

# Annual Report 2017

CONSORCIO  
TRANSPORTES  
\*\*\*\*\*  
MADRID

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Plaza del Descubridor Diego de Ordás, 3  
28003 Madrid

[prensa.crtm@crtm.es](mailto:prensa.crtm@crtm.es)

[www.crtm.es](http://www.crtm.es)



# PROLOGUE

The public transport system plays a strategic role in the economic and social development of the Community of Madrid. It is an extensive network that is coordinated and managed by the Regional Transport Consortium and that is deployed in the 179 municipalities of the region, in order to ensure that the mobility needs of the entire population are met.

In 2017, the Community of Madrid's focus on public transport led to an increase by 4% in the overall number of trips taken using public transport, exceeding 1,500 million trips (1,503 million) and thereby reaching the highest number of travellers in the region from the past eight years.

The growth of the social vision of regional public transport has held a prominent role in 2017. For the fourth consecutive year, public transport prices have remained stable, and for the third consecutive year, those under the age of 26 have been able to benefit from a young travel pass for only 20 euros, the success of which has been revealed by the more than one million young people using this measure. To all of this, we must add the 9.5% increase with respect to the previous year in the obtaining of social transport tickets (large families, Blue Cards and disabled individuals).

2017 can also be noted in the record books on public transport in the Community of Madrid, as the year in which a technological milestone took place, with the disappearance of the magnetic ticket, substituted by the Multi contact card. In a short period of time, during the final quarter of the year, this goal was brilliantly achieved: almost 1.2 million Multi cards were delivered free of charge during the first one hundred days; and by the end of the year, over 9 million transport tickets had been charged by users in Madrid on their Multi cards.

But other challenges were also overcome. Madrid's celebration of the largest LGBT community event, WorldPride, presented a huge challenge for regional mobility. However, the extraordinary planning of public transport reinforcement by the Consortium allowed for use by an additional 1.5 million travellers per day, even opening metro service for 24 hours for the first time in history, revealing the potential of public transport and its ability to adapt to Madrid residents and visitors.





In order to improve the quality of the transport services and the travellers' experience, during this year, over 6,600 inspections were carried out and over 30,000 user satisfaction surveys were conducted, receiving a well-deserved average overall score of 7.3 for the system. And an extensive study of the current network of park and ride lots of the Community of Madrid has been a first step in an ambitious future plan to strengthen this network, offering intermodal mobility alternatives in the primary regional road transport corridors.

We are currently in a new historical context, in which mobility needs are increasing in an exponential manner, with higher levels of quality and innovation demand, the need for more accessible public transport means for all, oriented towards increased social, energetic and environmental sustainability. The Community of Madrid, aware of this new age, has taken advantage of 2017 to improve the present, but with an eye on the future, so that travellers can continue to enjoy one of the world's best public transport systems.

**Rosalía Gonzalo**  
Councillor of Transport, Housing and Infrastructures of the Community of Madrid

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# Your Transport System

# 1

## The CRTM

The Madrid Regional Transport Consortium (CRTM, based on its initials in Spanish) is the public transport authority of the Community of Madrid. It was created by Law 5/1985 of 16 May, in the Madrid Assembly, as an Autonomous Organism of the Community of Madrid, and it combines the competences of this and all of the city halls of the region, in the area of regular public transport, ensuring the integrated management of public transportation in said territory.

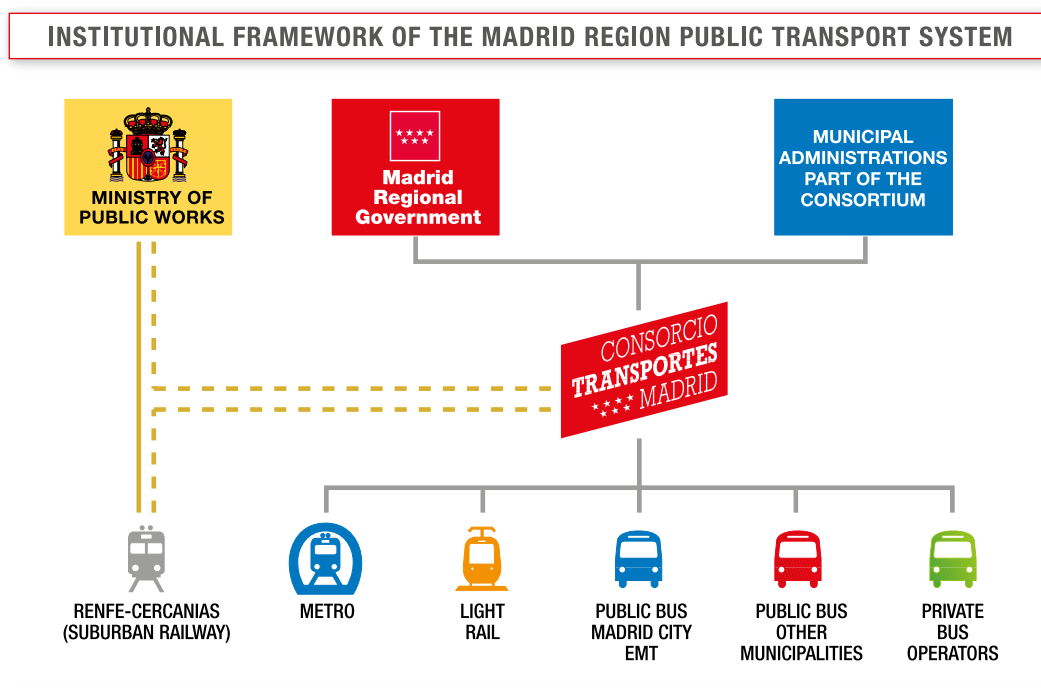
Its main functions and objectives are the following:

- Planning of the public transport infrastructures
- Planning of the services and program coordination for use of all public transport modes
- Defining of an integrated fare system for the overall system
- Development of a stable financing system
- Control and follow up of the economic management of operators
- Creation of a global image of the system, unifying the external relations with the users

## 1.1 The institution

The CRTM consists of a grouping of public administrations that grant their individual competences for the collective administration of the same. Therefore, the operating transport companies are not directly integrated in the Consortium, but rather, depend on the same for adhesion to the main administration of the service provided by the same.

The Renfe Viajeros company, under the responsibility of the Ministry of Public Works and Transport, does not fall under the competence of the Consortium, but rather, the State Administration, which contributes to the financing of the system, and is represented in the Board of Directors of the organism.







The Consortium is led by a Board of Directors that exercises its functions directly, through a Delegated Committee. The composition of these organisms, as of 31 December 2017, was as follows:

### a. The Board of Directors

Comunidad de Madrid	President	Rosalía Gonzalo López
	Members	Jesús Valverde Bocanegra
		Pablo Rodríguez Sardinero
		Gregorio Moreno López
		Consolación Pérez Esteban
		Jesús Mora de la Cruz
Miguel Ángel García Martín		
City Hall of Madrid	Vice president	Inés Sabanés Nadal
	Members	Carlos Sánchez Mato
		José Manuel Calvo del Olmo
Adhering city halls	Members	José Luis Fernández-Quejo del Pozo
		Luis Haro Berlanas
		Francisco José Recover Lorente
General State Administration	Members	Joaquín del Moral Salcedo
		Luis Martínez-Sicluna Sepúlveda
CC.OO. / U.G.T (Workers Commission and General Trade Union)	Members	David Jabato García-Valenciano
Business associations	Member	Antonio Oviedo García
Consumer associations	Member	Rafael Barbadillo López
		Gustavo Samayoa Estrada
Non-member secretary		José María Ortega Antón
Non-member managing director		Alfonso Sánchez Vicente

### b. The Delegated Committee

President	Rosalía Gonzalo López
Members	Jesús Valverde Bocanegra
	Miguel Ángel García Martín
	Inés Sabanés Nadal
	Carlos Sánchez Mato
	José Manuel Calvo del Olmo
Secretary	José María Ortega Antón

## C. The operational framework

Operational framework of the public transport system of the Community of Madrid.

### Transport of travellers by road



#### Municipal Transport Company of Madrid (EMT)

Public company of the City Hall of Madrid that offers urban services in the city of Madrid.



#### Urban transport in other municipalities

6 concessions of urban transport provide service to 6 municipalities, and one municipal company in the town of Fuenlabrada. In addition, 29 municipalities have urban services within the scope of the suburban transport concessions.



#### Suburban transport

27 operating companies offer 20 suburban transport concessions providing service throughout the towns of the region.

### Transport of travellers by railway



#### Metro de Madrid

Public company of the Community of Madrid operating in 9 municipalities.



#### Renfe Viajeros

Public company dependent upon the General State Administration that exploits the Madrid Cercanías network



#### Private metro operators

2 concessions of public works for the extension of line 8 (Barajas-Aeropuerto T4) and line 9 (Puerta de Arganda – Arganda del Rey) operated by Metro Barajas S.C. and TFM, respectively.



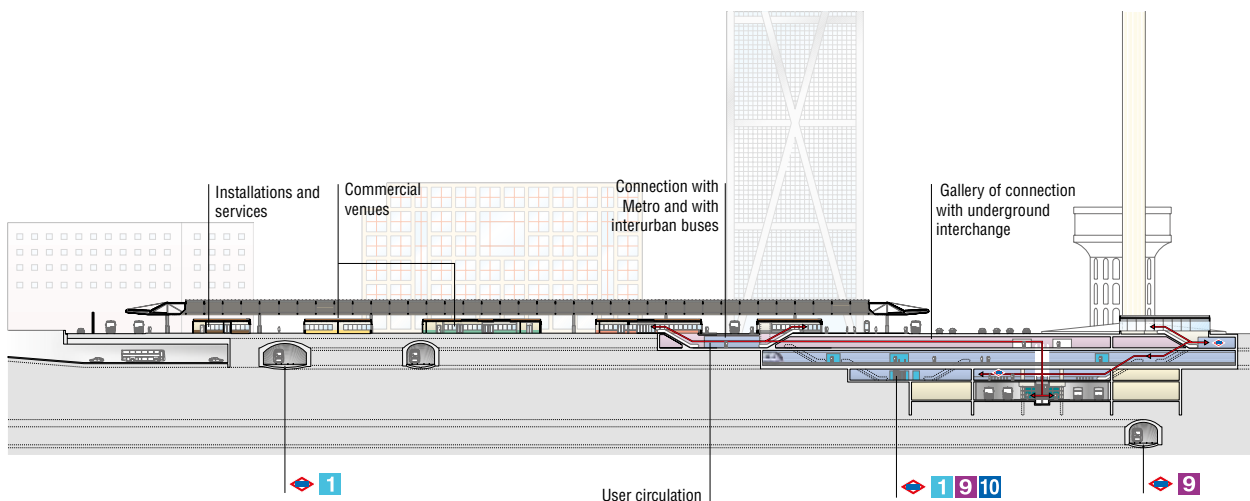
#### Private operators of the light rail

3 concessions of public works and exploitation for light rail lines  
ML1 (Metros Ligeros de Madrid)  
ML2 and ML3 (Metro LigerO Oeste)  
ML4 (Tranvía de Parla)

## Transport Interchanges

5 concessions of public works, exploitation and maintenance of the Madrid transport interchanges

- Avenida de América • Plaza de Castilla • Plaza Elíptica • Moncloa • Príncipe Pío •



Plaza Castilla interchange

## 1.2 Financing of the system

### a. System needs and their financing

The economic needs of the transport system consist of the CRTM payments to operators for the services that they provide, and are financed via public contributions coming from several levels of the Administration and user contributions.

The difference between the economic needs contracted and the income collected from the sale of tickets is covered from public contributions of the distinct administrations, making up the so-called subsidised fare system.

The payments of Madrid Metro and the Municipal Transport Company of Madrid (EMT) are governed by annual agreements, based on the approval of a balanced fare per traveller in the case of the Metro and an EMT production agreement, including, in both cases, the commitment with certain service quality objectives.

The economic relations with the distinct private road transport operators is established in the administrative contracts of public services management, in accordance with Law 16/1987 of 30 July on Land Transport management, subsequently converted within the scope of Law 5/2009 of 20 October, on Transport management and road transport mobility, of the Madrid Assembly.

The CRTM compensates the concessionaries of the light rail and the section of line 8, Barajas-T4, based on the real level of demand, through the technical fare that is offered, while the deficit between the balance fare and the revenue from the Parla tram is covered in equal parts by the CRTM and the Parla city hall, similar to that established with the Empresa Municipal de Transportes de Fuenlabrada (Fuenlabrada Municipal Transport Company).

Transportes Ferroviarios de Madrid (TFM), concessionary of the section of line 9 of the metro, between Puerta de Arganda and Arganda del Rey, is paid by the travellers using the transport pass, according to the rate established in the contract, receiving a complementary contribution from transported passengers, until reaching the determined quantity of demand.

The interchanges are financed with the application of the rate established in the concession contracts, updated as they are included in the same.

With Renfe Viajeros, the CRTM maintains an agreement that regulates the use of the transport passes and the compensation derived from the same.

User contributions are established in the collection from the sale of distinct transport tickets.



The Community of Madrid, the General State Administration (AGE) and the Madrid City Hall are the main partners of the system's financing. Also contributing, although to a lesser degree, are the city halls of the Community, with urban transport service, as well as the Autonomous Community of Castilla-La Mancha, based on the financing agreement for transport underwritten between the Community of Madrid and said Autonomous Community.

The General State Administration contributes with a nominative subsidy, applied to the financing needs of the system, with the following distribution:

- ▶ 34% is destined to cover the operational deficit of the EMT of Madrid, according to the Regulating Agreement of the adhesion conditions of the City Hall of Madrid to the CRTM for the 2017-2018 period.
- ▶ The remaining 66% finances the fare subsidy of the Madrid Metro system, and the services operating in zones B and C.

The contribution of the rest of the administrations, once subtracting the State contribution as indicated, are distributed as follows:

- ▶ The City Hall of Madrid covers 50% of the operational deficit of the EMT; 50% of the fare subsidy corresponding to the concessions for road transport and Renfe services of Zone A; 35% of the functioning expenses and the commercial expenses of the CRTM.
- ▶ The Community of Madrid assumes all of the fare subsidy corresponding to the Madrid Metro. Similarly, it covers the part that is not financed by the Madrid City Hall for the other services and expenses in which it participates, that is, the remaining 50% of the fare subsidy of the concessions for road transport and Renfe services in Zone A; 65% of the needs of the interchanges; and 65% of the operational expenses and commercial expenses of the CRTM.

It also assumes all of the fare subsidy produced in zones B and C, corresponding to the concession services for road transport and Renfe, and the railway concessions.

Finally, it also contributes with 50% of the operational deficit for the urban services of the partnering city halls.

- ▶ The city halls having urban transport service contribute with 50% of the operational deficit of the same.
- ▶ The Junta of Communities of Castilla-La Mancha contributes to financing the fare subsidy corresponding to the exterior passes (zones E1 and E2) in accordance with the criteria established in the collaboration agreement existing between the two administrations.

## **b. 2017 Budget and economic outcome**

The commercial nature of the CRTM forces the management of two types of budgets:

- ▶ An estimated budget that includes commercial activity and is made up, on the one hand, of the derivatives of the collection of fares, and on the other hand, from the expenses from the payment of said income to the transport operators, as well as other distribution and commercialisation expenses for the distinct ticket types.
- ▶ An administrative budget made up of the income related to fees and other income of public right, as well as the contributions of corresponding partners to the fare subsidy. As for expenses, this budget includes the credits needed for the financing of personnel of the organism, expenses for current assets and services of the same, and their investments, as well as the fare subsidy liquidated to the operators.

In 2017, the total amount of income liquidated from both budgets reached a total of 2,557 million euros and as for the expenses, as of 31 December, they totalled 2,163.50 million euros. The total fare income of the system, including collection of the operator tickets, which are not included in the CRTM budget, reached 951.9 million euros in 2017. The difference between income-recognised rights -and expenses -recognised obligations- place the budgetary outcome of the fiscal year at a surplus of 393.4 million euros, according to the figures revealed below. This outcome is the result of an extraordinary contribution of 348.6 million euros made by the Community of Madrid in order to relieve the Consortium's treasury problems until resolving the lawsuit with the State Tax Administration.



**0.66€\***  
average  
collection  
per trip

**1.55€\***  
average  
needs  
per trip

**0.89€\***  
average  
subsidy  
per trip

*\* These values have been obtained without including the trips made with Renfe Cercanias tickets (single ticket, 10 trip ticket and others) as they do not affect the CRTM budget*

**2017 CRTM BUDGET LIQUIDATION** Limitative and estimated budget /euros

INCOME	Recognised rights 2017	EXPENSES	Recognised obligations 2017
Chap. III. Taxes and other income	1,244,944.68	Chap. I. Personal expenses	6,584,315.58
Chap. IV. Current transfers	1,666,926,987.59	Chap. II. Current expenses goods/services	5,001,096.09
Chap. V. Patrimonial income	51.52	Chap. IV. Current transfers	1,234,670,772.49
Chap. VII. Capital transfers	7,298,871.00	Chap. VI. Real investments	361,126.04
Chap. VIII. Financial assets	7,362.01	Chap. VII. Capital transfers	4,905,232.04
		Chap. VIII. Financial assets	7,200.00
<b>TOTAL LIMITATIVE INCOME</b>	<b>1,675,478,216.80</b>	<b>TOTAL LIMITATIVE EXPENSES</b>	<b>1,251,535,742.24</b>
Revenue collection	881,511,931.86	Raw materials service functioning	4,389,291.75
		Other external works	37,543,148.70
		Reimbursement collection	870,061,476.03
<b>TOTAL ESTIMATED INCOME</b>	<b>881,511,931.86</b>	<b>TOTAL ESTIMATED INCOME</b>	<b>912,013,916.48</b>
<b>TOTAL INCOME</b>	<b>2,556,990,148.86</b>	<b>TOTAL INCOME</b>	<b>2,163,549,658.72</b>

Rec. rights – Rec. oblig. 2017

I. LIMITATIVE BUDGET OUTCOME	423,942,474.56
II. ESTIMATED BUDGET OUTCOME	-30,501,984.62
<b>FISCAL YEAR OUTCOME (I + II)</b>	<b>393,440,489.94*</b>

This budgetary outcome considers the income and expenses independently from the real fiscal year in which they were accrued. The results analysis of the same leads to the economic outcome of the fiscal year, which for 2017 is the same as the budgetary outcome.

**ECONOMIC OUTCOME** Euros

<b>I.- INCOME</b>	<b>2,638,831,532.04</b>	<b>II.- EXPENSES</b>	<b>2,245,391,042.10</b>
Contributions to the CRTM	1,674,138,882.47	Internal CRTM and commercial functioning	53,739,365.61
Applied fare income	951,922,859.40	Transport operator fare compensation	2,107,907,076.12
CRTM and commercial income	12,769,790.17	Administrative concessions	78,686,555.78
		Other capital expenses	5,058,044.59
<b>III.- DIFFERENCE (I-II)</b>	<b>393,440,489.94*</b>		















\*Extraordinary contribution from the Community of Madrid, 348.6 Million Euros, for the financing of the dispute over VAT, maintained with the state tax administration.



The economic flows originating and applied to the funds of fiscal year 2017 are shown in the following schema which includes all of the income and expenses as well as the economic outcome of said year.

## FINANCING SCHEMA FOR THE CONTRIBUTIONS OF THE CRTM TO THE TRANSPORT SYSTEM NEEDS. FISCAL YEAR 2017

### Economic outcome / Euros

ORIGIN OF FUNDS 2017	APPLICATION OF FUNDS / REAL NEEDS 2017
 GENERAL STATE ADMINISTRATION 126,305,310.00	 METRO DE MADRID, S.A 849,194,535.49
 COMMUNITY OF MADRID 1,365,100,213.17	 EMPRESA MUNICIPAL DE TRANSPORTES DE MADRID, S.A. 475,954,348.27
 MADRID CITY HALL 149,297,369.00	 RENFE VIAJEROS 177,871,277.69
 LOCAL CORPORATIONS AND AUTONOMOUS COMMUNITIES 33,435,990.30	  RAILWAY CONCESSIONS 131,032,078.37
 APPLIED FARE INCOME 951,922,859.40	 ROAD TRANSPORT CONCESSIONS (URBAN AND SUBURBAN BUSES) 473,854,836.30
 CRTM INCOME 12,769,790.17	 OTHER NEEDS (ADMINISTRATIVE CONCESSIONS, ETC.) 83,744,600.37
 CRTM OPERATIONAL EXPENSES 53,739,365.61	<b>TOTAL ORIGIN FUNDS</b> <b>2,638,831,532.04</b>
<b>TOTAL APPLICATION OF FUNDS (NEEDS)</b> <b>2,245,391,042.10</b>	<b>ECONOMIC OUTCOME OF FISCAL YEAR 2017 393,440,489.94*</b>

\*The outcome of 393.4 million euros is conditioned by the extraordinary contribution from the Community of Madrid as a result of the dispute held with the state tax administration. Discounting this extraordinary contribution and homogenising this income, the result of the liquidation of the budget would be 44.8 million euros.



**c. Balance sheet as of 31 December 2017**

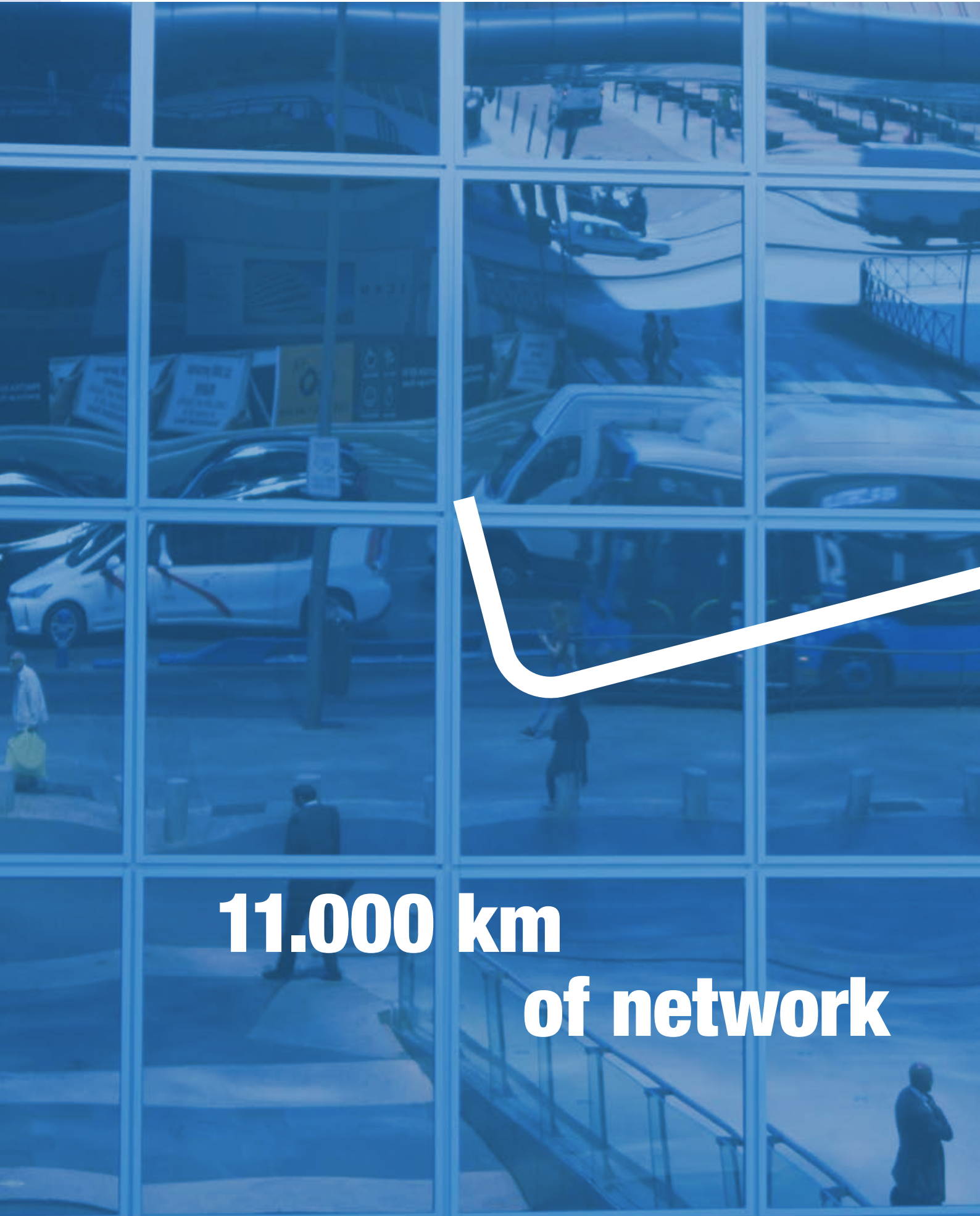
<b>ASSETS</b>	<b>312,528,450.95€</b>
<b>A. NON CURRENT ASSETS</b>	<b>20,201,797.28 €</b>
I. Intangible assets	18,956,931.08 €
Research investment	0.00 €
Industrial and intellectual property	1,014.35 €
Computer applications	641,880.39 €
Active investments leasing system	26,531.16 €
Other intangible assets	18,287,505.18 €
II. Property, plant and equipment	1,244,629.69 €
Constructions	83,804.77 €
Other property, plant and equipment	1,160,824.92 €
V. Long term financial investments	236.51 €
Other financial investments	236.51 €
<b>B. CURRENT ASSETS</b>	<b>292,326,653.67 €</b>
III. Debtors and other accounts receivable	228,619,217.78 €
Debtors for management operations	-237,286,774.09 €
Other accounts receivable	8,608,789.76 €
Public administrations	457,297,202.11 €
V. Short term financial investments	10,599.69 €
Loans and debt securities	10,599.69 €
VII. Cash and cash equivalents	63,696,836.20 €
Liquid assets	63,696,836.20 €
<b>NET EQUITY AND LIABILITIES</b>	<b>312,528,450.95 €</b>
<b>A. NET EQUITY</b>	<b>208,177,022.77 €</b>
II. Equity generated	208,177,022.77 €
Result from past years	4,109,015.41 €
Fiscal year results	204,068,007.36 €
<b>B. NON-CURRENT LIABILITY</b>	<b>163,834.70 €</b>
II. Long term debts	163,834.70 €
Other debts	163,834.70 €
<b>C. CURRENT LIABILITY</b>	<b>104,187,593.48 €</b>
II. Short term debts	2,937.50 €
Other debts	2,937.50 €
IV. Trade and other payables	97,787,157.32 €
Trade for operations	4,039,038.73 €
Other accounts payable	85,480,686.67 €
Public administrations	8,267,431.92 €
V. Accruals	6,397,498.66 €





#### d. Economic outcome account for fiscal year 2017

<b>LIMITATIVE AND ESTIMATIONAL BUDGET</b>	
<b>A) TOTAL INCOME FROM ORDINARY MANAGEMENT</b>	<b>2,557,895,104.15 €</b>
1. Tax income and social contributions	455.05 €
Taxes	455.05 €
2. Transfers and subsidies received	1,674,225,858.59 €
In fiscal year	1,674,225,858.59 €
Subsidies received to finance fiscal year expenses	86,976.12 €
Transfers	1,674,138,882.47 €
3. Net sales and service provisions	881,509,289.91 €
Net sales	881,509,289.91 €
6. Other income from ordinary management	2,159,500.60 €
<b>B) TOTAL OF ORDINARY MANAGEMENT EXPENSES</b>	<b>-2,233,782,644.32 €</b>
8. Personnel expenses	-6,584,315.58 €
Salaries, wages and similar	-4,882,904.68 €
Payroll charges	-1,701,410.90 €
9. Transfers and subsidies granted	-1,281,520,380.97 €
10. Provisions	-929,743,898.74 €
Consumption of merchandise and other provisions	-929,743,898.74 €
11. Other ordinary management expenses	-12,266,039.74 €
External supplies and services	-12,115,521.60 €
Taxes	-150,518.14 €
12. Depreciation of intangible assets	-3,668,009.29 €
<b>I OUTCOME (savings or losses) OF ORDINARY MANAGEMENT (A+B)</b>	<b>324,112,459.83 €</b>
13. Value impairment & results from disposal of non-financial fixed assets and assets in current state of sale	-4,586.35 €
Retirements or disposals	-4,586.35 €
14. Other non-ordinary items	1,013.95 €
Income	3,576.57 €
Expenses	-2,562.62 €
<b>II. OUTCOME OF THE NON-FINANCIAL OPERATIONS (1+13+14)</b>	<b>324,108,887.43 €</b>
15. Financial income	423,671.27 €
Of marketable securities	423,671.27 €
Others	423,671.27 €
20. Value impairment, retirements and disposal of financial assets and liabilities	-120,464,551.34 €
Others	-120,464,551.34 €
<b>III. OUTCOME OF FINANCIAL OPERATIONS (15 + 20)</b>	<b>-120,040,880.07 €</b>
<b>IV OUTCOME (savings or losses) NET OF FISCAL YEAR (II+III)</b>	<b>204,068,007.36 €</b>



**11.000 km  
of network**







# The offer

The public transport system of the Community of Madrid is made up of railway networks of metro, light rail and Cercanías, and the network of urban and suburban buses. This system is made up of operators, infrastructures and transport modes, on which the CRTM exercises its functions of planning and management of the transport services.

During 2017, the production of services for the set of the public transport system is situated at **350.6 million of railway car kilometres and 265.8 million road transport car kilometres, over a network of 11,000 kilometres** that cover all of the municipalities of the region.

The table below summarises the main magnitudes of the offer in 2017 by type of transport operator, in order to facilitate the analysis of the system set.

## 2017 TRANSPORT OFFER

	 <b>Metro de Madrid</b>	 <b>Madrid urban buses (EMT)</b>	  <b>Road transport concessions</b>	 <b>Light rail and other railway concessions</b>	 <b>Suburban rail Renfe-Cercanías</b>
Number of lines	12+Ramal	209	444	5	9
Length network (km)	269.5	1,576.2	8,636.0	54.8	391.0
Length lines (km)	269.5	3,745.6	20,830.0	54.8	778.3
No. stations /stops network	236	4,703	8,280	62	94
No. stations/stops lines	286	10,877	21,158	63	168
No. vehicles (cars/buses)	2,320	2,025	1,824	241	1,127
Cars-kilometres (millions)	186.1	91.4	174.4	16.3	148.2

Vehicles of light rail and other railway concessions are counted in cars, in all, 44 trains.

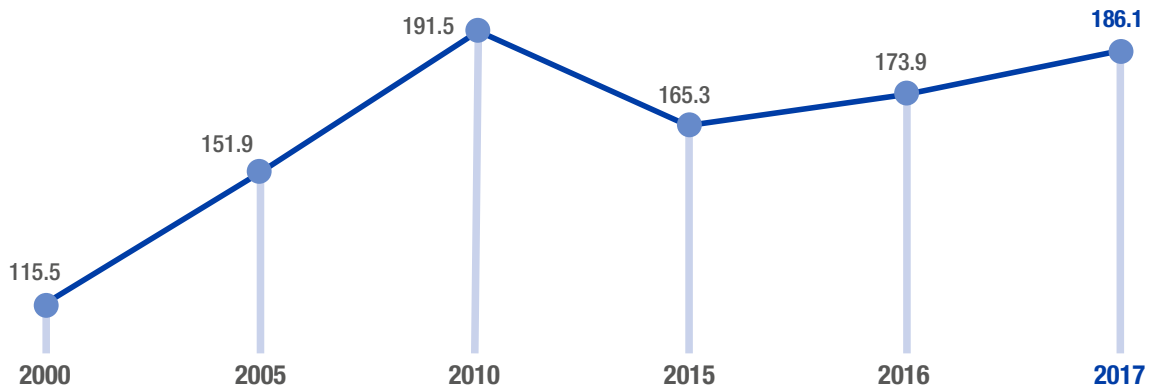
## 2.1 Metro de Madrid



The metro network of Madrid is made up of a total of **12 lines, plus the Ramal line**, existing between the stations of Opera and Principe Pio, and covers a length of 269.5 km and a total of 236 stations-network, of which 39 are multiple (have correspondence between two or more lines), and 197 are simple stations. If calculating at a line level, **the network has a total of 286 stations-line**.

In 2017, production reached **186.1 million cars-kilometre**, an increase of 7.0% with respect to the previous year, taking into account the fact that there were shut downs due to works in lines 1 and 7b (Metro East) in 2016 and in lines 5 and 8 during 2017.

### ANNUAL EVOLUTION OF PRODUCTION (millions of cars-km)



On weekdays, the peak hour in the morning offer consists of **307 trains in service, with an average interval of 4.2 minutes** and an average speed of 27.5 kilometres/hour (3.7 and 26.4, respectively if weighted with the number of trains).

The rolling stock fleet in service during 2017 consists of **2,320 cars** and the average age of each is 17 years.

### OFFER BY LINE IN MORNING WEEKDAY PEAK HOUR

Line	1	2	3	4	5	6 DIR1	6 DIR2
Trains	36	19	26	26	32	20	14
Cars per train	6	4	6	4	6	6	6
Operating speed (km/h)	23	23.2	23	21.8	21.9	24	24.7
Trip time (min) (round trip)	114	69.1	70.9	78.9	123	58.8	57
Interval (min)	3.3	3.7	2.7	3	3.7	3.1	4.2



7	7	8	9	10	10	11	12	12	R
A zone	Metro Este			A zone	Metro Norte		DIR1	DIR2	
20	6	12	23	33	11	5	11	11	2
6	3	4	6	6	3	4	3	3	4
26.9	34.9	40.9	25.6	28.6	37.4	29.2	35.8	35.8	11.6
85.1	30	45.9	96.3	98.9	49	28.2	68	68	10
4.4	5	3.8	4.3	2.9	3.0	5.7	6.2	6.2	5

## 2.2 EMT



The network of urban Madrid buses, operated by the Empresa Municipal de Transportes de Madrid (EMT) is made up of a total of **209 lines, of which, 193 are day time and 26 are night time**, in addition to the Express Airport line which offers service 24 hours a day.

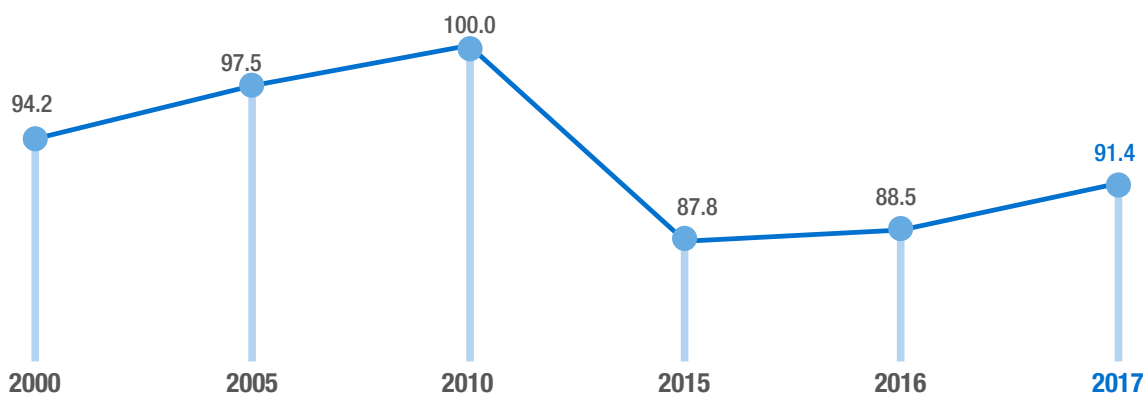
During 2017, the following significant actions were carried out on the network:

- ▶ Implementation of the Special Alsacia Service - Hospital Ramon y Cajal to improve access of the San Blas- Canillejas district to this leading hospital.
- ▶ Extension of the itinerary of line 138 to the Plaza de Cristo Rey and the Hospital Clinico.
- ▶ Extension of the express lines E3 and E4 to Valderrivas and Valdebernardo.
- ▶ Restructuring of the EMT network in the Las Tablas neighbourhood: new line 175 Plaza de Castilla – Las Tablas Norte and modification of the routes of lines 172 and 176.
- ▶ Restructuring of the night-time network to attend to the new urban developments of the city of Madrid (Arroyofresno, Valdebebas, Butarque) and neighbourhoods with less network coverage (Los Puertos and Los Carmenes): lines N2, N7, N12, N13, N18 and N20.
- ▶ Implementation of the Special Canillejas Service – Estadio Metropolitano (on game days).
- ▶ Implementation of the Special Puerta de Arganda Service – Cañada Real, within the measure included in the Regional Pact for the Cañada Real Galiana.
- ▶ Modification of the route of lines 47, 55, 81, 247, N16 and N17 for restructuring of the Avenida de Oporto and line 64 for restructuring of the Isla de Oza street.

The total **number of kilometres covered in 2017 reaches 91.4 million**, 3.3% above the previous year's production.

In this sense, the hours-car (6.9 million) and the trips made (10.6 million) also experienced a relatively similar increase. The characteristics of the programmed offer vary due to the heterogeneity of the lines making up the day time network, although the majority group consists of lines having mean daily intervals of between 8 and 12 minutes. At peak hour, 32% of the lines have frecuencies lower than 8 minutes, 2% more than in 2016, due to the reinforcement of the service offer in 33 lines to adjust the network to the changing demand needs.

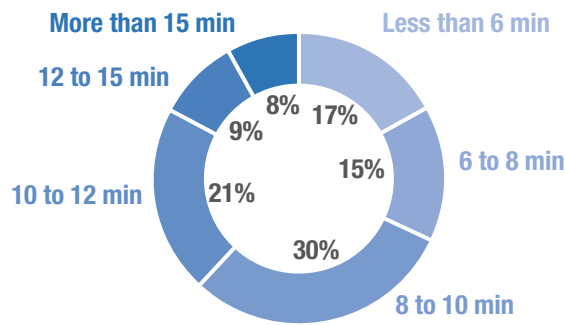
### ANNUAL EVOLUTION OF PRODUCTION (millions of cars-kilometre)



The average operating speed in 2017 was 13.3 km/hour, 0.2% below that registered the previous year, caused by the adaptation of the service system to the city's traffic conditions.

In 2017, the bus fleet of the EMT consisted of 2025 active vehicles, with an average age of 8.8 years, of which 1019 functioned with natural gas, 928 with biofuel, 52 are hybrid, 23 are electric and 3 function with gas-diesel. During this year, a fleet of 262 new vehicles has been included (232 buses using natural gas and 30 hybrids) and 152 vehicles have been removed. All of the buses have a lower floor and a ramp for individuals with reduced mobility (PMR).

**% OF EMT LINES ACCORDING TO THE INTERVAL IN PEAK HOUR**



## 2.3 Road transport concessions



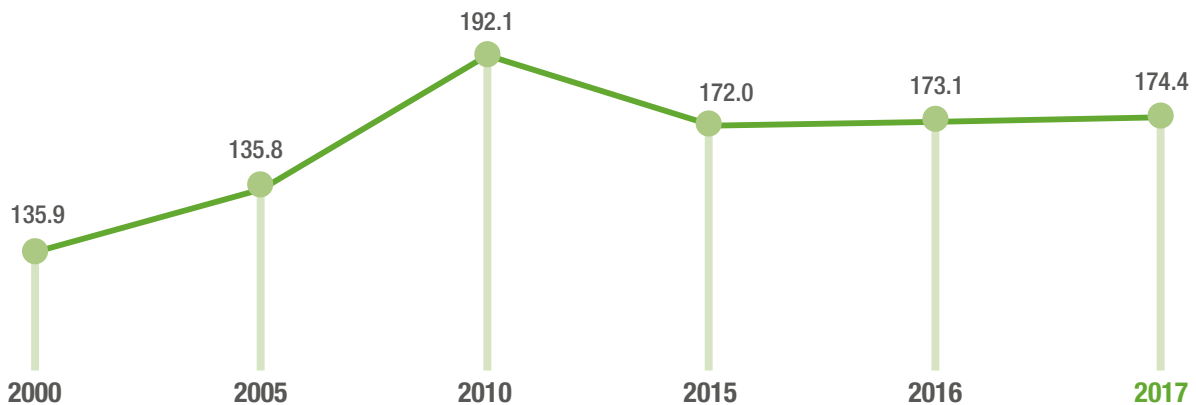
The bus network of the road transport concessions of the Community of Madrid consists of, as of the 31st of December 2017, 444 lines, with 294 daytime suburban lines, 116 urban lines and 31 night suburban lines.

During 2017, the following lines have been introduced:

- ▶ **L2** Las Rozas,
- ▶ **L6** Fuenlabrada,
- ▶ **537** Móstoles (Hospital Rey Juan Carlos) - Navalcarnero (El Pinar)
- ▶ **L4** Boadilla del Monte,
- ▶ **199A** Buitrago-Montejo-Manjirón-Buitrago,
- ▶ **L1** Arroyomolinos
- ▶ Transformación de la L3 de Getafe en dos líneas circulares **L3A** y **L3B**

The set of lines is exploited by 31 distinct companies, within the scope of 36 administrative concessions and an agreement with the City Hall. The urban service in the municipalities of the B and C crowns are offered via urban lines of the municipality or via the suburban bus network. In some municipalities, the urban service is carried out through a combination of both networks.

### ANNUAL EVOLUTION OF THE PRODUCTION (millions of cars-kilometre)





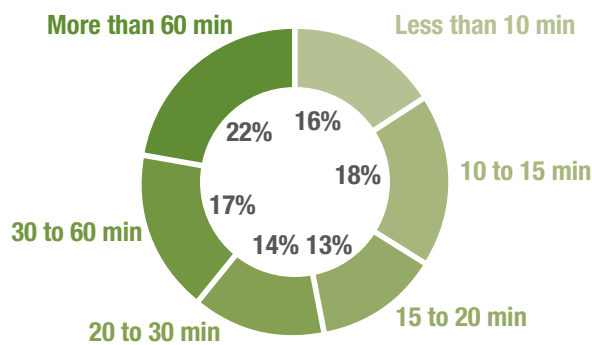


Therefore, the real urban transport offer is quite superior to that of the urban networks per se. The specific network of the urban lines in the B and C crowns reaches a total of 35 municipalities, although in only 6 of these is there an administrative concession of independent urban service. Furthermore, in the municipality of Fuenlabrada, the urban service is provided directly by the city hall, through a municipal company. The offer of services programmed for the complete network set reaches 27,749 trips on a winter weekday.

The offer of the distinct lines of the network is, logically, heterogeneous and responds to the distinct needs existing in the municipalities having distinct populations and characteristics, as shown in the following graph in which the percentage of lines distributed according to interval in weekday peak hour is shown, in minutes.

The bus fleet of the road transport transport concession is made up of 1824 buses. In 2017, 162 buses were renewed, situating the average age at 4.5 years. As a result of this renovation and the improvements made to the fleet, there are 213 vehicles available functioning with natural gas and 258 hybrid vehicles. Also, 100% of the fleet of buses are adapted for use by individuals with reduced mobility (PMR).

**% LINES OF ROAD CONCESSIONS ACCORDING TO INTERVAL IN PEAK HOUR**



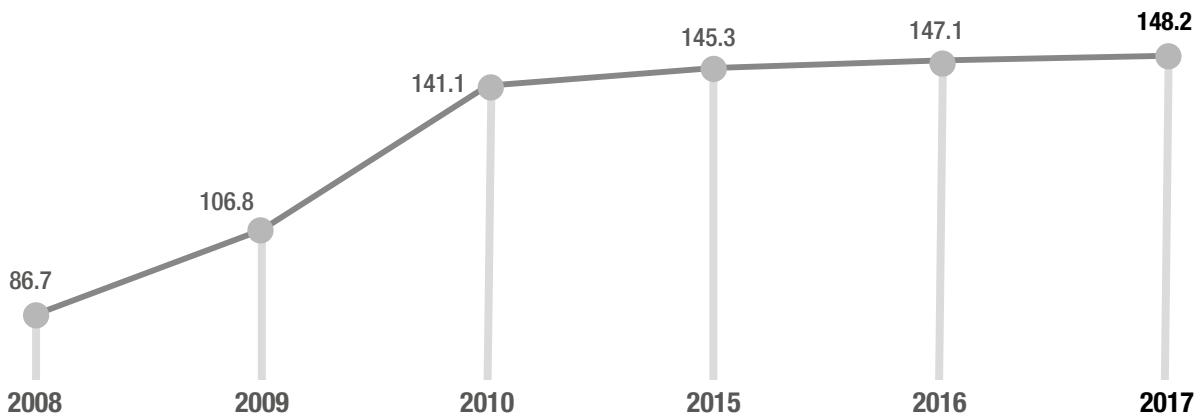
## 2.4 Renfe-Cercanías (suburban rail)

Cercanías Madrid is a railway service exploited by Renfe Viajeros over the infrastructure of ADIF, which connects the city of Madrid with its metropolitan area and the main population centres of the region and with the city of Guadalajara.

The Madrid Cercanías network exploits a total of 9 lines with stations-networks developed over 391 kilometres, including the stations of Azuqueca, Cotos and Guadalajara, outside of the regional territory of the Community of Madrid, and the stations Zarzalejo, Robledo de Chavela and Santa María de la Alameda, as an extension of the network from El Escorial.

Of all of these stations, 36 offer service to at least 2 Cercanías lines. If we are to take into account the total number of connections to other railway means (metro and light rail), the number increases to 49.

### ANNUAL EVOLUTION OF THE PRODUCTION (millions of cars-kilometre)





## WEEKDAY OFFER BY LINE

Line	C1	C2	C3	C4	C5	C7	C8	C9	C10	Total
No. stations- line	11	19	23	18	23	31	16	3	21	168*
No. trips	74	185	116	285	303	101	98	10	164	1,336
No. trips in peak hour (6:00 – 9:00)	11	43	24	62	84	26	22	0	21	293
Cars per train	5/10	3/6/10	5/10	10	6	6/10	5/6/10	2/4	5/6/10	
Operating speed (Km/h)	35.8	51.5	57.9	50.8	46.2	49.7	56	26	45.4	47.8





\* The total includes the stations of Zarzalejo, Robledo de Chavela and Santa Maria de la Alameda.

The transport offer programmed for the Madrid Cercanias services in 2017 increase to 1336 daily trips, resulting in an annual production of 148.2 million cars-km, 0.7% more than the production carried out during 2016.

## 2.5 Light rail and other railway concessions

### a. Light rail

The light rail network consists of 4 lines whose names are detailed below:

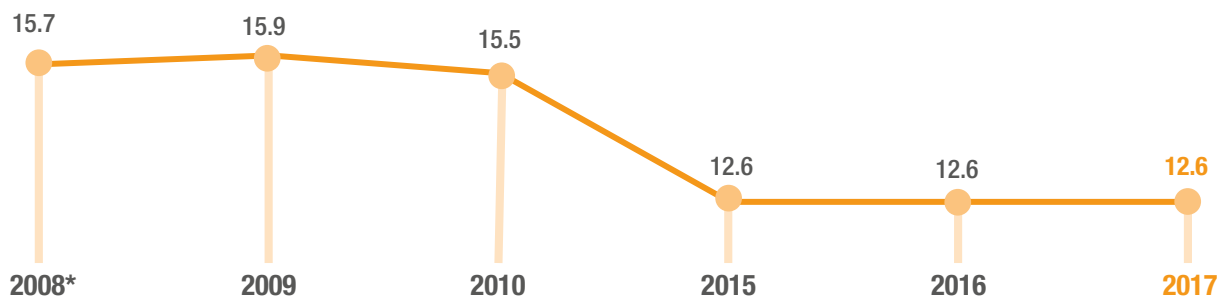
-  **1** Pinar de Chamartín – Las Tablas
-  **2** Colonia Jardín – Estación de Aravaca
-  **3** Colonia Jardín – Puerta de Boadilla
-  **4** Tranvía de Parla (circular line)



The light rail service provision corresponds to three concessionary companies: Metros Ligeros de Madrid, S.A., which operates line ML1; Metro Ligerero Oeste, S.A., which operates lines ML2 and ML3; and Tranvia de Parla, S.A., which operates ML4.

Collectively, the production over 2017 remained at 12.6 million cars-kilometre.






### ANNUAL EVOLUTION OF THE PRODUCTION (millions of cars-kilometre)



\*The onset of the operation of the light rail network took place in 2007.

On a weekday, the peak hour service consists of 35 active trains, with an average interval of 6.8 minutes and an average speed of 21.5 km/h.

### OFFER PER LINE DURING WEEKDAY MORNING PEAK HOUR

Line	 <b>1</b>	 <b>2</b>	 <b>3</b>	 <b>4</b> s1	 <b>4</b> s2
Trains	7	9	12	3	4
Cars-train	5	5	5	5	5
Operating speed (Km/h)	19.1	23.5	25.4	20.1	19.6
Travel time (min) (round trip)	34.0	44.0	64.0	24.8	24.8
Interval (min)	5.0	6.0	6.0	10.0	7.0

**b. Other railway concessions**

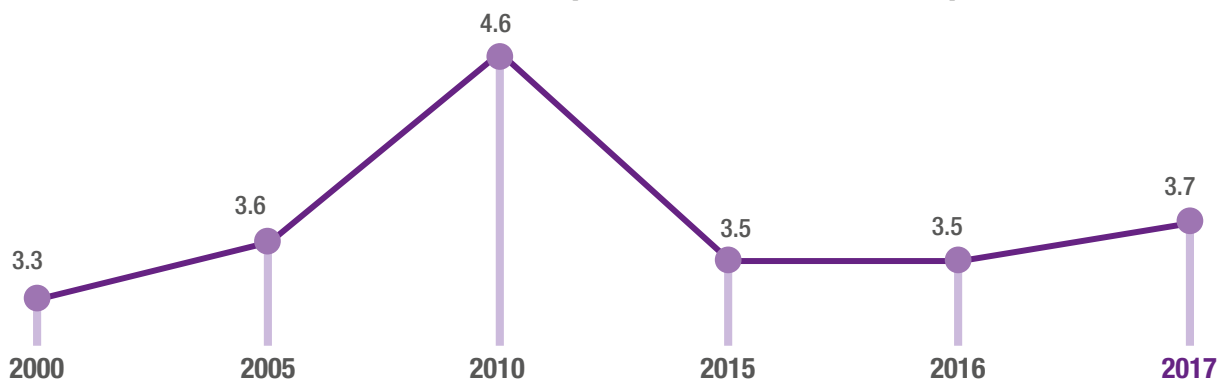


This is the case of the line 9, between the stations of Puerta de Arganda and Arganda del Rey. It has a length of 19 kilometres and 6 stations-line, with the station of Puerta de Arganda being its connection with the rest of line 9.

Adding this section of the Madrid Metro, the total network is 288.5 kilometres and includes a total of 241 stations-network and 292 stations-line.

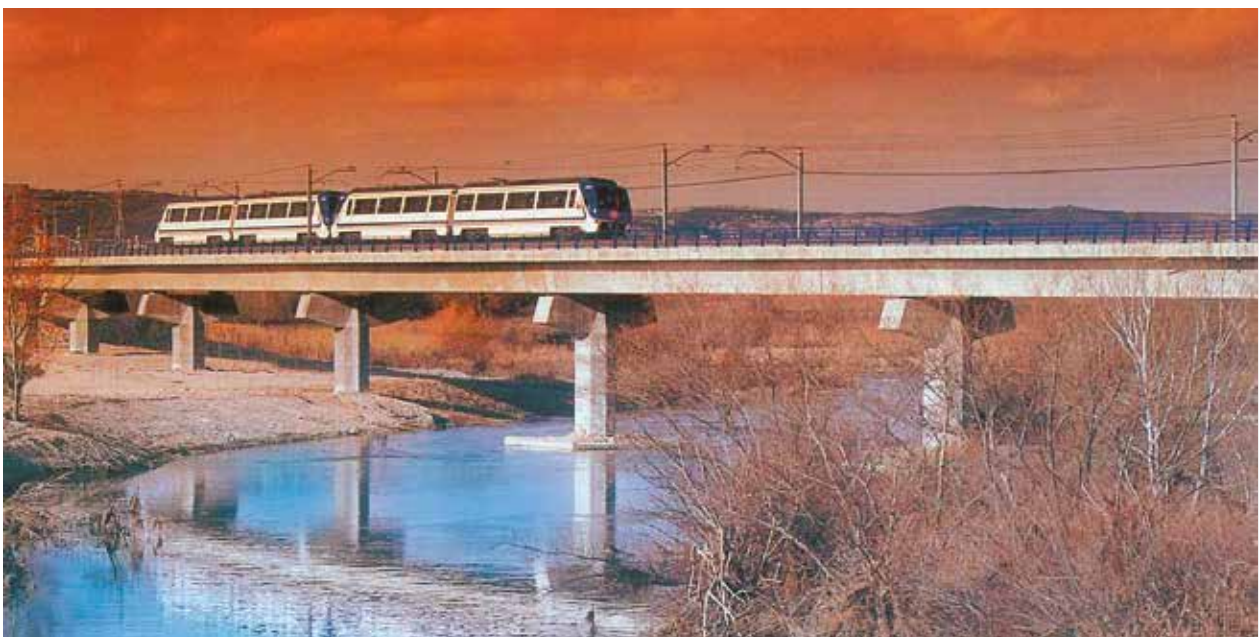
In 2017, the production increased to 3.7 million cars-kilometre.

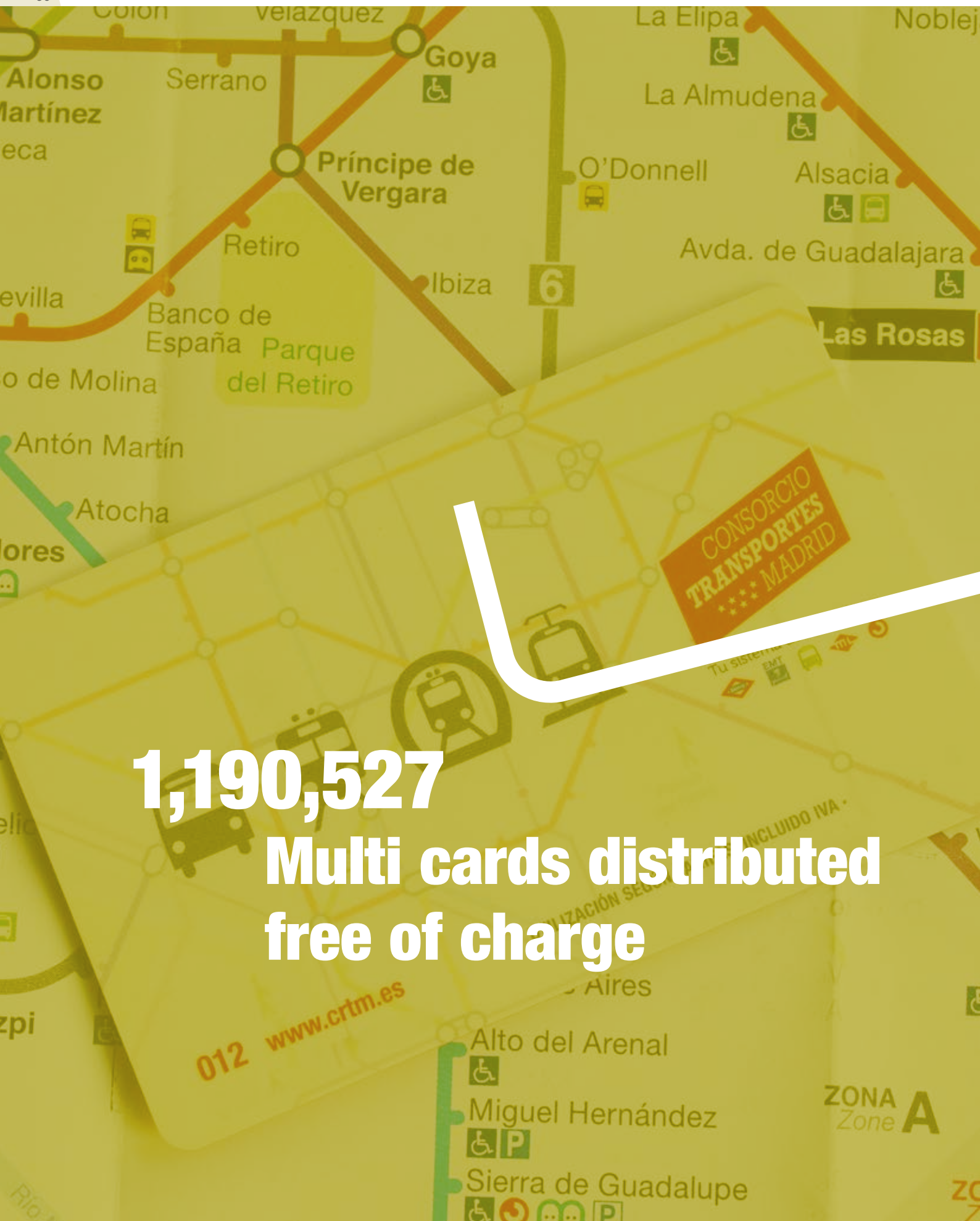
**ANNUAL EVOLUTION OF THE PRODUCTION (millions of cars-kilometre)**



**OFFER DURING WEEKDAY PEAK HOUR**

	Trains	Cars per train	Operating speed (km/h)	Trip time (min) (round trip)	Interval (min)
Línea <b>9</b> b	7	3 double and 4 triple	53.7	42.6	6.1





**1,190,527**

**Multi cards distributed  
free of charge**

# 3

## The fare system

The fare system of the public transport of the Community of Madrid is defined as a zonal system, in which the price of the trip is determined based on the zones that are travelled, and in which there are three types of transport tickets directed at other general traveller categories.

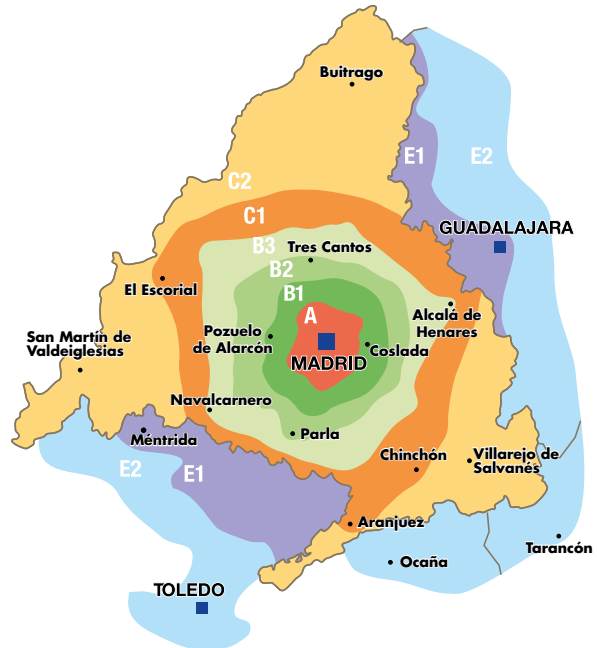
According to the Law of Consortium Creation, the tickets used by more than one operator belong to the CRTM, which is responsible for their issue and sale. All of the modes and operators are included within this framework, ultimately creating a system with a high level of integration.

As for the technology, in 2017, all of the personal tickets used the Public Transport Card, with a contactless micro-processor. For the remaining tickets, on 7 July, the move from magnetic technology to contactless technology was initiated, as described below.

### 3.1 Zoning

The Community of Madrid is divided into six fare zones:

- ▶ A central zone (A), that practically coincides with the municipality of Madrid.
- ▶ Three metropolitan zones (B1, B2 and B3) with 8, 14 and 27 municipalities, respectively.
- ▶ Two zones (C1 and C2) until completing the administrative border of the Community of Madrid, which has a population disseminated over the 129 remaining municipalities.
- ▶ In addition, two exterior zones have been defined (E1 and E2), included in the bordering community of Castilla-La Mancha, up to a distance from the city capital of 59 and 85 kilometres, respectively.



### 3.2 Ticket types

There are three major transport ticket types:

- ▶ **A single ticket**, valid for each operator, intended for occasional use and to be acquired at the time of its use. In the case of the Madrid Metro and metro concessions and light rail, there is a single combined ticket valid for this set of services.
- ▶ **A 10-trip ticket**, intended for users of intermediate use and for anticipated purchase. In Zone A there are two types of tickets of this sort: Metrobus, valid for indistinctive use on the Metro, EMT and ML1, in addition to the concessions of the Prisei and Alacuber companies, within the municipality of Madrid; and the other, the ten trip ticket with transfer, exclusively valid for the EMT, which permits the change of line in a period of one hour as of the first validation. In zones B and C there is a ten trip multi-operator ticket (unified bonobus) for all urban and suburban road transport transport operators. Similarly, and like the simple combined ticket for services connected to the metro and light rail, there is a combined ten trip ticket.
- ▶ **A personal ticket, multi-modal and of unlimited use**, in the period and zone of validity, known as the Abono Transporte (Travel Pass), intended for regular users and to be purchased in advance. Its period of validity is 30 days, as of the date of its initial use. There are distinct prices for the passes, depending on user age, with three categories: Young (up to 26 years of age); Normal (between 26 and 64 years of age), and Senior (65 years of age and over).

The sections outside of the Metro network are functional exceptions to this general fare system, with the lines of Metro Liger Oeste having a unique rate for non-personal tickets. On the other hand, the use of stations offering service to the airport are charged with a supplemental payment, with users of the Travel Pass and Tourist Tickets being exempt from this charge. Finally, the EMT Express Airport line has a specific ticket.



The so-called Tourist Tickets are also personal tickets and of unlimited use, intended for visitors. They are distributed in two unique zonal modalities: A and T (all zones, including the external ones), each of which is valid for five time periods: 1, 2, 3, 5 and 7 calendar days beginning as of the date of its first use.



### 3.3 Social fares

There are four types of groups that benefit from a reduced general price:

- ▶ **Large families** (20% and 50% discount in the general and special categories, respectively).
- ▶ **Individuals with a disability equal to or exceeding 65%** (20% discount). In the case of meeting the two previous conditions, the corresponding discounts are applied.
- ▶ **Seniors over the age of 65** or individuals with disabilities residing in the Madrid municipality whose income is lower than a specific amount with relation to the IPREM (Multiplier for Public Income Index, 7,519.59 € annually in 2017), with a specific pass, the Blue Card, valid in Madrid Metro services (zone A), ML1 and EMT of Madrid.
- ▶ **Pass for the unemployed** registered in the Employment Activation Program (PAE).

Finally, the **Children's Public Transport Card** permits the free use of all transport services in the Community for children aged 4, 5 and 6 years of age.

As a new measure to be enforced as of July of 2017, discounts on single tickets and 10 trip tickets, may be applied for those with large families or with disabilities.



### 3.4 The distribution network

There are two large groups of distributors:

- ▶ **Transport operators**
- ▶ **External operator networks**

Transport operators, in general, sell the transport tickets that are used exclusively in their network.

Multi-modal and multi-operator tickets, property of the CRTM, are sold in the metro network (over 1200 automatic machines), in the transport interchanges (10 trip tickets of suburban road transport operators), and in two external networks: the network provided by Logista, consisting of tobacco and stamp shops and other authorised establishments, which distribute all of the tickets in a network of over one thousand sales points; and automatic bank machines of Bankia of the Community of Madrid (with approximately 1500 points available), which recharge the 30 day passes and the 10-trip tickets.

Tourist tickets are distributed in the network of the Madrid Metro and in the Management Offices of the cards, located in the airport. As of 7 July, with the standardisation of the contactless technology, it is also possible to charge them in the indicated external networks.

CRTM directly markets these titles to the groups and collectives that demand it, congresses, etc.

### 3.5 The fares

In 2017, the prices from 1 February 2013 were maintained. This is the date of the last fare revision, and only affected the price of the Travel Passes.

The Ministry of Public Works and Transport is responsible for approving the fares corresponding to the tickets of Renfe-Cercanías.

#### TRAVEL PASS (30 day)

	A	B1	B2	B3	C1	C2	E1	E2
<b>Normal (26 to 64 years old)</b>	54.60€	63.70€	72.00€	82.00€	89.50€	99.30€	110.60€	131.80€
<b>Young (7 to 25 years old)</b>					20.00€			
<b>Senior (from 65 years old)</b>					12.30€			
<b>Blue Card</b>	6.20€							
<b>PAE</b>					10.00€			

#### INTER-ZONAL (except with zone A)

	2 zones	3 zones	4 zones	5 zones	6 zones	7 zones
<b>Normal (26 a 64 years old)</b>	47.90€	54.60€	63.70€	72.00€	82.00€	89.50€

There are annual passes that are valid for the entire calendar year, whose price is the equivalent of 10 times the corresponding 30-day Travel Pass, with the exception of the Pass for the disabled. Children under the age of 4 may travel without a ticket.

**SINGLE TICKET AND 10 –TRIP TICKET FOR METRO AND LIGHT RAIL**

Zone	Metro Zone A+ML1 <b>A</b>	Metro Norte <b>B1</b>	Metro Este <b>B1</b>	Metro Sur <b>B1-B2</b>	TFM y MLO <b>B1-B2-B3</b>	Combined metro and light rail <b>A-B1-B2-B3</b>
Single	1.50€-2.00€	1.50€	1.50€	1.50€	2.00€	3.00€
10 trip	12.20€	11.20€	11.20€	11.20€	12.20€	18.30€

Airport supplement 3.00€

**SINGLE TICKET AND 10-TRIP FOR URBAN AND SUBURBAN BUSES**

	EMT	A	1 zone	2 zones	3 zones	4 zones	5 zones	6 zones
Single	1.50€	1.50€	1.30€	2.00€	2.60€	3.60€	4.20€	5.10€
10 trip	12.20-18.30€		8.50€	12.20€	16.10€	23.00€	29.70€	37.40€

Express Airport Line: 5.00€

**TOURIST TICKET**

	1 day	2 days	3 days	5 days	7 days
Zone A	8.40€	14.20€	18.40€	26.80€	35.40€
Zone T (all zones)	17.00€	28.40€	35.40€	50.80€	70.80€

50% discount for children under 11 years old



**Tarjetas Transporte Público · Public Transport Cards**

PARA UTILIZAR LOS SERVICIOS DE TRANSPORTE ES NECESARIO DISPONER DE UNA TARJETA TRANSPORTE PÚBLICO  
TO USE THE TRANSPORT SERVICES YOU NEED A PUBLIC TRANSPORT CARD

**Usuarios**  
Users

**Adquisición · Acquisition**

**Títulos de transporte · Transport Tickets**

	ESTACIONES STATIONS	ESTANCOS TOBACCO SHOPS	OFICINAS GESTIÓN MANAGEMENT OFFICES	INTERNET	SENCILLO / 10 VIAJES SINGLE / 10-TRIPS	ABONO TRANSPORTE TRAVEL PASS	BILLETE TURÍSTICO TOURIST TICKET
<b>MULTI</b> 2,50€ Hasta 3 títulos no personales. Up to 3 different types of non-personal tickets.	✓	✓	✗	✗	✓	✗	✓
<b>PERSONAL</b> 4,00€ 1 título personal y hasta 2 no personales. 1 travel pass and a maximum of 2 non-personal tickets.	✗	✗	✓	✓	✓	✓	✗

**INFANTIL** Gratuita  
Para niños de 4, 5 y 6 años de edad (los menores de 4 años pueden viajar sin título de transporte). Tarjeta personal que permite utilizar gratuitamente todos los servicios de transporte público de la Comunidad de Madrid. Se obtiene a través de internet, estancos u oficinas de gestión (con cita previa).

**CHILDREN** Free of charge  
For children aged 4, 5 and 6 years old (children under 4 can travel without a transport ticket). Personal transport card for the entire transport network of the Madrid Region. It is available through the Internet, at tobacco shops or by previous appointment at the Public Transport Card management offices.

**TARJETA AZUL**  
Tarjeta personal para empadronados en Madrid que cumplan determinados requisitos (www.crtm.es). La carga tiene un precio de 6,20€ y permite viajes ilimitados durante 30 días a partir de la primera utilización en los servicios de la zona A (excepto Renfe-Cercanías y línea de autobús Expres Aeropuerto).

**BLUE CARD**  
A personal card addressed to people with certain individual conditions (www.crtm.es) and registered as citizens of the municipality of Madrid. The loading fare is €6.20, with limitless use for 30 calendar days from its first validation, and is valid in zone A transport services, except Renfe-Cercanías and Airport Express bus line.

Todo viajero, antes de iniciar su viaje, habrá de estar provisto de un título de transporte válido acorde con el trayecto que ha de realizar y que deberá haber sometido a la oportuna validación y cancelación para dicho trayecto.

All passengers, before starting the trip, must hold a valid transport ticket in accordance to the journey to be made, and it is subjected to its timely validation for that trip.

(Artículo 24 del Reglamento de Viajeros del Ferrocarril Metropolitano de Madrid)

(Article 24 of the Madrid Metropolitan Railway Passenger Regulation)

**Tarifas · Fares**

**SENCILLO\* Y 10 VIAJES · SINGLE\* AND 10-TRIPS**

\* Un viaje en el día de la adquisición \* One trip on the acquisition date

**Metro zona A + ML1**

SENCILLO SINGLE 1,50 - 2,00€	10 VIAJES 10-TRIPS (METROBÚS) 12,20€
------------------------------	--------------------------------------

SENCILLO: 1,50€ en trayectos hasta 5 estaciones; 0,10€ adicionales por estación hasta un máximo de 2,00€.  
10 viajes (METROBÚS): válido para Metro zona A, autobuses EMT (excepto en su línea Expres Aeropuerto) y línea ML1 de metro ligero.  
Single: €1.50 up to 5 stations; €0.10 added per station up to a maximum of €2.00.  
10-Trips (METROBÚS): valid for Metro zone A, EMT urban buses (except Airport Express bus line), and ML1 light rail line.

**Metro Ligero Oeste** B1 B2

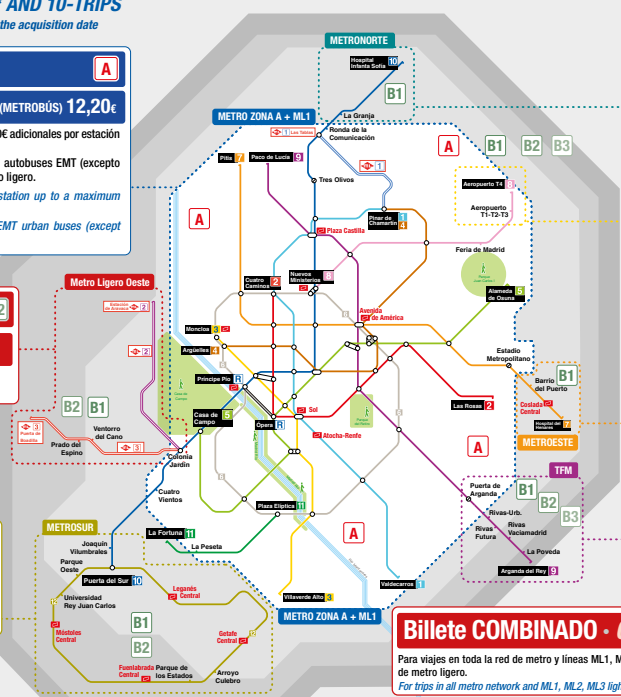
SENCILLO SINGLE 2,00€	10 VIAJES 10-TRIPS 12,20€
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ML2 (Colonia Jardín - Estación de Aravaca)  
ML3 (Colonia Jardín - Puerta de Boadilla)

**MetroSur** B1 B2

SENCILLO SINGLE 1,50€	10 VIAJES 10-TRIPS 11,20€
-----------------------	---------------------------

L10 (Joaquín Vilumbrales - Puerta del Sur)  
L12



**MetroNorte** B1

SENCILLO SINGLE 1,50€	10 VIAJES 10-TRIPS 11,20€
-----------------------	---------------------------

L10 (Hospital Infanta Sofía - La Granja)

**Suplemento AEROPUERTO AIRPORT additional payment** +3,00€

Para entrar o salir a las estaciones de Metro del aeropuerto hay que abonar un suplemento, excepto los viajeros con Abono Transporte o billete turístico.  
Entering or leaving airport Metro stations requires an additional payment, except passengers holding a Travel Pass or a tourist ticket.

**MetroEste** B1

SENCILLO SINGLE 1,50€	10 VIAJES 10-TRIPS 11,20€
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L7 (Hospital del Henares - Barrio del Puerto)

**TFM** B1 B2 B3

SENCILLO SINGLE 2,00€	10 VIAJES 10-TRIPS 12,20€
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L9 (Puerta de Arganda - Arganda del Rey)

**Billete COMBINADO · COMBINED Ticket** A B1 B2 B3

SENCILLO SINGLE 3,00€	10 VIAJES 10-TRIPS 18,30€
-----------------------	---------------------------

Para viajes en toda la red de metro y líneas ML1, ML2 y ML3 de metro ligero.  
For trips in all metro network and ML1, ML2, ML3 light rail lines.

**ABONO TRANSPORTE · TRAVEL PASS**

Título de transporte personal de utilización ilimitada durante 30 días desde su primera validación, en todos los servicios de transporte público de la zona tarifaria correspondiente, excepto la línea de autobús Expres Aeropuerto. También existe un abono de validez anual.

A personal travel pass with 30 days validity from its first validation that allows for unlimited use on any public transport mode, in accordance to the loaded fare zone, except Airport Express bus line. There is also a one-year validity travel pass.

ZONA	A	B1	B2	B3	C1	C2	E1	E2	INTERZONALES ENTRE LAS ZONAS B1 y E2
7-25 años JOVEN YOUNG	20,00€								2 zonas 3 zonas 4 zonas 5 zonas 6 zonas 7 zonas
26-64 años NORMAL STANDARD	54,60€	63,70€	72,00€	82,00€	89,50€	99,30€	110,60€	131,80€	47,90€ 54,60€ 63,70€ 72,00€ 82,00€ 89,50€
Desde 65 años 3ª EDAD SENIOR	12,30€								

**BILLETE TURÍSTICO · TOURIST TICKET**

Título personal con validez para 1, 2, 3, 4, 5, 6, 7 días naturales y consecutivos.  
- Zona A: todos los servicios de esta zona.  
- Zona T: todos los servicios de la Comunidad de Madrid, incluyendo zonas E1 y E2, excepto servicios Renfe a Toledo.  
No es válido en la línea de autobús Expres Aeropuerto.

Días naturales y consecutivos - Calendar consecutive days

	1 día day	2 días days	3 días days	4 días days	5 días days	7 días days
ZONA ZONE A	8,40€	14,20€	18,40€	22,60€	26,80€	35,40€
ZONA ZONE T	17,00€	28,40€	35,40€	43,00€	50,80€	70,80€

Descuento del 50% para niños menores de 11 años 50% Discount for children under 11

Todos los títulos de transporte se pueden cargar en las máquinas de las estaciones de metro y metro ligero, estancos, cajeros automáticos de Bankia y otros puntos autorizados. El Abono Transporte y el billete turístico se pueden cargar también en las máquinas de las estaciones de Renfe-Cercanías.

All types of transport tickets can be loaded at the ticket machines of metro and light rail stations, tobacco shops, Bankia ATMs, and any other licensed points of sale. The Travel Pass and the tourist ticket can also be loaded at the ticket machines of Renfe-Cercanías stations.

Existen descuentos para familias numerosas (50% especial, 20% general) y para personas con discapacidad ≥65% (20%)  
There are discounts for large families (special category 50%, general category 20%), and for disabled people ≥65% (20% discount)

Información tarifaria Fares information

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Lunes a viernes de 8:00 a 22:00 h - Sábados y festivos de 10:00 a 22:00 h  
Monday to Friday: 8:00 to 22:00 h - Saturday and holidays: 10:00 to 22:00 h  
012 www.crtm.es

Información de Metro de Madrid Metro de Madrid Information  
7:00 - 23:00 h  
902 444 403 www.metromadrid.es

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CONSORCIO TRANSPORTES DE MADRID  
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## 3.6 The technology

The technology of the contactless ticket is a strategic project for the integrated system of public transport of the Community of Madrid. With its progressive implementation, this technology has been a major advance in the area of fare and technological unification of all of the systems and operators of transport, offering new means of safety, comfort and flexibility to users of the contactless cards.

In addition, this technology has notably increased the management capacity of the CRTM for the improved planning of the services, improved efficiency and cost reduction, and the obtaining of new data that already serves as the basis for the analytical work with big data technology.

Of the elements forming a part of this new technological development, we highlight the transport tickets (Public Transport Card) and the centre of testing development for its progressive implementation.

### a. The Public Transport Card (TTP)

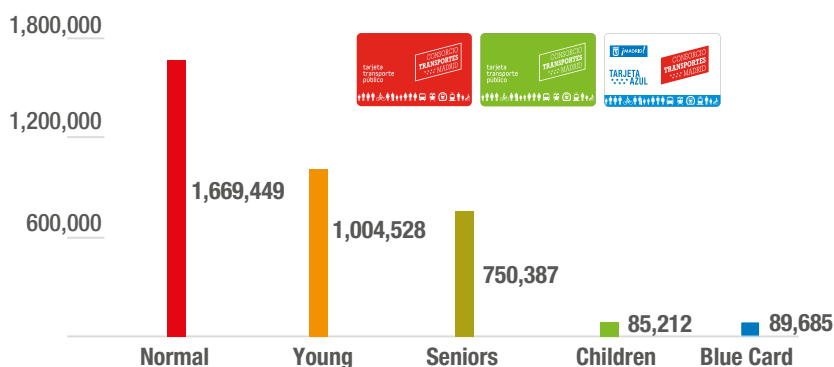
2017 has been the year of the disappearance of the magnetic technology, and therefore, the standardisation of contactless technology, as a support for the transport cards of the fare system.

The distinct public transport tickets may be included in two types of public transport cards: personal and non-personal. The former may contain a personal ticket and two additional non-personal tickets. The non-personal cards (Multi) only contain non-personal tickets.

#### Personal Public Transport Cards

The number of active personal cards as of 31 December 2017 has reached **3,602,223 million**, 14.5% more than in 2016, with a slight increase in the number of young and normal ticket users, a 16% increase in both cases.

#### ACTIVE CARDS BY PROFILE



**More than  
3.6 million  
active  
cards**

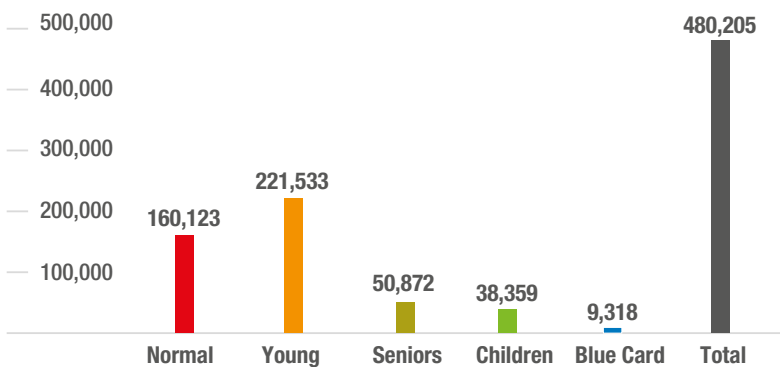
In 2017, a total of 480,205 new cards were issued, 4 % less than the previous year. In the following table, their distribution via channels of obtention are shown for each user profile, except in the case of the Blue Card, which is only requested in the offices of Citizen Attention in the City Hall of Madrid. The Management Offices are the preferred channel for users, with 74% of the cards being obtained here, whereas the Internet is used by 19% and tobacco and stamp shops for the remaining 7%.

These means differ however, according to the profile at hand, with the on-line channel having the greatest share in the case of child cards (42%), followed by the young people (21%), the normal profile (17%) and in last place, the seniors (6%).

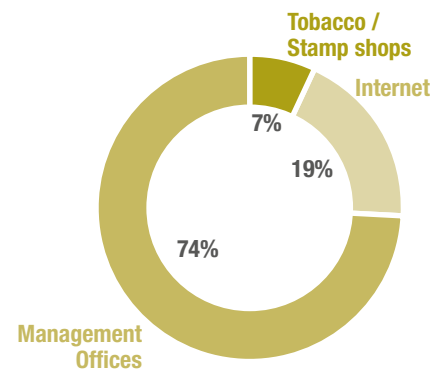
### CARDS ISSUED BY PROFILE / CHANNEL

	Tobacco Shops	Internet	Management Offices	Total
Normal	7,113	27,203	125,807	160,123
Young	11,971	45,338	164,224	221,533
Seniors	8,618	2,931	39,323	50,872
Children	3,635	16,121	18,603	38,359
<b>Total</b>	<b>31,337</b>	<b>91,593</b>	<b>347,957</b>	<b>470,887</b>

### CARDS ISSUED BY PROFILE



### ISSUED BY CHANNEL



The monthly average of cards requested is 40,017, with the highest number of requests occurring in the month of September with over 58,000 new cards, as is typical due to the high number of requests coinciding with the start of the new academic year.

### Multi Card

On 7 July 2017, the introduction of the Multi card took place in the fare system, as a support for the non-personal tickets. Single tickets of bus operators remained in their paper format, and are issued aboard the bus, at the time of initiating the trip.

The card may be acquired in the vending machines of the metro and light rail line stations and in the points of sale of the Logista network, and have a duration of ten years, like the personal cards. Their price is 2.50€.

In order to promote the use of the card and to facilitate its knowledge prior to the disappearance of the magnetic tickets, a promotional campaign was carried out which extended over 100 days, and in which they **were offered free of charge**, via a website that was exclusively established for this purpose, delivering a total of **1,190,527 Multi cards**.

Similarly, the CRTM, as part of its social corporate responsibility, provided the General Management of Social Services with a total of 38,000 cards, for use by diverse organisations, to be delivered free of charge to individuals integrated in the groups that they manage.

The following chart summarises the Multi cards that have been placed in circulation during 2017.

### MULTI CARDS IN CIRCULATION (as of 31 December 2017)

			Total launch period
<b>Free of charge</b>	Social services	38,000	<b>1,228,527</b>
	Delivered in promotion	1,190,527	
<b>Sales</b>	Logista	281,793	<b>2,183,386</b>
	Metro	1,901,593	
<b>TOTAL Multi card distribution</b>		<b>3,411,913</b>	

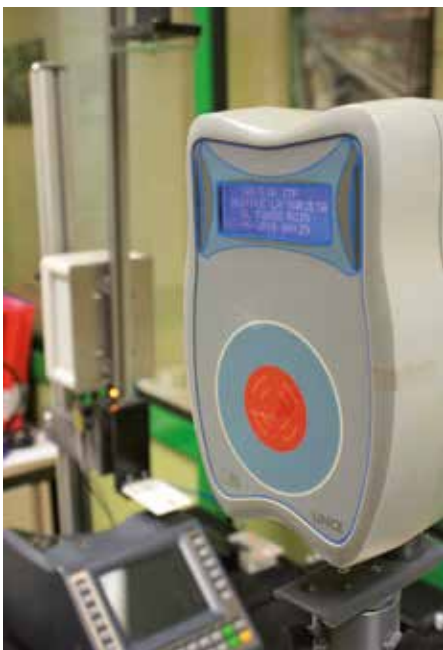
As for the purchase of tickets through the Multi card, the tickets charged during 2017 exceeded 9 million, which were distributed over the Metro network, with 85%, Logista with 14.5% and Bankia with 0.5%.

The sale of magnetic tickets continued until 31 October 2017, and their use continued until 31 December.

#### b. The Centre of Development and Conformity (CDC)

The Centre of Development and Conformity (CDC) began its work in 2006, and its main objective is to be a centre of technological advancement, ensuring the compatibility of all of the elements, equipment and systems, both hardware and software, that makes up or could make up the **Intelligent Ticketing System of the Community of Madrid**.

Since 2017, numerous tests have been conducted in the areas of validation and charge, to ensure the appropriate integration of the Multi card in the infrastructure of public transport of the Community of Madrid. More specifically, the automatic issue of this type of card in the Metro has been verified, also testing the incorporation of the additional functions in the charge application (in distinct sales networks: Metro, Logista, Renfe-Cercanías and Bankia). Also, validation tests have been conducted in the distinct transport operators, with regards to the new card type, and work continues to be carried out on the creation of a contactless card in mobile telephones, using the NFC communications protocol, in order to offer travellers an alternative means of charging their transport ticket.





**1,503  
million trips in 2017**





# 44

## The travellers

The total number of trips made in the public transport system of the Community of Madrid during 2017 reached a total of 1,503 million, representing an increase of 4.0% with respect to the previous year, 57.3 million in absolute terms.

This figure indicates an average of 231.1 trips per inhabitant and year, 3.3% higher than the previous year, and continues to place the Community of Madrid as the top reference for the use of public transport in this country.

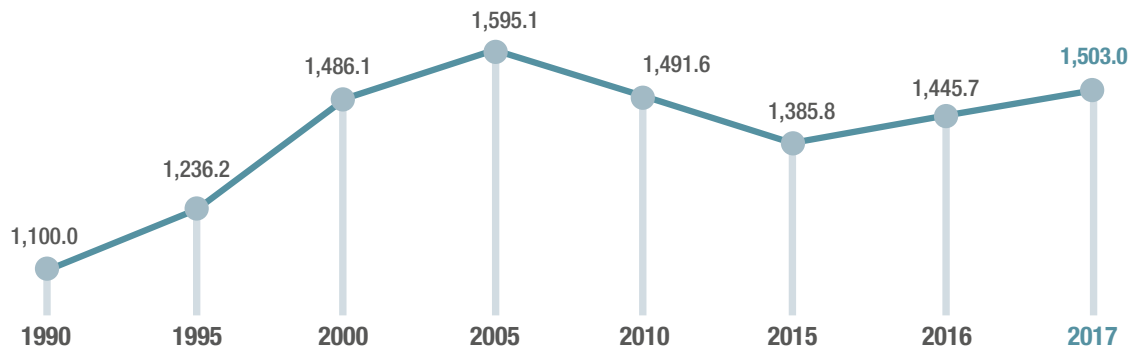
## 4.1 Demand evolution by operator

### DEMAND EVOLUTION (millions) Period 1990-2017

AÑO	Metro de Madrid	EMT	Road transport concessions	Renfe-Cercanías	Light rail <sup>(1)</sup>	Other railway concessions <sup>(2)</sup>	TOTAL
<b>1990</b>	416.3	433.3	154.1	96.3	-	-	<b>1,100.0</b>
% VAR 90/89	5.5%	-4.7%	10.5%		-	-	2.8%
<b>1995</b>	397.2	521.5	191.6	126.0	-	-	<b>1,236.2</b>
% VAR 95/90	-4.6%	20.3%	24.4%	30.8%	-	-	12.4%
<b>2000</b>	518.9	531.2	270.1	161.2	-	4.7	<b>1,486.1</b>
% VAR 00/95	30.7%	1.9%	40.9%	28.0%	-	-	20.2%
<b>2005</b>	643.6	470.2	275.6	199.0	-	6.7	<b>1,595.1</b>
% VAR 05/00	24.0%	-11.5%	2.0%	23.5%	-	42.9%	7.3%
<b>2010</b>	627.1	423.4	235.8	181.6	17.3	6.4	<b>1,491.6</b>
% VAR 10/05	-2.6%	-10.0%	-14.4%	-8.8%	-	-4.8%	-6.5%
<b>2015</b>	569.7	405.9	207.3	182.2	14.7	5.9	<b>1,385.8</b>
% VAR 15/10	-9.2%	-4.1%	-12.1%	0.3%	-15.0%	-7.8%	-7.1%
<b>2016</b>	584.8	430.1	224.1	184.6	15.8	6.2	<b>1,445.7</b>
% VAR 16/15	2.7%	6.0%	8.1%	1.3%	7.5%	5.3%	4.3%
<b>2017</b>	626.4	427.9	232.7	192.5	16.9	6.5	<b>1,503.0</b>
% VAR 17/16	7.1%	-0.5%	3.8%	4.3%	6.8%	4.7%	4.0%

(\*) In 2000, the procedure for the calculation of trips was modified (cancellations instead of home surveys).

(1) Includes the MLM, MLO and Parla Tram operators.

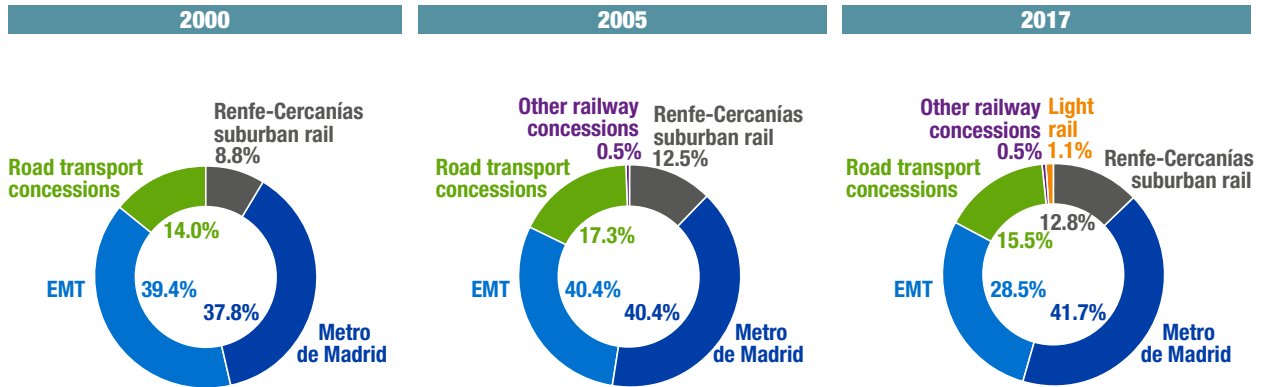


The figures that are presented as trips refer to the commercial stages carried out by the users, so transfers count as trips except in the case of those occurring in the Madrid Metro and in Renfe-Cercanías, in which they are not penalised from a fare point of view. Exceptionally, and despite the fact that this same treatment occurs in the interchanges between Madrid Metro and Metros Ligeros de Madrid (line ML1), given that they are different modes and operators, these are in fact counted as trips.

All operators, except for the EMT, experience increases in travellers with relation to the previous year, situating Madrid Metro at the head, with an increase of 7.1%, followed closely by the light rail and then by the other operators in very similar proportions, approximately 4%. EMT loses 0.5%, mainly as a result of the difference in importance of the special services due to cut offs of metro lines between the two years.

This noteworthy position of the Madrid Metro contributes to the improvement of the distribution of all of the demand in its favour, winning almost one point in its participation share, with 41.7% out of all of the trips. The decrease of the EMT, however, means that these two operators retain the same 70.2% of the total of the demand presented over the prior fiscal year.

### EVOLUTION OF THE TOTAL DEMAND BY OPERATORS



## 4.2 Demand evolution by transport tickets

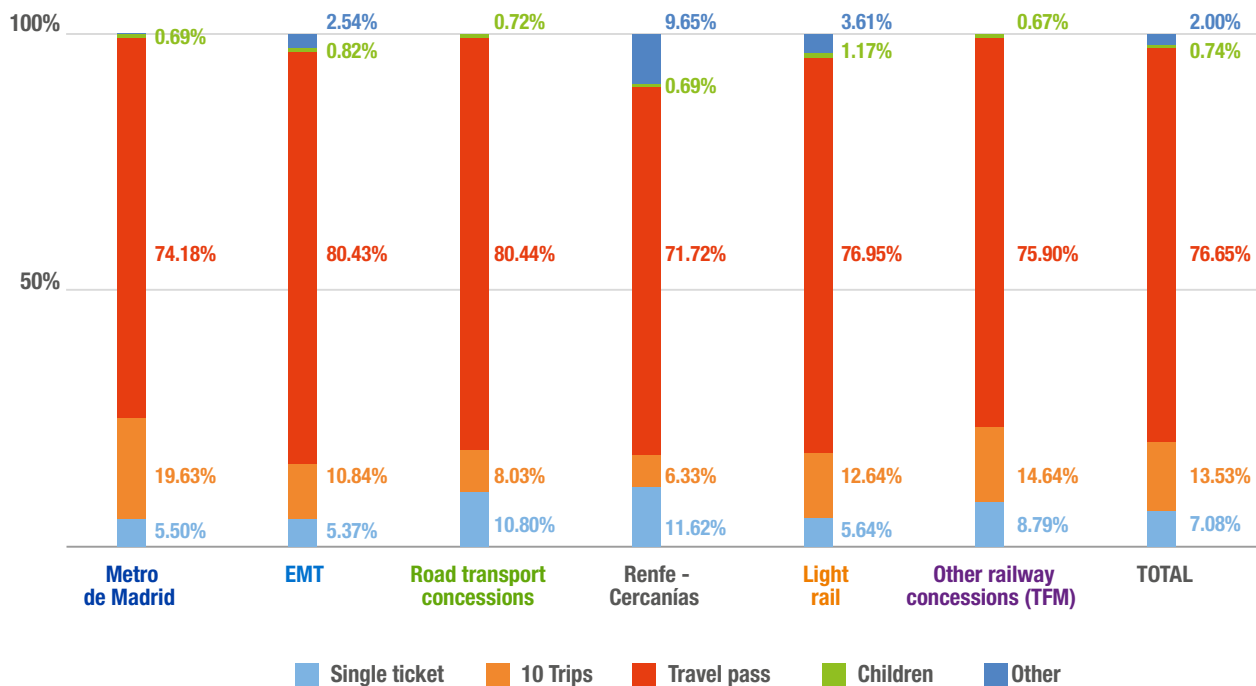
As for the distribution of the demand by ticket type, and having kept the fares unaltered, variations with respect to the previous year are considered irrelevant, with slight decreases being found for the single tickets and the ten trip tickets. **The Travel Pass, with 1,152 million trips, represented 76.6% of the total demand**, one point more than the previous year. If we are to add the eleven million trips made with the Children's Public Transport Card, the total reaches 77% of the total trips made. Trips made using other tickets declines, basically due to a decrease in this group of Renfe-Cercanías.

### ANNUAL TRIPS DISTRIBUTION PER TICKET TYPE 2017

Single ticket Transport operator	10 trips tickets		Travel pass		Children	
	Trips	% Total	Trips	% Total	Trips	% Total
Metro de Madrid	34,425,374	32.4%	122,993,553	60.5%	464,655,976	40.3%
EMT	22,960,154	21.6%	46,388,011	22.8%	344,177,413	29.9%
Road transport concessions	25,140,140	23.6%	18,696,593	9.2%	187,190,218	16.3%
Renfe-Cercanías (Suburban rail)	22,364,477	21.0%	12,186,380	6.0%	138,081,720	12.0%
Light rail	952,699	0.9%	2,136,593	1.0%	13,009,143	1.1%
Other railway concessions (TFM)	568,859	0.5%	947,485	0.5%	4,913,596	0.4%
<b>Total</b>	<b>106,411,703</b>		<b>203,348,615</b>		<b>1,152,028,067</b>	

(1) Includes Multi tickets (Madrid Metro) / monthly Renfe Pass, RENFE identification card (Renfe – Cercanías)

### DISTRIBUTION OF DEMAND BY TICKET AND OPERATOR TYPE

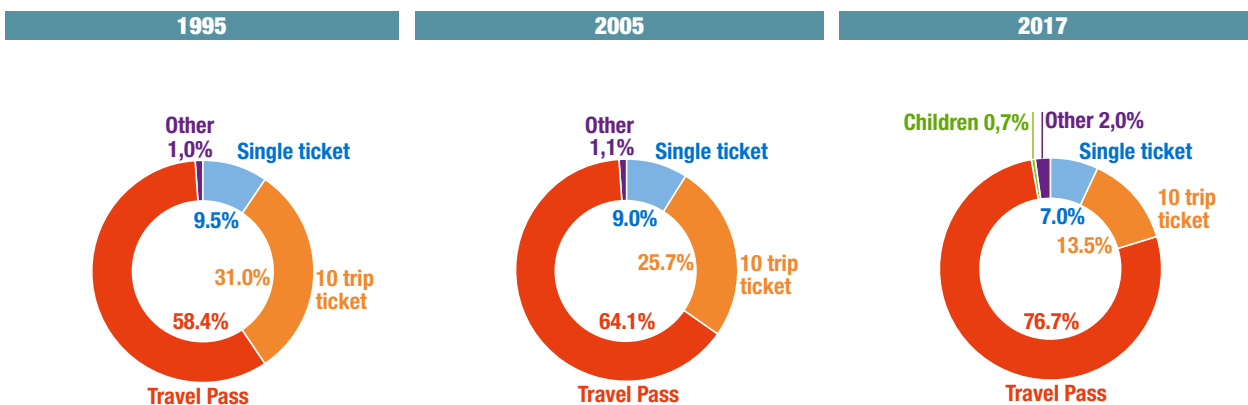




**1,152 million trips with the Travel Pass**

Other <sup>(1)</sup>		Total			
Trips	% Total	Trips	% Total	Trips	% Total
4,305,530	38.9%	22,645	0.1%	626,403,077	41.7%
3,525,120	31.8%	10,879,693	36.1%	427,930,391	28.5%
1,678,227	15.2%	0	0.0%	232,705,178	15.5%
1,320,734	11.9%	18,588,978	61.8%	192,542,289	12.8%
197,102	1.8%	609,447	2.0%	16,904,984	1.1%
43,413	0.4%	0	0.0%	6,473,353	0.4%
<b>11,070,125</b>		<b>30,100,763</b>		<b>1,502,959,272</b>	

**EVOLUTION OF THE ANNUAL DISTRIBUTION OF TRIPS BY TICKET TYPE**



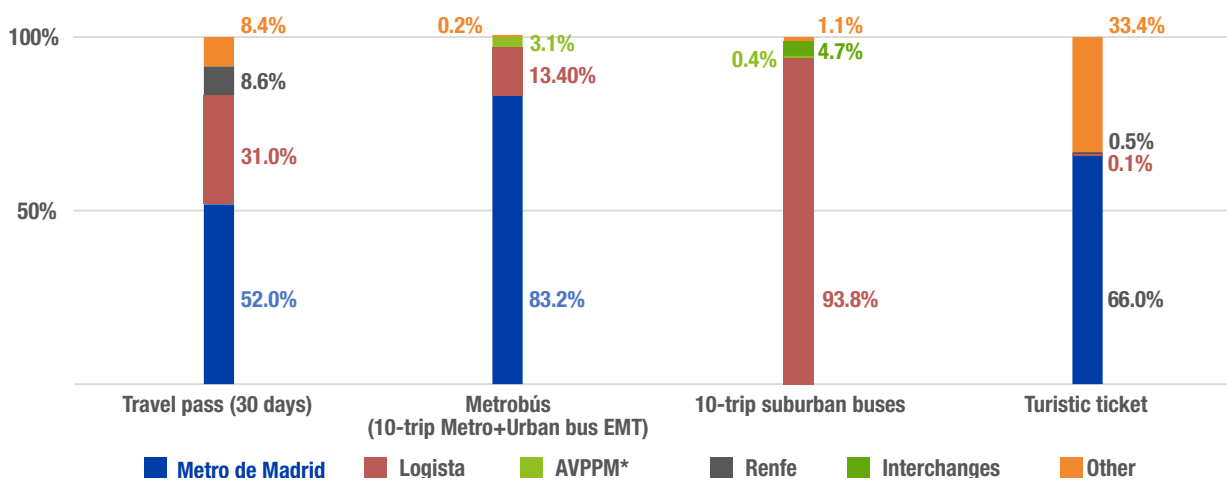
The participation of the Travel Pass is more relevant in the case of urban and suburban buses, 80.4%, not considering the Children's Transport Card, given the treatment of the fares for transfers between lines. An average of 59.3 trips are made by each pass holder on a monthly basis. The single ticket makes up 7.1% of the total, and the ten-trip tickets make up 13.5%.

### 4.3 Sales of transport tickets

Below we analyse the sale of the distinct types of Travel Passes. Information related to the sale of the other tickets whose issue corresponds to the CRTM (combined single and ten-trip tickets of the metro network and light rail and ten trip "Metrobus" tickets and "bonobus" tickets of suburban operators) do not add a significant added value to the distribution of the trips presented in the previous chapter.

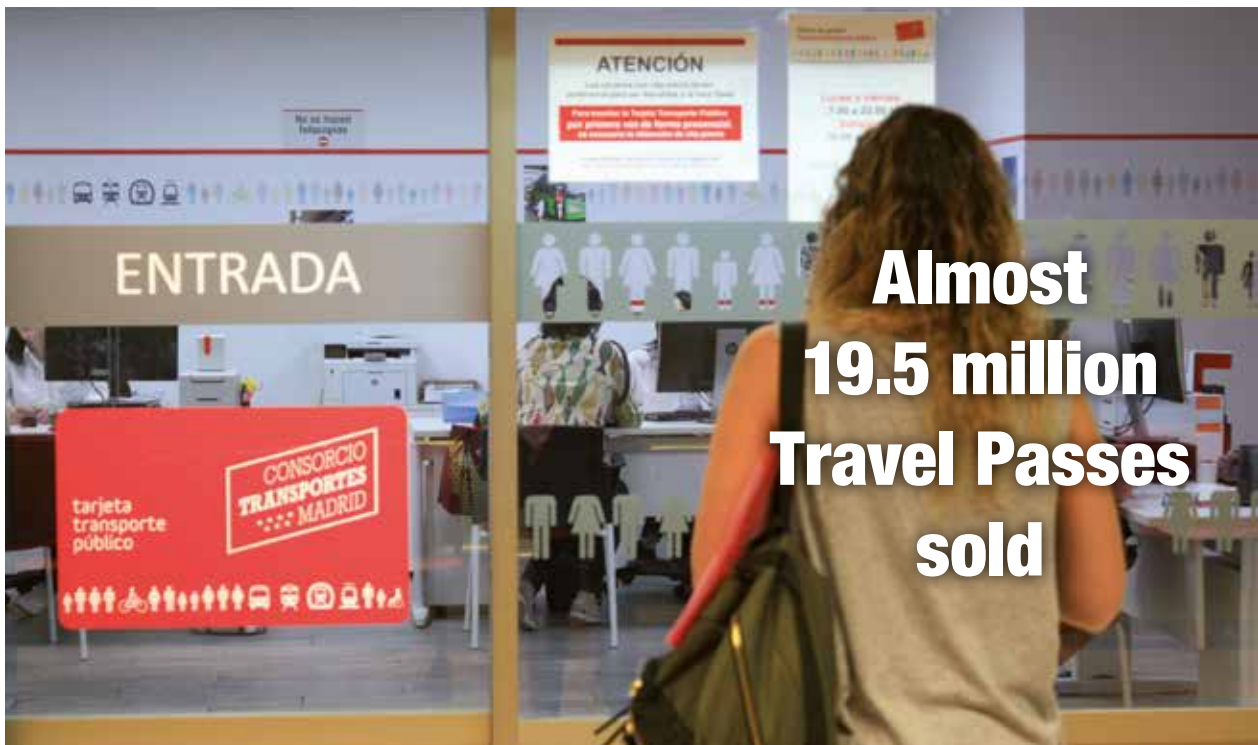
However, the graph presented below reveals the distribution by commercial networks of the sale of all tickets sold by the CRTM. The importance of the Madrid Metro is highlighted, as it distributes more than half of the travel passes and 83.2% of the Metrobus, the ten-trip ticket for zone A. The Logista sales point network plays a major role, offering external support to the transport network, with 31% of the sale of Travel Passes, 13.4% of the Metrobus sales and a majority 93.8% of the suburban bonobuses. The network of Bankia automatic tellers participates with a very limited relevance (1.8%) and is included in the "others" section. This section also includes the very CRTM as a distributor and that represented by the Transport Card Management Offices network, with its participation being especially relevant in the case of the tourist ticket, by the offices located in the airport facilities.

#### DISTRIBUTION OF TICKET SALES BY DISTRIBUTORS



In 2017, a total of 19,437,240 travel passes for all zones and user profiles were sold. This figure, which represents an increase of 6.2% from the previous year, includes the charging of 30 day tickets made for contactless cards and annual travel passes in monthly instalments.





**Almost  
19.5 million  
Travel Passes  
sold**

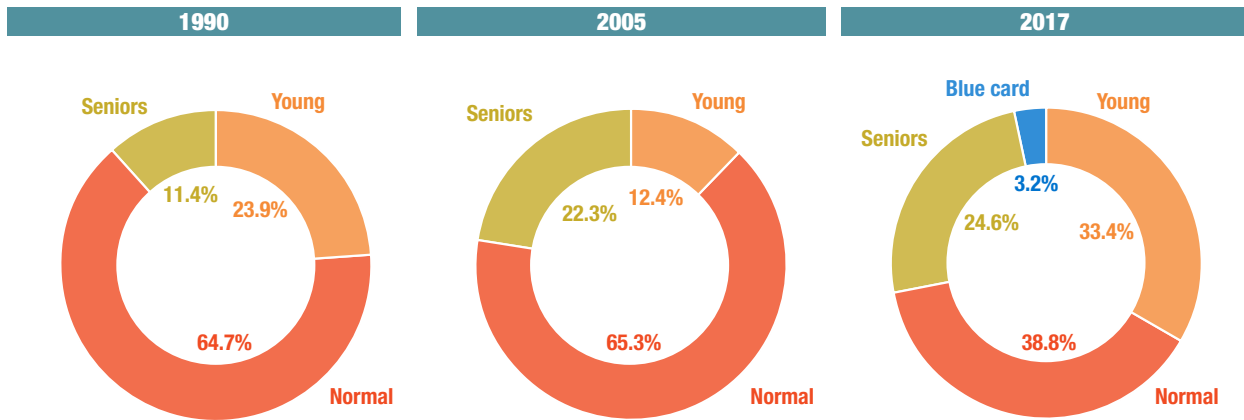
#### SALE OF TRAVEL PASS BY USER PROFILE, 1990-2017 PERIOD

	Normal	Young	Senior	Blue card	PAE	TOTAL
<b>1990</b>	3,404,593	1,260,108	599,477			<b>5,264,178</b>
<b>1995</b>	5,254,389	2,248,617	1,634,361			<b>9,137,367</b>
<b>2000</b>	7,732,219	2,079,622	2,647,205			<b>12,459,046</b>
<b>2005</b>	9,075,624	1,723,581	3,091,332			<b>13,890,537</b>
<b>2010</b>	8,386,456	1,724,270	4,102,935	377,426		<b>11,591,087</b>
<b>2015</b>	7,545,684	3,133,459	4,560,714	565,863	503	<b>15,806,223</b>
<b>2016</b>	7,243,501	5,794,760	4,662,945	594,615	4,669	<b>18,300,490</b>
<b>2017</b>	7,534,012	6,489,690	4,785,347	622,085	6,106	<b>19,437,240</b>
<b>% VAR. 17/16</b>	<b>4.0%</b>	<b>12.0%</b>	<b>2.6%</b>	<b>4.6%</b>	<b>30.8%</b>	<b>6.2%</b>

The Youth Pass virtually duplicates this average increase, going on to represent 33.4% of all of the sales, almost two points higher than the previous year. The rest of the travel passes reveal growth that is below the mean, with the evolution of the Normal Travel Pass being especially noteworthy, having behaviour that denotes the growing tendency of the demand. So, after the temporary decrease of the two prior years, due to the absorption of the Youth Pass of part of the passes in this profile, given the three-year extension of validity of the former, since 2010, the series has revealed how the economic crisis has seriously affected the demand and therefore, the sales. The 4% increase in 2017 is an indicator of the strength of the recovery.

Thus, less than half of the travel passes (38.8%) are acquired by the population aged 26 to 64, whereas 33.4% corresponds to those under the age of 26, 24.6% corresponds to users over the age of 65 and 3.2% corresponds to Blue Card users.

## SALE OF TRAVEL PASSES BY USER PROFILE



The evolution of the sales by zones offers a complementary territorial perspective, while the first conclusion to be made is that, due to the importance of the flat fare passes, these represent 58% of all of the sales, limiting the zonal perspective exclusively to the normal travel passes, thereby conditioning the comparative perspective.

## EVOLUTION OF SALE OF TRAVEL PASSES BY ZONES

	Zone A	Zones B	Zones C	Inter-zonal <sup>(1)</sup>	Zones E <sup>(2)</sup>	Senior	Young	PAE	TOTAL
1990	2,742,169	1,828,803	93,729			599,477			5,264,178
1995	3,678,086	3,589,307	235,613			1,634,361			9,137,367
2000	4,150,359	5,273,279	388,203			2,647,205			12,459,046
2005	4,527,608	5,691,174	496,577		83,846	3,091,332			13,890,537
2010	4,918,640	4,696,330	438,939	354,046	80,197	4,102,935			14,591,087
2015	5,088,904	3,921,637	370,518	375,532	83,712	4,560,714	1,404,703	503	15,806,223
2016	4,215,656	3,060,871	264,507	238,352	59,366	4,662,945	5,794,124	4,669	18,300,490
2017	4,410,108	3,157,683	268,676	256,510	63,683	4,785,347	6,489,127	6,106	19,437,240
<b>%VAR 17/16</b>	<b>4.6%</b>	<b>3.2%</b>	<b>1.6%</b>	<b>7.6%</b>	<b>7.3%</b>	<b>2.6%</b>	<b>12.0%</b>	<b>30.8%</b>	<b>6.2%</b>

(1) Travel Passes B1-B2, B2-B3, B3-C1 and C1-C2

(2) External zone to Madrid Community, which is an area part of Castilla-La Mancha region

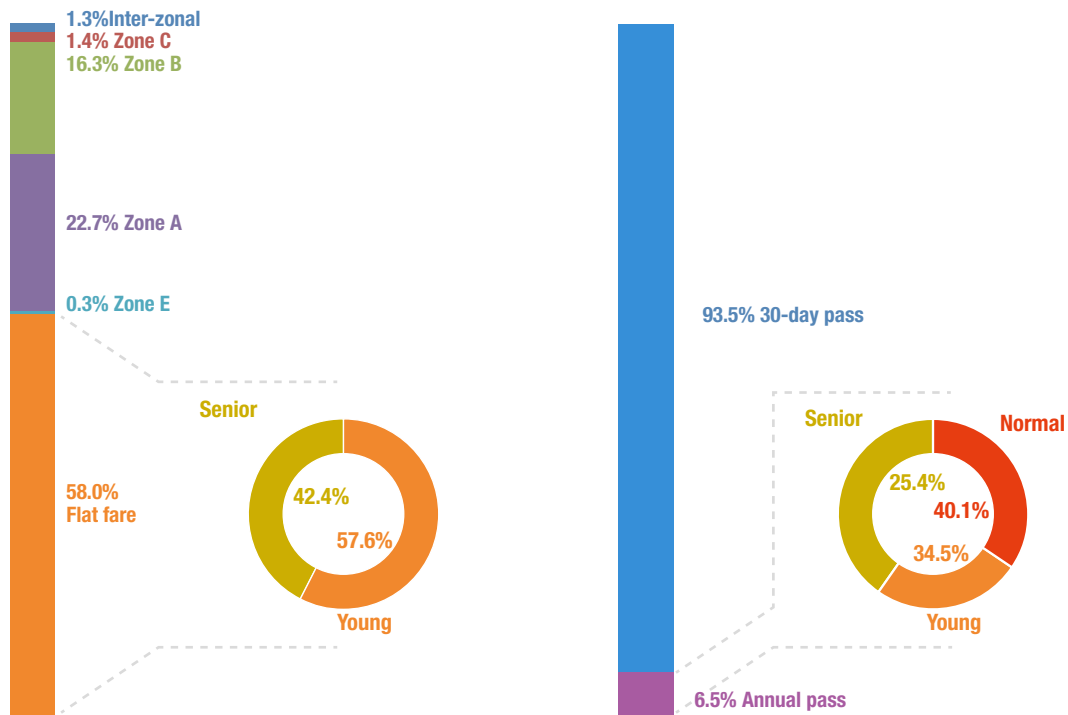
(3) Includes Blue Card from 2007 and on

Taking into account this observation, Zone A represents 22.7% of the total, compared to 19.3% of the other zones, suggesting a great displacement of passes that previously corresponded to the metropolitan zones in the flat rate youth pass, or that, in other words, the impact of this fare measure has been greater in the metropolitan crown area, in accordance with the distinct demographic structure of the population by ages, in the territory.

93.5% of the travel passes sold are 30 day passes, compared to 6.5% of the annual passes, which are mainly sold to normal Travel Pass users, 71.8%, while the senior annual pass users make up 24.5% and only 3.7% of the annual pass users are young users.



### SALE OF TRAVEL PASSES BY PROFILE AND ZONES



In 2017, a more marked seasonality was seen, with differences of 12.7% between the month having the most sales, October, with 1,825,170 passes sold, and the average monthly sales figure.

As for the sales of the highest sales month for the total population of the Community of Madrid, between 7 and 84 years of age, a penetration of 31.5% was obtained, three points higher than the previous year. This percentage increases to 43.4% if we are to consider the holders of cards that have charged the Travel Pass on at least one occasion during 2017.

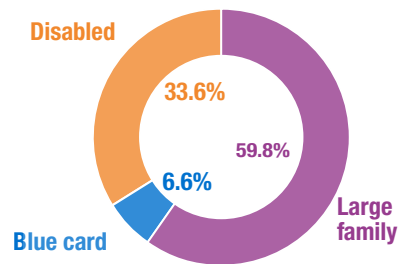


As for social tickets, in 2017, a total of 1,849,787 Travel Passes were sold from the distinct categories, 9.5% more than the previous year.

Large families continue to contribute to the greater increase and are the largest proportion, at 59.7% of the sales, an increase of 13.3% with respect to the previous year; 33.6% correspond to those receiving Blue Cards and the remaining 6.6% to individuals with disabilities, with increases very much below the average in both cases.

## SOCIAL TICKET SALES

	Large family		Disabled		Blue card		Total	
	Sales	%s/total	Sales	%s/total	Sales	%s/total	Sales	%s/total
<b>2010</b>	358,286	45.5%	51,848	6.6%	377,426	47.9%	<b>787,560</b>	<b>100,0%</b>
<b>2015</b>	709,433	51.1%	112,468	8.1%	565,863	40.8%	<b>1,387,764</b>	<b>100,0%</b>
<b>2016</b>	975,660	57.8%	118,507	7.0%	594,615	35.2%	<b>1,688,782</b>	<b>100,0%</b>
<b>2017</b>	1,104,982	59.8%	122,720	6.6%	622,085	33.6%	<b>1,849,787</b>	<b>100,0%</b>
<b>% 17/16</b>	13.3%		3.6%		4.6%		<b>9.5%</b>	



As for the sale of the distinct tourist tickets (normal, children and congresses), in 2017, 464,509 units were distributed, an increase of 16% as compared to the previous year, with an interesting increase in sales to congresses and other groups.

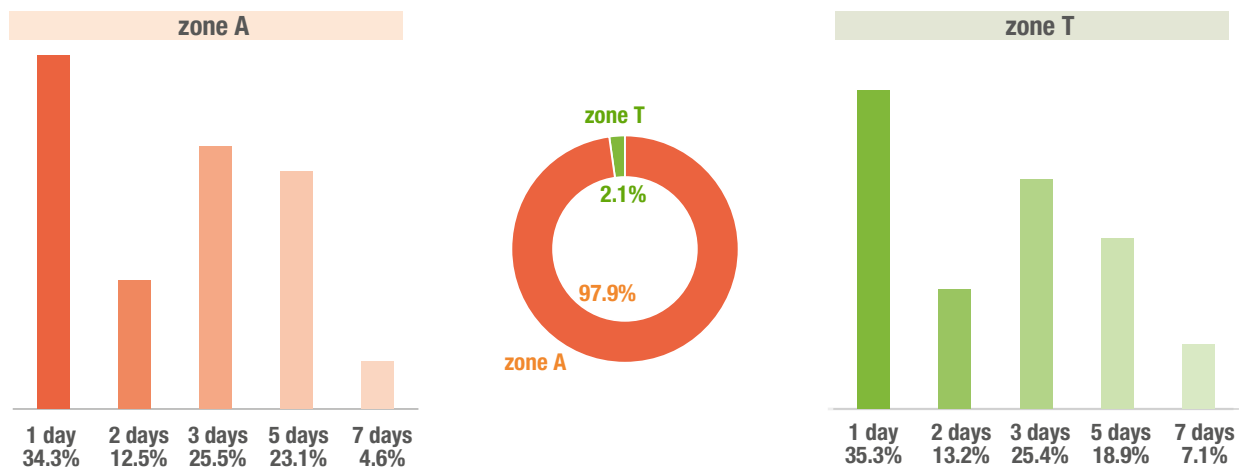


### SALE OF TOURIST TICKETS BY PROFILE AND ZONES

Days	Normal	Children	Congresses	Total
1 day, zone A	140,149	15,946	19	156,114
2 days, zone A	54,073	2,787	71	56,931
3 days, zone A	108,542	4,865	1,926	115,333
5 days, zone A	61,237	2,755	40,747	104,739
7 days, zone A	20,397	1,029	131	21,557
<b>Total zone A</b>	<b>384,398</b>	<b>27,382</b>	<b>42,894</b>	<b>454,674</b>
1 day, zone T	3,275	195	0	3,470
2 days, zone T	1,249	50	0	1,299
3 days, zone T	2,393	106	0	2,499
5 days, zone T	1,781	60	20	1,861
7 days, zone T	634	72	0	706
<b>Total zone T</b>	<b>9,332</b>	<b>483</b>	<b>20</b>	<b>9,835</b>
<b>Total 2017</b>	<b>393,730</b>	<b>27,865</b>	<b>42,914</b>	<b>464,509</b>
Total 2016	369,472	25,606	5,395	400,473
%17/16	6.6%	8.8%	695.4%	16.0%

Zone A has the same share as the previous year, with 97.9% of the total sales, while, during the validity period, one day tickets are those with the greatest dissemination, although in this case, certain differences are observed between the zones, leading to a greater participation of the longer duration tickets –the 7 day tickets—in the case of sales for the set of zones.

### DISTRIBUTION OF SALES OF TOURIST TICKETS BY ZONE AND PERIOD OF VALIDITY





31

32

33  
34

**40% of the bus  
fleet uses  
alternative  
fuels**

# 5

## Strategic lines

The activity of the CRTM has a strategic dimension whose main objective is to ensure an integrated public transport system that is efficient and of high quality, respectful of the environment and universally accessible. The distinct actions of the network faithfully reflect the strategic lines of this organism, as so the development and application of the new technologies, the diverse technical studies that it promotes and the numerous projects in which it actively participates.

## 5.1 Intermodality

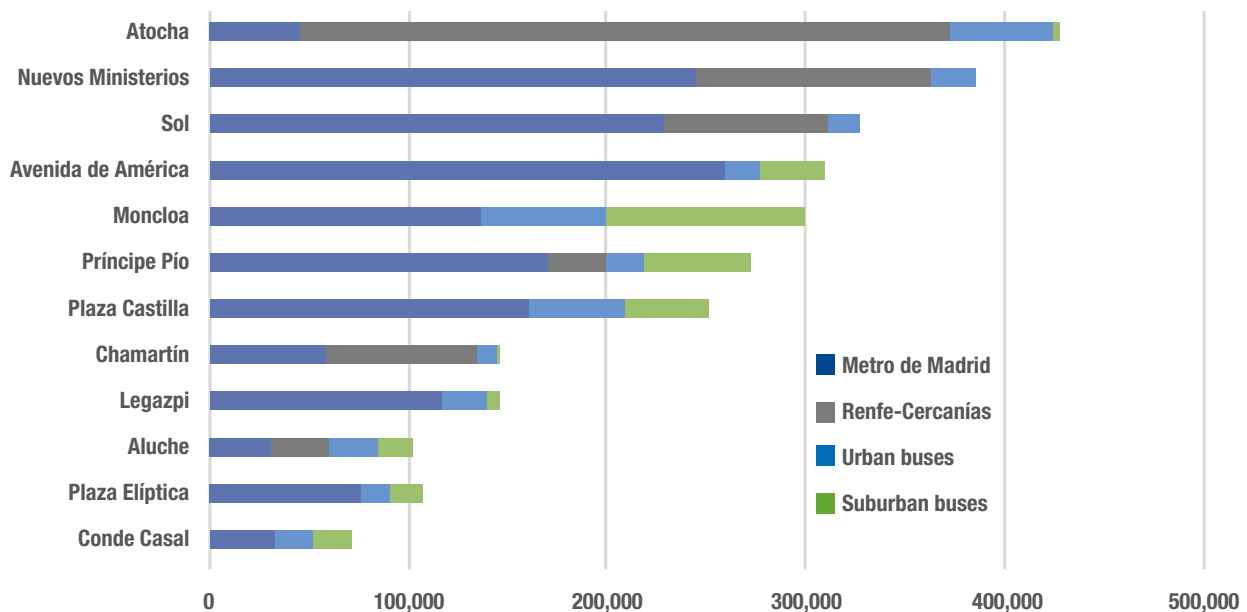
### a. Interchanges

The interconnection of the distinct modes found in the public transport system are revealed in the infrastructures of the modal integration. The installations permit the creation of distinct transport networks, facilitating intermodal mobility and allowing for the connection with large capacity modes, be they metro or railway, in an efficient manner and with added value to the traveller.

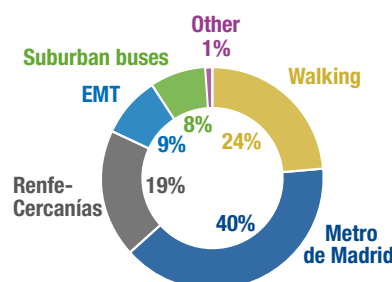
When considering the characteristics of its infrastructure, the main intermodal points are classified in three groups: **interchanges, intermodal areas and points of interchange**. The interchanges play a fundamental role in the access and dispersion of metropolitan displacements, whereas the intermodal areas and the other points of interchange resolve the urban area routes. In all, **every day, almost 16,000 suburban trips leave from these points and over 17,000 urban trips**.

There are twelve main metropolitan intermodal points located in the city of Madrid. These large hubs are used on a daily basis by over 1.8 million travellers. 57% of these travellers make some type of transfer or correspondence between transport modes, while 43% are travellers accessing or displacing themselves by foot. Almost one out of every two trips made in public transport across the entire region passes through one of these twelve hubs.

### NUMBER OF STAGES IN PUBLIC TRANSPORT IN THE MAIN INTERMODAL POINTS



### MODES OF ACCESS TO THE MAIN INTERMODAL POINTS



## PUBLIC TRANSPORT OFFER IN THE MAIN INTERMODAL POINTS

	Metro and light rail lines	Renfe-Cercanías suburban rail lines	Suburban bus lines	Urban bus lines
Atocha	1	8	3	26
Nuevos Ministerios	3	7	-	11
Sol	3	2	-	3
Avenida de América	4	-	12	11
Moncloa	2	-	48	17
Príncipe Pío	3	3	22	11
Plaza de Castilla	3	-	35	22
Chamartín	2	7	2	2
Legazpi	2	-	9	20
Aluche	1	1	17	9
Plaza Elíptica	2	-	11	9
Conde de Casal	1	-	15	8

Includes daytime bus lines with initial stops in the intermodal point or in the area and passing lines



### b. Other modes

New social habits arising within the framework of the global economy and the development of the SmartCity concept and the standardised use of smartphones has favoured the appearance of new mobility services, such as the shared use of vehicles, a clear complement to the public transport network and allowing for a more flexible and sustainable mobility model. For this reason, the CRTM has initiated a work line to support and strengthen these initiatives.

#### Car sharing

As for car sharing or multi-user car systems, the CRTM maintains a collaboration agreement with two of the companies operating in Madrid: Respiro and Bluemove. Specifically, the agreements that have been adopted allow for the application of discounts for users of public transport in fares for services of these companies, as well as the use of personal Public Transport Cards as alternative support for the opening and use of the vehicles.

## Bicycle

Over recent years, the use of bicycles in the everyday mobility of the population has experienced a major increase in the Community of Madrid. The CRTM maintains various working lines for the strengthening of this vehicle as a complement to the public transport system of the region. In this way, during 2017, work has continued on the projects that were initiated over the previous years:

### ► Use of Public Transport Card in public bicycle systems

During 2017, options were continued to be explored for the integration of the Public Transport Card and Multi cards and the application of advantages or discounts for users of the public bicycle systems of the Community of Madrid with compatible technology. To this service, already existing in the G-bici of Getafe, the Madrid City electric bicycle system was added in 2017, BiciMad.



### ► Network of Bicycle Parking (REB Plan)

This year, a total of 14 parking areas with a capacity of 106 spots has been installed, for a total of 19 parking lots and 168 spots, at the end of 2017. Of the new 14 parking areas, 8 are located next to suburban bus shelters of diverse municipalities of the Community of Madrid; 5 are installed in Metro and light rail stations and one is situated in the parking area of the Madrid Assembly.

The REB installations are located in points with good cyclist accessibility and that are favourable for the bicycle + public transport mode exchange. As for their placement, they are preferentially installed in covered and monitored spaces. The REB point is equipped with U-shaped anchor support and an informative panel with rules of usage and practical advice.

### ► Network of Itineraries for Bicycles (RIB Plan)

Consists of a descriptive inventory identifying potential actions that may improve the cyclist's itinerary, permitting conditions of safety, speed and accessibility in the displacement to or from the public transport stations.



**In 2017, 14 parking areas were installed with a capacity for 106 spaces**



## 5.2 The CITRAM

In 2017, the Management and Innovation Centre of Public Transport of the Community of Madrid, CITRAM, has continued to reinforce and strengthen itself in a management model that is based on user service mobility and a high level of coordination with transport operators and other entities.

Throughout 2017, **the CITRAM has made over 28 important multi-modal follow-ups that are of special relevance** for public transport where the role of CITRAM, coordinating and informing both users and operators, has been fundamental. Of these, of special note are the suspensions of the metro lines 5 and 8, special follow up in the case of major sporting events such as the Liga and the Champions League of Real Madrid, cultural events, etc. Of these latter, of special relevance are the follow up carried out in distinct actions taking place in Madrid with the celebration of “WorldPride Madrid 2017” taking place between 23 June and 2 July, and which was a major coordination exercise between distinct administrations and agents involved in the entire event.

Furthermore, during 2017, CITRAM continued to carry out major technological developments placing it on the cutting edge of multi-modal transport management. Of these actions, the integration of cameras on suburban buses with the application of multi-modal CCTV, **leading to over 10,000 cameras in the region’s distinct transport modes** (metro, interchanges, light rail, cameras of the Madrid City Hall, Road Agency) currently being integrated.

On the other hand, the development of the pilot program of public access points for the downloading of static and real time GTFS public transport files of the Community of Madrid has been implemented. During the pilot testing, concurrent access tests were successfully completed for 100 users per second. The pilot test included an administrative console that carried out all user management. Thanks to the results of this pilot test, the architecture and infrastructure required for the publication of the access points for open data in GTFS of the CRTM have been defined.

All of this situates CITRAM at the forefront, as a pioneer centre for the management of mobility, as demonstrated by the numerous visits received by national and international organisations, interested in learning about the centre’s functioning.





### 5.3 The new technologies

The Regional Transport Consortium continues to carry out projects directed at implementing new technologies in transportation, with the following priority lines of action:

- 1. Implementing a new validation and loading software for the Multi card**, based on a new set of technical specifications of the CRTM, defined in 2016. With this action, all transport operators and sales networks shall be prepared to take on the challenge of the total migration of the system to contactless supports, during this year, eliminating magnetic technology completely by 31 December 2017.
- 2. From 1 June until 31 August, the Madrid Regional Consortium of Transport shall launch a pilot test to introduce the charging of the Public Transport Card via mobile telephone**, using NFC technology (almost 500 users). Of the participating users, a sample of 100 individuals was taken, individuals who could charge 10-trip tickets (metrobus or bonobus of urban or suburban services of the road transport transport concessions). For these users, the CTRM provided them with Multi cards that would subsequently be distributed as support to the transport tickets, in substitution of the magnetic tickets.
- 3. To renovate and improve the security of the validation systems, a new version (4) of the SAM (Security Access Module) was developed.** This is a device that manages the security codes, the authentication process and signature and that is found in each of the more than 8,000 points of validation of the Community of Madrid.
- 4. Launch of the Multi card (7 July 2017).**
- 5. 1 November, implementation of the new functionalities permitting the Public Transport and Multi cards to accept various transport tickets coexisting** in the same physical support, while also extending the life of all Public Transport cards, going from a duration of 7 years to 10 years.
- 6. In December, a functionality was added in the charge networks that informs young users of the savings accumulated with the implementation of the new Young Travel Pass, as well as the savings in CO2 emissions, thanks to the use of public transport in their displacements.**

## 5.4 Relevant actions

### a. Special transport devices for WorldPride 2017

Coinciding with the 40th anniversary of the first LGBT demonstrations in Spain, the city of Madrid was chosen to host WorldPride 2017, the largest global event for the LGBT community, celebrated internationally every 2 or 4 years, which brought together two million participants and associations from across the world.



The events of WorldPride 2017 were carried out from Friday, the 23rd of June until Sunday, the 2nd of July, and included an extensive program of cultural and leisure activities throughout the week, to be carried out in diverse public spaces and areas of the city centre, in which stages were set up for the same.

For these celebrations, the Madrid Regional Transport Consortium was responsible for establishing and coordinating a special transport device, in order to guarantee access to the distinct activities of the event, as well as the mobility of the regular public transport users during this week. The reinforcement planned led to an increase in the public transport system's capacity of 1,500,000 travellers a day. The most noteworthy special measure taken was the opening, for the first time in its history, of the metro over a 24-hour period, from Saturday, the 1st of July until Sunday, the 2nd of July, coinciding with the main acts of the lines offering service within the city (1, 2, 3, 4, 5, 6, 7A, 8, 9A, 10A, 11 and the Ramal). Along with this measure, reinforcement services were established for the other days, for the eight metro lines that travel through the centre of Madrid.

On the other hand, the service offering of 25 EMT lines that connect the centre with the less covered metro line areas was increased, as well as services to the airport, to attend to the high volume of visitor arrivals and departures. In addition, night services of the EMT and suburban bus lines was reinforced (up to 125% on the weekend). These measures were in addition to the reinforced Cercanías lines, consisting of an increase in the capacity of the lines running through the Madrid centre zone, special services to access the main acts and an increased airport service offering.

These actions contributed to the success of this celebration, positioning Madrid as a top global tourism destination of diversity and tolerance.



**b. Improvement works in metro lines 8 and 5**



In order to improve the operation and maintenance conditions of the line 8, as well as to ensure the adequate levels of regularity and safety so as to ensure service quality, consolidation works were carried out on the platform and repairs were made on the drainage channels, with an estimated budget of 20.5 million euros. The suspension affected 8 stations (the entire line) and 13.5 kilometres of the track length, and continued from the end of January until the middle of April.

On the other hand, to contribute to the technological evolution of the installations, rolling stock and exploitation systems, and in order to improve the quality and service provision conditions, the complete renovation of the line 5 signalling system, with a budget of 52.0 million euros, was carried out. At the same time, other actions were undertaken while taking advantage of this circumstance, such as the installation of the rigid catenary in the line, the implementation of TETRA radio-telephony and the modernisation of various stations. Therefore, during the months of July and August, the line use was completely suspended, affecting 32 stations and 23.5 kilometres of tunnel.

During the duration of the works, special bus services were established, at no additional cost to the metro users, in order to relieve the effects of said suspensions. The special services operated with schedules and frequencies depending on the period, hour range and type of day, similar to those used in the respective metro lines.

At the same time, complementary measures were undertaken, such as diverse reinforcement of the other public transport modes (metro, bus, Cercanías and suburban buses), thereby increasing the transport capacity and reducing waiting times.

With all of this, the special services attended to a volume of 1.5 million travellers during the suspension of line 8, with a daily demand of 22,000 travellers on weekdays. Similarly, during the line 5 works, a daily average of 114,000 travellers were attended, transporting a total volume of 6.3 million travellers.

### c. Modification of the access rules of the suburban transport network

The new Regulation of Travellers of Suburban Transport of the Community of Madrid, in effect as of May 2017, reforming the previous regulation from 1997, introduced a series of substantial improvements to benefit the sustainable mobility and universal accessibility of the system.

With this new regulation, bus access of individuals with reduced mobility was regulated, both when travelling with walkers, assuming that the vehicle occupancy permitted this, as well as when using motorised wheelchairs, scooter-type or similar, of electric propulsion and not exceeding weight limits, situated in the reserved and signalled space of the bus, and with the established safety elements.

As for access of bicycles to suburban transport buses, which until this time were to be stored in the holding section of the bus, assuming that the space vehicle permits, respecting and prioritising the rights of individuals with reduced mobility, they may be stored in the spaces reserved for the same.

Finally, the regulation has been adjusted so as to permit access to assistance dogs when accompanying passengers (Law 2/2015 of 10 March) as well as small domestic pets in suitable carriers, always assuming that they do not bother other travellers.

### d. Special public transport devices

As occurred during the previous year, the City Hall of Madrid activated protocols for special measures to be adopted during periods of high contamination due to nitrogen dioxide. This protocol establishes measures for the distinct contamination cases based on the concentration of NOx that are registered in the city, as well as the promotion of public transport, informative measures, parking prohibitions in the SER zones and the restriction of traffic within the area of the M-30 motorway.

These measures were placed into practice as a result of the activation of stage 2 on the 13th and 14th of October, between the 25th and 28th of said month, both included, between the 18th and 23rd of November, both included, and on the 7th of December. Therefore, the Madrid Regional Transport Consortium reinforced the service offer of the distinct public transport modes (metro, urban bus, suburban buses and Cercanías) in order to facilitate citizen mobility.

During the Christmas holiday period, as occurred in 2016, the City Hall of Madrid established a set of special measures in order to reduce the private motorised displacements and to improve pedestrian movement in the centre. For this, private traffic was closed off on the Gran Vía and the Atocha and Mayor streets; at the same time, the Gran Vía was partially pedestrianised.

Within this context, the Madrid Regional Transport Consortium established special measures of public transport to ensure access to the city centre, reinforcing the metro lines, EMT and Cercanías that covered this part of Madrid.





## 5.5 Universal accessibility

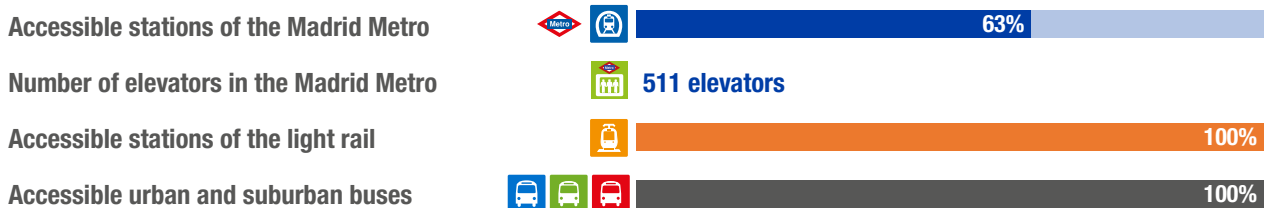
During 2017, the CRTM has continued its activity to impulse quality accessible transport to permit mobility for all citizens. It has participated in very diverse forums and activities, such as the Course on Universal Accessibility and Design for all of the Community of Madrid, (road transport and railway) sessions on engineering and accessibility by the Ministry of Public Works and Transport, working groups on cognitive disability of the CEAPAT or other Technical Commissions of Accessibility of the Council for the Promotion of Accessibility and Suppression of Barriers of the Community of Madrid. Similarly, it has continued with its works to promote inclusive transport through the ongoing dedication of its work, producing diverse reports such as the monograph on scooters and their access to public transport, the distinct types of platforms for wheelchairs and prams in EMT buses or the informative video on the promotion of accessibility in public transport of the Community of Madrid.

The beaconing was completed for the indoor navigation with user options (including disabled options) in the Moncloa interchange, also proceeding with the on-line video service (in real time) for deaf individuals in the public attention counter of the CRTM and there has been active participation in the European projects of Simon, In Life, City4Age and Cosmos, intended to improve accessibility conditions in diverse areas of interest (travel planning and navigation, assistance in EMT trips for those with cognitive and mobility disabilities, active ageing, etc.). These are very practical projects that are based on ICT technologies, Intelligent Transport Systems (ITS) and Big Data treatment within the framework of accessible mobility for the SmartCity. They include mobile device applications that can be subsequently adapted for implementation by the CRTM.

Likewise, there has been active collaboration in the Strategy of Attention to Dependency and the Elderly 2016-2021, in the Madrid Strategy for the Equality of Opportunities – Gender Impact, as well in the preparation of the Strategy of Attention to Individuals with Disabilities of the Community of Madrid 2017 – 2021 and the Strategic Plan of Sustainable Mobility of the Community of Madrid 2013 – 2025.



### ACCESSIBILITY OF PUBLIC TRANSPORT MODES



## 5.6 The environment

The CRTM continues to reveal its major commitment to the environment, serving as one of the main agents responsible for the implementation of measures that, regarding Madrid's public transport, are included in the **“Strategy of Air Quality and Climate Change of the Community of Madrid 2013 – 2020. Blue Plan+”**.

Of these, and in application of the Modernisation Plan<sup>1</sup> of the suburban buses of the Community of Madrid, during 2017, 217 Euro VI vehicles were included in the fleet. These are of the latest generation in the area of atmospheric emissions, and they substitute models with less advanced technology, which are more contaminating.

With this renovation, over 96% of the fleet of road transport concessionaries offering regular suburban transport services in the Community of Madrid, comply with the levels established by Euro VI, Euro V or EEV regulations. Thus, the suburban Madrid fleet is the most modern of all of Spain in its category, having a vehicle park whose average age is less than 5 years, once again positioning Madrid as a top city in the area of environmental sustainability.

On the other hand, during 2017, 262 new Euro VI vehicles were incorporated in the bus fleet of the EMT, and 5 “zero emissions” units.

Similarly, the work of the CRTM as a member of the Department of Air Quality of the Environmental Council of the Community of Madrid should be highlighted, creating the **Protocol-action framework during periods of high NO<sub>2</sub> contamination in the Community of Madrid**, approved on 21 November 2017. Similarly, the CRTM actively participated in the Operative Group that was responsible for applying the Protocol of measures to be adopted during episodes of high NO<sub>2</sub> contamination in the city of Madrid, being responsible for promoting public transport actions.

Within the framework of the fight against climate change, the CRTM, based on data provided by operators working in the public transport system, has calculated the greenhouse gas emissions released to the atmosphere during 2017, as a result of the regional public transport system activity.

Thus, the CRTM helped provide knowledge of the impact of Madrid's public transport on global warming and to the promotion of measures to reduce greenhouse gas emissions in the region, in line with the Strategy of Air Quality and Climate Change (Blue Plan+) of the Community of Madrid.

This calculation has been obtained from the Carbon Footprint Organisation of each of the operators that make up the CRTM (Madrid Metro, light rail, EMT of Madrid, suburban and urban road transport concessions of other municipalities and interchanges), including the direct and indirect greenhouse gas emissions associated with the consumption of fossil fuels, fluorinated gases and electricity, both in fixed installations (offices, garages, workshops, etc.) as well as in vehicles offering service in the regular public transport system of the region.

For its creation, the guidelines of the **“Guide for the calculation of the carbon footprint and for the creation of an organisational improvement plan”** published by the Spanish Office of Climate Change have been followed. Emission factors demanded for the registration of organisations in the Registry of the Carbon Footprint, compensation and absorption projects created in Royal Decree 163/2014 of 14 March were used.

**The carbon footprint obtained has increased to 576,147 tons of CO<sub>2</sub> eq.**, of which, 67% corresponds to emissions produced from the roadway modes (urban and suburban buses) and 32% from railway mode emissions (Madrid Metro and light rail).

<sup>1</sup> Plan of Modernisation of Regular Permanent Public Transport of General Use Road transport Travellers



It is estimated that with the functioning of the public transport system of the Community of Madrid, in 2017, **more than 1 million tons of CO<sub>2</sub> eq. emissions were avoided**, which would have been generated from displacements made in private vehicles.

**In this way, the role of public transport in the fight against climate change is highlighted, being the most sustainable option for those displacements made using motorised means.**

## CHARACTERISATION OF THE TRANSPORT FLEETS

### By emissions regulation (EU Directives)

	Euro VI	Euro V/EEV	Euro IV	Euro III	Zero emissions	TOTAL
Urban buses Madrid (EMT)	305	1.215	374	108	23	2,025
CRTM road transport concessions	782	978	54	10	0	1,824

### By fuel type

	Diesel	Natural Gas	Natural Gas/ diesel	Hybrid	Electric	TOTAL
Urban buses Madrid (EMT)	928	1,019	3	52	23	2,025
CRTM road transport concessions	1,353	217	0	254	0	1,824



## 5.7 Quality of Service

Over recent years, the Regional Consortium of Transport, aware of the importance of the assessment of its services in order to improve its activity, has expanded the control and oversight processes of the distinct operating contracts, supplies and services of the administration with transport operators and providers. This action includes the creation of quality indicators according to the objectives established contractually with each of them.

Along this line, and within the framework of the **PEIM (Strategic Plan of Innovation and Modernisation of the Public Management of the Community of Madrid)**, one of the most important activities carried out during 2017 was the revision and creation of methodological documents to accompany the Quality Plan for regular and permanent transport services for general use road transport travellers in the Community of Madrid.

The implementation of follow up and the control of service was carried out via external contracts and through works executed by the inspection team of the organism which, throughout 2017, **has carried out over 6,600 service inspections**. The service inspection affects not only the activity of the transport operators, but also includes the internal supervision of the existing services and the new services provided by the organisation during this year.

Under this same scope, it is necessary to consider the user perspective in order to determine the suitability of the services that are provided, in line with their expectations. With this in mind, this year, the number of user perception studies for the network set has increased, to offer a more global view of this suitability. Similarly, the network of Management Offices of the Public Transport Card managed by this organism has been provided with a series of ongoing follow up tools to determine user satisfaction with the services provided and the conditions of the provision of the same.



## 5.8 The studies

The studies and projects carried out by the CRTM offer responses to the functions and objectives of the distinct areas of activity of this organism in the development of its competencies.

### **a. Studies of restructuring of the EMT bus network in the peripheral districts of the south, north and centre of Madrid**

The EMT bus lines that serve the Madrid municipality have been the subject of successive actions (creation of lines, extensions, modification of provisions) in order to adapt the service offer to the existing demand and to the new mobility needs of the Madrid districts.

These studies help in the analysis of the current mobility situation of Madrid, focusing on the main needs and deficiencies, proposing alternatives and analysing its suitability over time. The distinct action alternatives were subject to assessment, selecting a network proposal for the 3 study zones according to the distinct criteria of accessibility, functionality, connectivity and cost.

### **b. Occupancy on weekday peak hour in the EMT network of Madrid (2017)**

This work, carried out every year, intends to determine the demand transported by the distinct EMT lines during peak hour, contrasting the offer that is actually implemented in said lines and determining the level of occupancy of the EMT lines during the analysed periods. The information shall be analysed in order to reprogram the service offer of the different EMT lines, so as to adjust them to the real needs of their users.

### **c. Study of spatial characterisation of the Renfe-Cercanías demand in 2016 and 2017**

This study represents the research's continuity, on a three-year basis, carried out in order to determine the average path of the trips made using the distinct types of travel passes in the Renfe Cercanías network, and therefore, the number of crowns passed and the fare paid for these trips.

As additional products, this study also obtains the demand and the transfers of the main transfer stations, the origin-destination matrix of the set of displacements in the network for each ticket type, the use of the Cercanías network over weekends, and finally, the demand in terms of district/municipality.

The fieldwork, consisting of the realization of 160,000 surveys, equivalent to a sampling rate of 19% of the stages, was carried out in March of 2017, therefore, for the effects of sample increase and the obtaining of results, two elevations were carried out, one for 2016 and the other for 2017, thereby containing the latest update in chronological terms of the Cercanías demand.

### **d. Studies of assessment of service quality**

In 2017, more than 30,000 surveys were completed by users of the public transport network of the Community of Madrid, in order to determine their service satisfaction. The overall results indicate that the service complies with the user expectations with an average value for the network set of 7.3 points out of 10. Certain aspects tended to exceed this average score for most of the transport modes, such as comfort, safety and accessibility of the distinct services. However, users tended to have greater expectations regarding the service offering and this is where the network suitability was found to be less ideal.

An assessment was also carried out on the attention received in the Public Transport Card Management Offices. More than 107,000 users assessed the service and 88% considered it to be satisfactory.



### **e. Study of verification of the indicators established in the Quality Plan of suburban transport**

Follow up and control of the Quality Plan are based on information sources from a variety of areas, most of which are the systematic registers of service operation and inspection of the organism, whereas other studied elements require the use of specific studies. Specifically, this year studies have been conducted to verify the telephone attention services of network concessionaries, training of drivers for user attention and the functioning of dynamic traveller information points.

### **f. Technical-legal study on adaptations to be made within the applicable regulatory framework on underground installations in which the entry of gas vehicles is anticipated**

This study has two main objectives:

- ▶ The needed modification of current regulations and/or development of new regulations including the regulatory framework to establish the technical demands of underground interchanges that guarantee safe use of buses using said propulsion system.
- ▶ With this regulatory framework as a foundation, identification for each of the five underground interchanges of Madrid, of the technical demands to be implemented for compliance with said regulation in terms of safe access and stay of buses that use natural gas propulsion.

### **g. Study of characterisation and use of park and ride lots of the Community of Madrid**

This study has the objective of obtaining detailed knowledge of the park and ride lots of the Community of Madrid, in order to create an information base and to have the needed diagnostics for the design of a general policy for these types of parking lots. The main objective is based on the following goals:

- ▶ To determine the characteristics of the current park and ride network with regards to location and accessibility conditions
- ▶ To determine their current offer and demand conditions
- ▶ To determine the user profile of the park and ride lots (basic characteristics, reason for trip and reasons for use), as well as user installation evaluations and potential improvements

This study has included a detailed analysis of 75 stations having park and ride lots, with an overall offer of 31,700 parking spaces for the daily use by 38,000 vehicles, having carried out a complete survey of over 10,000 users.

## 5.9 The European projects

The CRTM participates intensely in a number of European projects that are directed to technological research and development in the area of transport and mobility, strengthening cooperation and the exchange of experiences with its European counterparts.



### **SIMON (2014-2017)**

The project provides specific solutions in the multi-modal trips for elderly individuals and those with reduced mobility, creating a foundation for the planning of accessible travel.

[www.simon-project.eu](http://www.simon-project.eu)



### **IN LIFE (2015-2018)**

This project provides technological solutions intended for individuals with cognitive difficulties in order to assist their everyday tasks, such as mobility in public transport.

[www.inlife-project.eu](http://www.inlife-project.eu)



### **City4Age (2015-2018)**

This project offers elderly individuals and those with motor, cognitive and other difficulties assistance with their social relations, using services based on ICT tools that are adapted for their easy use in the city.

[www.city4ageproject.eu](http://www.city4ageproject.eu)



### **EBSF-2 (2015-2018)**

The European Bus System of the Future project advances solutions for buses in the future, highlighting innovations for the reduction of fuel use and improving energy efficiency, as well as the search for increased user comfort.

[www.ebsf2.eu](http://www.ebsf2.eu)



### **OASIS (2016-2018)**

This project is based on the opening and reuse of data in the area of public services, both that offered by local entities as well as that of the public transport sector, thereby favouring the creation of applications to improve user information.

<https://oasis.team/>



### **CIVITAS ECCENTRIC (2016-2020)**

The objective is to demonstrate and show the potential, viability and replicability of integrated and inclusive urban planning approaches, innovative policies and emerging technology, that improves sustainable mobility in the periphery of the city and that favours urban logistics that are clean, silent and free of CO2, thereby improving the quality of life of citizens.

<http://www.civitas.eu/eccentric>



**More than  
6.8 million  
visits to the  
“Mi transporte” application**

# B

## Citizen relations

The CRTM gives great importance to the information offered to the users on actions carried out by the organism, not only to get to know new services available to them, but also to gain knowledge of our management and lines of action. Some good examples of this are the institutional web of the CRTM, the real time apps and the Public Transport Card balance consultation, the Open Data portal or the “Pide tu Bus” project.

In addition, the CRTM has a firm commitment to public transport user services and has defined a policy of customer attention having the main goal of facilitating citizen access to the Public Transport Card and the services and information related to the same, as well as response to complaints and requests.

Corporate Social Responsibility and the initiatives that it includes (Club of Friends of Public Transport, web Ventex20, agreements with non-profit organisations, etc.) make the client's travel experience notably improve the perception of the Madrid transport system.

## 6.1 User information

### a. The [www.crtm.es](http://www.crtm.es) website

The CRTM website is the best source of information on the public transport system of the Community of Madrid, thanks to the ongoing updating of its content (modification of the services, novelties in the design of the transport network, plans and publications, etc.). This is seen in the visits that are received by the website, **over 8.5 million visitors during 2017**.

This year, the usability of the content related to the publication of fares and the improvement of widget tools where it is possible to check real time information on the public transport lines and stops have been revised using an interactive map. This module may be reused and can be integrated in other web pages of the city halls, transport operators, etc., thereby helping users to optimise their displacements.

All of the information on the Multi card has also been introduced, creating a specific section on information of “Tickets and fares”. All of this, along with an informative campaign on the end of the use of the magnetic ticket, which has forced the modification of the structure of said section in the web, differentiating between the Public Transport Card, Multi card and other cards.



Llega la MULTI

TODOS TUS BILLETES  
EN UNA NUEVA TARJETA

MULTITRANSPORTE, MULTIPERSONAL y MULTIDURADERA.

SOLICÍTALA GRATUITAMENTE  
desde el 7 de julio hasta el 14 de octubre

infórmate

To complement the campaign, a micro-site was set up, where it was possible to fill out a request for a new Multi card, to be sent to the user's residence, at no cost to the citizen.

Furthermore, great efforts were made to provide information to the mass media on the most significant actions and novelties of this institution. For this, during 2017, the institutional webpage has published 152 press releases (100 in the 'Press office' and 52 in 'Current news') with their respective photographs.

### b. The “Mi transporte” app

“Mi Transporte” is the official mobile application of the CRTM that permits the obtaining of information in real time on the entire public transport system of the Community of Madrid. The application permits knowledge of the closest station or stop to the user, when the next service will pass, and other useful information. During 2017, it received over 145,000 downloads and over 6.8 million visits.

The integrated application of data from the 40 operator companies offering public transport services in the region allow for the real time knowledge of the schedules of metros, urban and suburban buses, Cercanías and light rail trains.

Thanks to this application, the user can obtain the times of passing by stop for all of the transport modes, in an integrated manner (during 2017 the number of consultations of this type of information increased by almost 2 million as compared to the previous year), seek the closest stops and be guided to the same using augmented reality technology, or know if there is a disturbance in the public transport system that may affect their trip, thanks to the warnings module.





In addition to information on public transport, “Mi Transporte” integrates other types of information of great use for users: location of the Madrid public bicycle bases (BiciMad), points of recharge for the Public Transport Card, tourism points, park and ride lots in public transport stations, green routes for cyclists, etc.

The app offers users information in real time on over 700 lines of all transport modes, the exact situation and schedules of over 5,000 vehicles that offer daily service in the Madrid public transport system, with it being possible to check the next services of over 13,000 stops of all transport modes (EMT, Metro, light rail, Cercanias and suburban buses), and filters this information to make it simple, attractive and intuitive for regular users and tourists. The version, therefore, offers an English and Spanish version, and offers information of interest to tourists, such as the location of museums and tourism offices, among other information.

### c. The balance check app

The CRTM launched the first version of the application for smartphones “Tarjeta Transporte Publico” which permits knowledge of the balance of the card by introducing its number, or by reading of the same with the mobile telephone, through NFC technology. In addition, thanks to an interactive plan, the user can also locate the nearest Management Office and points of recharge.

This application is of great use for users, as seen by the more than 100,000 individuals that had it installed in 2017.

In order to charge the contactless transport cards through the mobile phone, a pilot test was conducted over the summer months in order to verify the functioning of the preliminary version of this app.

The resulting conclusions have allowed for the perfection of the functioning and offerings of the application, directed at its upcoming production.

Nueva App de la **tarjeta transporte público** para conocer tu saldo y los puntos de recarga más cercanos

Consíguelo en el **App Store** **DISPONIBLE EN Google play**

#### d. The Open Data portal

In order to disseminate information of the public transport system of the Community of Madrid, the Madrid Regional Transport Consortium is taking on an innovative project of great complexity, consisting of the integration and homogenisation of transport data from all of the companies operating in said public transport system.

With this clear objective, an open data strategy has been established, within which licenses of use have been created and establishing reusable data sets that are regulated by said licenses. Data sets that, due to their heterogeneity, have led to the creation of a data model that is capable of characterising the reality of the public transport system, the “Madrid standard”, representing the mobility in a clear and simple manner, in all transport modes found in the Madrid region.

This is a pioneering initiative within the Community of Madrid, which has seen its fruits in the Open Data Platform of the CRTM, <http://datos.crtm.es>, and in the reuse of said information by companies, non-profit organisations, universities and all citizens, in general. This data, generated by the CRTM, is being used as raw material, offering added value and innovative products to citizens. Since its establishment in 2017, the portal has received 35 million requests.

#### e. “Pide Tu Bus”

“Pide Tu Bus” (Request Your Bus) is the first service of “on demand stops” of buses, via smartphones of the Community of Madrid. Installed in a municipal stop in Valdemorillo, over 2017, its third year of functioning, it has received almost 5,500 requests for service.

Users of “Pide Tu Bus” inform the buses that they are waiting in the stop, so that they will be picked up. To do so, they may scan a QR code or send an SMS message that will alert the driver of the bus that they need to stop at this point, at the same time, informing the users of the waiting time for the next service.

In addition to the 20 daily services of the line 641 (Valdemorillo – Moncloa) that this stop makes, there are 25 stops of the line 642 (Colmenar de Arroyo – Madrid) significantly increasing the transport offer for users of this area.



**PideTuBus**

En esta parada, la línea **642** sólo opera bajo demanda. Si quieres que el próximo autobús se desvíe y pase por esta parada:

Escanea el código  y **PideTuBus**

o envía un SMS:  
Para conocer los próximos servicios, envía:  
19347 al **674 324 883**

Si quieres que la línea 642 se desvíe y pase por esta parada envía:  
19347-642 al **674 324 883**

unimos Personas

CONSORCIO TRANSPORTES MADRID

Tu sistema de transportes






### f. Traveller Information Points (PIV)

The real time information panels are another great technological advance of the CRTM.

Known as Traveller Points of Information (PIV), these panels are placed in the bus stops, offering real time information regarding the arrival of the next bus to this stop, as well as possible incidents or other information of interest to the travellers.

This year, this type of panels has been installed in 46 suburban bus shelters located in distinct Madrid municipalities, reaching a total of 424 points of real time information (corresponding to 517 screens) installed by the end of 2017. In the case of the EMT network, the number of panels available is 461, of which 155 have operating Wi-Fi. On the other hand, in 586 EMT buses, new technological devices have been installed that includes the renewal of the user information systems on the buses.

### g. Transport maps

The CRTM developed the Program of Informative Transport Publications (PPIT) in compliance with one of its basic functions, “user information” (Art. 2(2.j) of the Law of Creation of the CRTM). During 2017, the following informative transport publications have been edited:

#### Series 3. Madrid Transport Map

During 2017, this plan was updated to a 1: 20,000 scale, in PDF version for the CRTM website.

#### Series 4. Transport Map of the Community of Madrid

In 2017, this publication was updated in PDF version for the CRTM website, both in its front page 1: 50,000 scale as well as its reverse side 1: 200,000 scale, including updated information from transport operators.

### Series 5. Transport Maps of the districts of Madrid

Diverse updates were made of the maps of distinct districts, with special details in the centre district.

### Series 6. Transport Maps of the municipalities of the Community of Madrid

During 2017, the updating of numerous maps of the series 6 were carried out (municipalities) for their inclusion as PDF files in the CRTM website. This update of maps responds to the programming established by the CRTM and also comes in response to changes and improvements made in the municipal transport networks. Of these maps that were updated in 2017, there are over 25 titles.

### Series I. Brochures, informative publications

These are brochures of diverse formats edited as support for distinct events in which the CRTM collaborates or information on certain novelties in the transport network:

- ▶ Map of the Marathon of Madrid 2017 in public transport
- ▶ Annual report of the 2016 Madrid Regional Transport Consortium
- ▶ Map of the circuit and accessibility options for the Women Race 2017 (web version)
- ▶ Map of the circuit and accessibility options for the Papa Noel Race 2017 (web version)
- ▶ Informative materials on the closure of line 8 of the Metro between January and April 2017
- ▶ Informative materials on the closure of line 5 of the Metro during the summer of 2017
- ▶ Informative brochure on the new circular route of Getafe
- ▶ Informative brochure on the new night bus network of Madrid
- ▶ Brochure on the new EMT lines in Las Tablas





## 6.2 Customer service

### a. Management of the Public Transport Card Offices

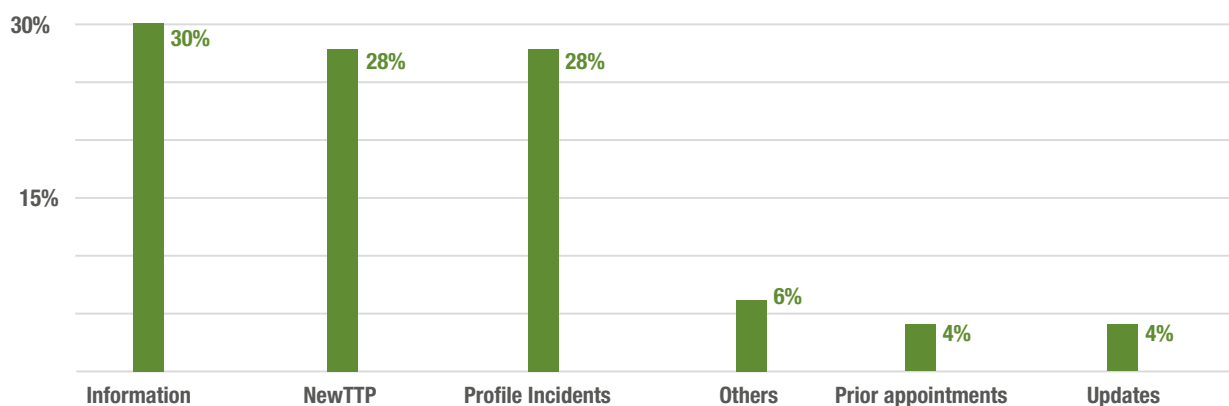
The in person customer service channel is made up of a network of 30 Management Offices strategically located across the Community of Madrid. These offices received 1,112,794 user visits during 2017, attending to distinct services.

In 2017, a change of location took place in the location of the offices of Torrejon de Ardoz, Plaza Castilla, Getafe and Principe Pio, in order to improve the accessibility and capacity of service. On the other hand, the offices of Alcala de Henares, Mendez Alvaro and Aeropuerto T2 were closed due to accessibility issues and plans were made to open them in improved locations.

During the month of June of this year, the Multi card was implemented. This new project brought great challenges to the Management Offices, due to the special information needs generated with this new product, as well as the numerous incidents to be attended to during the adaptation process.

Of all of the operations carried out in the Management Offices, 28% correspond to the incorporation of new users to the system (new cards) and 72% were related to post-sales management services.

#### TYPE OF OPERATIONS CARRIED OUT IN THE MANAGEMENT OFFICES (2017)



The Management Offices of Sol attended to the largest number of users during 2017, with 141,518, followed by the Aeropuerto T4 with 118,765, Atocha Renfe with 103,584 and Moncloa with 90,005 users.

### b. The [www.tarjetatransportepublico.crtm.es](http://www.tarjetatransportepublico.crtm.es) website

Through this website, 429,591 users were attended to, of which 65% requested a prior appointment and 21% requested a Public Transport Card. The remaining 14% of the requests were related to information services and the resolution of incidents via email: [tarjetatransportepublico@crtm.es](mailto:tarjetatransportepublico@crtm.es)

### c. Telephone customer service

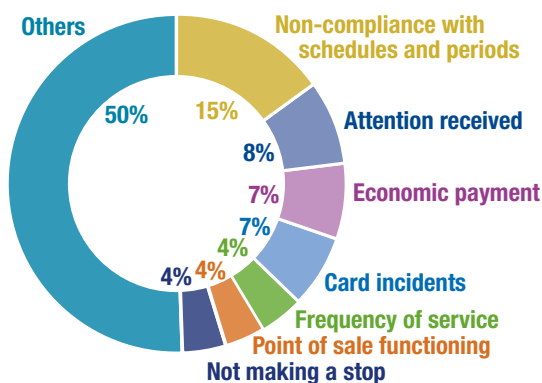
During 2017, via 012, a total of 211,108 calls were received in relation to the public transport system of the Community of Madrid, with an average waiting time of 29 seconds and an average time of assistance of 4 minutes. This service works in coordination with the CRTM to offer responses to the information needs of the users of transport services of the Community of Madrid.

Through this channel, information is provided to users and complaints are registered. However, the most frequently requested service is the request for a prior appointment at the Management Offices. This service was the cause of 146,319 calls, which in addition to the telematics channel, means a total of 425,481 prior appointment requests with an average time for the obtaining of said appointments of 1.4 days.

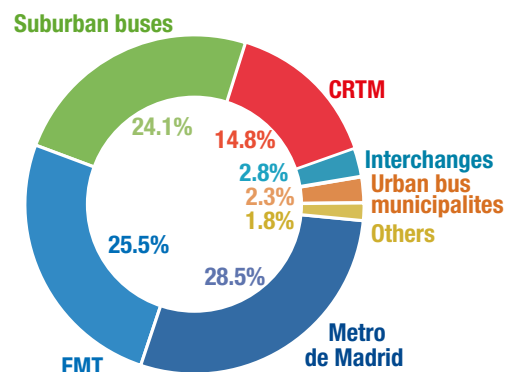
## 6.3 Complaints

The transport system of the Community of Madrid registered 53,009 complaints during 2017, 2.6% less than the previous year (54,415). The ratio of claims per million travellers is 35.3. These figures group together the complaints received via the distinct channels available to the user: web and CRTM offices, complaint books and offices of the distinct public transport operators, 012, the general system of suggestions and complaints of the Community of Madrid (SUQUE) and other organisms through their respective registers.

### CAUSE OF THE COMPLAINTS



### DISTRIBUTION BY MODES



## 6.4 Corporate social responsibility

During recent years, the Transport Consortium has been continually aware of its sustainable, economic, social and environmental development contribution, making Corporate Social Responsibility (CSR) one of its strategic factors, considering the demand by society to engage in ethical behaviour based on transparency.

The CRTM is a socially responsible institution that has interiorised the idea of minimising its negative impact on the social environment, reinforced by a relationship of ongoing cooperation with all interest groups, city halls, operators, private companies and employees.

On the one hand, many non-profit organisations have contacted the Transport Consortium, with the understanding that this institution may offer them the opportunity to disseminate their corporate values, including Aldeas Infantiles, the Fundacion Española del Corazon, the Cruz Roja Española, the Fundacion Real Madrid, the Fundacion Excelentia, the Women Race, the Diabetes Race, etc.

On the other hand, within the framework of the European Week of Mobility 2017, the Regional Transport Consortium collaborated in the II University Gymkhana for Sustainable Mobility organised by public universities of Madrid and the UNED. The objective of this activity, in line with the objectives of the CRTM, is to highlight the consequences of everyday mobility on the environment and its urban surroundings, promoting public transportation and the use of bicycles as well as healthy lifestyles.

The CRTM continued to work on the renewal of the urban and suburban bus fleets, making ongoing improvements in their accessibility and promoting alternatives in mobility with the promotion of intermodality, bicycles and public transport.

The consolidation of the Young Travel Pass with a fare of 20€ is now consolidated, with over 1,000,000 youth enjoying the benefits of this measure, with considerable economic repercussions for Madrid's families.

Finally, it is remarkable the commitment of the CRTM with society in events of great public attendance, planning, designing and restructuring the transport systems in favour of improved citizen mobility, and promoting the use of public transport to their benefit.

Clearly, the CRTM is aware of the fact that citizens demand institutions with awareness, commitment, transparency and sustainability, and this is the objective of our activity.



The screenshot displays the 'Club de Amigos' website interface. At the top, there is a navigation bar with the club's logo and a call to action: 'Si aún no eres socio del Club, pulsa aquí' (If you are not yet a club member, click here). Below this, the current location is 'Madrid' with a weather forecast for 'Lun, 20' showing a temperature of 20°C and various weather icons. A horizontal scroll bar shows a 7-day forecast with icons for clouds, sun, and moon. A navigation menu includes links for 'PORTADA', '¿QUÉ ES?', 'PARA TI', 'EVENTOS', 'ACTUALIDAD', 'PINELLO', and 'CONTACTO'. The main content area features three promotional banners: 1) '50 años Parque de Atracciones Madrid' with a 10€ discount; 2) 'Mes de los Superhéroes en Parque Warner' with a 50% discount; and 3) 'Descubre la fascinante historia del Transporte Público de Madrid' with a historical street scene image.

## 6.5 The Public Transport Friends Club

The evolution of the Friends Club over recent years has consolidated this communication platform between the Madrid Transport Consortium and Madrid's society as an effective communication channel, offering advantages and discounts on multiple events, cultural, musical, sporting and leisure activities.

Users of public transport have been able to enjoy a varied offering during 2017, including movie premieres, concerts of the Film Symphony Orchestra and Fundación Excelentia, as well as the Night of Cadena 100, and the concert "Por Ellas" held in the Winzink Center of Madrid. The premiere of the Cirque del Sol show "Totem", the Mayumana show, the DCODE festival and the Noches del Botánico are of special mention, as are the distinct proposals of the Teatro Real such as the Opera Week, among others.

In the area of sports, the Mutua Madrid Open, the Corazon Classic Match, the Women Race, the Diabetes Race and the Papa Noel Race are already classics in the Friends Club, due to their popularity and social commitment.

We should also mention the link between the Parque Warner and the Friends Club over recent years, offering a 50% discount to all users having a Public Transport Card with their Travel Pass and also giving away entry tickets year round, to be raffled off amongst members of the Club.

All of these promotions are published in the [www.clubdeamigos.crtm.es](http://www.clubdeamigos.crtm.es) website, which during 2017, was visited by over 110,000 users, an increase of 20% from the previous year.



## 6.6 The “Vente x 20” campaign

In its second anniversary, the implementation and consolidation of the Young Travel Pass has reinforced this communication channel with the young users of Madrid, a positive measure having a major social impact on families.

Many promotions are offered to young users in Madrid through the monthly newsletter, reinforcing the satisfaction of the young users of Madrid’s public transport system.

Promotions carried out are diverse and include many shows and theatre productions (such as “Las Noches de El Club de la Comedia”, “Mayumana”, “Espinete no existe” and “El Brujo”), sporting events (Real Madrid or el Estudiantes basketball games, the Harlem Globetrotters exhibitions, soccer with Rayo Vallecano or tennis at the Mutua Madrid Open) and cultural events (Escher exhibition, Japan Weekend or Cultura Inquieta). It is important to note that for the second anniversary of the Young Travel Pass, a special action was carried out, a “Zombie Survival special edition Metro de Madrid”, in which 2,500 people participated.

All of these promotions are disseminated through the website [www.ventex20.com](http://www.ventex20.com) and the social networks of the Metro de Madrid, reaching more than 43,000 individuals in the over 160 promotions that have been carried out throughout the year. The web page has received more than 157,000 visits during the same period.

The image shows a screenshot of the 'Vente x 20' website. At the top, there is a header with the 'Comunidad de Madrid' logo on the left, the 'Vente x 20' title in a large, stylized font in the center, and the 'CONSORCIO TRANSPORTES M. MADRID' logo on the right. Below the header is a large banner for a promotion at 'Teatro Príncipe Gran Vía' offering '3 entradas dobles' (3 double tickets), accompanied by a photo of a stage performance. Underneath the banner is a row of four colored dots (blue, green, red, yellow). Below this is a section titled 'Promociones' (Promotions) which contains a grid of eight promotional cards for various cultural events and museums, including the Museo del Prado, Estación del Arte, Teatro Muñoz Seca, Teatros Luchana, and Museo Reina Sofía. Each card features an image related to the promotion and text describing the offer.



**37 visits  
from national  
and international delegations**

# Institutional Relations

The CRTM experience and the integrated model of transport system of the Community of Madrid has turned this organism into a valuable member of the most noteworthy associations of the sector.

These include the International Union of Public Transport (UITP), which brings together some of the main operators, industry representatives and public transport authorities from across the globe; the Association of European Metropolitan Transport Authorities (EMTA), a forum for the exchange of information and experiences by the main European public transport authorities; or the Metropolitan Mobility Observatory (OMM), which includes the main authorities from the sector of the main Spanish cities. Similarly, the quality of the services provided throughout its 30 years of history have given this organism great attractiveness for many experts delegations in the area of mobility and public transport, who are interested in knowing the model developed by the CRTM and its management system.

## 7.1 International presence

The CRTM is present in some of the most important associations of the sector:

### UITP (International Association of Public Transport)



The UITP is an association that promotes the exchange of knowledge and experiences between distinct agents of the public transport sector at a European and global level, being the leading association in the sector.

The CRTM participates in distinct committees and commissions of this association, such as the Transport Authorities, and is also a member of the Executive Committee. This active presence has allowed the CRTM to have relevance on a European and global level.

### EMTA (European Metropolitan Transport Authorities)



The CRTM holds the position of Treasurer of the EMTA, and since its creation in 1998, it has actively participated in meetings, forums and working groups of this association, in addition to being a responsible member of the realization of the Barometer of Public Transport in the European Metropolitan Areas.

In 2017, two meetings were held by the General Assembly. The first, in June in Helsinki (Finland) and the second in Manchester (United Kingdom).



### Metropolitan Mobility Observatory (OMM)



The Metropolitan Mobility Observatory (OMM) is an initiative of analysis and reflection created by the Public Transport Authorities (ATP) of the main Spanish metropolitan areas, the Ministry of Agriculture, Food and Environment, the Ministry of Public Works and Transport, the Ministry of Industry (through the Institute for Diversification and Energy Saving) and the Ministry of the Interior (through the DGT), with the goal of reflecting on the contribution of public transport to the improved quality of life and sustainable development of the cities.

The OMM publishes an annual report in which it analyses mobility in the participating metropolitan areas, which is presented in technical sessions where aspects related to sustainable mobility are also debated.

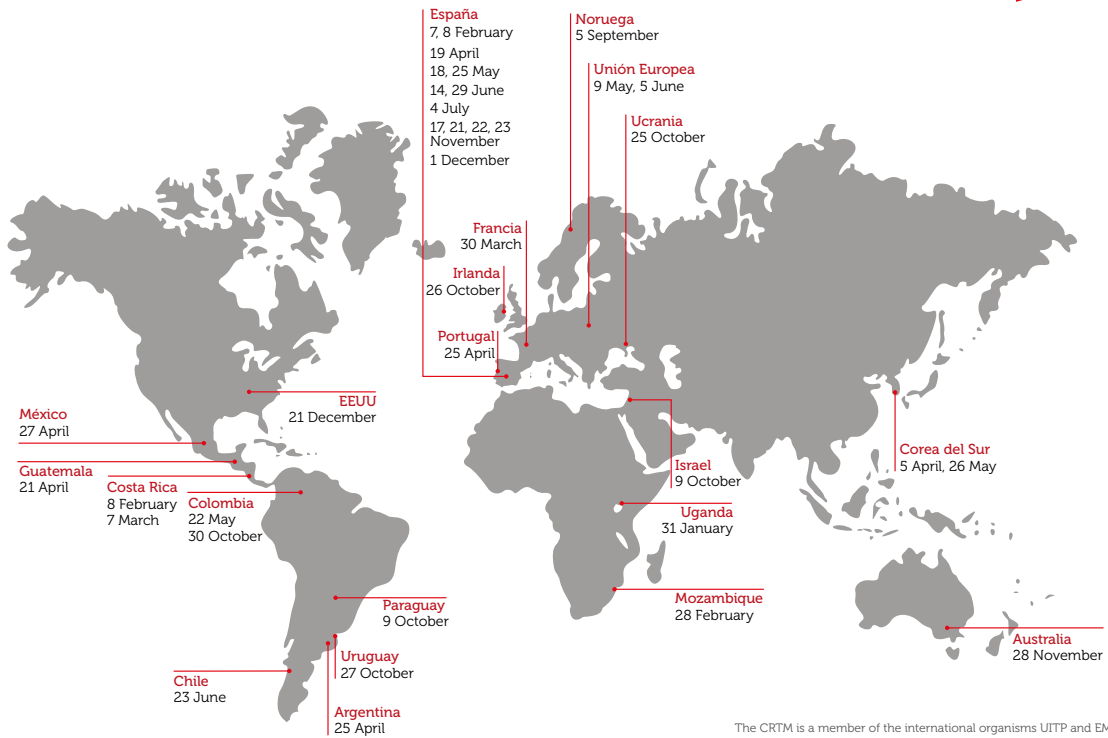
Since the implementation of this initiative, the presence of the CRTM in its annual meetings has been a constant. In 2017, the organism participated in the XIV Technical Session of the OMM, titled "Menos es Más" (Less is More), held in Malaga (Spain) on the 23rd of June.

### International visits and advising

The experience of the CRTM and the integrated system of public transport management of the Community of Madrid attract numerous delegations, interested in knowing the methodology used for planning and creation of the regional infrastructures and the integrated management system of public transport of Madrid. Specifically, in 2017, the CRTM, CITRAM and interchanges received 37 visits from across the globe.

The countries that have demonstrated an interest in the Madrid public transport system come from diverse locations. During this year, the CRTM received delegations of experts and researchers from the following regions and countries: Argentina, Australia, South Korea, Colombia, Costa Rica, Chile, Spain, the US, France, Guatemala, Ireland, Israel, Mexico, Mozambique, Norway, Paraguay, Portugal, Ukraine, Uganda, the European Union and Uruguay.

The Public Transport System of the Community of Madrid, a world reference  
Visits from country delegations during **2017**



## 7.2 Recognitions of the Madrid Regional Transport Consortium

In March of 2017, the CRTM received the award “@asLAN for digital transformation projects in public administrations and organisms” for the BIT project (Intelligent Transport Ticket), which has permitted the implementation of the contactless intelligent card. This project was a challenge given the complexity of the system and the need for recollection, processing and exploitation of data from diverse networks of ticket sales and a volume of validations that would grow on an exponential basis, coming from over 40 transport operators of the region. Of the benefits of the implementation of the card, there is the increased flexibility of the fare system, the improved sales network in a 24 x 7 environment, greater safety and control against fraud, and the obtaining of additional information and data to exploit and increase knowledge of the use of the transport system of the Community of Madrid, as well as to improve the planning of infrastructures and transport services.

The Regional Transport Consortium also received the award for “Best public service action” from the Association of Road, Canal and Port Engineers of Madrid, for the implementation of the new contactless ticket technology in the integrated transport system of the Community of Madrid. This award valued the great efforts made by this institution in offering the most forefront technology to the users of the public transport system, both due to the coordination with transport operators and the region’s city halls, as well as the multi-disciplinary team that participated and given the short implementation period of the new technology.

The Association of Traffic Engineers and Mobility Technicians grant the “Female and Traffic Management” awards to those women who work intensely to improve traffic and mobility in Spain from administrative areas, universities or private companies. Three female workers of the CRTM have received this award: Elena Tarruella (2015, Head of Suburban Buses Department), Berta Nieto (2016, Lead Technician of Suburban Buses Department) and Carmen Sanz (2017, Head of the Commercial Department). These awards recognise a high level of commitment and professionalism of the organism’s workers with mobility management, offering quality public transport service in the Community of Madrid.



Desde el 1 de noviembre

# ¡¡¡ADIÓS AL BILLETE TRADICIONAL!!!

A PARTIR DE AHORA TUS TÍTULOS DE TRANSPORTE EN LAS TARJETAS SIN CONTACTO:



TARJETA PERSONAL



TARJETA MULTI



Desde el 1 de noviembre no se venderán más billetes magnéticos (Sencillos Metro/Metro Ligero, Metrobús, 10 viajes de Metro/Metro Ligero y Bonobús interurbanos)

Si todavía tienes en tu poder billetes magnéticos podrás usarlos hasta el 31 de diciembre de 2017. No habrá canje ni reintegro de los viajes no consumidos

unimos Personas



infórmate:  
[www.crtm.es](http://www.crtm.es)



Comunidad de Madrid



**CONSORCIO  
TRANSPORTES  
\*\*\*\*\*  
MADRID**

Plaza del Descubridor  
Diego de Ordás, 3  
28003 Madrid

prensa.crtm@crtm.es  
[www.crtm.es](http://www.crtm.es)