.

—Microsimulation of pedestrian flows:

At the end of 2008 TMB purchased a licence for the LEGION program, which has since been used repeatedly to simulate the movement of pedestrians.

During the year microsimulation evaluations were carried out of the Aeroport stations (terminals T1 and T2) on the new section of L9/10.

In 2016 further work will be done using the microsimulation method. At present the stations to be modelled are being determined.


TMB
Administration
and finance

TB administration and finances

Technical Secretariat and Insurance Unit

The Division's Technical Secretariat continued working on those areas which require a high level of coordination between services to take advantage of economies of scale and optimise the use of resources, including:
—Preparing and monitoring division budgets and staff expenses, and the staff budget of the Transports de Barcelona company.
—Providing management support for the Master Plan for Technology.
—Proposing and monitoring the division's targets and strategic projects for 2015.

The Unit also provided support to other services on matters related to IT systems and worked with the payroll service and the Personnel Management Services Centre and Health and Safety on a proposed staff cost monitoring report, the development of IT systems for HR, providing coordination and support for TMB's new safety model and for the railway staff training project.

The corporate management of student work experience placements was another key area, with training given to 21 university students and 41 students on vocational training programmes in 2015.

With regard to insurance claims, the number of incidents giving rise to expenses in 2015 was 4,891, an average of 2.78 incidents per vehicle per year. Material damage to Metro and TB property is covered by the Zurich insurance company, while the company has policies with FIATC Seguros for compulsory and voluntary civil liability cover, damage defence and claims and compulsory cover for passengers on the TB fleet.

TMB sales, revenue and general service logistics

Key projects in this area included:

1. T-Mobilitat project:

Work was carried out in the year throughout the organisation to determine TMB's overall approach to this project. An internal structure of commissions and monitoring committees was set up, together with five work groups, which were finally reduced to four: technology; information and customer service; finance and fares; and communication. These groups studied the key aspects of the project:
—Defining the tariff model for TMB's own tickets, integrated transport tickets and AMB subsidised travel cards.
—The life cycle and marketing of all types of tickets.
—Customer services and information model.
—The project's impact on the operation, maintenance and management of the service (adapting processes, allocating resources, etc.).
—Communication, information and training for employees.
—Defining the mechanisms for managing technological changes: the equipment, installations and inventories making up the system.
—Its financial impact.
—The roles and responsibilities of the people involved in each area.

Specifically, the finance and fares group worked on the preparation of seven reports on TMB's own fare system, the route map for TMB's own fare system, the project's impact on sales channels, the administration of ticket sales and validation, asset management and accounting, the financial impact for TMB and the integrated fare

system. The first four reports are almost complete while the latter three are still being prepared.

Meanwhile, the Sales and Revenue Logistics Department studied the impact of the T-Mobilitat project on information processes and systems, and carried out the following work:
— Analysis of the impact of the T-Mobilitat project on the logistics of ticket distribution and stocks of paper rolls and pre-cut tickets.
— Defining a new accounting model adapted to the T-Mobilitat project and the new sales policies.
— Drawing up of a document containing the functional requirements for development of a new information system (a new app) adapted to new management needs of the T-Mobilitat project and definition of a new reporting model.

2. Implementation of the new electronic sales channel (e-commerce):
For further details see the "Milestones" section.

3. Integration of the Barcelona Bus Turístic and Tramvia Blau into the new OciCommerce management system:

The main aim of this new system was not to replace the current ticketing application, but to develop a more flexible system for selling tickets for these businesses, keeping the existing application for ticketing for the conventional Bus and Metro businesses for the time being.

The Montjuïc cable car business unit was brought into the new system in test mode in February. In July the on-line sales channel Barcelona Smart Moving, which belongs to TMB, was added to the system while the Barcelona Bus Turístic and Tramvia Blau businesses were integrated at the end of the year. This will allow Leisure Transport Management to develop new sales policies which were not possible up to now, such as:
— Cross-selling: the sale of all types of transport product via any current or future channel.
— The possibility of selling new products and services offered by TMB or by third parties.
— Automation of voucher (proof of purchase) control.
— The possibility of managing the installation of our ticket machines on third-party premises using Virtual POS (virtual point of sale).
— The application of new policies on discounts.

4. Implementation of first measures to obtain an environmental licence for the Zona Franca II building:

In order to obtain the environmental licence needed for the Zona Franca II and Miramar buildings, a regulatory study of the activities and facilities in the two buildings was carried out, with the support of a specialised engineering firm. A number of defects were detected which must be corrected in order to obtain an activity licence from the City Council.

A range of options were examined in order to find a suitable balance between the regulatory requirements, the cost and the work involved. All the technical solutions were approved by officers from the Barcelona fire service in a meeting held in September. The actions required for the Zona Franca II building will be planned and prioritised in 2016.

No defects were detected in the Miramar building, which had been recently refurbished, and therefore the accreditation body can carry out its initial inspection and report to Barcelona City Council.

Salaries and remuneration for staff not covered by the collective agreement

The work carried out in the year fell under two main headings:

1. Special measures:

— *Creta Project:*
  — Changing payroll procedures to the month in progress rather than the month after, excluding production areas.
  — Adapting social security contribution procedures to the new direct settlement system, excluding production areas.

— *Application of the 15 December 2014 agreement:*
  — Rectifying procedures for extra summer and Christmas payments and applying the payment schedule in force prior to 2012.
  — Implementing the contents of the agreement in salary payments.

— *TB collective agreement:*
  — Preparation of data, evaluation of proposals and participation in meetings to negotiate the 2015 agreement.

— *Conversion of TMB, SL into an active company:*
  — Registering the company and its employees with the social security system.
  — Implementing payroll and social security processes.

—Agent responsible for processing social security claims because of temporary incapacity due to accidents:

— Preparation of corporate procedure in conjunction with Health and Safety and Cost departments.

—Information for the IGAE presented via the AMB:

— Preparation of quarterly remuneration reports to be presented to the Spanish Government's General State Comptroller (IGAE) via the AMB.

2. Day-to-day tasks, as set out in the table below:

	TB
Total salary payments (thousands of euros)	**198.33**
Salary payments processed	**68,447**
Individual tax certificates (income tax, social security records requested and other)	**5,226**
Loans, advances and court withholdings processed	**3,488**
Sick leave notes submitted to the Social Security Authority	**5,185**
Changes notified to the Social Security Authority (starters, leavers, changes)	**1,901**
Social security contributions paid	**194**
Change of bank accounts	**565**
Employee queries attended by phone	**1,411**

Financial services

Key activities in the year included:

—TB's credit facilities:

To meet its ongoing cash flow needs, the company has credit facilities with CaixaBank (9,500,000 euros), Banc Sabadell (5,000,000 euros), Abanca (3,000,000 euros) and BBVA (5,000,000 euros).

—Finance leases for buses:

Contracts for the manufacture and sale of 43 buses and finance leases thereon were signed on 4 and 8 May: they included 27 articulated hybrid buses, 6 minibuses and 10 double-decker buses for a total of 16.3 million euros.

This amount was provided by four financial institutions: BBVA, Natixis, Kutxabank and Banc Sabadell, with payment terms of 10 to 12 years, bearing interest at variable rates linked to the 3- and 6-month Euribor and at fixed rates.

—Diesel hedges:

As all analysts are forecasting that prices will rise in coming years, TB decided to implement a hedging strategy for fuel prices. Taking advantage of drops in the price of oil (30 April, 5 June and 6 July 2015) three hedging policies were contracted covering 20%, 15% and 15% of the fleet's diesel consumption to the end of 2016.

Oil prices fell significantly in the second half of the year allowing the company to pay much lower prices at auction, although this was not particularly appreciable given the hedging policy.

—Claim for refund of the excise tax on retail sales of certain hydrocarbons (the 'healthcare cent'):

Authorisation has been received for the execution of the legal ruling upholding the claim for the refund of this tax for the 2011 and 2012 financial years. Copies of the invoices for these two years have been submitted to the Spanish tax authority in compliance with the requirements of this ruling. Copies of the invoices for the period from April 2005 to December 2010 have also been submitted, although the Catalan Regional Administrative Court has ruled that TB's claim for this period is inadmissible. Finally, TB will present to the Supreme Court a claim against the State, which the Council of Ministers of the Spanish Government disallowed, for the period from 1 January 2002 to 31 March 2005.

It should be noted that, from the date of the European Court of Justice ruling (27 February 2014), the Spanish tax authority (AEAT) has been giving Transports de Barcelona a quarterly tax credit of 0.048 euros per litre of fuel supplied to buses, although TB did not previously apply for this credit.

—Study on transparent pricing for transactions with related parties:

A detailed study has been started to identify and quantify transactions with related parties in the period 2012 to 2015. The study is expected to be completed in the first half of 2016.

—Implementation of electronic billing to public authorities:

In accordance with Law 25/2013, of 27 December, encouraging electronic billing and the creation of accounting records for invoices in the public sector, from 15 January 2015 TB and FMB were required to issue all invoices to public authorities for over 5,000 euros via electronic channels. This means more information is available on the status of invoices at all times.

—Internal review of TB's accounting procedures and management as an agent of the Social Security authority for processing claims for temporary incapacity due to accidents:

The Health and Safety, Payroll and Social Security, Analytical Accounting and Costs and Assets Departments worked together with Financial Services on this review. A new work plan was also agreed to monitor and directly quantify FMB's activities as an agent of the Social Security authority for processing claims for temporary incapacity due to accidents. These actions focused on three main areas, allowing measures to prevent accidents at work to be identified:

— New procedure for controlling and monitoring workplace accidents and occupational illnesses.
— New analytical charging procedure, establishing and determining

what charges must be passed on and how, with respect to healthcare and financial benefits provided for active employees who are absent from work due to workplace accidents.
— The provision for Social Security contributions for workplace accidents.

All this work has made it possible to calculate precisely the expense and surplus linked to the benefit.

— Implementation of analytical income statements for sales channels:

An analytical accounting and management costs review was carried out in order to develop a tool for calculating the profit margin for each channel and product. The tools were implemented for bus and metro network operations in 2015 and will be developed for the Leisure Transport services in 2016.

— Review of key indicators driving the analytical income statements for bus lines and new approach in line with new European regulations and the new bus network:

With the implementation of the fourth phase of the new bus network, and in the light of new disclosure requirements established in European regulations on public transport (Regulation (EC) no. 1370/2007, of 23 October 2007), which defines public service obligations and the subsidies public authorities may receive for the provision of these services, an additional analytical approach was required, grouping bus lines by network type and Business Operations Centre in order to produce income statements and monitoring indicators. The review was carried out together with Bus Central Services, establishing the following pools: new bus network, conventional network, neighbourhood network, special services, Barcelona Bus Turístic and, finally, other Business Operations Centre support lines.

The same identifiers have been combined to separate regulated bus services from lines that provide special services to which officially regulated fares do not apply.

In addition, points for improvement to the model were reviewed and the soundness of the model used to allocate costs and revenues was confirmed.

— Establishment of a protocol for the purchase and sale of assets between group companies:

In order to regulate the transfer of fixed assets between companies, mainly auxiliary vehicles and small items of equipment, a control instrument was created for effecting sale transactions with the formal agreement of both parties, the original owner and the recipient. This instrument allows flexible agreements and ensures these regular transactions, which were previously unrecorded, are now duly documented. The tool allows for two cases:
— If the asset is not fully amortised, the asset will be transferred at its carrying amount.
— If the asset is fully amortised, the asset will be transferred at a symbolic value of 1 euro.

FMB administration and finance

Technical Secretariat and Insurance Unit

The Division's Technical Secretariat continued working on those areas which require a high level of coordination between services to take advantage of economies of scale and optimise the use of resources, including:
— Preparing and monitoring division budgets and staff expenses, and the staff budget of the Ferrocarril Metropolità de Barcelona company.
— Providing management support for the Master Plan for Technology.
— Proposing and monitoring the division's targets and strategic projects for 2015.

The work of the Insurance Unit is summarised in the following table:

Year	Received	Passed to insurer
2011	4,526	1,557
2012	4,911	1,500
2013	4,510	1,384
2014	4,438	1,361
2015	5,164	1,375

Salaries and remuneration for staff not covered by the collective agreement

The work carried out in the year fell under two main headings:

1. Special measures:

— *Creta Project:*
  — Changing payroll procedures to the month in progress rather than the month after, excluding production areas.
  — Adapting social security contribution procedures to the new direct settlement system, excluding production areas.

— *Application of the organisational agreement for holidays:*
  — Correction for the advance paid in 2012.
  — Implementation of the agreement for staff covered by the collective agreement.

— *Metro collective agreement:*
  — Application of the extension to the agreement for 2015, preparation of data and assessment of proposals for the new 2016 agreement.

— *Conversion of TMB, SL into an active company:*
  — Registering the company and its employees with the social security system.
  — Implementing payroll and social security processes.

—Agent responsible for processing social security claims because of temporary incapacity due to accidents:

— Preparation of corporate procedure in conjunction with Health and Safety and Cost departments.

—Information for the IGAE presented via the Barcelona Metropolitan Area (AMB):

— Preparation of quarterly remuneration reports to be presented to the Spanish Government's General State Comptroller (IGAE) via the AMB.

2. Day-to-day tasks, as set out in the table below:

	FMB
Total salary payments (thousands of euros)	**159.23**
Salary payments processed	**58,940**
Individual tax certificates (income tax, social security records requested and other)	**4,631**
Loans, advances and court withholdings processed	**2,595**
Sick leave notes submitted to the Social Security Authority	**7,379**
Changes notified to the Social Security Authority (starters, leavers, changes)	**2,393**
Social security contributions paid	**209**
Change of bank accounts	**496**
Employee queries attended by phone	**1,970**

Supplies and logistics

In 2015 TMB put the contract for its high-voltage power supplies for 2016 out to tender. As in previous years, in order to attract better offers, TMB issued a joint tender with Metro Bilbao, Tranvía de Murcia, Metro de Málaga and Euskal Trenbide Sarea. On this occasion, Tranvías Urbanos de Zaragoza, SL also participated in the joint tender, and Ferrocarrils de la Generalitat Valenciana attended the auction as an observer with a view to joining the group. Representatives of all the participating companies attended the public opening of bids, which was carried out at the headquarters of TMB and presided over by Metro de Bilbao and TMB. Representatives of many of the bidding companies also came to Barcelona to attend the event. The results will enable the members of the group to enjoy significant savings in their energy costs in 2016 and ensure budgetary stability in the year. 406 GWh were contracted in total, of which 256 GWh (63% of the total) corresponds to TMB's power consumption.

An electric van has been added to the auxiliary fleet for stores, the first of its kind in TMB. The van will be used to distribute materials to work centres and metro stations. It can be charged up normally or at high speed, guaranteeing service during three shifts a day.

Financial services

Key activities in the year included:

—FMB's credit facilities:

To meet its ongoing cash flow needs, the company has credit facilities with CaixaBank (9,500,000 euros), Banc Sabadell (5,000,000 euros), BBVA (8,000,000 euros) and Banca March (5,000,000 euros).

—2015 drawdowns against syndicated loan granted in 2014:

Two drawdowns were made as established in the contract: 16.15 million euros on 30 April and 24.15 million euros on 30 November.

—Borrowings convertible into subsidies:

Subsidies received for projects were reclassified on the basis of their maturity dates in accordance with information obtained. Repayment dates are regularly tracked in accordance with the maturity schedules established.

—Internal review of the accounting procedures and FMB management as an agent of the Social Security authority for processing claims for temporary incapacity due to accidents:

The Health and Safety, Payroll and Social Security, Analytical Accounting and Costs and Assets Departments worked together with Financial Services on this review. A new work plan was also agreed to monitor and directly quantify FMB's activities as an agent of the Social Security authority for processing claims for temporary incapacity due to accidents. These actions focused on three main areas, allowing measures to prevent accidents at work to be identified:
—New procedure for the control and monitoring of accidents at work and occupational diseases.
—New analytical charging procedure, establishing and determining what charges must be passed on, and how, with respect to healthcare and financial benefits provided for active employees who are absent from work due to workplace accidents.
—The provision for Social Security contributions for workplace accidents.

All this work has made it possible to calculate precisely the expense and surplus linked to the benefit.

—Asset inventory of buildings, facilities and train fleet. Metro Geographic Information System (GIS):

Work continued on updating FMB's asset inventories, determining details and balances to ensure inventories cross-reference with other applications. Financial Services worked with Metro Central Services to feed this data through to the GIS project.

—Study of the impact on assets of the implementation of the T-Mobilitat project in the metro network:

Financial Services worked with the Metro Logistics and Revenues, Business Technology, Commercial Promotion and Technical Departments to determine the future impact of the project on equipment and assets linked to ticket validation and sales in the metro network. The effect on the depreciation charge applied to distribution equipment still in use in 2018 was calculated, and accounting adjustments were made to income and equity to reflect this at the end of the 2015 reporting period. Work continues, in cooperation with other departments, to determine the impact on other items of equipment.

An asset transfer was also formalised, with Metro acquiring machines used to sell and validate cable car tickets, following the implementation of manual sales on the cable car. Metro acquired the machines for their carrying amount at December 2015, to use them for spare parts, helping to ensure that the ticket vending machines operating in the metro network can be kept working, in line with the policy of optimising the use of existing operating assets.

10 Personnel management

Personnel management - Bus

Bus Labour Relations and Legal Department

—Collective bargaining

The period covered by the 2012-2014 collective agreement having expired, and the workers' representatives having issued the mandatory notice, in February 2015 negotiations were convened to renew the Transports de Barcelona collective agreement. Thirteen meetings were held in the year, attended by 13 representatives of the company and 13 workers' representatives: 3 from the Sindicat Independent del Transport (SIT), 3 from the Unió General de Treballadors (UGT), 2 from Comissions Obreres (CCOO), 2 from the Confederació General del Treball (CGT), 1 from the Coordinadora Obrera Sindica (COS), 1 from the Associació de Transport Urbà de Barcelona (ACTUB), and 1 from the Unió Sindical Obrera de Catalunya (USOC).

On 12 November 2015 the employers' representatives and the majority of the workers' representatives reached a preliminary agreement on the collective agreement for 2015-2018. The main features of the agreement were:
—The agreement covers a four year period (2015-2018), providing the workforce and company with a framework of stability.
—The working year and days remain unchanged.
—Wages will increase in order to maintain purchasing power, with increases of 1% in 2016 and 0.5% in 2017 and 2018. The variable bonus payable if the company's key performance targets are met was also increased and other benefits will be introduced (nursery vouchers, travel vouchers, etc.). Workers will also receive an additional one-off payment of 250 euros.
—The current work structure is maintained, with no changes to the three existing models used to determine days off between shifts (G57, G65, G72) or the Barcelona Bus Turístic model.
—The partial retirement option is maintained in accordance with current legislation, despite the increased cost due to successive legal changes.
—The regulation of the pension plan was improved with respect to: a) the cost of the risk policy for active participants in the plan; b) non-participants have the option of affiliating to group D; c) the company has taken out an external insurance policy for group B employees, who are no longer covered by the plan.
—The implementation of a dual vocational training model as a tool for improving young people's employment prospects.
—The ratification of the 2014-2018 Equality Plan.

The majority of the unions presented the preliminary agreement to all the TMB workers on 19 November 2015. The preliminary agreement was rejected by 59% of the employees, was not ratified by the workers' representatives and did not therefore come into force.
Following this vote, one further collective bargaining meeting was held in 2015 and negotiations will continue in 2016.

— Works committees

Negotiations with the Works Committee took place throughout the year via various sub-committees (Equality, Permanent, Operations, Rolling Stock and Workshops, Administration, etc.).

a) The Equality Commission issued opinions on a number of conflicts presented to it prior to legal proceedings being initiated.

b) The main agreements reached with the Operations, Rolling Stock and Workshops, Administration, and Permanent committees were:

1 –Approval of the working calendars applicable in 2015 to all employees represented by these works committees.
2 – Agreements on holiday rotas.
3 – Consultations with multi-skilled technicians, centre agents and rolling stock team supervisors.

c) New network: meetings were held with workers' representatives to inform them about progress on phase 4 of the new bus network.

— Labour Relations and Legal Department

Activity concerning administrative and legal proceedings was as follows:

2015	**TB**
Individual cases	102
Industrial disputes	5
Workplace inspections	43
Strike calls	1
Strikes (days called)	1
Strikes (days held)	1

—Industrial disputes

The most significant industrial disputes in the year were:

— A dispute launched by the CGT with regard to employment contracts, demanding that all temporary contracts be converted to full-time, permanent contracts.

— A dispute opened by the UGT on behalf of Rolling Stock employees with regard to obtaining the Certificate of Professional Competence (CAP).

— Disputes relating to the calculation of amounts payable during holiday periods launched by the CGT and UGT.

— A dispute launched by the CGT in relation to the application of Royal Decree 20/2012 on trade union officers' hours.

—Disciplinary system

The number of disciplinary proceedings instigated and explanatory reports issued was in line with the previous year.

—Labour disputes

A five hour stoppage took place on 14 October 2015 called by the CGT, COS, BS and CNT unions for the purposes of holding an assembly to discuss the progress of negotiations on the collective agreement.

—Trade Unions Trade Union elections

Twelve trade unions were active in the company in 2015. Eight of them were represented on the Works Committee: the Associació de Comandaments Administratius i Tècnics de Transports de Barcelona (ACAT), ACTUB, CCOO, CGT, COS, SIT, UGT, and USOC. The remaining four (BS, CNT, CO and PSA) do not have representatives, although the last two were included in the USOC list of candidates in the 2014 elections for the Committee.

Elections were held in 2014 for the 29 seats on the Works Committee. Following many tribunal rulings and initial elections held on 17 June 2014, the elections were repeated on 25 November 2014 in accordance with a ruling by the Social Court. ACTUB and COS lodged appeals with the Social Court objecting to the inclusion on the electoral register of employees who are not covered by the collective agreement and requesting that the elections be re-run. Barcelona Social Courts numbers 28 and 17, respectively, ruled that the inclusion on the electoral register of employees who are not covered by the collective agreement was legal and the electoral process was finally completed.

Planning, management and development of Bus staff

—Contracts

During the year a total of 543 employment contracts were signed. Following the trend seen in the previous year, the contracts were mainly of the following types:

a) Partial retirement: following regulatory changes, which put back partial retirement rights to the age of 61 years and 3 months, a total of 44 employees took partial retirement in 2015.

b) Relief staff: the contracts of temporary staff (employed on a casual basis or under works and service contracts) became permanent thanks to the partial retirement of employees reaching the age of 61 years and three months. The Unit also managed and coordinated with operations centres the reallocation of the work of employees retiring in 2015 who took partial retirement between 2011 and 2014, undertaking 15% or 25% of their original workload.

c) Disabled employees: Contracts to cater for the readmission of company staff where full permanent disability has been recognised, making it impossible for them to carry out their usual work. The allocation of new jobs is made according to the vacancies available and the compatibility of the work with the disability recognised. This year 14 such employees were contracted.

d) Temporary staff: the contracts of weekend staff were extended until they can be converted into relief contracts when other staff take partial retirement under the legal requirements established for 2015.

e) New temporary staff: 161 new contracts were issued in 2014 to cover weekends and public holidays.

The company maintained its policy of recruiting in line with the real needs of the service. The recruitment of staff for weekends and public holidays and the use of temporary contracts in busy periods of the year increased in order to provide good service to the city. It should be noted that the Bus Service Employment Plan agreed between Transports de Barcelona and Barcelona City Council and the continued roll-out of new lines in the new network resulted in a significant increase in the number of service hours.

—Absence from work

Work continued on protocols to reduce and monitor absenteeism among Bus network employees. Measures taken included the following:

— Monitoring of individuals to ensure that temporary sick leave is taken appropriately.

— The system for dealing with temporary incapacity was reinforced, a project undertaken jointly with the Workplace Health Unit. This system ensures doctors' home visits to patients to assess the reasons for them taking sick leave are organised as efficiently as possible. Business centre managers play an active part in this process.

—Procedures and rules

Work continued to review and improve existing procedures. Bus is preparing the procedures needed for the new social security contributions system (Creta) which will come into force shortly, in accordance with Royal Decree 625/2014.

—IT systems

Work continued on improving and strengthening the model for validating monthly activities before applying it to the payroll system, focusing in particular on changes to remunerated time off work, extraordinary work, handling the calculation, bonuses for additional skills and productivity, fixed and variable night shifts, licences, work calendars for different groups, the fair distribution of rest periods between shifts following changes in the model, and rules on the working hours of other groups. The management of the "Conductors Solidaris" (Drivers for Charity) scheme was also incorporated into the system in order to monitor the hours credited to the scheme.

—Travel Passes and uniforms

The work of the Travel Passes Department in 2015 mainly involved renewing travel passes that expired on 1 October 2015. By 31 December 2015 the Department had renewed 9,667 passes. Orders for new uniforms for 2016-2017 were processed in the year. 96.42% of the orders were placed through the new application, which is expected to save about 130,000 euros compared with the bulk deliveries of uniforms made in the past.

—Training and development

The unit's work in this field focused on a number of areas:

1. Training plan: working with the Training Department, the unit coordinated the drawing up of the training plan for 2016, placing special emphasis on training needs, monitoring measures taken, and obtaining the maximum rebates available via Social Security refunds.

The most important training activities carried out included the Certificate of Professional Competence (CAP), training for electric and hybrid vehicles, training for GNC and hybrid vehicles and waste water treatment.

2. CAP continuous training: training to obtain the Certificate of Professional Competence (CAP), provided at TMB's own Training Centre, is of particular importance, as it represents a third of all the hours of training provided to the company's employees. In conjunction with the Training Department, the unit planned and organised 33 courses taken by 621 employees, including drivers and other staff entitled to training.

3. Renewal of CAP centre approval: the unit worked actively in partnership with the Human Resources Department's Training Unit on renewing the CAP centre's certification.

4. Occupational Health training: Following requests from the Network Operations Division and Human Resources, sessions were organised to explain the basic principles to employees in the Bus Network Operations Division, while visits were also organised to the Business Operations Centres and Traffic Regulation Centre.

5. Preparation of a training plan for electric and hybrid vehicles: the level of training on risks involving electricity required for TB employees in accordance with Royal Decree 614/2001 was determined in cooperation with the Technical Division, the training required for each level being specified.

6. Definition and implementation of a training plan for the environmental management system: working with the Environmental Management Department, the Training Unit, the Technical Division and the Business Operations Centres, the unit organised the training needed for employees at Horta and Zona Franca in order for those centres to obtain ISO 14001 and 50001 certification in 2016.

7. Updated drivers' manual: a new manual for drivers was prepared including key information on all the company's divisions and departments.

8. Driving licences: the unit manages the renewal of operational employees' driving licences and the obtaining of licences by rolling stock staff (six employees this year).

9. Individual training leave: as demand was once more far in excess of the refunds to which we were entitled, we opted to use the additional subsidy credit to enable us to cover most of the requests received. A total of 18 requests for training leave were granted in the year.

10. Performance assessment: a coordinated project was implemented to develop and apply performance assessments for staff covered by the collective agreement, and training was provided in respect of the areas for improvement detected.

Personnel management - TB corporate

1. Functional division personnel management

Efforts to manage staff numbers continued with work to ensure vacant posts are filled efficiently. This included managing and coordinating the work of 14 partially retired employees, preparing employment contracts for partially retired employees who meet the required conditions and organising the corresponding relief staff.

2. Contracts

In the functional divisions, seven new employment contracts were prepared and one contract was modified or renewed in the year.

3. Personnel management services centre

a) Recruitment and promotion:

Work to recruit new drivers continued in 2015 to meet the needs of the extended new network. A total of 730 applications were received and 126 drivers were recruited. Eight vacancies for maintenance operatives were also filled, with a total of 404 applications processed.

Ten operational supervisors' roles were filled via internal promotion processes, with 234 applications processed. Other significant recruitment processes and posts filled included: Traffic Regulation Centre Manager, Business Operations Centre Rolling Stock Shift Manager, Central Group Repairs Workshop Manager and Rolling Stock Team and On-Road Assistance Manager.

In corporate services, posts were filled via internal recruitment in the Technology, Customer Service, Administration, Corporate Finance and Human Resources, and Leisure Transport Divisions.

b) Implementation and management of staff development:

Work related to the Certificate of Professional Competence (CAP) focused on designing, together with the CAP centre's regular trainers, programme content related to interpersonal relationships, directed at all TB drivers.

The aim is to raise understanding and awareness of how to handle the situations that arise when dealing with the public, providing drivers with tools to help them improve the resources they have to draw on when tackling different situations at work.

This content was taught by Development Unit staff together with CAP trainers from September 2015 and the work will continue with this group in 2016.

A team-building skills programme/project was developed to strengthen the leadership and team-building skills of Central Workshop supervisors, which will start in the first quarter of 2016.

c) Training

The training plan implemented in 2015 was in line with that for previous years. Most of the training provided in the year was as part of the training plan, and included both technical training and other training such as languages, office software, skills for supervisors and staff not covered by the collective agreement, etc.

TB	**2012**	**2013**	**2014**	**2015**
Courses (1)	679	692	477	611 (2)
Number attending (3)	3,384	3,325	1,949	1,841 (4)
Number participating (5)	6,104	6,259	3,492	3,915 (6)
Training hours (7)	13,729	12,225	5,334	6,919 (10)
Hours per attendee (8)	70,894	71,690	49,196	51,609 (9)
Ratios				
Number participating/course	8.99	9.04	7.32	6.41
Hours per employee (11)	11.61	11.45	14.09	13.18
% of personnel trained	85.79	85.57	50.62	47.10

Notes:

(1) Number of sessions held during the year. If a course is held 5 times it is recorded as 5 courses.
(2) Includes courses provided for Bus network (DXBus) employees plus corporate courses with at least one participant from the Bus network.
(3) The number attending is the number of people receiving training, bearing in mind that a person who has, for example, attended three courses will only be recorded once.
(4) Includes attendees at courses provided for Bus network employees plus those attending corporate training courses.
(5) The number participating is the number of people receiving training, bearing in mind that a person who has, for example, attended three courses will be recorded three times.
(6) Includes attendees at courses provided for Bus network employees plus those attending corporate training courses.
(7) Training hours are those of the trainer, calculated by the training completed.
(8) Attendance hours are the number of hours in the course multiplied by the number of people attending.
(9) Includes hours attending courses provided to Bus network employees plus attendance at corporate training courses.
(10) Includes training hours provided for Bus network employees plus training hours on corporate courses with at least one participant from TB.
(11) The number of hours attended divided by the number of participants.

A key element of the technical training programme is ongoing training to obtain the Certificate of Professional Competence (CAP), which represented approximately half the total training programme in terms of hours and number of participants. The provision of training is subject to continuous improvement both with respect to management and the quality of the teaching. The second, 2015-2020, cycle began in September, with updated content and new approaches. Significant work was done in the year to improve the expertise of CAP trainers, providing them with additional training in the modules needed for them to qualify as approved trainers.

Training was given to 169 candidate drivers who were subsequently employed by the organisation. The participants received a total of 15,041 hours of training including internal and external training and two days shadowing employees.

Work continued on implementing new hybrid, CNG and electric propulsion (ZeEUS Project) technology in vehicles and training was thus provided on the models adapted by TB as part of the Retrofit project for Rolling Stock and Business Operations Centre operatives as well as technicians in the Bus Technical Division.

Transversal training included the following:
—Ongoing skills training for supervisors in the Bus Technical Division to enable them to implement action and follow-up plans and in response to the results of the management performance assessment.
—Training in skills such as leadership, team-building and team management, effective communication and time management.
—Training in the prevention of occupational hazards, training in AED (automatic external defibrillator) and refresher sessions on CPR (cardiopulmonary resuscitation), refresher sessions on extinguishing fires for members of emergency teams, and training in the coordination of business activities, in addition to specific training related to the assessment of risks related to each post.
—IT training in the use of the Office 2010 package via e-learning channels. Training in the use of other IT tools or corporate applications such as SAP modules.
—Language training (mainly English and French) for those staff who need it for their work or to participate in projects where a foreign language is used. This year, English classes were provided for employees involved in engineering, infrastructure or maintenance projects.
—The training of trainers, and maintaining and updating regular trainers' pedagogical resources.

Bus employees gave the training received an average satisfaction score of 3.41 out of 4, an increase on the average score in the previous year.

As in previous years, efforts were made to optimise resources, ensuring that investment in training is recovered through the Social Security credit given by the Tripartite Foundation for Employment Training (FTFE). The social security credit received in the year totalled 86% of the maximum allowed by the FTFE.

d) Technical Office for Job Classification

The Job Evaluation Committee was fully convened in the year (with mixed and equal representation of management and workers), allowing this Committee to carry out its work regularly and without interruptions throughout the year.

A thorough review of the telecommunications area and central workshops was carried out, allowing all the outstanding posts in these areas of the business to be assessed.

With regard to the list of outstanding requests for job reviews, a series of information sessions and individual interviews were planned and carried out to study and assess the most significant and substantive functional changes affecting each post and leading to the request for a review jointly (with representatives of management and workers) and directly (with the postholders). The Job Evaluation Committee issued rulings on each of these requests within the same period.

It also provided technical support and advice to both representatives and postholders on all the organisational and operational changes introduced in the year which have affected the functional content of job descriptions, reporting structures or the allocation of organisational roles.

4. Remuneration, pensions and Corporate Labour Relations and Legal Department

The work performed in the year included monitoring legal withholdings and those by other bodies, 261 withholdings being carried out in the year.

Security documents have been updated in line with the law on the protection of personal data, in respect of which meetings were held with external advisors and TMB internal departments.

Operational coordination of the TB pension plan continued via the Technical Office of the Transports de Barcelona, SA Occupational Pensions Plan, which was responsible for handling relations with the fund manager, actuaries and external advisers, and cooperation with other internal departments (Payroll and Finance).

The application of the Spanish National Budget for 2015 made it necessary to hold meetings and negotiations with different bodies including the Control Committee and other external bodies to reach agreements that would enable the company to maintain its plans and performance targets. This involved keeping the main aspects of the agreements reached in 2014 unchanged. Following months of work, the new regulations governing the plan and its funding were signed in December, updated to reflect changes in current legislation and, principally, the new retirement system established in Social Security legislation.

Health, safety and welfare in the workplace

Prevention of injuries due to workplace accidents and occupational illness:

Work continued on the implementation of the health and safety plan in 2015, including the following action:

		2015
New job risk assessments		**4**
Job descriptions updated		**62**
Work centres updated		**15**
Industrial hygiene assessments		**15**
Safety visits and inspections at work centres and premises		**21**
Ergonomic assessments		**7**
Psychosocial assessments		**1**
Updates to emergency and self-protection plans		**4**
Partial emergency simulations		**1**
Reviews of work processes and instructions		**5**
Renewal of machinery and work team safety certificates		**239**
Managing the documentation for coordinating business activities	Total for companies managed in 2015	**400**
	Total for active companies in the system	**448**
	Incidents	**298**
	Allocation of risk level based on order type	**102**

As part of the health monitoring Programme, 2,274 medical examinations were conducted, 86.3% of those planned.

The Health and Safety Committee's regular work during the year included 12 ordinary meetings, 7 extraordinary meetings and 11 joint visits to work centres. Measures taken in the year included the agreement of a new procedure for responding to attacks by members of the public,

the preparation and distribution of a document on detecting the technological needs related to the prevention of occupational hazards (PRL 2.0) and the performance of the 2015 legal audit.

Welfare in the workplace:

Work related to the Equality Plan included the publication of the 2015 Monitoring Report on the Equality Plan and the submission of an application for Government of Catalonia certification.

Work continued with regard to engagement systems, including:
—The training of 53 staff in 16 work groups.
—The implementation of the 5S methodology (sort, straighten, shine, standardise, and sustain) in the offices at the Triangle Business Operations Centre and the supervisors' area and tools area at the Horta Business Operations Centre.
—The organisation of the 19th Engagement Systems Conference, attended by 350 people.
—Silver and gold long service award ceremonies for 124 employees.

Promotion of health and prevention of common diseases:

Programmes were implemented relating to mental health, physical activity, cardiovascular risk prevention, and the prevention of colon and prostate cancer.

A total of 322 employees received flu vaccinations under the flu prevention programme while 23 employees were vaccinated against tetanus and diphtheria.

Social and healthcare assistance:

The key figures are:

		2015
Medical care given in response to work-related accidents:	Injuries which do not lead to time off work:	**65**
	Injuries which lead to time off work:	**334**
	Of which 97.6% were minor injuries	
Medical measures in response to work-related accidents:	Visits carried out	**1,625**
	Number of diagnostic tests	**146**
	Referrals to specialist doctors	**625**
	Number of surgical interventions	**16**
	Number of therapy sessions	**1,978**
Medical measures to deal with temporary sick leave for non-industrial illnesses:	Medical visits carried out	**4,508**
	Number of diagnostic tests	**42**
	Referrals to specialist doctors	**48**
	Number of surgical interventions	**-**
	Number of therapy sessions	**24**
Weight loss programme		**15**
Programme to help employees give up smoking		**14**
Social work:	Care programme for conditions involving dependency	**16**
	Follow-up of prior year interventions	**97**
	New continued intervention cases	**38**
Social care fund (FAS):	Beneficiaries:	**113**
	Applications received	**54**

Personnel management - Metro corporate

Contracts

In the functional divisions, 26 new employment contracts were prepared and two contracts were modified or renewed in the year.

Personnel management services centre

a) Recruitment and promotion:

The opening of the new section of the L9 Sud led to a large number of internal promotion and external recruitment processes for both operations and maintenance staff.

On the operations side, in particular, there was a significant volume of applications to process, given the number of posts to be filled and the number of applications received.
—*Technical operational staff on automated lines: 1*09 posts were filled, 19 via internal processes and 90 via external recruitment, with some 1,600 applications received.
—*Automated lines operators:* 11 posts were filled, 3 via internal processes and 8 via external recruitment.
—*Operational zone managers:* two posts were filled via internal recruitment processes with a total of 107 applications.

Recruitment processes for the rest of the Metro network include the external recruitment of 51 customer service agents, with 5,900 applications received.

The main recruitment processes in the maintenance and projects areas were the following:
—Rolling Stock Technical Manager.
—Maintenance workers and specialists for a range of areas (Rolling Stock, general workshops, tracks and signals and communications), with over 600 applications processed.
—Depot doors technician for conventional lines.

Promoted staff on trial periods were monitored and mentored. These monitoring activities are of great importance as they serve to assess the extent to which the employee has settled into and is happy in the post, provide the human resources support needed if problems are detected, and fully sign off the contracting process.

The main internal promotions effected in the functional divisions were in the Technology and Customer Divisions, the Corporate Administration, Finance and Human Resources Division and in Leisure transport. The posts included a Technology Support Centre technician, a telecommunications technician for the Metro Control Centre, a support, information, signage and corporate identity officer, a senior administrator for the Health, Safety and Welfare Service, and a buyer.

In the international arena, Human Resources continued to provide advisory services for the design of a new organisational structure for automated lines in the Santiago de Chile metro, working in close cooperation with the automated lines team.

b) Implementation and management of staff development

A total of four internal workshops were held, taught by the Staff Development Management Unit, aimed at a range of TMB employees. The topics covered included team development skills, interpersonal relations within a team, time management and leadership. A total of 110 hours training was given in 46 sessions involving 520 participants (470 employees). The attendees gave the sessions an overall satisfaction rating of 3.58 out of 4.

The participants also received follow-up support to ensure that the knowledge acquired was transferred to their day-to-day work. With 329 mentoring sessions attended by 152 employees.

New activities aimed at different groups were designed, including:

—Team-building skills programme/project for the Power Maintenance Unit:
A programme was designed and conducted to strengthen the people management skills of the supervisors of the power unit, comprising six classroom sessions plus additional individual coaching sessions on team leadership and team-building skills.
—Training for technical operational staff on automated lines (TOLA):
Training on interpersonal relations and improving teamwork were built into the training plans. Ten internal sessions were organised with a total of 40 hours training, attended by 107 members of staff.

—Team-building skills programme/project for the Metro Maintenance Division:
The project included external training (12 hours, 53 participants) and team coaching sessions led by the Development Unit team with the aim of producing action plans that meet the needs of each natural work team. Thirteen follow-up sessions were held (a total of 39 hours). This training will continue in 2016.

—Talent management and professional improvement programme for TMB's occupational hazards prevention team:
To improve the quality of the service, a development plan was drawn up including training and subsequent individual follow-up sessions. This project will continue in 2016. The programme includes individual and team training to boost skills, encourage initiative and make employees more proactive, as well as helping them to deal more effectively with the public. The 4 training sessions (26 hours in total) were attended by 15 participants.

The Unit provided support and advice on identifying training needs for the 2016 training plan.

c) Training

The key indicators for technical training for Metro staff and for the functional divisions are shown in the table below:

FMB	2012	2013	2014	2015
Courses (1)	1,906	2,287	3,024	2,806 (2)
Number attending (3)	3,285	3,714	3,447	3,602 (4)
Number participating (5)	10,747	13,465	11,207	12,612 (6)
Training hours (7)	24,192	19,465	19,741	31,183 (10)
Hours per attendee (8)	90,652	76,335	67,800	116,253 (9)
Ratios				
Number participating/ course	5.64	5.88	3.71	4.49
Hours per employee (12)	8.44	5.67	6.05	9.22
% of personnel trained	102.0	170.0	110.3	114.7 (11)

Notes:

1. Number of sessions held during the year. If a course is held 5 times it is recorded as 5 courses.
2. Includes courses provided for Metro network employees plus corporate courses with at least one participant from Metro.
3. The number attending is the number of people receiving training, bearing in mind that a person who has, for example, attended three courses will only be recorded once.
4. Includes attendees at courses provided for Metro network employees plus those attending corporate training courses.
5. The number participating is the number of people receiving training, bearing in mind that a person who has, for example, attended three courses will be recorded three times.
6. Includes attendees at courses provided for Metro network employees plus those attending corporate training courses.
7. Training hours are those of the trainer, calculated by the training completed.
8. Attendance hours are the number of hours in the course multiplied by the number of people attending.
9. Includes hours attending courses provided to Metro network employees plus attendance at corporate training courses.
10. Includes training hours provided for Metro network employees plus training hours on corporate courses with at least one participant from Metro.
11. The standardised average workforce in 2015 was 3,140.45 employees and the number attending was 3,602.
12. The number of hours attended divided by the number of participants.

Courses were programmed as far as possible according to the availability of participants, depending on service commitments. On-site training was increased, which allowed greater flexibility with groups such as customer service agents and maintenance staff.

In 2015 training for driver certification was recorded using the dates the training was received, not the date on which the certificate was issued. In 2016 this model may be extended to include not just the renewal of these certificates, but also other types of training included in the 2016 training plan (training of trainers, CAP, prevention of occupational hazards, etc.).

The training required as a result of changes to Metro Circulation Rules continued to ensure that all staff are up to date.

In the area of technical training, all technical operational staff on automated lines continued to attend refresher courses and training was provided for new recruits for the extension to the L9 Sud. Specific training on legal regulations affecting the business, the prevention of occupational hazards for drivers and customer service agents working on the conventional lines also continued to be given.
The review of the procedure for safety certification for drivers was completed, incorporating refresher courses to ensure their knowledge is up to date, allowing for any changes to instructions. The implementation of a new register of driver certification renewals for the operations area was completed.

Transversal training included:
—Specific training in leadership, team cohesion and communication skills for supervisors in the Maintenance and Projects Division.
—Training in other skills, such as leadership, team-building and management, effective communication, and time management for the functional divisions.
—Training in the Organic Law on Personal Data Protection (LOPD) for network operations managers.
—Ongoing training on labour legislation for technical managers and operations and maintenance managers.
—Training in occupational health and safety, training in the use of the AED (automated external defibrillator) and refresher courses in CPR (cardiopulmonary resuscitation), refresher courses on extinguishing fires for members of emergency teams, the coordination of business activities, etc.
—IT training in the use of the Office 2010 package and corporate applications via e-learning channels.
—Language training for those staff who need it for their work or to participate in projects where a foreign language is used.
—The training of trainers, and maintaining and updating regular trainers' pedagogical resources.

At 3.36 out of 4, the overall satisfaction index reported by Metro employees attending training courses was once again very good.

As in previous years, efforts were made to optimise resources, ensuring that investment in training is recovered through the Social Security credit given by the Tripartite Foundation for Employment Training (FTFE). The social security credit received in the year totalled 105.25% of the maximum allowed by the FTFE. This was because, in addition to using the entire training credit allowed (100%), an additional amount for individual training leave had to be included.

—Technical Office for Job Classification

The Metro Technical Office for Job Classification participated in various work groups set up following the establishment of Key Improvement Targets for Metro in 2015. These groups were linked to the review of the organisational model and, specifically, a review of staff recruitment and training procedures. It was therefore necessary to extend the study to include both an earlier phase (setting staff budgets) and a later phase (contracting).

The Office played an active role in all the actions and work groups involved in the second phase of the DarWIN project, focusing in this period on developing and implementing measures related to reviewing and defining the responsibilities assigned to Metro supervisors.

A great deal of work was required across every area of the business in response to the need to develop a new classification model that goes beyond the current set of categories. This included design, defining the assumptions used, defining professional groups and roles, the allocation of staff, checking results and establishing different scenarios and options. This was particularly the case as the new model needed to be in line with the negotiations for the new collective agreement. The Office also provided technical support and advice to both representatives and postholders on all the organisational and operational changes introduced in the year which have affected the functional content of job descriptions, reporting structures or the allocation of organisational roles.

Remuneration, pensions and Corporate Labour Relations and Legal Department

Some documentation on data security was updated to comply with the Organic Law on Personal Data Protection (LOPD) and new documents were added for the Montjuïc cable car. Meetings on the matter were held with external advisers and internal departments and the signed documents submitted to the Catalan Data Protection Agency.

The work performed in the year included monitoring legal withholdings and those by other bodies, 193 withholdings being carried out in the year.

Operational coordination of the Metro pension plan continued via the Technical Office of the Ferrocarril Metropolità de Barcelona Occupational Pensions Plan, which was responsible for handling relations with the fund manager, actuaries and external advisers, and in conjunction with other internal departments (Payroll and Finance).

The application of the Spanish National Budget for 2015 made it necessary to hold meetings and negotiations with different bodies including the Control Committee and other external bodies to reach agreements that would enable the company to maintain its plans and performance targets. In the case of Metro the agreements reached with the Control Committee were basically the same as those for 2014.

Following several months' work, the new regulations governing the plan and its funding were signed in December, updated to reflect changes in current legislation and, in particular, the new retirement system established in Social Security legislation.

Health, safety and welfare in the workplace

Prevention of injuries due to workplace accidents and occupational illness:

Work related to the company's policy on health and safety in the workplace continued, with the following measures:

		2015
New job risk assessments		**4**
New job risk assessments		**136**
Job descriptions updated		**125**
Work centres updated		**27**
Industrial hygiene assessments		**27**
Safety visits and inspections at work centres and premises		**79**
Ergonomic assessments		**23**
Psychosocial assessments		**-**
New emergency plans		**2**
Reviews of emergency and self-protection plans		**5**
Partial emergency simulations		**2**
Reviews of work processes and instructions		**33**
Renewal of machinery and work team safety certificates		**534**
Managing the documentation for coordinating business activities	Total for companies managed in 2015	**400**
	Total for active companies in the system	**448**
	Incidents	**298**
	Allocation of risk level based on order type	**102**

As part of the health monitoring programme, 1,755 medical examinations were conducted.

The Health and Safety Committee's regular work during the year included 11 ordinary meetings, 46 monitoring reports on ongoing issues and 8 joint visits to work centres.

It also included the preparation and distribution of a document on detecting the technological needs related to health and safety (PRL 2.0) and the performance of the 2015 legal audit.

Welfare in the workplace:

Work related to the Equality Plan included the publication of the 2015 Monitoring Report on the Equality Plan and the submission of an application for Government of Catalonia certification.

Measures implemented in the year with regard to engagement systems included:
— Training of 65 staff in 18 work groups.
— Nine teams, involving 45 members of staff, were set up, forming the Team of Analysis and Optimization for the automated lines.
— Implementation of the 5S methodology (sort, straighten, shine, standardise, and sustain) and system maintenance audits in the following work centres:
  — Sant Genís: general store and loft space.
  — Boixeres: porters' area and machinery store.
  — Electromechanical area at Vilapicina.
  — Lines 9, 10 and 11 Control Centres.
— The organisation of the 20th Engagement Systems Conference, attended by 350 people.
— Silver and gold long service award ceremonies for 23 employees.

Promotion of health and prevention of common diseases:

Programmes were implemented relating to mental health, physical activity, cardiovascular risk prevention, and the prevention of colon and prostate cancer.

A total of 111 employees received flu vaccinations under the flu prevention programme while 29 employees were vaccinated against tetanus and diphtheria.

Social and healthcare assistance:

The key data for the year are as follows:

		2015
Medical care given in response to work-related accidents:	Injuries which do not lead to time off work:	**54**
	Injuries which do lead to time off work:	**237**
	Of which 98.3% were minor injuries	
Medical measures in response to work-related accidents:	Visits carried out	**1,105**
	Number of diagnostic tests	**116**
	Referrals to specialist doctors	**207**
	Number of surgical interventions	**8**
	Number of therapy sessions	**623**
Medical measures to deal with temporary sick leave for non-industrial illnesses:	Medical visits carried out	**3,567**
	Number of diagnostic tests	**33**
	Referrals to specialist doctors	**24**
	Number of surgical interventions	**-**
	Number of therapy sessions	**16**
Weight loss programme		**11**
Programme to help employees give up smoking		**9**
Social work:	Care programme for conditions involving dependency	**19**
	Follow-up of prior year interventions	**115**
	New continued intervention cases	**42**
Social care fund (FAS):	Beneficiaries:	**295**
	Applications received	**221**


A firm
commitment
to innovation

Development of new business, research and development, and external consultancy - TMB, Bus and Metro

During the year, the New Business Development Division continued to provide assessment and consultancy services for public transport companies, while seeking and acquiring operations in other cities away from Barcelona.

Its main aims are as follows:
—to exploit TMB's know-how for commercial purposes;
—to position it as an international benchmark operator;
—and to increase the qualifications of its technical staff in accordance with the technical progress made in the world of transport;
—to promote research and development projects (R+D), and
—to develop new businesses.

TMB has participated in various external projects, either alone or jointly with other engineering or consultancy companies, such as AGL, or with other operators, such as Moventia and Vectalia. With Vectalia, TMB continues to run a successful urban transport network in the Perpignan area and is exploring other potential business opportunities in France. In July, TMB and Vectalia began operating in the city of Antibes, in France. This new contract is for two years, extendable to four, although it is expected that new bids will be sought in early 2017.

With Moventia, through Transports Ciutat Comtal (TCC), TMB is exploring new markets such as Saudi Arabia and Portugal. In 2015, TCC was initially awarded the contract to operate and maintain the subway and bus network in Porto. Finally, however, TCC withdrew from the contract by mutual agreement with the concession-holders, Metro de Porto and Sociedade de Transportes Colectivos do Porto (STCP), due to supervening circumstances during the process of obtaining official approval for the contract.

A technical advisory service, commissioned by the Government of Panama, was provided to the Panama Metro to help it reorganise the Bus operation (MetroBus) in Panama City. TMB consultants travelled there to study the situation and propose to the Government measures to improve the bus service in the capital.

Following a couple of years delay (due to political problems in Bangladesh), the bus rapid transit (BRT) project in Dhaka was resumed in October 2014. During 2015 some consultation services were provided, but the project was finally put on hold again due to political issues affecting the end client. Our team of experts provided advice on the specifications for the BRT's buses, stops and stations. TMB worked in partnership with ALG on this project.

In 2015 TMB also completed a project to provide technical advice on the construction of a depot for CNG buses in Astana (Kazakhstan) in partnership with the engineering company TYPSA.

Bids were presented for the following projects, which may be confirmed in 2016:
—Operation and maintenance of the bus lines belonging to the RYWAYYA bus depot in Dubai, also through TCC (128 buses on 31 routes).
—The provision of technical advice to improve internal communication in the Málaga bus company.

In addition, the Bus business expressed interest in projects that it was finally not awarded, including:
—Bidding for the bus operation in the city of Sète (France), through Vectalia France.
—Bidding for the bus operation in the city of Istres (France), through Vectalia France.
—Technological improvements to the bus fleet of San José, Costa Rica, in partnership with Mcrit.

There was intense activity in the international sphere in 2015, with visits by international delegations to Barcelona and the presence of TMB professionals in various international public transport organisations.

TMB continued to play an active role in the European lobby group, Major Metropolis Group. The members of this group are multimodal operating companies in major European cities who seek to boost the role of these companies in the economic development and well-being of the continent's cities.

TMB representatives also played an active role in the activities of the International Association of Public Transport (UITP), the Association of Urban Public Transport Operators (ATUC) and the International Bus Benchmarking Group (IBBG).

TMB has participated in various external projects, either alone or jointly with other engineering or consultancy companies, such as ALG, AYESA and AudingIntraesa and GPO.

TMB is also a partner in ENSITRANS, together with SENER, Metro de Lisboa and the Portuguese engineering company Ferconsult. Through this company TMB has worked since 2010 for the Oran tram service in Algeria, auditing its trams, yards and workshops.

In Panama, work continued on metro line 1 and works began on Line 2. 2015 was to have been the last year TMB's technicians provided consultancy services for line 1 but the client requested an extension for the whole of 2016. The client also asked TMB to audit the construction and commissioning of 70 new coaches on line 1 of the Panama Metro. This order is expected to be formalised in early 2016. On line 2, work has started on preparing the tender specifications for the trains and supporting the evaluation committee in reviewing and assessing the bids received.

TCC (a TMB investee) was initially awarded the contract to operate and maintain the metro and bus network in Porto. Finally, however, TCC withdrew from the contract by mutual agreement with the concession-holders, Metro de Porto and Sociedade de Transportes Colectivos do Porto (STCP), due to supervening circumstances during the process of obtaining official approval for the contract.

The project to develop an operating model for the automated lines (3 and 6) on the Santiago de Chile metro was completed in 2015.

Metro also continued to work on the following projects:
—Panama Metro (L1).
—Panama Metro (L2).
—Oran tram service, Algeria
—Saragossa tram service, Spain
—An integrated transport fare system for the city of Cuenca in Ecuador.
—An audit of the technical studies for the electric train in Ecuador.

Bids were presented for the following projects, which may be confirmed in 2016:
—Technical support for the local light train service between Asunción and Ypacaraí in Paraguay.
—Comprehensive support for the project to build the first metro line in Bogotá. The submission of bids was planned for December 2015 but was put back to March 2016.

In addition, Metro participated in projects that it was finally not awarded, including:
—Project to develop an operating model for implementing TETRA in the Santiago de Chile metro.
—Safety management systems project for the Medellín metro in Colombia, with Altran.
—Rolling stock project with GPO in São Paulo for the acquisition of trains for CPTM.

At the end of 2015 Ferrocarril Metropolità de Barcelona, SA was actively involved in the following projects:

—**ERRAC**

Project forming part of the EU 7th Framework Programme, renewed under the new Horizon 2020 framework programme. This is a technological platform intended to promote European research in the field of national, regional, local, urban and suburban railways. ERRAC brings together representatives of the European Commission, member states and those involved with R&D work on railways (operators, industry, researchers, etc.) and proposes to the European Union priority areas of R&D for framework programmes, especially the forthcoming eighth programme.

This platform will be operative until 2020 and TMB is one of the two Spanish bodies represented and one of the three organisations representing urban rail transport in Europe.

—IT2Rail

The *Information Technologies for Shift2Rail (IT2Rail)* project is considered by the European Union to be a lighthouse project. It aims to provide a new seamless travel experience, giving access to a complete multimodal travel offer which connects the first and last mile to long distance journeys. Twenty-six European companies are involved in this project, urban public transport being represented by TMB, VBB and the UITP.

—NGTC (Next Generation of Train Control)

The aim of the NGTC (Next Generation Train Control) project is to develop specifications for train control systems on urban lines and major railways, based on the European Train Control System (ETCS) and Communications Based Train Control solutions (CBTC) in order to maximise the synergies between the two systems. The intention is to develop a platform based on interoperable and interchangeable standard interfaces covering the entire range of railway applications from urban lines to major railways.

—Foster Rail

The aim of the Foster Rail project is to strengthen research and innovation strategies in the railway sector and to promote the work of the European Rail Research Advisory Council.

—Improve LIFE

The aim of this project is to implement methodologies and practices that help reduce pollution in the underground environment.

TMB also forms part of the advisory council for the following projects:

—CIRAS

The aim of the Critical Infrastructure Risk Assessment Support (CIRAS) project is to develop a methodology and a set of tools for assessing and managing risks across a wide range of critical infrastructures where there is a high threat level.

—ZONeSEC

The ZONeSEC project is intended to address the issues involved in implementing surveillance in large spaces, with the development of a new Europe-wide framework covering more than one technical solution. The project considers aspects such as cost, complexity, vulnerability, social acceptance and ethics.

With regard to new R&D projects for 2016, TMB was a partner in the following proposals presented for funding by the EU Horizon 2020 framework programme:
—*Waste Heat Research* (reusing excess heat energy in the metro for other purposes).
—*Cyber security in closed systems* (analysis and assessment of risks related to cybersecurity for closed and specific environments).

—*MaaSSmarTT* (better and more persuasive use of social media to encourage the use of public transport).
—*COMPAR* (collection and management of large amounts of information in urban environments).

There was intense activity in the international sphere in 2015, with visits by international delegations to Barcelona and the presence of TMB professionals in various international public transport organisations. The extension of L9/10 led to greater activity in this area. TMB's Director of Automated Lines chairs the International Association of Public Transport (UITP) observatory on automated metro lines.

TMB continued to play an active role in the European lobbying group, Major Metropolis Group. The members of this group are multimodal operating companies in major European cities who seek to boost the role of these companies in the economic development and well-being of the continent's cities.

TMB representatives also played an active role in the activities of the International Association of Public Transport (UITP), the Association of Urban Public Transport Operators (ATUC), the Latin American Association of Metros and Underground Systems (ALAMYS) and the Nova metro benchmarking group.

Activities of Transports Metropolitans de Barcelona, SL

2015 was the first year of operations of the company Transports Metropolitans de Barcelona, SL, a member of the TMB consolidated group. The company's activities include:
—The barcelonasmartmoving.com e-commerce platform, intended to become the main on-line source of information on travel for tourists visiting Barcelona and the metropolitan area.
—Transports de Barcelona (TB) special discretionary services for companies.

The company began accounting for sales via the e-commerce platform between July and September and for the special transport services in November.

This business's main milestones in 2015 were:

—**E-commerce platform:**
  — The platform was launched in July 2015 with two on-line products: Hola BCN! travel cards and tickets for the Montjuïc cable car. Tickets for the Barcelona Bus Turístic were added in mid-September.
  — From its launch the e-commerce platform was supported by a 365-day customer service operating from 8 am to 10 pm.
  — Sales traffic from existing websites was diverted to the platform as it came on stream.

— The key financial figures for the year were as follows:

	2015	2014	% year-on-year change	% chg. from July
Tickets sold	93,600	67,633	38.4	62.0
Turnover (Thousands of euros)	2,241.9	1,690.2	32.6	48.0

The platform began operating in July 2015.

— The main activity indicators are:

	Actual	Estimated in business plan
Conversion rate (%) (*)	5.9%	1.85%
Average transaction value (euros)	59	71.4

(*) purchases made as a percentage of visits to website.

— Source of traffic: efforts were made to improve the return on spending on Google AdWords. For every euro invested, the return was 1.7 euros (170%).

The main challenges for 2016 are:
— To increase organic traffic to the web (traffic from the natural results of search engines, i.e., not paid-for traffic).
— To increase the profitability of paid-for traffic (visitors directed to the website via the paid-for results of search engines).
— To increase the range of products available.
— To increase the average transaction value.
— To achieve cruising speed in marketing activity.

TB special bus services:

Only one special service was booked in the year, as the business was only incorporated in November 2015.

Technology

TMB's Technology Division was set up to provide centralised management of all its information and communication technology services. The main aims of these services include:
—To support the aims of the business (Bus, Metro and Leisure Transport).
—To help the business to save time and money as far as possible.
—To minimise and prevent risks.
—To contribute to meeting the present and future needs of the company's customers.

Corporate technology projects in 2015

The following TMB technological and organisational projects are of special interest:

– Master Plan for Technology

Work continued on the projects identified in the Master Plan's route map, which was reviewed in 2014 to cover the period 2015-2020, and adapted to reflect the current programme contract, which expires in 2017:
—*Improved power supplies and air conditioning at the La Sagrera data processing centre:* work has begun to improve the air conditioning, the uninterruptible power supply (UPS) systems and the power control panels. These works are currently going ahead according to schedule.
—*Digitalisation of analogue signals:* replacement of the current TDM telephone system (landline) in TMB offices and operational facilities with a new IP telephony system. This included awarding telephone system contracts for Metro and Bus central offices, operations centres (Buixeres and the Zepi building) and stations to be switched over to IP telephone systems. The system has been operational since summer 2014.
—*Awarding of contracts for phase II of the IP digitalisation process (including telephony):* since, as a result of the TMB tender for telecommunications (for the next three years) being awarded to an operator that was not the one providing these services heretofor, the scope of phase II was altered to include the Zona Franxca II, La Sagrera and Santa Eulàlia buildings, and was finally awared in October 2015.
—*SCADA Bus system:* equipment and new systems continued to be connected to remote control facilities in line with the route map set out in the Master Plan for Technology.
—*Implementation of the new Central Operation Aid System (OAS):* continued execution of projects planned in the route map.

— **Customer service and information :**

Work continued on the TMB customer service and information project, started in 2013, to meet the changing needs of the public via new digital channels, with improvements to quality and internal management, applying a comprehensive approach to Bus, Metro and other digital channels. The following projects were implemented in the year:

— TMB website: work continued on the projects begun the previous year:

— Design, layout and contracting for the implementation phase of the new corporate web site.
— Design and procurement of new website infrastructure.

— New digital tools: TMB's new digital tools complement its on-line tools to provide additional service information:

— TMB Maps: a map-based web viewer allowing users to find information about bus and metro services (lines, timetables, stops, etc.) and locate them on the map. The new version was completed with the integration of a new application programming interface (API) to connect between platforms.
— TMB App: a new mobile app replacing the old TMB Virtual tool. Presentation of five new versions with more features. Integration in TMB's new API.
— News portal: development and implementation of TMB's new news portal.
— Web/mobile analytics: definition and implementation of a new system for analysing the performance of TMB's digital channels.
— New mailing services: a new service for sending campaign mailshots was launched with the new analytics system built into the service

— ***E-commerce:***

Its main purpose is to sell travel products (such as tickets for the cable car which were not previously available on-line) and to promote the sale of Hola BCN! tickets and tickets for the Barcelona Bus Turístic.

— **Proyecto T-Movilidad:**

A project promoted by the ATM with the aim of replacing the obsolete magnetic ticket system with a contactless card system.

TMB has participated from the outset in this project:
— Internally, assessing all the potential impacts of the new technology and sharing these across the organisation to ensure that TMB would be able to adapt to the changes when they happen.
— Supporting the T-Mobilitat project in partnership with ATM and helping to define the technical aspects of the project until it was put out to tender by the ATM in October 2014. Given the project's complexity, scope and impact on all corporate and business areas of TMB, an organisational structure to oversee the achievement of objectives and ensure proper coordination with third parties was considered essential. A transversal work team was set up by TMB in the last quarter of 2014, which was responsible for monitoring the ATM's plans in 2015.

—In addition to the constitution and organisation of the internal team, TMB (specifically its Technology Division) transferred members of its own staff (three engineers) to the ATM, to lead and coordinate the external development and implementation of the new T-Mobilitat project. This arrangement is expected to continue until the project is completed.

—***OciCommerce:***

Once the construction of the new IT system for the commercial management of the leisure transport services was completed, the OciCommerce project was launched, with new features that were added during the construction process.

The cable car stations were refurbished in order to install a new point of sales terminal and a new access control system using QR optical recognition. This has allowed the magnetic readers and the automatic sales system to be removed.

The main issues for selling tickets via mobile devices were tackled, using PDAs with specific functions for Leisure Transport. The system was developed progressively over four versions with substantial improvements incorporated in each version.

–Anti-fraud plan:

Work continued on the work programme established in previous years to improve fraud indicators. This involved addressing issues affecting technology, operations, personnel management and communication linked to the control and prevention of fraud to ensure that the measures taken had the desired effect.

On the software side, changes required under current legislation were incorporated into the IT system, suspected fraud can now be reported via the corporate website, and the central inspection application was adapted for use on the new mobile terminals.

The most significant measure was the work done to adapt the inspection system implemented on the metro in 2014 for the Bus business. All Bus inspectors were issued with new include the ability to issue on-line fines and apply discounts if the fine is paid on the spot.

—**Public Wi-Fi (on buses and in metro stations):**

In 2014 Barcelona City Council commissioned TMB to install public Wi-Fi on its entire bus fleet. Following completion of the engineering project, in which a provisional solution was implemented, the first vehicles were fitted in February 2015. This first phase was followed by work to develop a robust definitive solution for vehicles and the central management system, allowing access to the public Wi-Fi system as required by the City Council and on-line communication between the bus and operating centres to meet TMB's business needs. It is anticipated that the entire fleet will be fitted with Wi-Fi by the end of 2016.

As part of the same project, it is planned to install Wi-Fi in 16 metro stations (platforms only). The first phase involved awarding the contract for nine stations, of which five were completed in February 2015. At the end of 2015 the contract for the remaining seven stations was awarded.

—Improvements to Metro and Bus maintenance processes:

Work continued to improve and rationalise maintenance processes in SAP for Metro (rolling stock and infrastructure) and Bus (engineering and civil works and mobile devices), including:

— The incorporation of work orders in the rolling stock section.
— Testing the use of mobile devices to support station maintenance processes. Management of work orders using a PDA.
— In Bus, incorporation of new sectors in the management of maintenance routines: engineering and civil works.

—Handling complaints, claims and suggestions (QRS):

Better handling of complaints and suggestions via the new classifications and requirements specified in the project for continuous improvement of procedures.

—Adaptation of the financial and human resources modules in SAP:

Adaptation of the financial system (FI/CO) to meet new legal requirements (electronic invoicing to public authorities). The human resources system was also adapted to meet legal requirements related to the Cret@ system.

—Conversion of TMB, SL into an active company:

The company TMB, SL, part of the TMB group, began operating in 2015. Work was therefore required to prepare and configure SAP modules and adapt the information systems involved.

—Implementation of a tool for managing change in the Technological Support Centre:

The Technology and Systems Operation Department acquired and implemented a tool that, when integrated into existing systems, ensures ICT management processes are correctly controlled and carried out. The tool enables employees to work more independently and simplifies operations in Department. The tool selected from those available on the market was BMC FootPrints as it can handle changes and deliverables, system configurations, incidents and requests. The change management and deliverables process is now fully implemented and ready to be put into operation.

The configuration management database (CMDB) is managed via the change management process, ensuring that the database is correctly maintained.

Bus

Improvements to Bus service operations

—Central Operation Aid System (OAS):

The central OAS was developed to make it more dynamic with better street-level management and to facilitate operational processes, provide better indicators of online activity, monitor communication systems and improve the availability of information transmitted to the vehicle.

A system for managing regulatory measures was implemented in the Traffic Regulation Centre, improving on the previous system.

—Infomobilitat:

This concept embraces a range of projects based on mobile technologies designed to integrate current and future systems to improve operational management by rationalising work and resources. A new application for the Central Operation Aid System, SAE Mobile, developed for Android, was brought into operation. On the hardware side, traffic regulation supervisors and line managers were issued with new terminals and the old HTC units were replaced by Samsung Galaxy A3 terminals.

All the old terminals (which were discontinued and for which no spare parts are available) were replaced by new Motorola units which access all the necessary existing channels of communication and which will be usable in future as the T-Mobilitat project is rolled out.

—Service planning information systems:

This refers to all information systems designed to help integrate processes related to services available and those for managing the resources needed to provide them (personnel and vehicles).

During the year work continued on developing a new information system that will allow bus drivers' work to be planned and assign them to pre-established services. In line with the route map for this project, it will be possible to bring the scheduling module into operation in the first quarter of 2016, replacing the current timetable database application.

—Business intelligence project for the Bus business:

Two key measures were implemented to improve Bus operations:

— Development of a tool to analyse the logs recorded by on-board systems to monitor stoppage times on the bus service.
— Studies of supply and demand along 15 minute sections of bus routes (bus-bunching).

—Measures to improve information to customers

Work was carried out on defining and implementing the technologies needed for the information systems for customers.

Adjustments have been made to digital channels to incorporate information relating to the new bus network (interchange hubs, expansion of the network) and improvements have been made to these channels: module to cancel expected arrival times at bus stops (iBus, user information screens), editing of scheduled service alterations and user information system messaging, driver information system, customer video system and user information screens.

Work has also begun on improving the system used to monitor the quality of information on expected arrival times (iBus).

—Measures to improve maintenance, infrastructures and safety

—*Maintenance management:* In 2015 the work of the TB Engineering and Civil Works departments was incorporated in the SAP PM module. A pilot mobile application (using a PDA) was also developed to manage materials in workshop stores and work orders.

—*Safety and maintenance of installations:* the planned work on the SCADA remote control system for installations continued with the incorporation of this system on BYD electric buses, the implementation of safety and gas supply applications at Zona Frabca I and safety in Ponent, the Horta Control Centre was reorganised and other minor projects were carried out. Work was also carried out to improve the intercom system in the yards at Zona Franca I and Ponent.

—*Document management:* as a result of technical obsolescence, the TB screen management, technical drawing and infographics systems (hardware and software that provide support rather than basic functions) were migrated.

Metro

TMB's Technology Division was set up to provide centralised management of all its information and communication technology services (ICT). Its aims include:
—To support the aims of the business (Bus, Metro and Leisure Transport).
—To help the business to save time and money as far as possible.
—To minimise and prevent risks.
—To contribute to meeting the present and future needs of the company's customers.

Corporate technology projects in 2015

Key technological and organisational projects for the metro include:

—**Master Plan for Technology:**

Work continued on the projects identified in the Master Plan for Technology route map which was reviewed in 2014 to cover the period 2015-2020, and adapted to reflect the current programme contract, which expires in 2017:
—*Upgrade of equipment rooms:* phase V of the upgrade, contracted in 2013, was completed and work is now under way on phase VI, for which the contract was awarded in July 2014. The partial transfer of the Drassanes and Tetuan communications centres and the extension of the Rambla Just Oliveras, Espanya (L3), Verdaguer (L4), Joanic and Alfons X centres were completed. The specifications and contracts for phase VII (to be executed in 2016-2017) were also drawn up: Maragall (L5), Via Julia, Fabra i Puig, Sant Martí, Bac de Roda, Monumental and Universitat (L2).
—*Validation and sale system Adapting the electronic money management system to EMV cards:* the roll out of the planned technological solution enabling all TMB sales machines to operate using the new EMV cards system was completed in the first quarter of 2015.
—*IP video surveillance system:* work was carried out in 2015 on the introduction of a system to consolidate video surveillance (phase 0, contracted in 2014) allowing the integration of existing TMB video systems. The specifications for awarding the project and its partial execution were prepared during the year. Replacement of existing TV cameras in 14 stations on L5. This system includes: video recorders, cameras, switches, codecs, structured wiring, etc., and the corresponding engineering costs. It is planned to award the project in early 2016.
—*New IP PA system:* The current loudspeaker system presents technical and functional deficiencies and there are issues of obsolescence. A market study and draft project were prepared in 2014. TMB's Master Plan for Technology included the requirement to migrate its PA system to a solution based on IP standards and equipment available on the market.

—**Plan to replace obsolete critical systems:**

Work continued on the analysis of critical systems which are identified as obsolete, including the PDH (plesiochronous digital hierarchy) and SDH (synchronous digital hierarchy) transmission network, the telephony system used in stations, offices and operations centres, the radio-telephony system, etc. The investment programme needed for 2013 to 2018 was presented as part of this plan, together with a route map of the measures needed to renew these systems, whether provisionally or as part of the Master Plan. The measures being prioritised are:

—*Low-speed converters:* the purchase contract for phase II of the acquisition of converters, covering half of L1 (L1-B), was awarded in April 2015. The contract for phase III was awarded in December, covering the purchase and installation of converters along the entire length of L3. Currently low-speed serial communications are not in use and the hardware of the systems using them has consequently become obsolescent earlier than anticipated. This problem, raised at the last meeting of the General Committee on Technological Strategy and Projects, is affecting TMB in two ways:

— Spare parts can no longer be obtained because the PDH network (which provides this type of connectivity) has been discontinued.

— All systems that used this type of communication (remote control of stations, PA systems, radio telephones, telephony, etc.) have become obsolescent.

—The renewal of part of the SDH equipment (discontinued) to ensure the kernel of TMB's networks operates correctly. Once the MPLS transmission network is in operation on L1 (expected during 2016), the components of the SDH system on this line can be recovered to be used as spare parts in the event of incidents affecting the system.

—Access network: installation of structured copper cabling in stations for stretches of track that need to be connected to the MPLS (IP) network.

—**Customer service and information**

Work continued on the TMB customer service and information project, started in 2013, to meet the changing needs of the public via new digital channels, with improvements to quality and internal management, applying a comprehensive approach to Bus, Metro and other digital channels.

The following projects were implemented in the year:
—*Second line on metro L9 and validation and acceptance testing for the L9 Sud.*
The Technology Division devoted substantial resources to this strategic project in 2015. Specialists from every area were involved in the acceptance testing of the new line: ticket validation and sales, information systems, including the adaptation of all information systems affected by the separation of L9 into two lines (L9 Nord and L9 Sud), and technology infrastructure (networks). Physical systems tested include the PDH system, voice (SDH), data (IP), Wi-Fi (on board trains), clocks, telecommunications (the TETRA radio-communications network, telephony, PA systems, intercoms, video surveillance) and customer information boards.

—*Digital Mobile Radio (DMR):*
To meet Metro's radio communication needs, TMB's Master Plan for Technology included the implementation of the TETRA radio-communications system, but the high cost of the system has impeded progress on this project. Other solutions were studied in recent years and, finally, the DMR solution was selected as an effective, and more economical, alternative to TETRA.

The DMR standard was conceived and developed as a narrowband digital radio protocol in order to provide better bandwidth efficiency than the traditional PMR analogue radio frequency range and facilitate two-way communication via digital radio.

The main aim of the standard on which it is based is to facilitate the implementation of low-complexity, low-cost digital systems that allow interoperability between the brands that use the standard, so that installations using this radio system are not restricted to proprietary commercial solutions. However, in practice, manufacturers build features into their products that impede interoperability with other brands, making the standard less open than it was intended to be.

The Metro Technology Strategy Committee having approved the implementation of a DMR solution, work was carried out in the year to prepare the specifications and three bidding companies were selected, of which one has begun work on a pilot project that will enable TMB to determine whether the solution meets all its requirements and can, therefore, be implemented throughout the metro network.

Improvements to Metro service operations

The following measures were implemented:
—*Rail staff training:* the goal of this project is to provide a reliable, comprehensive system to facilitate the input and tracking of all information on training. This new information system was brought into operation in 2015 and began to be widely used.
—*Service planning and allocation:* concept testing of a new metro services optimisation tool was carried out in the year, allowing for the real time analysis of service data. A test of mobile operations applications was also carried out. This consisted of activating an application for PDAs or tablets for a limited number of Technical Operations Managers on L3, giving them on-line access to the information they need to manage operations in their area or zone.
—*Automated lines:* in line with the tools developed for conventional lines, an IT tool was developed and put into operation to provide a support system for service planning on the automated lines (L9 and L11).

Implementation of manual ticket sales for the cable car

Following the implementation of manual ticket sales for the cable car, the retired ticket validation and sale equipment was transferred to Ferrocarril Metropolità de Barcelona, SA under a purchase agreement. The transfer price corresponded to the carrying amount of the assets and no gain or loss was therefore generated on the transaction.

12 Communication with customers, employees and the general public

Communication with customers, employees and the general public

Corporate communication

In line with TMB's digital communications strategy, a digital version of the 2014 Basic Data leaflet was produced entirely in-house (with a small print run of just 200 copies).

The 2014 Annual Report was also published in a shorter, digital format. As in recent years, because of financial constraints, the work was done in-house. TMB's corporate presentation was updated in three languages (Catalan, Spanish and English) in digital format with new information and a new design. It is available on the company's intranet and on the TMB website. Other versions of the presentation for Metro and Bus were also produced on request.

Much of the department's work focused on supporting other departments and meeting their communication requirements as well as TMB's institutional needs. This included developing communication plans for the L9 Sud and the new bus network. The department also produced communication plans for interruptions to the L2, L3, L5 and L9/10 services and the Montjuïc funicular railway. It also prepared content and coordinated TMB's presence at two major events: Urban Mobility (motor trade fair) and BCN Rail.

Other projects in which the department participated include the Metro Service Charter, the Improve LIFE project, the new metro maps, heritage activities (rally and historic Metro journey) and other work as requested by various TMB departments.

Audiovisuals

72 videos were produced with a total running time of 3 hours 37 minutes. 56 of these were produced internally and the remaining 16 externally. All of these videos have been disseminated via social networks, the TMB YouTube channel, and at different TMB events (presentations, ceremonies, etc.). Some of the images have been supplied to the MouTV channel, and shown as part of its programming, and in other media outlets and institutions. Most of the videos produced were content for publications or on institutional events held by TMB, while some covered historical subjects. Others were commissioned by other departments on technical subjects, for training or for awareness raising.

Work was done to coordinate the photographic reports of the Communications and Institutional Relations Division with demand from the rest of the organisation (about 50 requests—approximately six thousand images—per year). The department also responded to external requests for images. Work continued on the creation of a TMB photographic library, using the Videoma application, where all the material is being loaded.

Advertising and relationship marketing

This year was the fourth anniversary of JoTMBé (www.jotmbe.tmb.cat). The number of members or registered users at the end of 2015 was 272,948, compared with 188,776 in 2014 and 103,794 in 2013, an increase of 84,172 (45%) in the year.

The free TMB App for smartphones was improved during the year. To use it, users first have to register on the JoTMBé website. The TMB App was one of the main sources of growth for JoTMBé.

Activities related to communication include:

—Corporate information: more than 1,300,000 mailshots with an open rate of more than 22.5%.
—Ticket competitions: 90 contests with a prize consisting of tickets for shows: 2,145,153 entries from a total of 206,951 participants, 5,648,977 visits to the site, 9,267 prizes in major areas of interest for our subscribers: music, film, theatre, fashion, sports and culture. TMB has also established itself as an important advertising partner for the main film producers, including Disney, Paramount and DeAPlaneta.
—4th anniversary of JoTMBé: a master class with the musical duo Estopa was organised, which was widely publicised and attracted large numbers.
—JoTMBé Vull Opinar: as the opinion of users is essential to identify areas for improvement in metro and bus services, members of JoTMBé were invited to join a focus group. Participants received points giving them more chances to win prizes. Four focus group rounds have been held so far, with high levels of participation.

Cultural promotions and competitions

—9th TMB online short story competition (relatscurts.tmb.cat). This year 2,049 stories were submitted (1,336 narratives in the free story category, 301 Sant Jordi Tweets, 245 pictures uploaded to Insta Relato, and 166 stories in the special Diálogo WhatsApp category).
—*Subtravelling Festival 2015:* 27,652 unique visitors were recorded. In the section 'Roda a TMB' a total of 52 videos were sent, while the 'Microcurts' section had 28,421 votes from 2,420 voters.
—*Bus improvements campaign:* a campaign was run at the start of the year to inform the public about improvements made to the Bus network.
—*Hola BCN! campaign:* the creative content of this campaign was updated to include the features of the product in the message. Vinyl displays were posted near ticket vending machines in the main lobbies of the metro stations used most by the non-resident market.
—*TMB Digital Campaign:* project to transmit the vision of an organisation which is accessible, open and innovative. To achieve this, TMB is implementing a strategy based on its presence on the internet and the use of digital tools, focusing on five principles: communication, information, service, sharing and interaction with people.
—*E-commerce:* project led by the Commercial Promotion Division. With regard to advertising, the department worked on the creative content of on-line media communications.

Internal communication

GenTMB News, a weekly newsletter sent out to all corporate e-mail addresses, was launched in 2015. Meanwhile, the document setting out the technical requirements for the new employees' portal was completed. Many cross-area working groups and operations staff participated in this project via focus groups.

The department also participated actively in the main 2015 corporate campaign: the commissioning of the new bus network. In addition to managing communication aimed at staff, we have worked on the design of a strategy for staff assisting passengers at bus stops, its implementation, training and monitoring and following up problems. A total of 240 staff were taken on to inform the public during this campaign.

Key internal corporate social responsibility projects included "Choose your cause 2015", and the campaign to which it led, "Get moving for children's rights".

The following details summarise the annual activity of Internal Communication:
a) Corporate information: 55 notices concerning TB and 109 concerning Metro were published during the year.
b) Intranet and internal notes: the new portal became established in the year with a 128% increase in the number of views of corporate content, and the service was extended with dedicated sections for the new bus network, the automated metro lines and the negotiation of the Metro and TB collective agreements.
c) Publications: 150 articles were written and published for the GenTMB newsletter.
d) Canal TMB and suggestion boxes: 53 weekly programming operations carried out. The Internal Communications Department also manages the company's suggestions boxes (Hora Punta, Internal Communication) and organises responses to messages.
e) GenTMB Club: The GenTMB Club had 3,527 members in 2015, with an average of almost 34 connections per user per year. The department maintained contact with various suppliers, three of whom have signed agreements with the club, either financial or for the exchange of services. As a result of these agreements promotions and draws were organised to increase club membership.
f) Communication and information campaigns: elections for the TB pension plan committee, engagement campaigns (study grants, sports tournaments, etc.), charitable campaigns (festival organised by the Conductors Solidaris de Catalunya NGO, Barcelona Magic Line, "Tria la teva causa" (Choose your cause), etc.), health campaigns, environmental campaigns and information on cuts to metro services in the summer.
g) Communication plan for the Business and International Division: drafting of a consultancy project for the Malaga transport company (EMT).

Digital communication

Working directly and jointly with other departments, the Department of Digital Communication develops the company's digital communication strategy. It is responsible for managing the corporate website and for overseeing the on-line identity of the brand and the company's involvement in on-line projects.

1. *The corporate website*

The website received a total of 9.9 million visits in 2015, of which 6.59 million correspond to visits to the desktop version and 3.31 million to the mobile version. This represents an increase of 134,000 (1.4%) on the previous year.

In 2015 a plan was developed to analyse and improve the SEO positioning of the corporate website in internet search engines.
The process began in the last quarter, and involved modifying tags and adding keywords to important pages, in addition to technical corrections to raise the website's profile and ensure users are correctly redirected depending on their devices.
As a result of the plan, during this period the number of views shifted clearly towards the mobile version of the website (1.66 million). Organic traffic also rose by 29% with respect to 2014.

During the year there were 272 updates to the website (in three languages). More than 750 scrolling texts, 105 banners and 12 types of header banner were posted on the website's home page. Thirty-nine sections of the website were also extended or improved. The most important changes were:

— L9 Sud:
Information about different aspects of the service was kept up to date and plans to change the name L9 to L9 Nord were put in place for all parts of the website. In November a new section on the automated metro lines project was added to the site.

L9 Sud page: important developments included the section dedicated to the presentation of the L9 Sud and the planning of four pages with practical information about the new service. The content is enriched with images of the route and explanatory videos.

Tests with passengers: this section also allowed people to register for the stress tests of the L9 Sud. These were open to public participation and the 2,000 places available were all taken up. The relevant forms and information for participants were posted on the page.

— New bus network:
In preparation for the launch of the fourth phase, scheduled for 29 February 2016, the website gave advance information about the three lines that would come into service, information about the whole network, and aspects of special interest to users.

— Customer service:
Reports of damage: in May the public service department introduced a new form so that customers can report any damage detected in facilities and vehicles.
In June and July the FAQ section of the web was analysed and restructured to create a more usable space which was more closely linked to the content of the website.

— *Metro network information:*
Working with the Signage Department, the Department carried out an exhaustive review in order to improve the information available on the web about accesses to all stations.

— *Publication of job offers:*
In March the publication of job offers on the web was resumed. A new publishing protocol was drawn up with the selection team and new editors were trained in the Department to give it greater autonomy in this area.

— *News site and suppression of the Press Room:*
In December the new TMB News website was launched. This is managed by the Press Office and led to the planned suppression of the corporate website's Press Room with the modification of related content and links.

— *Corporate solidarity project:*
Between the months of October and December the website hosted the charity programme "Get moving for children's rights", in the "Tria la teva causa" (Choose your cause) section, which is dedicated to the charitable cause chosen each year by the company.

Other sections of special interest include the following:

— Web Barcelona Smart Moving: the launch of TMB's e-commerce service had the support of the corporate website for its marketing campaign, links strategy and plan for optimising its positioning in search engines. This synergy was essential for the transfer of traffic to the new sales platform.

— New Bus network website: TMB is working with the Internet Department of the City Council on the management and updating of the www.novaxarxabus.bcn.cat website to ensure that information related to the project is updated correctly.

— Web de Transports Ciutat Comtal: TMB also assisted in improving and updating the content of the www.tccbarcelona.com website regarding the new network.

— Contractor profile website: at different times during the year the Department assisted with the project for a contractor website (functional aspects, design, links to the corporate website, etc.).

Throughout 2015, the Department worked on the website development project, which involves replacing the current TMB website by a new website in 2016.

The project started in 2013 and continued in 2014 with the assistance of a consultancy firm specialising in usability. The study led to the proposal for a new responsive website, to address the important role of mobile devices in the consumption of digital products, and for the reorganisation of the Company's internet presence. The project is managed jointly by the Organisation and Projects, Communication Technologies and Internet, and Digital Communication Departments. TMB's involvement in this project in progress meant that the two web sites needed to be managed in parallel during the year: one at the planning phase and the other in operation, providing service to users. The project envisages the use of a top bar to facilitate navigation between sites. This will be common to all TMB websites and will allow users to move between sites using the corporate site as a starting point linking to all the components.

Digital Communication continued working on the website migration plan and began to develop a new website management model with Organisation and Projects, with a view to revising and updating the current model. This should clarify the map of responsibilities and describe the different roles and functions involved in the management of the website.

2. Digital Committee

Digital Communication leads and coordinates this dialogue between the departments that directly manage web sites or social profiles for TMB. The group meets monthly to evaluate management issues, analyse questions of strategy and monitor indicators, new developments and trends. In 2015 the number of members was increased to six departments.

3. Corporate social profiles

TMB has significantly increased its number of followers and has fostered content of value and quality relations with the customer. At the end of the year TMB's profiles had a total of 156,195 followers. Of these, 154,578 were on Facebook and Twitter. @TMB_Barcelona had 64,846 Facebook followers and 74,239 on Twitter, while @ TMBinfo had 15,493 on Twitter. These channels are used specifically to communicate with users and provide information. The three profiles attracted 31,147 new followers.

Press Office

TMB appeared 5,665 times in the media. 32% of these mentions were favourable to the company, 12.9% were unfavourable, and the remaining 55.1% can be regarded as neutral.

One of the topics mentioned most frequently was Line 9/10 (605 items, 10.7% of the total), including news about the southern section that is to be brought into service and about the project in general. Also notable for their volume (423 items, 7.5%) are the references to special transport services and schemes.

24.6% of the items published originated in TMB's Press Office (9.4 percentage points more than last year), while 13.1% were based on material issued jointly by the Press Office and other institutions. Barcelona City Council and other municipal bodies accounted for 8.1% of information items and the Government of Catalonia and its organisations accounted for 5.6%. Media treatment of information issued by the TMB Press Office was favourable in 46.7% of cases.

The Press Office produced and issued 161 press releases and dossiers in the year and also maintained constant contact with the media. A total of 262 requests for information and interviews were processed, as well as 138 permits for media recordings.

The virtual press room of the TMB website released 171 news items and received 95,703 visits. The management of the Twitter and Facebook corporate profiles led to the publication of 2,700 tweets and 703 posts respectively.

With a view to modernising and digitalising Company communications, the press office, together with the Communication Technologies and Internet Unit, designed and implemented the project for the new news site, which brings together all content dealing with current developments (replacing the Hora Punta portal and the corporate website press room) with the following objectives:

—To create a digital space for all kinds of user that raises the profile of the TMB brand as a benchmark in the field and in Catalonia.
—To support the work of media professionals and other opinion leaders.
—In general, to act as a platform for establishing and consolidating relations with its most important stakeholders.
—To contribute to fulfilment of the accountability required of a socially responsible public company.
—To increase the dissemination of TMB’s web spaces and social profiles.

The website, hosted at https://noticies.tmb.cat, came into service on 22 December.

Online information and customer services

The measures carried out can be grouped into several blocks:

1. *Publication of service information on digital channels:*

Service changes and recommendations affecting the network were coordinated, managed and published via the following channels: the website / website for mobiles, JoTMBé, TMB App and TMB Maps, Twitter and MouTV.

Interruptions to public transport services were analysed with a view to informing users (lines, timetables, alternatives, etc.) using various digital channels. The information published is coordinated to ensure it is consistent and issued applying the same criteria for all digital channels.

Another task is the study of the main events in the metropolitan area to issue recommendations for attendance using public transport and the coordination and evaluation of the information issued with operating centres (Control and Operations Centre, Bus Information Centre and User Information Centre).

With regard to the channels, the main activities were the following:

— TMB website:
  — Weekly publication of service notices in the "Service status" section (more than 500 notices published plus information about over 1,000 planned alterations to bus lines – diversions, changes to bus stops, etc.).
  — Real-time monitoring and publication of programmed information in the traffic light display showing the status of lines on the home page.

— JoTMBé:
  Over 1.5 million e-mails with service alerts sent to club members based on their profile and interests (segmented by line, post code, etc.). These include news items about improvements sent to users, which were very well received, with over 30% of e-mails being opened. The overall proportion of items opened (e-mails, SMS and other) was 26%, nearly 3% more than in 2014.

— App and mobile site:
  — Three upgrades were released in 2015. The TMB App was improved to make it more usable with direct access to the TMB iBus service and other frequently used sections and to adapt it to new versions of mobile devices.
  — iPhone 6 and iPhone 6 Plus: to allow users to customise the app (giving names to bus stops) and to make it compatible with smartwatches.

— Twitter:
  — Publication of information on planned changes linking to the "Service status" section on the website.
  — Publication of information about unexpected changes with serious impact (monitoring of large demonstrations in coordination with the Regulation Centre). News about improvements.

— MouTV:
  MouTV: publication of planned service changes and service information in line with other channels.

2. *Assistance via digital channels:*

The figures for the year are summarised below:
a) **Web:** 500 queries per month submitted by customers using the website query form and 600 queries per month about lost property sent with the relevant form. Publication of records of incidents on the metro so that they are available on line.
b) **Mobile website:** 70 queries per month submitted by customers using the mobile website query form and 350 queries per month about lost property sent via the relevant mobile website form.
c) **Social networks:** consolidation of the @TMBinfo channel on Twitter as a channel of information and customer service from 7 am to 8 pm, Monday to Friday, and on days when the number of passengers on the public transport network is especially high. At the end of the year the website had more than 15,500 followers and a Klout rating between 60 and 62 points (Klout is a tool that measures the social influence a person has through the social networks to which they belong, on a scale from 0 to 100).

Over 6,500 conversations were held during the year with customers using the channel (26% more than the previous year) and about 3,000 proactive messages were issued about the state of the network and our commitment to users.

— The measures to improve the channel were:
  — Better service information provided. Use of Tweets at times when the followers of the channel are most active.
  — Giving the channel a very familiar tone, using plain language and giving it a fresh, dynamic, human and friendly personality to get messages and recommendations across.
  — Maintain TMB's level of engagement and creativity by publishing items in line with the latest trends in social networks (microstories, use of mock ups, Playmobil click assemblies, creative and provocative labels, etc.).

— Operation of the MouTV channel:
  — MouTV: publication of planned service changes and service information in line with other channels.
  — Real time information for events with very high passenger volume such as Catalonia Day and the Mercè festival to facilitate mobility.
  — Operating the channel and updating on a daily basis the news, service information, corporate information and advertising fed to over 2,800 players installed throughout the metro and bus network.
  — Checking and programming over 3,000 clips using the MouTV content manager.
  — Monitoring the status of the screens and solving problems.
  — Special last-minute updates.

— *New dynamic information model for the new section of Line 9 Sud:*

Work was carried out on the definition of the model for customer information using dynamic channels in the new section of metro line 9. The operation, messages for communication and the graphic templates for the channels were defined: TFT screens in ticket halls and on platforms, monitors, PA systems and on-board TFT screens.

—Special information systems for the La Mercè holiday:

A series of special measures were put in place to provide information for events to celebrate La Mercè:

— Analysis of the event and preparation of messages to be posted during the day.

— Coordination with the City Council, Metro Operations and the Security Department to identify risks and determine the messages to be issued in each case.

— Information coverage by the Metro Control Centre to broadcast messages in real time via Twitter, the web, MouTV and the TMB App.

In-person service. Punts TMB:

The activity of the Punt TMB centres was geared to five basic areas:

1. Improvements to the management of processes:

— Sales: the installation of location systems for processing T-12 and T-Trimestre travel cards, managed by the Avancar company.

— Lost property: improvement of premises and increase in space available for storing and dealing with lost property, at Diagonal.

— Customer assistance in general: the installation of a Q-Matic queue manager at Universitat. This tool allows action taken with customers to be sorted, classified and recorded, thus providing quantitative data on the volume of activity with a view to organising the service. This measure will be extended to other Punt TMB centres in 2016.

— Telephone assistance: an intermediate application was created with the provider to facilitate access to TMB's information and improve the process.

2. Improvement of Punt TMB premises: better access and lighting in Punt TMB offices at La Sagrera and Diagonal, and the installation of wireless dataphones, digital telephones, and air conditioning at La Sagrera.

3. Improved training and greater versatility of staff in Punt TMB offices through an individualised internal training process.

Commercial management continued the upward trend seen in recent years with better overall ratios, especially regarding the sale of subsidised travel cards, which, as in previous years, constituted a major part of the Punt TMB centres' activity.

The call centre experienced a significant reduction in the number of calls received (12%). The percentage of calls attended also fell, from 97.55% in 2014 to 96.13% in 2015. With regard to the type of calls dealt with, there was a decrease in those concerning lost property, as a proportion of this type of query is now dealt with via the internet. The number of calls regarding sanctions also fell, because of changes in the regulations.

The number of complaints processed and the number of lost property cases rose. However, the number of allegations dealt with fell substantially and, to a lesser extent, that of tickets withdrawn.

Customer service management	2015	2014	% Diff.
Claims managed	2,611	2,265	15.3
Statements processed	2,589	6,101	-57.6
Lost property management (items found)	31,758	27,108	17.2
Management of withdrawn travel cards	5,653	6,550	-13.7

Handling complaints, claims and suggestions (QRS):

As a result of the project "QRS: an opportunity for continuous improvement", which began in the last quarter of 2014 and concluded early in 2015, an effective continuous improvement system was developed, based on an information system and organisational model that allows us to take advantage of this resource to improve the service.

Of the three branches of the project, the two that relate directly to this unit were completed and implemented at the beginning of the year:
—communications received are recorded as soon as possible,
—the new catalogue provided and agreed with all units involved is now in use.

These organisational changes established a stable reporting system geared to continuous improvement. The reports are published in the middle of each month (since last April) with the assistance of the Research Board.

At the same time, work was done on obtaining ISO 9001:2008 certification. The unit's commitment to the quality system (certification obtained in June), is demonstrated in its work to develop the synergies necessary for the continuous improvement of the system itself, processes and the activities of the organisation,

which in 2015 included:

—Updating the style of all letters sent in reply to correspondents to improve the corporate image.
—Defining a contingency plan to keep the indicators for average response time and responses before the deadline within specified limits.
—Incorporating technical improvements to the corporate application to simplify the tasks of the units consulted.
—Defining a customer satisfaction index for the unit managing complaints, claims and suggestions.

The number of cases recorded in the year fell by 14% compared with 2014, especially regarding bus services (19% down). This decrease may be assumed to be largely due to the absence of significant changes in the service provided.

There was increased use of digital channels instead of face-to-face contact for the presentation of complaints, claims and suggestions by customers. Users accordingly presented more than 50% of complaints, claims and suggestions via digital channels, while face-to-face presentation accounted for 27% of the total. Communications by telephone accounted for 7%.

Management of fraud and anti-social behaviour in TMB

Continuing the practice started in 2013, direct communication was maintained between the Ombudsman's Office and TMB. The direct involvement of the Catalan and Barcelona ombudsmen in matters related to the handling of fraud or anti-social behaviour cases by TMB staff has made it possible to detect weaknesses in the service and actively improve it.

The project for the presentation of allegations on line was developed and finalised. It is expected to be brought into service in January 2016.

Two training sessions aimed at TB inspection staff were held and these were very well received. These training activities encourage greater involvement by agents in their work.

During the year proceedings related to anti-social behaviour were initiated in 3,046 cases, 25.7% more than 2014. Of the 3,046 cases, 812 are awaiting processing and 1,230 have already been reported to Àrea Metropolitana de Barcelona (AMB); the rest (32.9%) have had to be filed because they do not meet the requirements of AMB.

Data for fraud in TMB as a whole show an 8.1% drop compared with 2014; in Metro the decline was 4% and in Bus it was 28.7%. These figures may be a result of the reduction in resources for inspection, in both Metro and Bus, with a drop of 9.4% in the number of hours devoted to inspection and an 11.8% reduction in the number of inspections carried out, although there was an increase in efficiency compared with 2014.

As expected, the regulatory changes that allow users to pay the minimum surcharge during the two working days following the inspection led to a 16.5% drop in receipts from sanctions. However, the number of cases in which fines were paid increased by 21.5%.

The increases in fines paid and allegations upheld led to a decrease in the number of cases referred to the authorities. This will allow TMB to start conversations with AMB about extending the possibility of reporting anti-social behaviour to the Bus service.

Commercial Promotion

The main aims of the Commercial Promotion Division are to obtain maximum returns on TMB's tangible and intangible assets and rationalise the sales support structure, in particular vending machines, in order to maximise returns. The key tasks carried out by the Department's units are detailed below:

1. *Project and Analysis Unit*

—Preparation and tracking of the Division's budget by heading and unit, and project tracking. Preparation of a document describing the projects envisaged for the years 2015-2016.
—Weekly tracking of sales of Hola BCN! travel cards via ticket machines and the online outlet to assess the impact of the advertising campaign.
—Management of TMB's online sales outlet. This store was closed in June when TMB's e-commerce operation began.

2. *Advertising and Sponsorship*

The sale of advertising space on the outside of buses is a source of income for Transports de Barcelona and is exclusively handled by Promedios Exclusivas de Publicidad, SL. Advertising in the interior of vehicles is also handled exclusively by Promedios Exclusivas de Publicidad, SL.

With regard to corporate sponsorship, 2015 ended, unfortunately, without any agreement being reached in this area despite the efforts made. In the first quarter of 2015 a series of contacts were made with

different companies but these did not bear fruit. After the first quarter, management decided it was best to stop the search for possible sponsors until the new scenario created by the municipal elections became clearer. This situation has persisted throughout the year. At the moment, the project is on standby.

3. *Business and Retail Unit*

—Shops:
Occupancy rates for commercial premises stood at around 90% in 2015, with rental income remaining stable and in line with the budget for the year. The refurbishment of all the electrical installations in these establishments was completed, updating all facilities according to current regulations, under the strict control of TMB.

—Vending machines business:
A contract was signed by Mobiloso and FMB to increase the number of machines selling accessories and add-ons for mobiles, so that there are now 16 small machines and 24 large.

—Telecommunications:
Revenues from mobile phone coverage contracts and the cession of fibre optic cables on the metro network remained stable, in line with the agreements reached with operators. An addendum was negotiated to the contract with the main telephone operators to introduce technological advances which will enable the provision of 4G telephony services in the metro system and in different areas not used by passengers, e.g. Metro depots and workshops, metro base stations, etc.

—Special services and mobile phone charging:
With regard to special services, 2015 was exceptional compared to previous years, as revenue has increased. The fall in revenues from the mobile phone charging service provided via vending machines indicates that demand for this type of service is declining steeply.

4. *Online Business Unit and new retail initiatives*

2015 was a year of consolidation for the Online Business Unit, which implemented the e-commerce platform and carried out various marketing activities to increase income from the sale of the Hola BCN! product.

— Digital business:
In July the TMB e-commerce platform (www.barcelonasmartmoving.com) was launched. This has become a leading tourist travel facility in the city of Barcelona, marketing the company's tourist products: Barcelona Bus Turístic, Hola BCN! and the Montjuïc cable car. The results obtained by the platform were very satisfactory, far exceeding the results envisaged in the business plan. On-line sales have grown 48% since it was launched.

The platform has undergone a process of continuous improvement, both in aspects of design, and technology and usability, which will continue in 2016 in order to further increase revenue and extend its target audience.

— Hola BCN!
A new sales policy was developed for the Hola BCN! travel card with the aim of maximising revenue. Furthermore, a new commercial strategy was designed and implemented focusing particularly on promoting and distributing the product via existing channels as well as developing new channels. The results obtained were positive, with net revenues of around 15 million euros.

Significant measures included the commercial agreement signed with Turisme de Barcelona, the advertising and promotion campaign in automatic distribution machines, and training specifically aimed at customer service agents so that they become prescribers of the product.

The challenges in the future for this product are to continue strengthening its marketing, broaden its potential customer base and, consequently, to increase income. In 2016 the publicity campaign for the product will focus on access to the airport on the new section of the L9 Sud. The second objective will be to explore ways of cooperating with other businesses and institutions that may add value to the product and make its marketing more attractive.

5. *Sales Channel Unit*

The unit focused on the analysis and implementation of various projects aimed at the development of the automatic sales channel and its products. These projects included:
— *Analysis of the development of the TMB automatic sales channel:* the analysis focuses on the commercial development that the automatic sales channel needs to undergo to tackle the challenges of profitability posed by the emergence of new purchasing systems and criteria because of the introduction of the T-Mobilitat project.
— *Hola BCN! travel cards:* analysis of the current situation and of new scenarios with the introduction of the T-Mobilitat project, and proposal for new features and conditions for inclusion in the chip and support for the T-Mobilitat project.
— *Migration of 113 machines to EMV-2:* a device was added during the year to ticket machines to ensure secure interoperability between bank cards and payment terminals.
— *Optimisation of machines issuing tickets for section IV of L9:* in April, nine DA machines were withdrawn on section IV of L9.
— *The unit participated in various working groups* (fares, technology and customer service) created to assess the impact of the T-Mobilitat

project in TMB.
—In conjunction with different TMB departments, software was developed and implemented for the redemption of Hola BCN! vouchers via DA machines. It also worked on the modification and installation of software on DA machines to allow the use of the new 20 euro notes.
—A pilot project was carried out in the metro network of prototype DA DM5 and DI5 machines.
—An analysis of the obsolescence of the KDE readers installed in DA machines was carried out and it was decided to replace them with Hopt & Schuler models.
—Coordination with different divisions regarding the distribution of Hola BCN! and T-Aeroport travel cards and their inclusion on DA machine screens in view of the forthcoming opening of Line 9 Sud to the airport.

Customer Services and Information

—*Information and signage:*

Bus signage:

—*Projects:*
Action focused mainly on the forthcoming fourth phase of the new bus network, the maintenance of the appearance of the vehicles in the new network and work on producing and displaying images to present two new electric buses.

—*Campaigns affecting the whole bus network:*
As part of the "Barcelona Contactless Bus" campaign the scheme was implemented throughout the bus network in the Barcelona area and maintenance work was carried out on QR and NFC codes (changes to stops).

When fares were revised in 2015, notices on board buses were updated, which involved work on content, the creation of originals, production and placement.

On the occasion of the Mobile World Congress (MWC), the "Barcelona Contactless Bus" scheme was extended to the MWC shuttle service (on board vehicles and at stops).

Information and signage: Metro

—*Signage for improvement work:*
Action focused mainly on the development of information campaigns, the publication of messages and channels of dissemination. Work during the year included the following: signs indicating works at Poble Sec (L3), Collblanc (L5), Diagonal, Catalunya interchange link (L1-L3), work on the improvement of the stairs at Tarragona (L3) and Liceu (L3), works to improve accessibility at Zona Universitària (L3), etc.

—*Campaigns affecting the whole metro network:*
The fare information displayed on all the network's notice boards was updated to reflect the new 2015 fares. As part of the BCN Contactless campaign, QR and NFC codes were displayed on certain metro information panels in the network and, during the Mobile World Congress, signage at Espanya station (L1-L3) and procedures for the prevention of occupational hazards were coordinated.

—*Projects*:
As part of the "Wi-Fi in the Metro" project, signs indicating the Wi-Fi service were put up at Universitat, Espanya, Arc de Triomf and La Sagrera on L1 and Diagonal on L5. With regard to the future southern section of metro line 9, a project was drawn up for signage at its stations, links with existing lines, and information regarding valid and non-valid tickets for journeys beginning or ending at the airport.

—*Other signage:*
— *Turnomatic*: design of this system to manage visits to the Punt TMB centre at Universitat station.
— Editions of the metro guide: updates of network maps and content (March, May and November editions).
— Coordination of signage. Management-organisation of occupational health and safety during the Barcelona Marathon and concerts at Can Zam (Rock Fest).


TMB Foundation

TMB Culture

The TMB Culture project programmed a range of activities across different disciplines, some organised by the TMB Foundation and most in partnership with associations and institutions in Barcelona and the metropolitan area. Many of the activities are financed by sponsors.

The activities organised by associations and institutions were the following:

Date	Activity	Location
13 to 25 March	Maria Canals Competition	Diagonal station on L5
21 March	Maria Canals: robot pianist	Diagonal station on L5
18 March	Magna Celebratio. Museum of Badalona.	Universitat station on L2
25 March	Sister Act (excerpts from the musical)	Line 2
15 April	Störung Electronic Music Festival (inaugural concert)	Universitat station on L2
18 April	La Coquera Teatro	Universitat station on L2
16 May	Museum Night	Various stations
21 May	Ciutat Flamenco	Universitat station on L2
28 May	Fundació Factor Humà Comedy Awards	Diagonal station on L5
12 June	Sonar Festival (performance by Fernando Lagreca)	Universitat station on L2
18 to 30 June	Swab Stairs (decoration of stairs in various stations with works by students of design schools in Barcelona and Catalonia)	Various stations
1 October	Connexions Festival (Music Workshop)	Universitat station on L2
27 November	VIII Musicians in the Metro auditions	Arc de Triomf station on L1
Nights of 18 and 19 November	Vintage train run (BcnRail) on 300-series train	Sagrada Família-Sant Antoni-Sagrada Família on L2
From end of December to 15 January 2016	Pastorets al Metro (photographic exhibition of the activities of the Nativity Players)	Corridor linking lines L5 and L3 at Diagonal station

The following cultural activities were organised by the TMB Foundation:

Date	Activity	Location
23 March to 5 May	9th TMB on-line short story competition	
15 April	Journey on a 300-series train with period atmosphere	Sagrada Família-Sant Antoni-Sagrada Família on L2
13 and 14 June	Barcelona - Caldes de Montbui Classic Bus Rally	Avinguda de Maria Cristina
6 October to 16 November	Subtravelling Festival. TMB International Short Film Festival	Awards presented on 16 November at Filmax Gran Via cinema complex

The main aims of the programme are to raise TMB's profile, bring cultural experiences to TMB's users and create synergies with other entities and associations. Information about the activities can be obtained via the TMB website http://www.tmb.cat/ca/agenda-tmb, social networks, the MouTV channel, JoTMBé Club, GentTMB, Ràdio Metro, and press releases.

Six exhibitions were held in the Espai Mercè Sala:

Dates	Exhibition title	Description
12 December 2014 to 6 March 2015	"Station 1924: 90 years of the Barcelona metro"	Items loaned by the TMB Foundation, the public, companies and employees (9,500 visitors)
17 March to 8 may	Awards for the best European advertising and graphic design (Arts Directors Club of Europe)	Exhibition of the best pieces by the winners of prestigious creative festivals
14 May to 10 July	DOCfield 2015. "The Heart of the Matter"	Exhibition as part of the 2015 DOCfield festival. Also shown in various stations
16 May	Museum Night	Exhibition "The Heart of the Matter"
3 August to 27 November	"Environmental sustainability in TMB". TMB Foundation.	Exhibition on the central role of the environment and sustainability in TMB policy (6,700 visitors)
9 December to 22 January 2016	"Viatjar amb distinció" (Travel in style)	Exhibition by the Design Museum (DHUB) on the history of fashion photography in Spain

Joint projects

TMB helps in the dissemination of non-profit making campaigns, activities or events organised by third parties which may be of general interest. Support is usually provided via: MouTV, handing out leaflets, TMB's website and social network sites. During the year TMB took part in 82 joint projects using public transport to promote social and cultural values in the city and metropolitan area, raising awareness of public transport and sustainable mobility, with a view to reinforcing and improving TMB's image and corporate reputation. This kind of partnership is implemented by means of specific agreements, although in some cases of special importance, formalised framework agreements are signed, reflecting an overall agreement on reciprocal benefits, as in the following cases:

—Agreement with the Barcelona Institute de Culture, in order to promote the Grec Festival 2015, with various cultural projects and for the promotion of different museums in the city.
—The Catalan Agency for Development Cooperation and the Barcelona Metropolitan Area, for the establishment of a framework of joint cooperation in the areas of development, education for development and humanitarian action.
—The Auditori de Barcelona, for the dissemination of its programming and for the enhancement of the public transport network with pieces of music.
—Gran Teatre del Liceu to promote and advertise its programme.
—The National Museum of Art of Catalonia, with the aim of raising awareness of its temporary exhibitions, bringing some of its important exhibits to the metro.
—The Joan Miró Foundation, for dissemination of the events linked to its 40th anniversary and its artistic heritage.

TMB Education

340 educational visits took place during the year with a total of 9,219 visitors.

The key figures for the TMB Education project are:
—44 monitors posted at 18 of the company's operation points.
—15 educational activities.
—Agreements to support educational activities with seven municipalities in the Barcelona metropolitan area.
—Cooperation agreements with Barcelona Provincial Council, the Barcelona Education Consortium, the Barcelona Municipal Education Institution and the BCN Vocational Training Foundation.

In addition to supporting educational activities such as the Classic Bus Rally, Transport Safety Education Day, educational activities on Car-Free Day, etc., TMB took part in the 15th Exporecerca event for young researchers at the Ramon Llull University's La Salle campus, and participated in school and university research projects.

Educational activities to counter vandalism and anti-social behaviour in public spaces included the 'I tu, com et mous?' (How do you get about?) campaign showing the problems caused by such behaviour on public transport.

The eighth training session for TMB Education monitors was given by specialists from the Pere Tarrés Foundation, focusing on emotional management in the promotion of educational activities.

Cooperation and Solidarity Master Plan

a) Encouraging volunteering
TMB currently has 616 registered volunteers including drivers, mechanics, TMB Education monitors, metro guides, day volunteers and volunteers with the Catalan drivers' charity Conductors Solidaris de Catalunya.

b) *Charitable services to provide transport for the disabled*
Thirty-six special bus services were provided with the help of 14 volunteer drivers, who gave 180 hours of their time to help 648 people. New workshops were held to develop the independence of disabled metro users, during which 12 volunteer guides spent 48 hours working with 98 disabled users.

TMB currently has five cooperation agreements with social institutions in this area: the Guttmann Institute, ONCE, the Pere Mitjans Foundation, the Sant Jordi Amputees Association and ASPAYM Catalunya, and also works on occasion with six other organisations.

c) *AMB Metropolitan Council on International Cooperation for Development*
Four meetings were held in the year by the AMB Metropolitan Council on International Cooperation for Development, of which TMB is a full member. With respect to the last donation of buses in Gambia, TMB has requested the mandatory follow-up report to assess the implementation of the project.

d) *Publicity and support for charities*
During the year TMB donated advertising space and media to 46 social organisations as part of the 'TMB Recomana' programme. In conjunction with the Blood and Tissue Bank of Catalonia, TMB organised the second edition of the blood donation campaign in the metro. Over a three-day period 346 donors gave blood.

e) *"Tria la teva causa" (Choose your cause) and "Mou-te 2015" (Get moving 2015)*
Each year TMB's employees choose a charitable cause to support and in 2015 the cause chosen was children's rights.

To this end, TMB worked together with the Casal dels Infants and the UNICEF Committee in Catalonia on the design and implementation of a programme of awareness raising activities during the last quarter of 2015: "Mou-te pels drets dels infants" (Get moving for children's rights). The image for the campaign was created with the voluntary support of three Metro and Bus employees who provided pictures of their childhood, together with photos of themselves today.

Heritage

—Agreement on the management of the document and image archives
This year saw the completion of the project under which TMB handed over its documentary resources to the Barcelona Contemporary Municipal Archive to ensure the resources are appropriately stewarded, conserved and publicised and made available for consultation.

TMB is also considering the cession of its collection of original photographs to the Barcelona Photographic Archive when a detailed inventory has been prepared so that they too will be appropriately stewarded, conserved and publicised and made available for consultation. This year the Barcelona Contemporary Municipal Archive will organise an exhibition on 150 years of transport based on documentation provided by TMB, to be displayed in the Espai Mercè Sala.

—Barcelona to Caldes de Montbui Classic Bus Rally
On June 13, the vehicles were on display in Avinguda de la Reina Maria Cristina and the next day the rally to Caldes de Montbui took place. This activity was organised jointly with ARCA and Sagalés. The following buses took part: Dodge, Aclo, Chausson, Pegaso 3036, Man Bus turístic, Pegaso 7092 and Pegaso 5139.

—Vintage train runs
On the night of 15 to 16 April, the vintage 300 series train made another journey at night with a period flavour. Later, from 18 to 19 November, the same train again ran at night on the occasion of BcnRail. This activity was organised jointly with Fira de Barcelona.

—Rental of vehicles
The rental of historical vehicles to companies and private customers increased in the year. During the year TMB rented several vehicles for the production of television commercials, including the Pegaso 7092 in spots for PayPal and Lenor, the Pegaso 3036 in advertisements for BNP and Right Guard, and the Chausson for the Massimo Dutti commercial.

—Vehicle maintenance
The Foundation's vehicles require constant maintenance and conservation work which is carried out at the Triangle Ferroviari Bus and Metro workshops.

—Maintenance and restoration of murals and works of art in the metro.
TMB is assessing a joint project with Grup Patrimoni 2.0, a group of historians, architects, art restorers, etc. with a view to maintaining and restoring the works of art on the metro network. This group will organise visits and guided tours, which are scheduled to be launched before summer 2016, so that the profits obtained can be used to finance the maintenance and restoration of the works. This project will not involve any cost to TMB or the TMB Foundation.

Bus and Metro Universal Accessibility Master Plan

a) *Key developments in 2015*

—**Improved audio system on buses:** at the beginning of the year the measures based on the agreement with the Municipal Institute for the Disabled had been completed. These involved the promotion of an action plan to improve the user information system on buses, providing better audio communication for people with visual disabilities. The changes have led to significant improvements and are currently being evaluated.
—**Effects of works in Avinguda Diagonal on bus stops:** at the beginning of the year a number of on site meetings were held between TB and the services responsible for mobility, public roads, street furniture and parks and gardens to agree on a common position regarding the most suitable location for stops and the elimination of barriers to ensure accessibility.
—**New mobility options:** in the light of the new Law 13/2014 of 30 October, on accessibility, and the forthcoming regulations implementing it, TMB presented a document to the Ministry of Social Welfare requesting specific regulations governing the access of electric scooters and similar vehicles to public transport. In connection with this issue, the Ombudsman's Office in Barcelona has just ruled on a complaint by a user, acknowledging the reports submitted by TMB and the measures it has taken.
—**Care for the elderly:** in view of a significant number of requests, a study is being performed into the possibilities of access for the users of devices such as walking frames, who ask to use the ramp to board the bus.
—**Recognition:** Transports Metropolitans de Barcelona was selected as a finalist in the third Ability Awards, a prestigious prize given in recognition of companies' commitment to improving the quality of life and opportunities of disabled people.

—**Projects for R&D in info-accessibility:** the Vodafone Spain Foundation, the ONCE Foundation and the TMB Foundation are working together on two info-accessibility projects to improve the social integration of the disabled.
—**Barcelona Accessibility Plan:** the Municipal Institute for the Disabled has just convened the first meeting of the different municipal sectors in Barcelona and has invited TMB as a representative of mobility, to begin work on defining the new accessibility plan for the city, as required by the new Catalan law on accessibility. At present inventories and audits are being prepared for each sector.

b) *The TMB Universal Accessibility Committee*

Accessibility measures were grouped under ten key projects that respond to the challenges facing TMB and deal with all aspects of infrastructure, rolling stock and services. The following measures were taken:

—**Information accessibility on buses:**
The measures are described in the section "Developments, improvements and projects".
—**Bus engineering:** improvements to access systems (ramps and kneeling)
Within the European EVADER project (electric vehicle alert for detection and emergency response) work is being carried out on the problems for blind people posed by electric vehicles in urban areas (because of the absence of noise). TMB is working with IDIADA to analyse their impact on public transport vehicles.
The Bus Technical Division has presented a report on the reliability of bus ramps in recent years with proposals for preventive and corrective maintenance.
—**Training:** raising employees' awareness and providing the technical and operational knowledge needed for them to respond to users with functional diversity.
Priority was given to internal Bus trainers who have included awareness of persons with disabilities in training programmes aimed at new drivers and in ongoing CAP training for drivers.
Safety measures in Bus operations: maximising attention to users in the event of incidents.

The indicators for accidents and incidents involving people with disabilities on buses remained stable, as did the number of failures of vehicle ramps.

Key Metro developments in 2015:

—Installation of tactile paving: the Metro Infrastructure Service has planned and installed tactile paving at the following stations: Universitat (L1 and L2), Vall d'Hebron (L3), Passeig de Gràcia (L4), Sants Estació (L5), Hospital de Bellvitge (L1), Catalunya (L1), Trinitat Vella (L1), Fondo (L1) and La Pau (L4).

Metro Universal Accessibility Committee
Accessibility measures were grouped under ten key projects that respond to the challenges facing TMB and deal with all aspects of infrastructure, rolling stock and services. The following measures were taken:

—**FMB infrastructures:**
TMB has carried out improvements in the accessibility of the entire metro network, especially with regard to the installation of tactile paving in ticket halls and corridors and on platforms to guide the visually impaired to trains.

The following stations were adapted during the year: Rambla Just Oliveras (L1) and Poble Sec (L3). Work is in progress at three stations:
- — Collblanc (L5) and Zona Universitària (L3) because of work on Line 9 (forthcoming opening to coincide with the opening of Line 9 Sud).
- — Poble Nou (L4).

Projects are being drafted for the following five stations but no work has been scheduled as yet: Jaume I (L4), Vallcarca (L3) for 2016, and the interchanges at Verdaguer (L4 and L5) and Clot (L1) for the period 2016-2017.

GISA is drawing up the project for Maragall (L4 and L5) having drafted the construction project but with no work scheduled. In the case of Plaça de Sants (L1 and L5), Espanya (L1 and L3), Urquinaona (L1 and L4) and Ciutadella-Vila Olímpica (L4) projects are being prepared and no work has been scheduled.

—**Metro information accessibility:**
The ONCE, Vodafone and TMB Foundations are currently testing their project to implement a mobile application which is compatible with beacon technology; small signal-emitting devices.

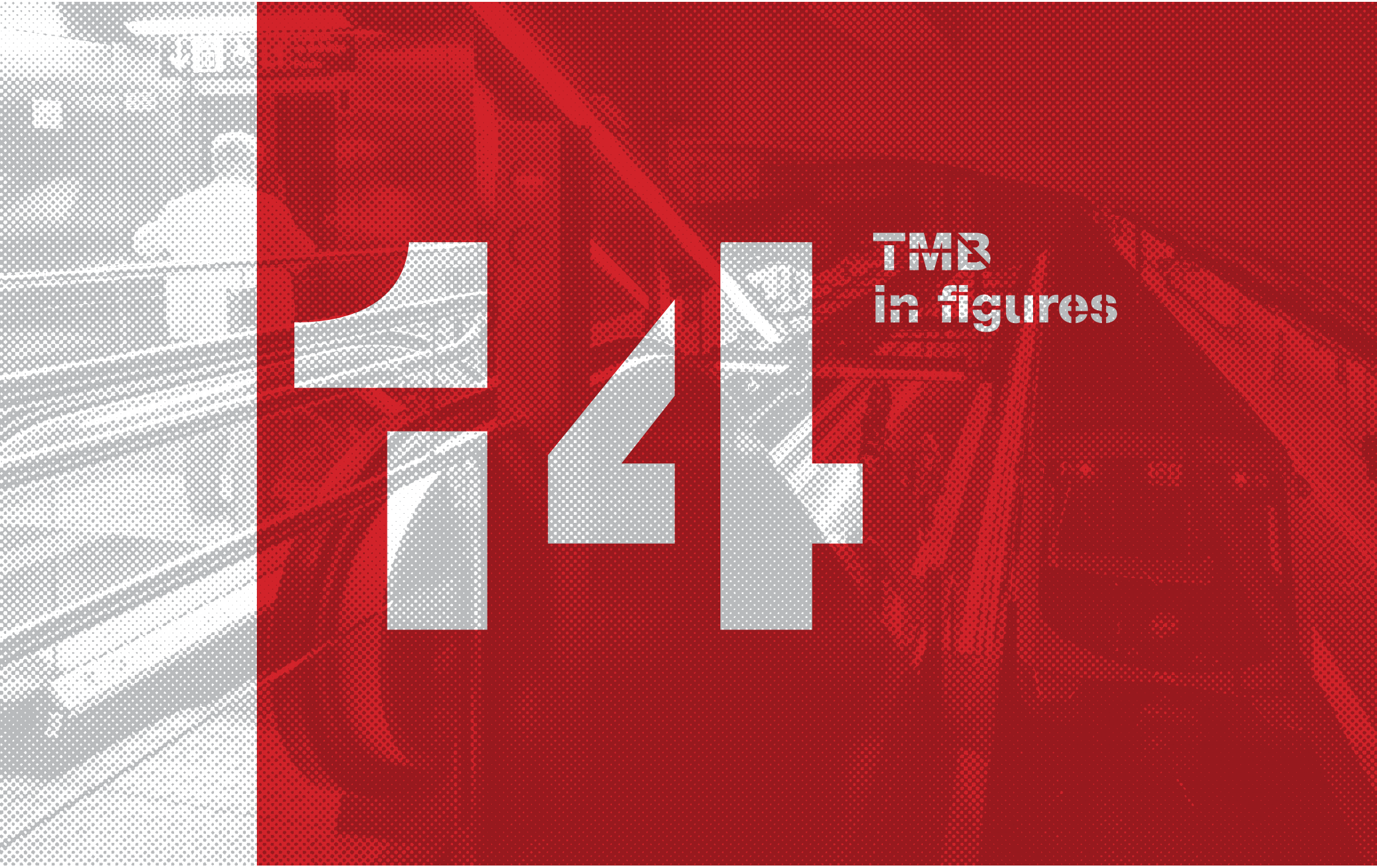
—**Signage and corporate information:**
All signage on the new section of Line 9 Sud is being evaluated for accessibility.

—**Lifts:**
In November the Committee completed its review of 14 lifts that displayed anomalies and decided what corrective maintenance work was necessary. This has already begun. The lifts at Fondo and Hospital de Bellvitge on L1, and Tetuan and Sant Antoni on L2 were completely renovated.

—**Metro civil defence:** protocols are being established to guarantee the safety of people with functional diversity in trains and infrastructures.

The Committee identified issues that may hinder communication, to resolve issues such as making SOS posts easier to identify. Appropriate changes have already been made at the ten stations it reviewed.

Cooperation agreements were signed with seven local councils, the Emergency Medical System, the Unitat de Traumes, Crisis i Conflictes de Barcelona, and the Directorate-General for Civil Defence, taking care to include accessibility issues when drafting them.


24
TMB
in figures

Bus network figures

Network figures at 31 December 2015	Total
Number of lines (a)	100
Length of the network (a)	873,18
Number of stops (a):	**2,548**
with bus shelter:	1,342
with bus stop pole:	1,206
Kilometres of bus lane	163.6

(a) Excluding special Bus Turístic and Tramvia Blau services and lines 80, 81, 82 and 83 which are contracted out to Sagalés.

Fleet figures at 31 December 2015	Number of vehicles
Standard buses:	**630**
Diesel:	239
CNG:	262
Diesel and electric hybrids:	113
GNC and electric hybrids:	13
Electric only:	3
Articulated buses:	**284**
Diesel:	156
CNG:	128
Midibuses (diesel):	**23**
Minibuses (diesel):	**47**
Double-decker buses (diesel):	**67**
Open-top buses (diesel):	**6**
Double-articulated buses (diesel and electric hybrids)	**3**
Total fleet	**1,060**

Fleet breakdown by fuel type:	Number of vehicles
Diesel buses:	**538**
CNG buses:	**390**
Hybrid buses:	**129**
diesel and electric hybrids	116
GNC and electric hybrids	13
Electric buses	**3**
Total fleet	**1,060**

Buses adapted for people with limited mobility	1,060
Buses equipped with air conditioning (b)	1,054
Fleet required for service (weekday rush hour, winter)(c)	834

Notes:
(b) The difference with the fleet total is due to the open-top buses.
(c) The difference between total vehicles and the fleet required for service (which excludes the Bus Turístic service) corresponds to the operational fleet in reserve and vehicles undergoing maintenance or official vehicle roadworthiness tests (ITV).

Bus lines in service at 31 December 2015

Line	Route	Distance in km (*)
6	Pg. Manuel Girona - Poblenou	8.11
7	Fòrum - Zona Universitària	10.60
11	Trinitat Vella - Roquetes	13.53
13	Mercat de Sant Antoni - Parc de Montjuïc	6.91
14	Pla de Palau - Bonanova	7.72
19	Pl. Urquinaona - Sant Genís	10.51
20	Estació Marítima - Pl. Congrés	9.14
21	Paral·lel - El Prat	16.91
22	Pl. Catalunya - Av. Esplugues	8.84
23	Pl. Espanya - Parc Logístic	7.08
24	Paral·lel - El Carmel	8.77
26	Poblenou - Barri del Congrés	7.39
27	Pl. Espanya - Roquetes	11.46
32	Estació de Sants - Roquetes	11.63
33	Zona Universitària - Verneda	10.86
34	Pg. Manuel Girona - Pl. Virrei Amat	10.54
36	Pg. Mar. - Can Dragó	11.90
37	Hospital Clínic - Zona Franca	7.88
39	Barceloneta - Horta	12.02
40	Pl. Urquinaona - Trinitat Vella	10.99
41	Pl. Catalunya - Pl. Francesc Macià	4.49

Line	Route	Distance in km (*)
42	Pl. Catalunya - Santa Coloma	12.58
45	Pg. Marítim - Horta	12.00
46	Pl. Espanya - Aeroport BCN	17.95
47	Pl. Catalunya - Canyelles	9.47
50	Collblanc - Trinitat Nova	14.04
51	Pla de Palau - Ciutat Meridiana	12.03
54	Estació del Nord - Campus Nord	10.81
55	Parc de Montjuïc – Pl. Catalana	10.67
57	Collblanc - Cornellà	7.61
58	Pl. Catalunya - Av. Tibidabo	5.31
59	Poblenou - Pl. Reina Maria Cristina	11.07
60	Pl. Glòries - Zona Universitària	20.39
62	Pl. Catalunya - Ciutat Meridiana	13.38
63	Pl. Universitat - Sant Joan Despí	12.43
64	Barceloneta - Pedralbes	10.77
65	Pl. Espanya - El Prat	12.55
66	Pl. Catalunya - Sarrià	7.66
67	Pl. Catalunya - Cornellà	13.13
68	Pl. Catalunya - Cornellà	13.88
70	Rambla de Badal - Bonanova	4.30
73	La Maquinista - Pl. John F. Kennedy	12.16

Bus lines in service at 31 December 2015

Line	Route	Distance in km (*)
75	Les Corts - Av. Tibidabo	7.79
76	Sant Genís - Ciutat Meridiana	11.85
78	Estació de Sants - Sant Joan Despí	14.27
79	Pl. Espanya - <M> Av. Carrilet	8.42
90	Bus Turístic de Nit	10.95
91	Rambla - La Bordeta	4.87
92	Gràcia - Pg. Marítim	12.28
94	Barri Almeda - Fontsanta	4.32
95	Barri Almeda - Pl. Fontsanta	5.33
96	<M> La Sagrera - Montcada i Reixac	12.48
97	Fabra i Puig - Vallbona	5.06
99	Bus Turístic Ruta Fòrum	3.78
100	Bus Turístic Sud	11.73
101	Bus Turístic Nord	9.00
102	Pl. Eivissa - Cementiri de Collserola	10.45
103	Montcada i Reixac - Cementiri de Collserola	12.38
104	Fabra i Puig - Cementiri de Collserola	10.78
107	Interior Cementiri	4.00
109	Estació de Sants - Polígon Ind. Zona Franca	11.18
110	<M> Av. Carrilet - Polígon Ind. Zona Franca	6.68

Line	Route	Distance in km (*)
111	Tibidabo	3.20
113	La Mercè	3.42
114	Gràcia - Can Baró	4.40
115	La Bordeta	2.98
116	La Salut	3.63
117	Guinardó	5.09
118	Mas Guimbau	8.61
119	La Teixonera	5.07
120	El Raval	4.85
121	Poble Sec	2.63
122	Turó de la Peira	4.64
123	Bonanova Alta	3.87
124	Penitents	2.65
125	La Marina	5.01
126	Sant Andreu	5.56
127	Roquetes	5.96
128	El Rectoret	8.51
129	El Coll	2.53
130	Can Caralleu	3.68
131	El Putxet	2.50

Bus lines in service at 31 December 2015

Line	Route	Distance in km (*)
132	Torre Llobeta - Prosperitat	3.39
143	La Pau - Sant Adrià	5.36
150	Pl. Espanya - Castell de Montjuïc	5.09
155	Can Cuiàs - Sta. M. de Montcada	10.15
157	Collblanc - Sant Joan Despí	7.71
165	Pratexprés	12.43
185	<M> Canyelles - Sant Genís	8.34
192	Hospital de Sant Pau - Poblenou	4.73
194	Tramvia Blau	1.27
196	Pl. Kennedy - Bellesguard	2.12
V3	Zona Franca - Can Caralleu	8.67
H6	Zona Universitària - Fabra i Puig	9.67
V7	Pl. Espanya - Sarrià	5.04
H8	Camp Nou - La Maquinista	12.88
H10	Badal - Olímpic de Badalona	13.16
H12	Gornal - Besòs Verneda	11.28
H14	Paral·lel - Sant Adrià	10.03
V15	Barceloneta - Vall d'Hebron	10.22
H16	Passeig de la Zona Franca - Fòrum	12.10
V17	Port Vell - Carmel	8.72

Line	Route	Distance in km (*)
D20	Pg. Marítim - Ernest Lluch	9.26
V21	Pg. Marítim - Montbau	9.45
V27	Pg. Marítim - Canyelles	11.04

(*) Based on the average of the outward and return journeys.

Main measures affecting the Bus network

The day-to-day work of the Technical Office for Traffic is vital for the proper functioning of the service, as the constant changes to routes and bus stops affect the everyday lives of internal and external customers. Among other measures, the Office has carried out the following at street level, as a result of revisions to town planning and work on infrastructures in Barcelona:

— *Provisional work*
  — Development of Trinitat Nova district.
  — Development of Av. Paral·lel / Sant Pau / Aldana.
  — Development of Putxet.
  — Plaça de les Glòries development.
  — Ronda General Mitre.
  — Travessera de Dalt.

— *Definitive work*
  — New bus network (phase IV).
  — Change of route for line 120.
  — Change of route for line H8.
  — Reorganisation of terminals in Passeig Marítim.
  — Line 78 extended to Ciutat Esportiva Joan Gamper.
  — Extension of line 59 to Poblenou cemetery.
  — Extension of line 116.
  — Modification of line 34 terminal in Av. Borbó.

— *Special measures*
  — Shuttle for the Mobile World Congress.
  — Montjuïc funicular railway shuttle (on 2 occasions).
  — Metro L5 shuttle.
  — Metro L9 shuttle (on 2 occasions).
  — Metro L10 shuttle.
  — Shuttle to Festa dels Súpers (3 services).
  — Shuttle services linking the healthcare centre in Carrer Lisboa with centres in Horta-Cadí-Carmel-Sant Rafael.

Special bus services

Main special services for trade fairs and events and metro shuttles		Start date	Duration (days)	Hours in service
Trade fairs	Northern shuttle MWC 2015	2/3/15	4	286:26
	Southern shuttle MWC 2015	2/3/15	3	372:19
	NoviaEspaña 2015	5/5/15	6	292:26
	ESCRS	4/9/15	6	165:10
	ESPE Meeting 2015	1/10/15	3	38:09
	MS Convergence	29/11/15	4	135:00
	UEG Week	24/10/15	5	127:16
	VMworld 2015	11/10/15	5	284:40
	Biocultura	7/5/15	4	126:50
	Hewlett Packard ETSS	2/2/15	5	76:43
	International Motor Show	7/5/15	11	132:00
	080 Barcelona Fashion	30/6/15	4	78:50
				2115:49
Metro substitute services	Montjuïc cable car (breakdown)	1/1/15	133	2583:24
	Shuttle <M> L5 Vall d'Hebron - Horta	10/8/15	21	2106:30
	Shuttle <M> L9 Can Peixauet - Bon Pastor	8/8/15	11	381:06
	Shuttle <M> L9 and L10	5/8/15	4	579:37
	Montjuïc cable car (maintenance)	2/11/15	In operation until 13/3/16	
				5071:00

Main special services for trade fairs and events and metro shuttles		Start date	Duration (days)	Hours in service
Other services	Shuttle Club Super 3 2015	17/10/15	2	336:27
	Shuttle CAP Lisboa-Horta-Sant Rafael	2/11/15	12	242:50
	Shuttle CAP Lisboa-Carmel	2/11/15	12	235:00
	Primavera Sound 2015	28/5/15	2	116:56
	Shuttle to car park Super 3 2015	17/10/15	2	97:22
	Funeral for the victims of Germanwings crash	27/4/15	1	87:11
				1115:46

A number of special services were studied and designed during 2014 for events affecting TMB (Fira de Barcelona events, events at Montjuïc, city events such as the Mercè and Gràcia festivals, and Christmas). Special services include rental of rolling stock and facilities for shuttles, filming and publicity sessions.

At the end of 2014 an agreement was signed with B:SM to renew the contract for cooperation in covering events at the Olympic site with special bus services. The contract will be automatically renewed at the end of the current year for an indefinite period.

Metro network figures

The main data for the metro network, on December 31, 2015, were as follows:

Line	km	Number of stations	Trains programmed in rush hour	Rush-hour service frequency
1	20.7	30	26	3' 44"
2	13.1	18	19	3' 28"
3	18.4	26	26	3' 21"
4	17.3	22	19	4' 00"
5	18.9	26	30	2' 58"
9 i 10	11.1	12	6 i 4	3' 00''
11	2.3	5	2	7' 30"
Funicular	0.8	2	2	10' 00"
Total en red	**102.6**	**141**	**134**	

Line 11 has three trains each with two coaches and the other lines have five-coach trains.
Cable car: 2 trains of 3 coaches.
The 3' 00" service frequency corresponds to the common stretch on L9/10, on individual stretches frequency is 6' 00".

Note: the length of the network corresponds to the total distance in kilometres between the ends of lines (including service track not used by passengers).

Of the network's 141 stations, including the Montjuïc funicular railway, 99 are non-interchange stations, 15 allow passengers to change to one other line and 4 allow them to change to two others.

Metro rolling stock (excluding funicular) at 31 December 2015 consisted of 162 five-coach trains and 3 two-coach trains. Of the total of 816 coaches, 654 are motor cars and 162 are trailer cars. The following table gives a breakdown by series:

	Motor cars	Trailer cars	Total coaches	Total trains	
2000-series	24	6	**30**	**6**	
2100-series	60	15	**75**	**15**	
3000-series	72	18	**90**	**18**	
4000-series	96	24	**120**	**24**	
5000-series	156	39	**195**	**39**	
6000-series	40	10	**50**	**10**	
9000-series	200	50	**250**	**50**	
500-series (*)	6	0	**6**	**3**	
Total coaches	**654**	**162**	**816**	**162**	**five-coach trains**
				3	**two-coach trains**

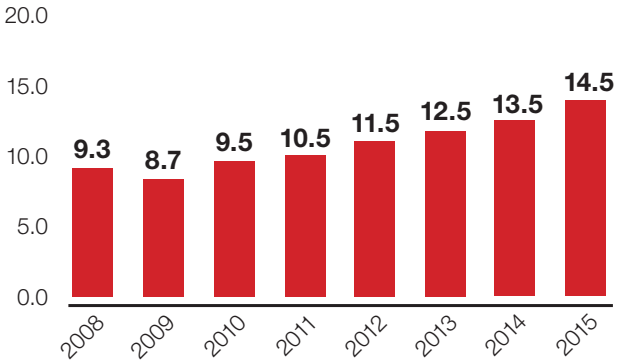
(*) 500-series trains have two coaches

The Montjuïc funicular has two units, each consisting of three coaches.

As new trains have not been added to the fleet in recent years, its average age has risen each year since 2009 reaching 14.5 years in 2015 (the working life of a train is between 30 and 35 years).

It should also be borne in mind that for some years now it has been normal practice to remodel trains when they are approaching the age of twenty years, which entails technical modifications and changes to their appearance and equipment. In 2015 work started on the refurbishment of the 2000-series trains.

Average train age (Years)



The average age of the trains varies according to the line (see chart below). Although the oldest units are on L1 and L3, the trains in the 4000 and 3000 series running on these lines were remodelled in previous years, which has enabled their working life to be extended.

Average train age by line (2015)

	L1	L2	L3	L4	L5	L9/10	L11	Total
Average train age (years)	21.4	8.6	23.0	12.8	9.5	6.4	12.0	**14.5**

Note: does not include the 2 trains on the Montjuïc funicular railway.

Barcelona Bus Turístic and Tramvia Blau

The Barcelona Bus Turístic has been running since 1987, operated jointly by Turisme de Barcelona and TMB. There are 45 stops on three lines, the Blue and Red lines, which run all year round, and the Green line, which ran from 27 March to 1 November in 2015, allowing visitors to discover the most attractive parts of the city quickly and comfortably. The service provides an audio-guide, which has been extended to five more languages this year (Swedish, Norwegian, Arabic, Hebrew and Turkish), bringing the total to sixteen languages. A Turisme de Barcelona guide also travels on the bus. A guide to the routes is also available and there are discount vouchers for a range of attractions including the Tramvia Blau, the Montjuïc cable car and the Catalunya Bus Turístic, plus well-known museums and buildings.

The Barcelona Bus Turístic by Night service ran from 5 June to 13 September, following a route which shows visitors the city's best known buildings lit up and the Magic Fountain of Montjuïc.

The Barcelona Bus Turístic has its own website (www.barcelonabusturistic.cat) and has a presence in social media with Facebook and Twitter, using them for special promotions. This year the website's positioning was optimised for the major internet search engines.

In September 2015 the online sales platform Barcelona Smart Moving (www.barcelonasmartmoving.com) was launched in six languages to promote leisure transport in Barcelona, and sell TMB products.

During the year new cultural and gastronomic attractions were added, offering users discounts for leisure and cultural activities, museums, food and drink, special forms of transport, shopping, and other services. Marketing work has also been done at various tourism fairs and national and international workshops.

As a pilot project, a tourism package called "Bcn Enjoy" has been created, which includes the Barcelona Bus Turístic, Montjuïc cable car, the Colom monument observation point, a wine tasting, and the golondrina pleasure boats.

The Barcelona Bus Turístic was awarded a certificate of excellence by TripAdvisor for the third year running. The award recognises excellent hospitality and is granted to businesses that receive very favourable reviews from travellers through TripAdvisor. In a recent survey, travellers on the Barcelona Bus Turístic gave an average score of 8.2 (on a scale of 10), which is the highest achieved so far, and 99.3% of respondents said that they would recommend it.

In 2015 a new stop was added on the Blue route: Diagonal-Les Corts.

The integrated PA system (content and scripts) was also upgraded on the entire fleet, and the system changed from analogue to digital on four buses.

The system for sales was adapted to the new integrated OciCommerce system so that information about the details of sales was up to date at all times, so the service can be reinforced if necessary. A project for purchasing new double-decker vehicles was launched with a view to using them in 2016.

The Tramvia Blau, which is over 100 years old, runs between Plaça de John F. Kennedy and Plaça del Doctor Andreu. In 2014 tram number 5 incorporated, as a prototype, real speed control using GPS. In 2015 the same improvement was introduced on trams 6 and 7.

TMB workforce

At 31 December 2015 the total active TMB workforce (excluding the company which operates the Montjuïc cable car) was 7,773. By company, the figure for FMB was 3,555 and for TB 4,221. The numbers include 476 partially retired employees whose jobs are linked to relief contracts.

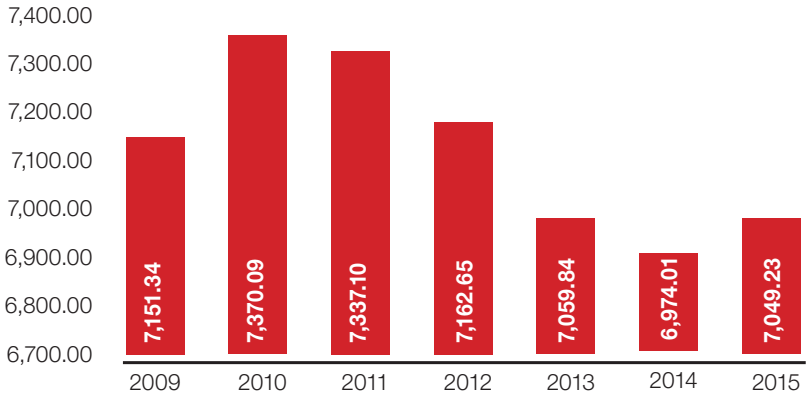
Standardised average workforce (excluding Montjuïc cable car)

	2015	2014	Diff.	%
FMB	3,140.45	3,123.67	16.78	0.54%
TB	3,908.78	3,850.34	58.44	1.52%
TMB	**7,049.23**	**6,974.01**	**75.22**	**1.1%**

TMB's standardised average annual workforce in 2015 (as measured by hours per employee/year), excluding Telefèric de Montjuïc and TMB SL, was 7,049.23, a decrease of 75.22 compared with the previous year.

The chart shows the standardised average workforce in recent years. Numbers decreased from 2010 to 2014 but the trend was reversed in 2015, when TMB staff numbers increased.

Average standardised workforce in TMB (excluding Montjuïc cable car and TMB, SL)

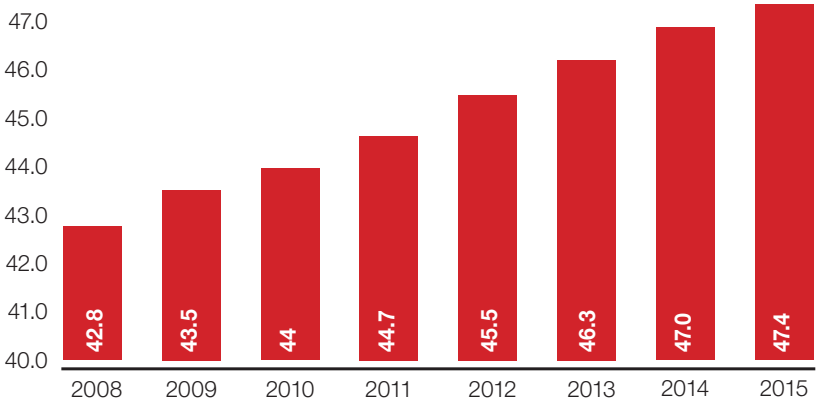


FMB's standardised average workforce was 3,140.45, an increase of 17 people compared with the previous year. This growth is due mainly to the staff hired to bring the new section of L9 from Zona Universitària to airport Terminal T1 into service on 12 February 2016.

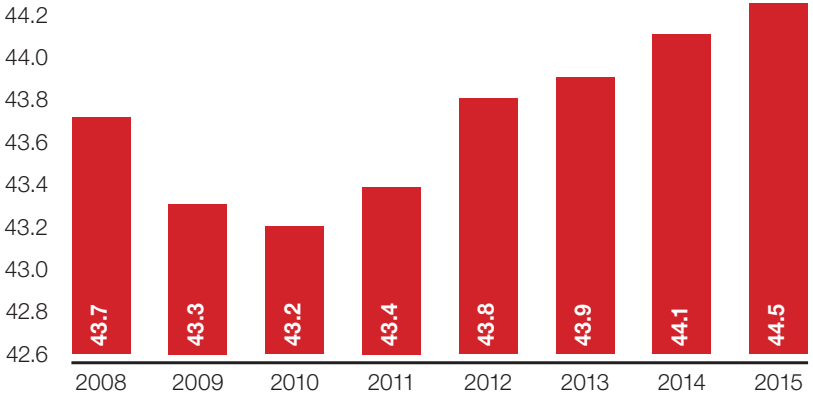
Transports de Barcelona's standardised average workforce was 3,908.78, a year-on-year increase of 58.44. The increase was mainly accounted for by drivers and is the result of extending the service offered following the implementation of the quality improvement plan launched in the first quarter of the year.

The average age of FMB staff at 31 December 2015 was 44.5 years, while that of TB employees was 47.4 years. The reduction in staff numbers in recent years has been accompanied by a progressive ageing of the workforce of both companies.

Change in average age of TB workforce



Change in average age of FMB workforce



TB staff

TB staff at 31 December

Transports de Barcelona's active workforce at 31 December 2015 was 4,221 employees, 93 fewer than at the close of the previous year. This number includes 216 partially retired employees whose jobs are linked to relief contracts.

However, the average annual standardised workforce (the average number of employees in terms of hours per employee and year), increased by 58.44 employees, with the 2014 average of 3,850.34 employees rising to 3,908.78 in 2015. The increase was mainly accounted for by drivers and is the result of extending the service offered following the introduction of the Bus quality improvement plan launched in the first quarter of the year.

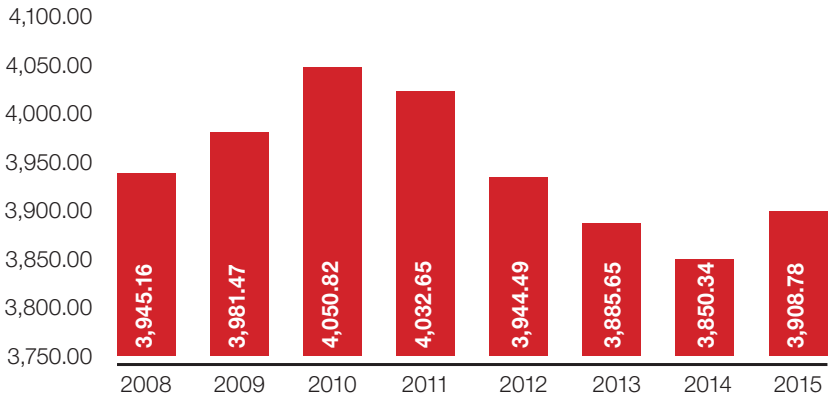
TB average standardised workforce at 31 December

	2015	2014	Diff.	%
Average standardised workforce (*)	3,908.78	3,850.34	58.44	1.52%

(*) Average annual workforce by hours per employee/year.

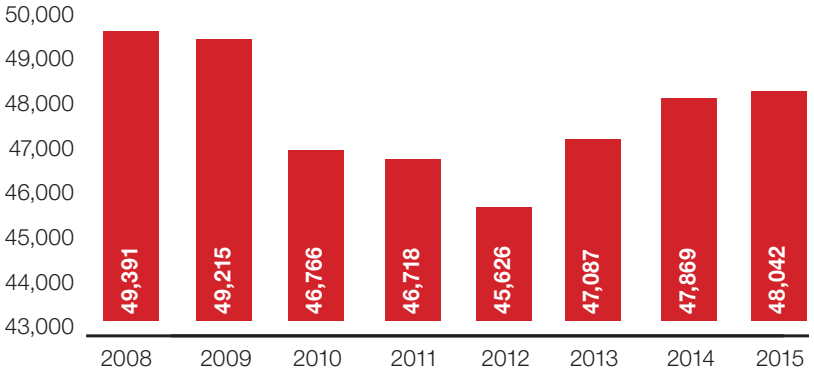
From the year 2010 there was a reduction in TB staff, especially after 2012, as a result of the implementation of the plan for rationalisation in that year. However, in 2015 the number of workers increased as a result of the plan to improve the service available.

Change in TB average standardised workforce



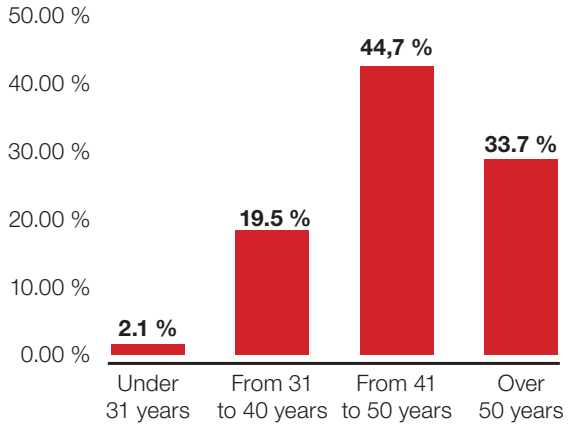
The introduction of measures to adjust supply to demand has helped improve the ratio of passengers to TB employees in recent years. In 2015 the average number of passengers per employee was 48,042, a slightly higher figure than that for the previous year (+ 0.4%).

Change in no. of passengers per TB employee



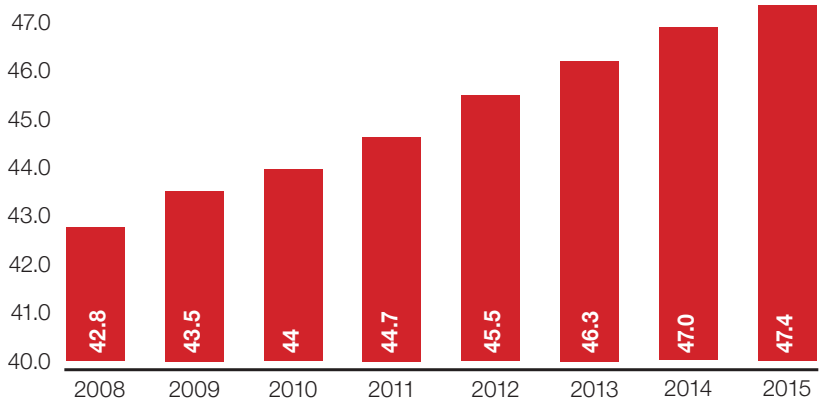
The following chart shows the breakdown of the workforce by age at 31 December 2015. The greatest number of employees, 44.7% of the total workforce, is concentrated in the 41 to 50 year age bracket.

Age breakdown of TB workforce (2015)



The average age of the active workforce at 31 December 2015 stood at 47.4 years, slightly higher than the figure for the previous year (47.0 years).

Change in average age of TB workforce



The reduction in staff numbers in recent years has been accompanied by a progressive ageing of the workforce. The average age of the workforce increased by 4.6 years in the period from 2008 to 2015. In 2008 44.9% of the workforce was under the age of 41 and by 2015 this had fallen to just 21.6%, a drop of 23.3 percentage points in six years.

FMB staff

FMB staff at 31 December

Ferrocarril Metropolità de Barcelona, SA had a total of 3,555 employees at 31 December 2015. This number includes 260 partially retired employees whose jobs are linked to relief contracts.

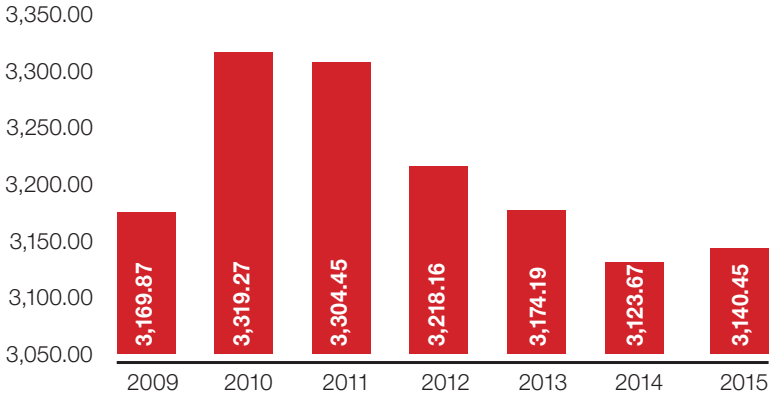
However, the average annual standardised workforce (the average number of employees in terms of hours per employee and year), was 3,140.45, which is 16.8 employees more than the previous year. This growth is due mainly to the staff hired to bring the new section of L9 from Zona Universitària to airport Terminal T1 into service on 12 February 2016.

Ferrocarril Metropolità de Barcelona, SA average standardised workforce

	2015	2014	Diff.	%
Average standardised workforce (*)	3,140.45	3,123.67	16.78	0.54%

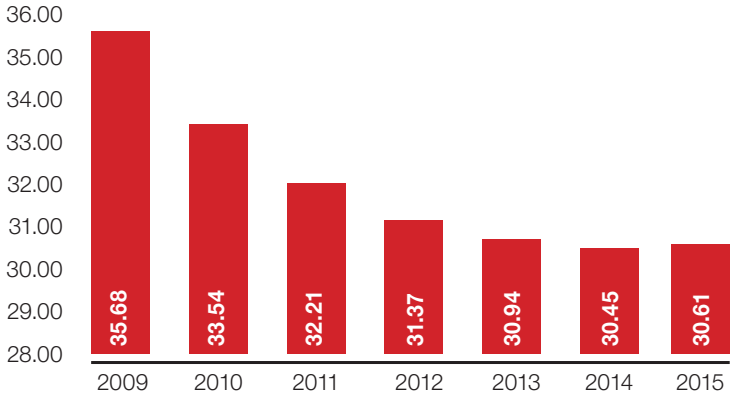
(*) Average annual workforce by hours per employee/year.

Average standardised workforce in FMB



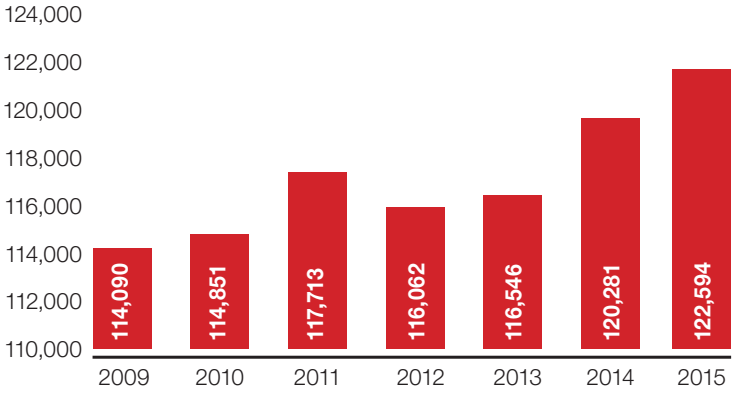
The following chart shows that the workforce fell from 2010 to 2014. The decrease was more pronounced after 2012 as a result of the resource rationalisation plan launched that year. In 2015 numbers rose to provide service on the new section of the L9 Sud that will be opened in February 2016.

Employees per km of metro network



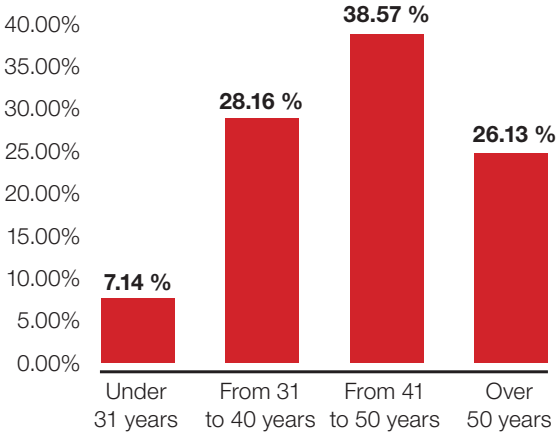
These changes in the workforce have mainly been possible thanks to improvements in productive and organisational processes and the implementation of new technologies, resulting in an overall improvement in productivity. The chart above shows the average number of employees per network kilometre fell from 35.68 in 2009 to 30.61 in 2015. In terms of demand, there was also a significant improvement in the ratio of passengers per employee, especially in the last two years.

Change in no. of passengers per metro employee

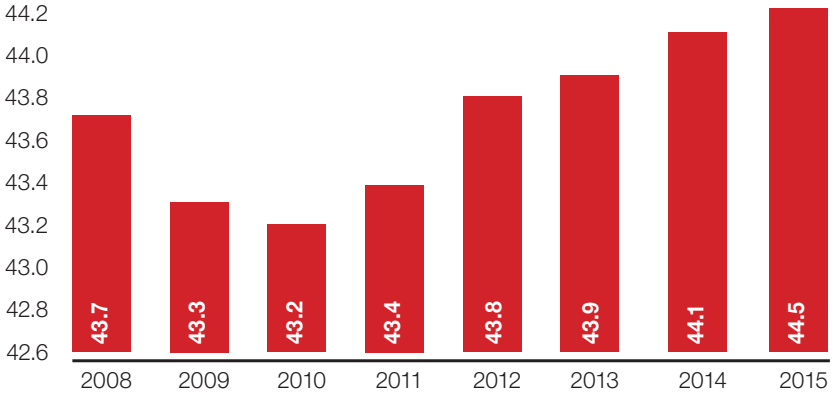


The average age of the workforce was 44.53 years in 2014, a slight increase on the previous year when the figure was 44.13 years. The greatest number of employees, 38.6% of the total workforce, is concentrated in the 41 to 50 year age bracket.

Metro workforce breakdown by age (2015)



Change in average age of FMB workforce



The decrease in staff in recent years has been accompanied by a gradual ageing of the staff in the company. The average age of the workforce increased from 43.2 years to 44.5 years in the period 2010 to 2015. While 53% of the workforce was under the age of 41 in 2010, this had fallen to just 35.3% by 2015, a drop of 18 percentage points in five years.

Montjuïc cable car staff at 31 December

On 31 December 2015 the staff of the cable car comprised 28 people (6 drivers and 22 auxiliary staff).

The annual retraining programme included a workshop on communication and engagement for all employees.

During 2015 additional staff needed to be taken on in two periods: in spring and in summer. Given the proximity of the two periods, the two hiring processes were combined to optimise resources, selecting some summer staff during the spring campaign.

In 2015 15 people were selected, 13 of whom joined the staff (7 women and 6 men), the other two remaining in reserve for any eventualities. Applicants were typically young students with a good command of English. In all cases contracts were temporary (cover for employees who were on sick leave or taking summer holidays).

In line with TMB's policy of developing internal resources, the annual retraining programme included a workshop on communication and engagement for all employees.


15
Economic
measures

Investment in TB

Investment in tangible assets in 2015 totalled 19.75 million euros, corresponding to 17.57 million euros in property, plant and equipment and 2.18 million in changes to the value of PP&E under construction. A further 1.34 million euros were invested in intangible assets.

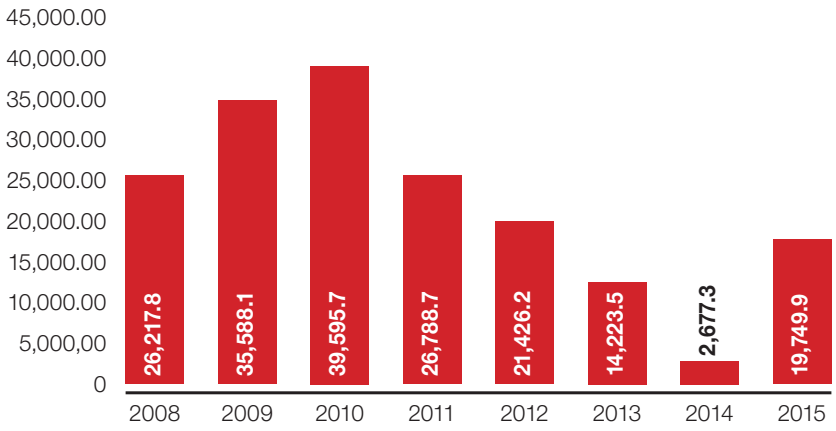
Item	Thousands of euros
Intangible assets:	**1,339.1**
Industrial property rights	3.5
Computer software	1,335.6
Property, plant and equipment:	**16,226.3**
Buildings and constructions	247.8
Machinery, equipment and tools	1,295.1
Furniture and fittings	53.2
IT equipment	143.5
Vehicles	14,477.1
Spare parts	9.6
Subtotal	**17,565.4**
Change in PP&E in progress	2,184.5
Total	**19,749.9**

By volume, the most significant investment was in the following areas:
—Computer applications: this corresponds to investment in the planning and provision of service, improvements in HR SAP, the Cret@ project, and investment aimed at the commercial management of leisure transport, among others.
—Investment in buildings and other constructions mainly relate to improvements to the first floor and entrances to the Triangle Business Operations Centre, and the union premises and lighting in the courtyard of the Zona Franca Business Operations Centre.
—Investment in machinery, equipment and tooling corresponds mainly to fire-fighting systems and air conditioning in the Horta and Triangle depots, and the walkway for repairing buses in the Zona Franca Business Operations Centre annex.
—Investment in vehicles corresponds basically to 4 double-decker buses, 27 articulated hybrid buses and 6 minibuses.

The 2,184,500 euros allocated to changes in PP&E under construction corresponds basically to 92,860 euros in advances and 2,091,640 euros of investment in inspection terminals, new work at the Horta depot, new premises and investment in the ZeEUS project at the Triangle Business Operations Centre, facilities at the Zona Franca Business Operations Centre and MouTV screens for the new fleet, among others.

The chart shows investment by Transports de Barcelona for 2008-2015, with a clear decline from 2010. This drop was due to economy measures designed to reduce the companies' financing needs, obliging them to prioritise investment and optimise available resources. In 2015 the trend was reversed and investment rose to 19.75 million euros, still well below levels before 2010.

Change in investments in TB
(Thousands of euros)



Investment in FMB

Investment in tangible assets in 2015 totalled 25.81 million euros, corresponding to 12.61 million euros in property, plant and equipment and 13.19 million in changes to the value of PP&E under construction. A further 1.7 million euros were invested in intangible assets.

Item	Thousands of euros
Intangible assets:	**1,695.9**
Studies and projects	0.0
Computer software	1,695.9
Property, plant and equipment:	**10,916.2**
Land and natural assets	0.0
Buildings and constructions	266.9
Fixed installations	3,997.5
Machinery, equipment and tools	1,441.7
Sub-stations	138.1
Furniture and fittings	292.8
IT equipment	744.5
Vehicles	2,163.8
Spare parts	1,870.9
Property investments	**0.0**
Investment in land and other assets	0.0
Subtotal	**12,612.1**
Change in PP&E in progress	13,194.9
Total	**25,807.0**

The most significant investments were the following:

— *Investments in intangible assets:*
  — The computer applications include those that extend the functions of SAP, the SAP HR module and the Cret@ project, and applications for the planning and allocation of service.

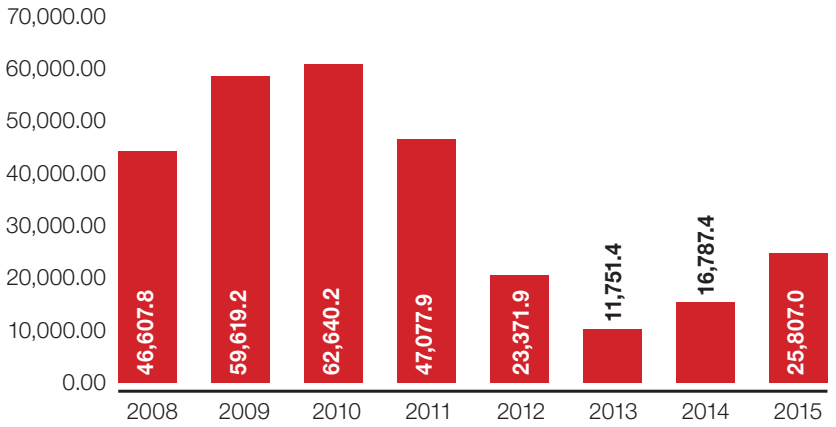
— *Investments in PP&E:*
  — In connection with buildings and other constructions significant investment was made in fitting out the workshop at La Sagrera.
  — Under "fixed installations", the most important investments were in anti-vibration fastenings, the front and back crossover at Vall d'Hebron, the consolidation of tunnels and structures at several stations, changes to points on section IV of L9 and replacement of points at the entrance to the workshop and the end-of-track buffers in the Vilapicina workshop, among others.
  — Investment in machinery, equipment and tools included anti-vandalism panels for trains at Can Boixeres, rail greasing equipment, a washing tunnel at Roquetes and the bogey cleaning machine at La Sagrera.
  — Investment in substations included network analysers at the Fabra i Puig substation.
  — Investment in furniture and fittings included furniture in the ZAL workshop, and the replacement of computers, servers and hard drives for video surveillance on series 500, 3000, and 4000 trains.
  — Investments in vehicles correspond mainly to derailment detectors on the 9000 series trains, and front doors and the Wi-Fi system on the same series.

— Most of the expenditure under the spare parts heading was on parts for trains.

The change in PP&E in progress corresponds mainly to movements in the balances for this account. They refer mainly to investment in the renewal of the Montjuïc funicular railway, the MPLS transmission network, communications rooms, improving the safety of escalators, the refurbishment of trains in the 2000 series, the Santa Coloma power substation (high-voltage cells), the renovation of lifts, the consolidation of the structure of Baró de Viver, raising platforms at Diagonal (L3) and investment in measures aimed at the renewal of the environmental licence for Sant Genís, among others.

The chart shows that investments in the Metro business declined significantly after 2010. This drop was due to measures designed to reduce the company's financing needs, obliging them to prioritise investments and optimise available resources. From 2014 investments rose, reaching 25.8 million in 2015, although they are still well below levels prior to 2010.

Change in investments in FMB
(Thousands of euros)



Investment in Montjuïc cable car

Investment in the company in 2015 amounted to 366,600 euros. The largest amounts correspond to:
—IT applications (sales management system).
—Fixed installations: corresponds basically to investments in ticket barriers.
—Machinery, equipment and tools: investments allocated to the new system for ticket sales.
—Change in PP&E in progress: mainly corresponds to the redesign of entrances to cable car stations.

Item	Thousands of euros
Intangible fixed assets:	**238.9**
Computer software	238.9
Property, plant and equipment:	**102.9**
Buildings and constructions	0.0
Fixed installations	54.7
Machinery, equipment and tools	27.0
Furniture and fittings	7.4
IT equipment	5.4
Vehicles	0.0
Spare parts	8.4
Subtotal	**341.8**
Change in PP&E in progress	24.8
Total	**366.6**

Consolidated income statement of the TMB Group

The Spanish economy began to grow in 2015, but the recovery is still weak. The companies in the group continued to apply measures to rationalise spending, with a commitment to continue providing service with certain standards of quality. One aspect that should be noted is that in 2015 TMB operated within the stable reference framework specified in the 2014-2017 programme signed on 6 November 2014 and the 2014-2031 framework plan for refinancing debt in the public transport system, approved on 6 March 2014 by the ATM Board of Directors.

2015 was also marked by the preparatory work for the launch of the southern section of metro line 9, scheduled for 12 February 2016. Despite the 10.65 million euro reduction in subsidies, profits before tax increased by 1.1% compared with the previous year, reaching 5.26 million euros. Operating income and expenditure are detailed below:

—Operating revenues:

The total revenues of the TMB consolidated group (excluding service subsidies) increased by 5.6 million euros (1.4%) on the previous year. The main increase was due to an increase in income from sales of 5.6 million euros (1.5%) thanks largely to the increase in TMB passenger numbers. Other operating revenues increased by 0.5%. Within this area the strongest growth was in income from advertising, fees for external cooperation advisory services, and income from services to government bodies and the ATM. However, special subsidies decreased by 90,000 euros (0.9%).

—Operating expenses:

Total operating expenses before amortisation and depreciation increased by 4.56 million euros (0.7%) on the previous year. As net amortisation and depreciation fell by 4.36 million euros, total operating costs after amortisation and depreciation were 717.63 million euros, a very similar figure to that for the previous year.

The largest increases were for supplies, up by 657,000 euros (3.8%), operating staff costs, which increased by 4.6 million euros (1.3%) and external services, which rose by 3.8 million euros (1.7%), together with impairments and losses on the sale of fixed assets. In external services, the largest increases were the costs of repairing and maintaining vehicle and fixed facilities, security and surveillance, the transport and handling of funds, expenditure on IT work and cleaning stations, among others.

There was a reduction of 4.69 million euros (8.8%) in the costs of fuel and energy compared with 2014. The decrease occurred both in the cost of diesel and natural gas in buses and electricity in Metro. In the first case, this was basically a result of the fall in the average price of fuel in 2015 and, in the case of Metro, a reduction in the average price per kWh and a decrease in the consumption of electric power thanks to measures introduced to save electricity.

—Other expenses:

Net depreciation and amortisation (after capital subsidies transferred to the year) fell by 4.36 million euros (7.4%) compared to the previous year and financial expenses decreased by 4.89 million euros, thanks to the reduction of structural financial expenses. The ATM-TMB programme contract, signed on 6 November 2014, regulates all the obligations arising from the refinancing and restructuring agreement for the transport system until 2031. This contract defines the rights and obligations arising from the granting of a 472.3 million euro loan to FMB, which acts as the system's financial instrument. The aim of this operation is to refinance the cumulative debt of the transport system up to 2013 and cover the shortfalls for the years 2014 to 2016 envisaged in the framework plan approved by the ATM. The ATM is committed to paying FMB a subsidy over the years 2014-2031 equivalent to FMB's obligations under the agreement for refinancing and restructuring the transport system to ensure that FMB has the necessary resources to meet the repayments at all times, including amortisation of the principal, interest and any other financial expense related to the operation.

Consolidated income statement of the TMB Group (en miles de euros)			2015	2014	Difference	% Diff.
A) CONTINUING OPERATIONS	**Revenues**	Sales	386,685	381,074	5,611	1.5
		Other operating revenues	20,999	20,899	100	0.5
		Special subsidies	9,493	9,583	-90	-0.9
		Service subsidies	323,267	333,921	-10,654	-3.2
	Total Revenues		**740,443**	**745,477**	**-5,034**	**-0.7**
	Operating expenses	Supplies	17,907	17,250	657	3.8
		Electricity/fuel	48,826	53,516	-4,691	-8.8
		Operations personnel	369,406	364,787	4,619	1.3
		Contribution to the supplementary pensions system:	657	798	-141	-17.7
		Supplementary pension system for retirement contingencies	*0*	*0*	*0*	
		Supplementary pension system for risk-related contingencies	*657*	*798*	*-141*	*-17.7*
		Personnel in redundancy scheme	616	346	270	78.0
		External services	222,064	218,286	3,778	1.7
		Taxes other than income tax	786	711	75	10.5
		Changes in provisions	2,174	3,062	-888	-29.0
		Impairment losses and gains / losses on disposal of assets	875	-10	885	
	Total expenses before depreciation and amortisation		**663,311**	**658,747**	**4,564**	**0.7**
		Amortisation and depreciation	64,170	69,288	-5,118	-7.4
		Capital grants taken to income	-9,853	-10,610	757	-7.1
	Net amortisation and depreciation		**54,318**	**58,678**	**-4,360**	**-7.4**
	Total Operating expenses		**717,629**	**717,425**	**204**	**0.0**
	Financial expenses	Financial expenses due to write-off of the programme contract	16,014	14,907	1,107	7.4
		Structural financial expenses	2,218	8,215	-5,997	-73.0
	Total Financial expenses		**18,232**	**23,122**	**-4,890**	**-21.1**
	Share of profits in companies consolidated by the equity method		**672**	**298**	**375**	**125.9**
	Profit before tax		**5,254**	**5,228**	**27**	**0.5**
	Corporate income tax		**4**	**-26**	**30**	**-114.1**
	CONSOLIDATED PROFIT FOR THE YEAR FROM CONTINUING OPERATIONS (after corporate income tax)		**5,258**	**5,202**	**56**	**1.1**
B) DISCONTINUED OPERATIONS	**CONSOLIDATED PROFIT FOR THE YEAR FROM DISCONTINUED OPERATIONS (after corporate income tax)**		**0**	**0**	**0**	
PROFIT FOR THE YEAR			**5,258**	**5,202**	**56**	**1.1**

TB Income statement

The Spanish economy began to grow in 2015, but the recovery is still weak. TMB's companies continued to apply measures to rationalise spending, with a commitment to continue providing service with certain standards of quality. In 2015 TMB operated within the stable reference framework specified in the 2014-2017 programme signed on 6 November 2014 and the 2014-2031 framework plan for refinancing debt in the public transport system, approved on 6 March 2014 by the ATM Board of Directors.

—Operating income

Total revenues for 2015, excluding service subsidies, increased by 2.2 million euros, a 1.6% increase on the previous year. This increase is due to improved sales on the regular bus network and higher other operating revenues. Income from the sale of tickets rose by 1.59 million euros, a 1.2% increase, thanks to the increase in passenger numbers. In 2015, unlike previous years, fares were frozen and the price of the T-10 travel card was reduced, as were the prices of some subsidised social travel cards.

Commission and discounts were similar to those in the previous year, increasing by 0.4%.

Other operating revenues rose by 0.83 million euros, an increase of 13.8% with respect to the previous year, thanks to the growth of income from advertising and receipts from Ferrocarril Metropolità de Barcelona, SA for the special bus service replacing the Montjuïc funicular railway when it was not running during its technical overhaul. Special subsidies fell by 3.9%, mainly because lower subsidies were received for projects in which TMB participated.

Finally, revenues from pensions, which have no net effect on the income statement, were up by 72,000 euros.

—Operating expenses

Operating expenses before depreciation and amortisation increased by 3.4% over the previous year, mainly as a result of rising staff costs and variations in supplies. With regard to staff costs, which rose by 2.9%, it is worth noting that in 2015 there was an increase in the number of drivers as a result of the more extensive bus service offered as part of the quality improvement plan, launched in the first quarter of the year.

On the other hand, the cost of diesel and natural gas used in buses fell, thanks to the drop in oil prices in 2015, leading to savings of 2.9 million euros (12.4%).

External services grew by 0.38 million euros (1.1%) with respect to the previous year. The most significant increases were for the repair and maintenance of vehicles and buildings and other constructions, IT work, publicity and communication, technical assistance and studies, and security expenses. However, savings were achieved in the cost of insurance.

Under other headings, the cost of supplies increased by 0.53 million euros (5.7%) and taxes rose by 16.2%, mainly as a result of the increase in the tax on property and the tax on fluorinated gases.

—Other expenses

Net amortisation and depreciation (excluding capital grants taken to income) fell by 1.29 million euros (5.4%) mainly because of lower depreciation charges on vehicles and spare parts. Capital subsidies decreased by 1.4 million euros with respect to the previous year, basically because of the drop in capital subsidies from the 2002-2004 Contract programme.

Financial expenses also decreased significantly, down by 4.72 million euros compared with the previous year, all corresponding to structural financial costs. The ATM-TMB programme contract, signed on 6 November 2014, regulates all the obligations arising from the refinancing and restructuring agreement for the transport system until 2031. This contract defines the rights and obligations arising from the granting of a 472.3 million euro loan to FMB, which acts as the system's financial instrument. The aim of this operation is to refinance the cumulative debt of the transport system up to 2013 and cover the shortfalls for the years 2014 to 2016 envisaged in the framework plan approved by the ATM. The ATM is committed to paying FMB a subsidy over the years 2014-2031 equivalent to FMB's obligations under the agreement for refinancing and restructuring the transport system to ensure that FMB has the necessary resources to meet the repayments at all times, including amortisation of the principal, interest and any other financial expense related to the operation.

Finally, because the increase in revenue was 1 million euros less than the increase in costs, the subsidies needed for the income statement to break even rose by 0.6% in 2015 compared with the previous year.

INCOME STATEMENT (in thousands of euros)

			(1) 2015	(2) 2014	Difference (1) - (2)	(%)
A) CONTINUING OPERATIONS	**Revenues**	Sales	136,703	135,116	1,587	1.2
		Fees and discounts	-9,618	-9,583	-35	0.4
		Additional revenue	6,804	5,978	827	13.8
		Pension plan revenues	530	458	72	15.7
		Special subsidies	6,181	6,433	-252	-3.9
		Service subsidies	158,998	157,993	1,005	0.6
	Total Revenues		**299,599**	**296,395**	**3,204**	**1.1**
	Operating expenses	Supplies	9,800	9,271	529	5.7
		Electricity/fuel	20,629	23,553	-2,923	-12.4
		Personnel	207,331	201,397	5,934	2.9
		Contribution to the supplementary pensions system:	530	458	72	15.7
		Supplementary pension system for retirement contingencies	0	0	0	
		Supplementary pension system for risk-related contingencies	530	458	72	15.7
		External services	33,975	33,598	377	1.1
		Taxes other than income tax	576	496	80	16.2
		Changes in provisions	4,025	-1,109	5,135	
		Gain/loss on sale of fixed assets	-9	-11	2	
	Total expense before depreciation and amortisation		**276,859**	**267,653**	**9,206**	**3.4**
		Amortisation and depreciation	27,154	29,882	-2,728	-9.1
		Capital grants taken to income	-4,818	-6,261	1,443	-23.0
	Net amortisation and depreciation		22,336	23,621	-1,285	-5.4
	Total Operating expenses		**299,195**	**291,274**	**7,921**	**2.7**
	Financial expenses	Finance expenses due to write-off of the programme contract	0	0	0	
		Structural financial expenses (including leases)	404	5,120	-4,717	-92.1
	Total Financial expenses		**404**	**5,120**	**-4,717**	**-92.1**
	Profit before tax		**0**	**0**	**0**	
	Corporate income tax		0	0	0	-
	Profit for the year from continuing operations (after corporate income tax)		**0**	**0**	**0**	
B) DISCONTINUED OPERATIONS	**Profit for the year from discontinued operations (after corporate income tax)**		**0**	**0**	**0**	
PROFIT FOR THE YEAR			**0**	**0**	**0**	

FMB Income statement

The Spanish economy began to grow in 2015, but the recovery is still weak. TMB's companies continued to apply measures to rationalise spending, with a commitment to continue providing service with certain standards of quality. In 2015 TMB operated within the stable reference framework specified in the 2014-2017 programme signed on 6 November 2014 and the 2014-2031 framework plan for refinancing debt in the public transport system, approved on 6 March 2014 by the ATM Board of Directors.

The year was also marked by the preparatory work for the launch of the southern section of metro line 9, scheduled for 12 February 2016.

The items reported in FMB's income statement for 2015 and the comparative figures for the previous year are as follows:

—Revenues:

Total revenues for the year, excluding service subsidies, increased by 3.11 million euros, a 1.16% increase on the previous year. This was principally due to increased ticket sales. Receipts increased by 2.8 million euros (+ 1.1%) because of the increase in the number of passengers. It should be borne in mind that in 2015, unlike previous years, fares were frozen and the price of the T-10 travel card was reduced, as were the prices of some subsidised social travel cards. Moreover, commission and volume discounts decreased by 5.4% compared to the previous year.

Other operating revenues were 209,000 euros higher than in the previous year, an increase of 1.3%. The greatest increases were for revenue from advisory services for international cooperation projects and income from providing services to government bodies.

Special subsidies rose by 162,000 euros (5.1%), mainly as a result of the subsidy received for the SEAM4US project, while revenues from pensions, which are offset against pensions expenses in the income statement, fell by 213,000 euros.

—Operating expenses:

Operating expenses before amortisation and depreciation fell by 4.66 million euros (1.2%) compared with the previous year, thanks to reductions under every expense heading except external services and losses on the sale of fixed assets.
One of the expenses that decreased most was energy, which was down 1.78 million euros (5.9%) as a result of a reduction in energy consumption and a fall in the average price per kWh. As noted in previous sections, an energy efficiency plan was implemented in the year with measures to save on electricity consumption and reduce the energy bill. Staff costs were reduced by 1.21 million euros and provisions decreased by 6.0 million euros.

The cost of external services increased by 3.76 million euros (2.0%). The greatest increases were for the cost of repair and maintenance of vehicles, security and surveillance, the amount paid to Transports de Barcelona for the special bus service to replace the Montjuïc funicular railway when service was suspended for its technical overhaul, the cost of transporting and handling receipts, IT work and cleaning stations.

Finally, the cost of the supplementary pension for risk-related contingencies was reduced by 213,000 euros, although this has no effect on the income statement.

— *Other expenses:*

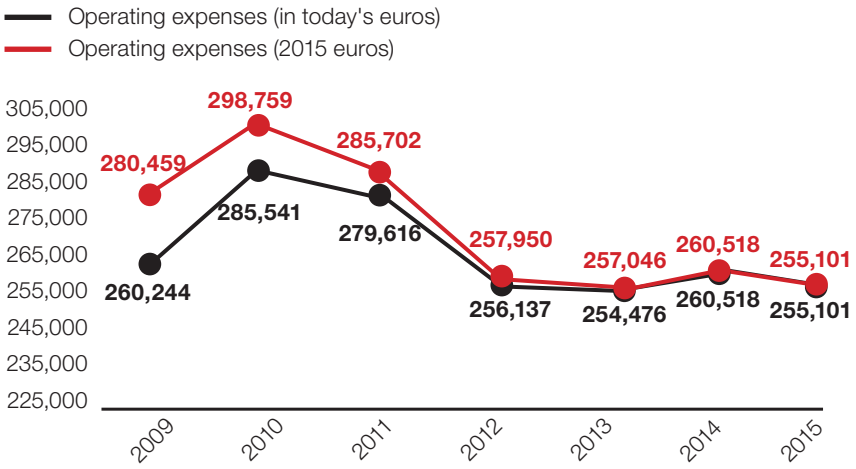
Net amortisation and depreciation (excluding capital grants taken to income) fell by 2.56 million euros (7.6%) due to lower depreciation charges on machinery, tools and equipment, and the amortisation of IT applications together with a 686,000 euro increase in capital subsidies.

Total financial expenses decreased by 1.33 million euros as a result of the reduction in structural financial expenses. The ATM-TMB programme contract, signed on 6 November 2014, regulates all the obligations arising from the refinancing and restructuring agreement for the transport system until 2031. This contract defines the rights and obligations arising from the granting of a 472.3 million euro loan to FMB, which acts as the system's financial instrument. The aim of this operation is to refinance the cumulative debt of the transport system up to 2013 and cover the shortfalls for the years 2014 to 2016 envisaged in the framework plan approved by the ATM. The ATM is committed to paying FMB a subsidy over the years 2014-2031 equivalent to FMB's obligations under the agreement for refinancing and restructuring the transport system to ensure that FMB has the necessary resources to meet the repayments at all times, including amortisation of the principal, interest and any other financial expense related to the operation.

Finally, as a result of the increase in income and the efforts made to reduce costs, the subsidy needed for the income statement to break even decreased by 11.5 million euros compared with the previous year.

The following chart shows operating expenses over recent years at historic cost and at 2015 prices for the period 2009-2015. These expenses include supplies, power, staff costs, external services, pensions, taxes other than income tax and changes in provisions. Train leases, charges for L9 and the losses on sales of fixed assets are not included.

FMB Operating expenses
(excluding train leases and L9/10 charges)
(Thousands of euros)



Operating expenses have fallen in real, inflation- adjusted, terms since 2010 thanks to major cost cutting measures. At 2015 prices, operating expenses were 43.66 million euros (14.6%) lower than in 2010.

Income statement (in thousands of euros)			(1) 2015	(2) 2014	Difference (1) - (2)	(%)
A) CONTINUING OPERATIONS	**Revenues**	Fees and discounts	254,604	251,818	2,786	1.1
		Non-operating income	-2,817	-2,979	162	-5.4
		Pension plan revenues	15,748	15,538	209	1.3
		Special subsidies	127	340	-213	-62.6
		Service subsidies	3,311	3,150	162	5.1
		Service subsidies for train leases and L9/L10 charges	164,268	175,928	-11,659	-6.6
	Total Revenues		**435,241**	**443,795**	**-8,554**	**-1.9**
	Operating expenses	Supplies	7,871	7,926	-55	-0.7
		Electricity/fuel	28,072	29,846	-1,775	-5.9
		Personnel	161,769	162,980	-1,211	-0.7
		Contribution to the supplementary pensions system	127	340	-213	-62.6
		External services	58,930	55,031	3,899	7.1
		Taxes other than income tax	183	223	-40	-17.9
		Changes in provisions	-1,851	4,171	-6,022	-144.4
	Total expense before depreciation and amortisation		**386,479**	**391,138**	**-4,659**	**-1.2**
		Amortisation and depreciation	36,256	38,126	-1,869	-4.9
		Capital grants taken to income	-5,035	-4,350	-686	15.8
	Net amortisation and depreciation		**31,221**	**33,776**	**-2,555**	**-7.6**
	Total Operating expenses		**417,700**	**424,914**	**-7,214**	**-1.7**
	Financial expenses	Financial expenses due to write-off of the programme contract	16,014	14,907	1,107	7.4
		Structural financial expenses (including leases)	1,527	3,964	-2,437	-61.5
	Total Financial expenses		**17,541**	**18,871**	**-1,330**	**-7.0**
	Profit before tax		**0**	**10**	**-10**	
	Corporate income tax		**0**	**-10**	**10**	
	Profit for the year from continuing operations (after corporate income tax)		**0**	**0**	**0**	
B) DISCONTINUED OPERATIONS	**Profit for the year from discontinued operations (after corporate income tax)**		**0**	**0**	**0**	
PROFIT FOR THE YEAR			**0**	**0**	**0**	

Note: External Services includes train lease expenses totalling 74,646 billion euros in 2015 and 76,075 million euros in 2014.
This amount also included 55,848 million for charges for L9/10 (54,554 million in 2014).

Income Statement of Projectes i Serveis de Mobilitat, SA

Total income for the year after tax was 4.92 million euros, an increase of 0.3% on the previous year. However, excluding financial income, net operating profit was 4.85 million euros, i.e. 0.80 million euros more than the previous year, an improvement of 19.8%. The fact that total income for the year rose only 0.3% is due to the decline in financial income, which fell by 0.81 million euros, as a result of the decrease in financial assistance to the two companies in the Group: Ferrocarril Metropolità de Barcelona, SA and Transports de Barcelona, SA.

Income statement of Projectes i Serveis de Mobilitat, SA

(in euros)			2015	2014	Difference	% Diff.
A) CONTINUING OPERATIONS	**Operating revenues**	Sales	7,164,212.15	6,702,341.47	461,870.68	6.9
		Other operating revenues	208,870.01	235,651.54	-26,781.53	-11.4
	Total Revenues		**7,373,082.16**	**6,937,993.01**	**435,089.15**	**6.3**
	Operating expenses	Supplies	35,793.84	53,143.00	-17,349.16	-32.6
		Electricity/fuel	124,648.85	117,049.70	7,599.15	6.5
		Operations personnel	866,593.38	756,516.83	110,076.55	14.6
		External services	745,078.01	678,597.50	66,480.51	9.8
		Taxes other than income tax	1,346.12	1,560.96	-214.84	-13.8
		Changes in provisions	-813.25	269.82	-1,083.07	
	Total expenses before depreciation and amortisation		**1,772,646.95**	**1,607,137.81**	**165,509.14**	**10.3**
		Amortisation and depreciation	746,267.71	1,280,627.43	-534,359.72	-41.7
	Total Operating expenses		**2,518,914.66**	**2,887,765.24**	**-368,850.58**	**-12.8**
	Net operating income		**4,854,167.50**	**4,050,227.77**	**803,939.73**	**19.8**
		Net financial income	-58,608.04	-869,906.89	811,298.85	-93.3
	PROFIT / LOSS FROM CONTINUING OPERATIONS (before corporate income tax)		**4,912,775.54**	**4,920,134.66**	**-7,359.12**	**-0.1**
	Corporate income tax		-7,560.00	15,912.97	-23,472.97	-147.5
	PROFIT / LOSS FROM CONTINUING OPERATIONS (after corporate income tax)		**4,920,335.54**	**4,904,221.69**	**16,113.85**	**0.3**
B) DISCONTINUED OPERATIONS	**PROFIT / LOSS FROM DISCONTINUED OPERATIONS (after corporate income tax)**		**0.00**	**0.00**	**0.00**	
NET PROFIT / LOSS			**4,920,335.54**	**4,904,221.69**	**16,113.85**	**0.3**

The improvement in net profit from operations was the result of an increase in revenue of 0.44 million euros with a decrease in expenses plus depreciation of 0.37 million euros.
Cable car ticket sales increased by 462,000 euros (6.9%) thanks to increased passenger numbers and fare increases at the beginning of the year.

Other operating revenues fell by 26,800 euros (11.4%), mainly because of a decline in income from external technical support services.

Operating expenses before amortisation and depreciation rose by 10.3%. This included an increase in staff costs of 110,100 euros (due to the increase in the average workforce for the year), 66,500 euros more for external services, and an increase of 7,600 euros in the cost of electricity and fuel. The cost of external services grew basically because of the costs of promotion and communication, the transport and handling of receipts, expenditure on repairs and maintenance of machinery, premises and tools, and vehicles, among others.

However, there was a 17,300 euro reduction in expenditure on supplies, taxes other than income tax and changes in provisions.

Finally, the reduction in allocations to amortisation and depreciation of 534,400 euros is mainly due to changes in the amortisation and depreciation of buildings and other constructions.

Capitalisation of major repair project for the cable car: modelling of assets

Following the major overhaul carried out in 2014, which involved considerable additional investment in the fixed assets of Projectes i Serveis de Mobilitat, SA, it worked with the Leisure Transport Maintenance Division to make the detailed inventory of the cable car more practical and realistic. The criteria for accounting for amortisation and depreciation were also reviewed to apply them to future renewals of assets, respecting the legal requirements of corporate income tax.

This had two benefits: the real useful lives of the components of the system and the figure used for accounting purposes were brought more closely into line and there is now an itemised breakdown of assets reflecting changes in real value.

Statement of TB financial position at 31 December (thousands of euros)

Transports de Barcelona, SA

		2015	2014	Diff.
ASSETS	**Non-current assets**	**264,735**	**271,528**	**-6,793**
	Intangible assets	8,932	9,117	-186
	Property, plant and equipment	209,657	216,898	-7,241
	Non-current investments in group and associated companies	5,572	5,304	268
	Non-current financial investments	40,575	40,210	366
	Current assets	**49,170**	**48,301**	**869**
	Inventory	4,019	4,161	-141
	Trade debtors and other receivables	42,572	41,907	665
	Current investments in group and associated companies	37	0	37
	Current financial investments	0	10	-10
	Current accruals and deferred income	43	95	-52
	Cash and cash equivalents	2,499	2,129	370
TOTAL ASSETS		**313,905**	**319,829**	**-5,924**
EQUITY AND LIABILITIES	**Equity**	**145,232**	**153,579**	**-8,347**
	Capital and reserves:	127,984	127,984	0
	Authorised capital	*8,415*	*8,415*	0
	Reserves	*119,569*	*119,569*	0
	Profit for the year	*0*	*0*	0
	Remeasurements	-1,343	-255	-1,087
	Subsidies, donations and legacies received	18,591	25,851	-7,260
	Non-current liabilities	**102,721**	**100,209**	**2,512**
	Non-current borrowings	102,721	100,209	2,512
	Current liabilities	**65,952**	**66,042**	**-89**
	Current provisions	7,224	1,038	6,187
	Current borrowings	23,454	27,544	-4,090
	Current payables to group and associated companies	0	0	0
	Trade creditors and other payables	31,161	30,923	238
	Current accruals and deferred income	4,113	6,537	-2,424
TOTAL EQUITY AND LIABILITIES		**313,905**	**319,829**	**-5,924**

Treasury shares

The company does not hold any treasury shares. No transactions with own shares were carried out during the year.

Payment terms to suppliers:

The average payment period to suppliers in 2015 was 36 days.

Recently the Company has been working to reduce supplier payment periods to bring the average payment period below the maximum specified in regulations on payment periods.

Statement of financial position of FMB at 31 December (thousands of euros)

Ferrocarril Metropolità de Barcelona, SA		2015	2014	Difference
ASSETS	**Non-current assets**	**823,695**	**818,322**	**5,373**
	Intangible assets	4,445	4,560	-116
	Property, plant and equipment	296,919	308,593	-11,674
	Property investments	0	0	0
	Non-current investments in group and associated companies	5,163	5,003	160
	Non-current financial investments	517,168	500,166	17,002
	Current assets	**71,076**	**75,669**	**-4,593**
	Inventory	5,116	5,617	-501
	Trade debtors and other receivables	29,999	25,833	4,166
	Current investments in group and associated companies	0	0	0
	Current financial investments	433	22	410
	Current prepayments and accrued income	443	616	-173
	Cash and cash equivalents	35,086	43,581	-8,495
TOTAL ASSETS		**894,771**	**893,992**	**779**
EQUITY AND LIABILITIES	**Equity**	**194,931**	**196,462**	**-1,531**
	Capital and reserves:	125,121	125,121	0
	Authorised capital	*10,227*	*10,227*	*0*
	Reserves	*114,894*	*114,894*	*0*
	Profit for the year	*0*	*0*	*0*
	Remeasurements	-21,148	-24,873	3,724
	Subsidies, donations and legacies received	90,958	96,214	-5,255
	Non-current liabilities	**592,811**	**568,899**	**23,911**
	Non-current borrowings	592,811	568,899	23,911
	Current liabilities	**107,030**	**128,631**	**-21,601**
	Current provisions	3,967	6,392	-2,425
	Current borrowings	40,077	31,322	8,755
	Trade creditors and other payables	59,940	81,906	-21,966
	Current accruals and deferred income	3,046	9,011	-5,966
TOTAL EQUITY AND LIABILITIES		**893,992**	**803,560**	**779**

Treasury shares

The company does not hold any treasury shares. No transactions with own shares were carried out during the year.

Payment terms to suppliers

The average payment period to suppliers in 2015 was 43 days.

Recently the Company has been working to reduce supplier payment periods to bring the average payment period below the maximum specified in regulations on payment periods.

Statement of financial position at 31 December (in thousands of euros)

(in euros)		2015	2014	Difference
ASSETS	**Non-current assets**	**10,207,887.29**	**10,808,145.10**	**-600,257.81**
	Intangible assets	300,167.63	120,586.83	179,580.80
	Property, plant and equipment	9,807,219.66	10,493,323.61	-686,103.95
	Non-current investments in group and associated companies	500.00	94,234.66	-93,734.66
	Non-current financial investments	100,000.00	100,000.00	0.00
	Current assets	**33,154,626.76**	**27,820,579.87**	**5,334,046.89**
	Inventory	59,829.70	30,140.43	29,689.27
	Trade debtors and other receivables	359,755.46	287,573.96	72,181.50
	Current investments in group and associated companies	178,345.42	0.00	178,345.42
	Current financial investments	9,879,975.00	20,001,021.70	-10,121,046.70
	Cash and cash equivalents	22,676,721.18	7,501,843.78	15,174,877.40
TOTAL ASSETS		**43,362,514.05**	**38,628,724.97**	**4,733,789.08**
EQUITY AND LIABILITIES	**Equity**	**42,895,372.53**	**37,975,036.99**	**4,920,335.54**
	Capital and reserves:	42,895,372.53	37,975,036.99	4,920,335.54
	Authorised capital	*10,003,100.00*	*10,003,100.00*	*0.00*
	Reserves	*27,971,936.99*	*23,067,715.30*	*4,904,221.69*
	Profit / loss for the year	*4,920,335.54*	*4,904,221.69*	*16,113.85*
	Non-current liabilities	**0.00**	**0.00**	**0.00**
	Non-current borrowings	0.00	0.00	0.00
	Current liabilities	**467,141.52**	**653,687.98**	**-186,546.46**
	Current borrowings:	44,489.56	285,802.18	-241,312.62
	Borrowings from credit institutions	*0.00*	*0.00*	*0.00*
	Other financial liabilities	*44,489.56*	*285,802.18*	*-241,312.62*
	Trade creditors and other payables:	400,845.96	350,855.80	49,990.16
	Suppliers	*17,589.96*	*26,132.95*	*-8,542.99*
	Suppliers, group and associated companies	*206,075.09*	*175,385.49*	*30,689.60*
	Sundry creditors	*93,427.71*	*106,230.46*	*-12,802.75*
	Personnel, salary payments pending	*19,560.85*	*17,646.19*	*1,914.66*
	Other payables to public authorities	*64,192.35*	*25,460.71*	*38,731.64*
	Current accruals and deferred income	21,806.00	17,030.00	4,776.00
TOTAL LIABILITIES		**43,362,514.05**	**38,628,724.97**	**4,733,789.08**

Consolidated statement of financial position of the TMB group at 31 December

(in thousands of euros)		2015	2014	Difference
ASSETS	**Non-current assets**	**1,092,971**	**1,094,795**	**-1,824**
	Intangible assets	13,815	13,798	17
	Property, plant and equipment	516,389	535,984	-19,595
	Property investments	0	0	0
	Non-current investments in group and associated companies	4,916	4,538	379
	Non-current financial investments	557,851	540,476	17,375
	Current assets	**152,349**	**133,282**	**19,067**
	Inventory	9,195	9,808	-613
	Trade debtors and other receivables	71,552	49,517	22,034
	Current financial investments	10,491	20,033	-9,542
	Current prepayments and accrued income	486	710	-225
	Cash and cash equivalents	60,624	53,213	7,411
TOTAL ASSETS		**1,245,320**	**1,228,078**	**17,242**
EQUITY AND LIABILITIES	**Equity**	**377,534**	**382,154**	**-4,620**
	Capital and reserves:	290,476	285,218	5,258
	Authorised capital	*18,642*	*18,642*	*0*
	Reserves	*266,578*	*261,376*	*5,202*
	Prior year losses	*-2*	*-2*	*0*
	Profit for the year	*5,258*	*5,202*	*56*
	Remeasurements	-22,491	-25,128	2,637
	Subsidies, donations and legacies received	109,549	122,064	-12,515
	Non-current liabilities	**695,532**	**669,108**	**26,424**
	Non-current borrowings	695,532	669,108	26,424
	Current liabilities	**172,254**	**176,816**	**-4,562**
	Current provisions	11,192	7,430	3,762
	Current borrowings	63,609	59,151	4,458
	Trade creditors and other payables	90,268	94,670	-4,401
	Current accruals and deferred income	7,185	15,565	-8,381
TOTAL LIABILITIES		**1,245,320**	**1,228,078**	**17,242**

Treasury shares

The group's companies do not hold any treasury shares. No transactions with own shares were carried out during the year.

Payment terms to suppliers

The average payment period to suppliers by Ferrocarril Metropolità de Barcelona, SA was 43 days in 2015, for Transports de Barcelona, SA it was 36 days, for Projectes i Serveis de Mobilitat, SA it was 73 days, and for TMB, SL it was 27 days.

Recently the three companies have been working to reduce supplier payment periods to bring the average payment period below the maximum specified in regulations on payment periods.


16
Significant
events after the
close of the year

After the close of the year there were no significant events that are not included in the budget and operational plans for 2016.

The most important development after the close of the year was the commissioning of the new section of Line 9 from Zona Universitària to Terminal 1 at the airport on 12 February 2016, with 15 new stations and a total length of 19.7 km. The new route facilitates access by public transport to schools, shops and areas which are important for logistics and economic development. It also improves local transport facilities and provides a metro service in residential areas which previously had none.

Another important development was the launch, on 29 February 2016, of the fourth phase of the new bus network, after the completion of the consultation process and the works needed to introduce the three new lines in this phase: H4 (Zona Universitària – Bon Pastor), V11 (Estació Marítima – Bonanova) and V13 (Drassanes – Avinguda Tibidabo). With these 3 new lines, 16 of the 28 planned for the new bus network are now in operation.

On 1 January the new fares for 2016 came into effect, approved by the Board of Directors of the Metropolitan Transport Authority (ATM) on 23 December and applicable to the regular services of Transports Metropolitans de Barcelona (TMB). In 2016 the main change is that no ticket has increased in price. Moreover, there have been reductions in the prices of the T-Mes travel card, the T-Trimestre and T-Jove cards for zones 2 to 6, while eligibility for the free T-12 for the entire integrated transport system has been extended to age 14 inclusive.

A special fares policy has been introduced for journeys to the airport. The launch of the section of metro line 9 between the airport and Zona Universitària called for the introduction of a special fare policy for journeys to or from terminals T1 or T2 at the airport. The forthcoming introduction of the T-Mobilitat card will allow improvements to the current magnetic card reading system.

The ATM Board of Directors agreed that frequent users of the transport system and users with social travel cards should not have to pay a surcharge for travelling to the airport, so they can use the T-50/30, T-Mes, T-Jove, T-Trimestre, Targeta Rosa or T-4 cards without any change in price and do not need to purchase a supplementary ticket.

A single journey non-integrated metro ticket, which incorporates a surcharge for this service, is available for tourists and infrequent users of the transport system. The price of this ticket is €4.50. Airport employees do not have to pay the additional charge.

On 1 January 2016 new fares came into force for the Montjuïc cable car.

In accordance with the planned schedule, the cable car will be closed to the public from 25 January to 14 February 2016 for annual maintenance and adjustments to components.

Milestones for TB and FMB

After the close of the year there were no significant events that are not included in the budget and operational plans for 2016.

17

FMB's holdings in other companies

Shareholdings in other companies in the consolidated TMB group

The consolidated Transports Metropolitans de Barcelona group's holdings in other companies at 31 December were as follows:

—An 8,806.14 euro holding in Ensitrans, AEIE, representing 20% of its share capital.

—A 120,202.44 euro holding in Barcelona Regional, Agència Metropolitana de Desenvolupament Urbanístic i d'Infraestructures SA, representing 7.84% of this company's share capital.

—A 3,005.06 euro holding in La Fundació per a la Motivació dels Recursos Humans, representing 3.85% of its share capital.

—A 2,624,400 euro holding in Tramvia Metropolità, SA, representing 2.50% of its share capital.

—A 513,000 euro holding in Tramvia Metropolità del Besòs, SA, representing 2.5% of its share capital.

—A 300,506.05 euro holding in Transports Ciutat Comtal, SA, representing 33.3% of its share capital.

—A 420.71 euro holding in Promociones Bus, SA, representing 0.37% of its share capital.

—At the end of 2015 TMB France, EURL unipersonal, formed part of the Projectes i Serveis de Mobilitat, SA group.

On 21 October 2011 the company TMB France was constituted, Projectes i Serveis de Mobilitat SA owning 100% of the shares. The company's share capital was 500 euros. Its registered address is in Perpignan and its purpose is the management, operation and organisation of a public transport service and other ways of conveying people and goods and related concessions.

On 22 December 2011 a loan was formalised between Projectes de Serveis i Mobilitat, SA as lender and TMB France as borrower. 105,000 euros was lent at the 3-month Euribor rate +3.25% for a maximum of five years with a view to acquiring a minority shareholding in the Perpignan metropolitan area transport corporation (Corporation Francaise de Transports Perpignan Méditerranée).

The amount outstanding at 31 December 2014, including interest pending payment, totalled 96,845.42 euros.
On 29 February 2014 a contract was signed between CFT Vectalia France, SAS, and Vectalia France, SA, on the one hand, and TMB France on the other, under which TMB France acquired 5% of the share capital of CFT Vectalia France through the purchase of 50 shares in Vectalia France, SA.

Given the non-materiality of its holding in TMB France, this company was not included in the TMB Group's consolidated accounts for 2014.

TB's holdings in other companies

Transports de Barcelona, SA had the following interests in other companies at 31 December:

—A 300,506.05 euro holding in Transports Ciutat Comtal, SA, representing 33.3% of its share capital.

—A 420.71 euro holding in Promociones Bus, SA, representing 0.37% of its share capital.

—A 4,403.07 euro holding in Ensitrans, AEIE, 10% of the company's share capital.

—A 60,101.22 euro holding in Barcelona Regional, Agència Metropolitana de Desenvolupament Urbanístic i d'Infrastructures SA, representing 3.92% of its share capital.

—A 161,550 euro holding in Transports Metropolitans de Barcelona, SL, representing 50% of its share capital.

—A 5,001,550.00 euro holding in Projectes i Serveis de Mobilitat, SA, 50% of its share capital.

The members of the Board of Directors of Transports de Barcelona, SA, in the meeting held on 30 March 2016, approved the **2015 Management Report**, which is contained in this 139-page document.

Mercedes Vidal Lago
Chair

Antonio Poveda Zapata
Vice-president

Enric Cañas Alonso
Chief Executive Officer

Santiago Alonso Beltrán
Member

Anna Casals i Farré
Member

Lluís Cerdà Cuéllar
Member

Manel Ferri Tomàs
Member

Joaquim Forn i Chiariello
Member

Jordi Mas Herrero
Member

Antonio Martínez Flor
Member

Óscar Ramírez Lara
Member

Joan Torres Carol
Member

FMB's holdings in other companies

Ferrocarril Metropolità de Barcelona, SA had the following holdings in other companies at 31 December:

—An 4,403.07 euro holding in Ensitrans, AEIE, representing 10% of its share capital.

—A 60,101.22 euro holding in Barcelona Regional, Agència Metropolitana de Desenvolupament Urbanístic i d'Infraestructures SA, representing 3.92% of this company's share capital.

—A 3,005.06 euro holding in La Fundació per a la Motivació dels Recursos Humans, representing 3.85% of its share capital.

—A 2,624,400.00 euro holding in Tramvia Metropolità, SA, representing 2.50% of its share capital.

—A 513,000 euro holding in Tramvia Metropolità del Besòs, SA, representing 2.5% of its share capital.

—A 161,550 euro holding in Transports Metropolitans de Barcelona, SL, representing 50% of its share capital.

—A 5,001,550.00 euro holding in Projectes i Serveis de Mobilitat, SA, 50% of its share capital.

The members of the Board of Directors of Ferrocarril Metropolità de Barcelona, SA, in the meeting held on 30 March 2016, approved the **2015 Management Report**, which is contained in this 147-page document.

Mercedes Vidal Lago
Chair

Antonio Poveda Zapata
Vice-president

Enric Cañas Alonso
Chief Executive Officer

Joaquim Forn i Chiariello
Member

Jordi Mas Herrero
Member

Joan Torres Carol
Member

Sergi Alegre Calero
Member

Josep Garganté i Closa
Member

Martí Prat i Huertas
Member

Manel Ferri Tomàs
Member

Antonio Martínez Flor
Member

Óscar Ramírez Lara
Member

Holdings in other companies

At the end of 2015 TMB France, EURL unipersonal, formed part of the Projectes i Serveis de Mobilitat, SA group.

On 21 October 2011 the company TMB France was constituted, Projectes i Serveis de Mobilitat SA owning 100% of the shares. The company's share capital was 500 euros. Its registered address is in Perpignan and its purpose is the management, operation and organisation of a public transport service and other ways of conveying people and goods and related concessions.

On 22 December 2011 a loan was formalised between Projectes de Serveis i Mobilitat, SA as lender and TMB France as borrower. 105,000 euros was lent at the 3-month Euribor rate +3.25% for a maximum of five years with a view to acquiring a minority shareholding in the Perpignan metropolitan area transport corporation (Corporation Francaise de Transports Perpignan Méditerranée).
The amount outstanding at 31 December 2015, including interest pending payment, totalled 96,845.42 euros.

On 29 February 2014 a contract was signed between CFT Vectalia France, SAS, and Vectalia France SA, on the one hand, and TMB France on the other, under which TMB France acquired 5% of the share capital of CFT Vectalia France through the purchase of 50 shares in Vectalia France, SA.

Given the lack of importance of TMB France in the group's accounts, it was not included in the TMB Group's consolidated accounts for 2015.

The company does not hold any treasury shares. No transactions with own shares were carried out during the year.
Payment terms to suppliers: The average payment period to suppliers in 2015 was 73 days. Recently the Company has been working to reduce payment periods to suppliers to bring the average payment period below the maximum specified in regulations on payment periods.


18
Outlook for
2016

Outlook for 2016

TMB's goal in 2016 is to maintain the quality and levels of service achieved in previous years in order to guarantee a sustainable transport service and contribute to the development of the region, making the most effective use of the available resources.

From the start of the current recession, and in light of the limited budgets of the public authorities, TMB has reduced investment spending to the minimum necessary to maintain its assets and guarantee safety while keeping financing by the authorities within acceptable limits. Investments in recent years have been significantly lower than the depreciation charges recognised in those years.

The signing of a four-year programme contract is a positive step for TMB's financial stability and for the development of the strategy to be implemented in the coming years, as it allows medium-term investment plans to be drawn up that will enable the group to return to its previous levels of investment.

TMB's goal for 2016 will be to maintain current levels of service on the metro network under the best conditions possible, launch the L9 Sud service between the airport and Zona Universitària, introduce phase IV of the new bus network and restore levels of investment, while meeting the financial requirements established in the ATM-TMB programme contract for 2014-2017. In particular:

—To maintain the service provided on the metro network to the highest quality and efficiency standards.
—To bring investment levels back up to enable the group to update its facilities, infrastructure and fleets in order to ensure it can provide a quality service in the future.
—Opening to the public of the southern section of Line 9 (Airport – Zona Universitària) on 12 February 2016.
—To carry out necessary measures throughout the organisation to adapt TMB to the needs of the T-Mobilitat project.
—The launch of phase IV of the new bus network on 29 February 2016.
—Investments to improve the bus fleet and bring the average age of vehicles down to pre-recession levels.

Outlook for the company and future projects

Passenger numbers on the Montjuïc cable car were satisfactory in 2015 and the main goal for 2016 is to build on these good results.