
Annual Report 2019



unimos Personas



Tu sistema de transportes



Foreword



An annual report is an attempt to summarise in a few pages a whole year of hard work, aiming through an orderly and select set of data to tell the reader the story of activities the essence of which goes beyond the tale told by the figures.

And we nonetheless again emphasise our efforts to reflect the substance, the quality of the moment summarised as 2019, although in truth these are millions of moments, as we refer here to 1.6 billion passengers travelling 623 million kilometres by train and bus.

This could serve as the summary of the intense activity seen in public transport in the Madrid Region in 2019, but such numbers, which are so hard to get our heads around, tell us nothing of the trust that each user places in our network, trip after trip.

Mobility is not a whim, but a need. We travel dozens of kilometres every day for countless reasons: to study, go to work, seek out clients, meet up with friends or family, attend a medical appointment or a theatre performance, buy someone a present, go on a date. Sometimes out of obligation, at other times for exploration, we are beings in motion, laden with desire and potential.

In a growing region covering 179 municipalities, public transport offers guaranteed connections and equal opportunities. It is a gravitational force which brings us together and connects us.

The most recent household mobility survey established that one in every four of our trips is by public transport, which in 2019 meant over 1.6 billion passengers, a figure which can more easily be understood by thinking of it as if 51 new passengers climbed aboard every second of the year.

Mobility contributes to the economic progress of our society and is a vital existential need for our full development as citizens.

Which explains the huge economic effort made to freeze fares for a further year, with an average subsidy of 58.5% on each trip, establishing social fares, for example by allowing under-7s to travel free of charge, discounts for people with disability and large families, and flat rate travel cards for those under 26 and over 65.

Our policy has measurable consequences. Demand rose by 3.4% compared with the previous year, and 90% of the additional trips were registered by means of a Transport Card, which is synonymous with user loyalty.

The social permeability of our system is confirmed by the fact that the Madrid Region ranks ahead of anywhere else in Spain for public transport usage, with over 240 trips per person per year.

At the Regional Transport Consortium of Madrid we aim to achieve an integrated, effective and first-class public transport system, which is environmentally friendly and universally accessible.

To this end we remain in constant communication with municipalities and users, because this is a service, and as such it must be able to define a need and seek out a means of addressing it.

The service provided has been given an average score of 7.57 out of 10 on the combined quality indices. A result worthy of merit, but one which leaves room for improvement that we aim to fulfil.

Our network is extensive and robust, covering more than 11,000 km to serve every municipality, with more than 4,000 buses and some 4,500 railway carriages. It is true that numbers are simply a formal record of the reality, but those defining our public transport offering are of such a scale as to reveal the firmness of our desire to serve the general public.

ÁNGEL GARRIDO GARCÍA

Regional Minister of Transport, Mobility and Infrastructure

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1 The CRTM



The Consorcio Regional de Transportes de Madrid (CRTM) is the Public Transport Authority of the Autonomous Region of Madrid. It was created by Law 5/1985 of 16 May of the Assembly of Madrid, as the Independent Body of the Autonomous Region of Madrid, and it brings together the powers of this body and those of all local councils in the region with regard to scheduled public passenger transport, taking on the comprehensive management of the public transport system in this region.

**we bring
people
together**

Its main functions and goals can be summarised as:

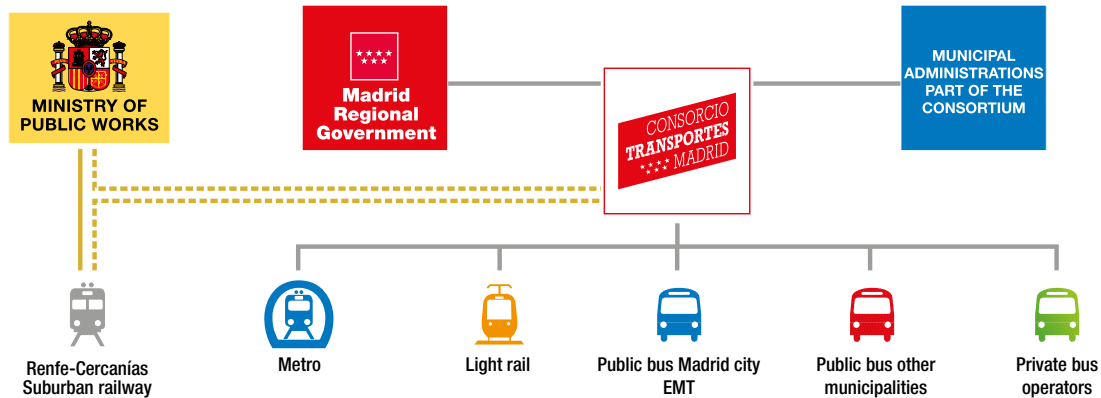
- Planning of public transport infrastructure.
- Planning of services and coordination of operating programmes for all forms of public transport.
- Definition of a comprehensive fare system for the transport as a whole.
- Establishment of a stable funding framework.
- Controlling and monitoring of the financial management of operators.
- Creation of an overall image for the system, unifying external relationships with users.

1.1 The institution

The CRTM is a group of public authorities that transfer their powers to a joint authority. As a result, the transport operators do not form a direct part of the Consortium, but are answerable to it due to the adherence of the authority owning the service they provide.

The Board of Directors of the body includes representatives of both the Madrid Region and Madrid City Council, and the member local authorities, as well as national government, which also helps to fund the system. The board thus features a variety of representatives of society, with members of business and consumer associations as well as trade unions.

INSTITUTIONAL FRAMEWORK OF THE MADRID REGION PUBLIC TRANSPORT SYSTEM



The Consortium is led by a Board of Directors that performs its duties either directly or through an Executive Committee. The composition of these bodies at 31 December 2018 was as follows:

a. The Board of Directors

	Chair	Ángel Garrido García
	Board Members	Consolación Pérez Esteban María Teresa Barcons Marqués Miguel Núñez Fernández Abel Bueno García María Victoria Alonso Márquez Miguel Ángel García Martín
Autonomous Region of Madrid		
	Vice-Chair	Francisco de Borja Carabante Muntada
Madrid City Council	Board Members	Engracia Hidalgo Tena Mariano Fuentes Sedano
Member councils	Board Members	Francisco José Recover Lorente Luis Haro Berlanas
CC.OO. / U.G.T	Board Members	David Jabato García-Valenciano Antonio Oviedo García
Business associations	Board Members	Rafael Barbadillo López Francisco Javier Carbajo de la Fuente
Consumer Association	Board Members	Gustavo Samayoa Estrada
Non-board member Secretary		Pablo Bodega Herráez
Non-board member Managing Director		Luis Miguel Martínez Palencia
Renfe-Cercanías		José Ignacio Rodríguez González

b. The Executive Committee

Chair	Ángel Garrido García
Board Members	Consolación Pérez Esteban Miguel Ángel García Martín Francisco de Borja Carabante Muntada Engracia Hidalgo Tena Mariano Fuentes Sedano
Secretary	Pablo Bodega Herráez
Non-board member Managing Director	Luis Miguel Martínez Palencia

c. The operational framework

The operational framework of the public transport system of the Autonomous Region of Madrid is summarised in the following diagram:

Road passenger transport



Empresa Municipal de Transportes de Madrid (EMT)

A state-owned company of Madrid City Council providing urban transport services in the city of Madrid.



Urban transport in other municipalities

6 urban transport concessions serve 6 municipalities and one municipal company in the municipality of Fuenlabrada. In addition, 29 municipalities have urban services operating under suburban concessions.



Suburban transport

27 operators run 30 suburban concessions serving all municipalities in the region.

Transport interchanges

5 public works, operating and maintenance concessions for the transport hubs in Madrid: **Avenida de América • Plaza de Castilla • Plaza Elíptica • Moncloa • Príncipe Pío**

Rail passenger transport



Metro de Madrid

A state-owned company of the Autonomous Region of Madrid, operating in 10 municipalities.



Renfe Viajeros

A state-owned company answerable to the National Public Administration that operates the Renfe-Cercanías commuter rail network in Madrid.



Underground railway concessions

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



Light rail concessions

3 public works and operating concessions for light rail lines
ML1 (Metros Ligeros de Madrid - Madrid Light Rail),
ML2 and ML3 (Metro Ligerero Oeste - Western Light Rail) and
ML4 (Tranvía de Parla - Parla Tramway).

1.2 Funding the system

a. System requirements and funding

The financial requirements of the transport system consist of remuneration by the CRTM to operators for the services provided, and are funded by public contributions from the different levels of government and user contributions.

The difference between the financial requirements incurred and the revenue collected from the sale of tickets is covered by public contributions from the different authorities, constituting the so-called system pricing subsidy.

The remuneration of Metro de Madrid and the Empresa Municipal de Transportes de Madrid (EMT) are governed by annual agreements, based on the approval of a break-even fare per passenger in the case of Metro, and on a production agreement for EMT, both including the agreement of certain service quality targets.

The financial relations with the different private road transport operators are set forth in the administrative contracts for the management of public services, as provided in Land Transport Law 16/1987 of 30 July, subsequently validated under Road Transport and Mobility Law 5/2009 of 20 October by the Assembly of Madrid.

The CRTM remunerates light rail concession holders and those of the section of line 8, Barajas-Airport T4, in line with the actual level of passenger demand, using the technical fare offered, whereas the deficit between the break-even fare and the revenues from Parla Tramway is paid equally between the CRTM and Parla Town Council, similarly to the system established with Empresa Municipal de Transportes in Fuenlabrada.

Transportes Ferroviarios de Madrid (TFM), the concession holder of the section of the underground line 9 between Puerta de Arganda and Arganda del Rey, is paid by the passengers using the Transport Season Ticket according to the price established in the contract, receiving an additional contribution per passenger carried until a certain level of demand is met.

The interchange hubs are funded through the application of the price set forth in the concession contracts, which is updated in the manner laid out therein.

The CRTM has an agreement with Renfe Viajeros that regulates the use of Travel Cards and the payments arising.

Contributions by users are based on the revenue collected from the sale of the different transport tickets.

The Autonomous Region of Madrid, the National Public Administration (AGE), and Madrid City Council are the main partners in funding the system. The city councils of the Autonomous Community with an urban transport service, as well as the Autonomous Region of Castile-La Mancha under the passenger transport financing agreement signed between the Autonomous Region of Madrid and this autonomous region also contribute, although substantially less.

€0.64*
average revenue
per trip

€1.54*
average need
per trip

€0.90*
average subsidy
per trip

The National Public Administration contributes with a nominative subsidy, which is applied to the funding requirements of the system in the following distribution:

- 34% is used to cover the operating deficit of the EMT of Madrid, in line with the Agreement regulating the conditions of adhesion of Madrid City Council to the CRTM for the period 2017-2020.
- The remaining 66% funds the fare subsidy for Metro de Madrid and for the services operating in zones B and C.

The contribution of the rest of the public authorities, once the State contribution has been deducted as indicated, is distributed as follows:

- Madrid City Council covers 50% of the operating deficit of the EMT; 50% of the fare subsidy corresponding to the road concessions and Renfe services in zone A; 35% of hub requirements; and 35% of the operating expenses and commercial expenses of the CRTM.
- The Autonomous Region of Madrid pays the entire fare subsidy corresponding to Metro de Madrid. It also covers the part not funded by Madrid City Council for the rest of the services and expenses in

* These values are obtained without including trips involving tickets from Renfe-Cercanías (single ticket, 10 trips and others), as these do not affect the CRTM budget.

which it has a role, i.e. the remaining 50% of the fare subsidy for road concessions and Renfe services in zone A; 65% of hub requirements; and 65% of the operating expenses and commercial expenses of the CRTM.

- It also pays the entire fare subsidy generated in zones B and C, corresponding to the road concessions and Renfe services, and that of the railway concessions.
- Lastly, it also pays 50% of the operational deficit of municipal services of the member councils.
- Councils with an urban passenger transport service pay 50% of their operating deficit.
- The Castile-La Mancha Regional Government contributes to the funding of the fare subsidy corresponding to exterior Travel Cards (zones E1 and E2) in accordance with the criteria established in the partnership agreement between the two authorities.

b. 2018 Budget and financial result

The commercial nature of the CRTM requires the management of two types of budget:

- An estimated budget covering commercial activity, made up on the income side by revenue from the collection of fares, and on the expenses side by the reimbursement of this revenue to the transport operators, along with the expenses involved in the distribution and sale of the different tickets.
- An administrative budget consisting of income relating to fares and other public revenue, as well as contributions from partners corresponding to the fare subsidy. As regards expenses, this budget includes the necessary credit for the funding of the personnel working for the body, running expenses for goods and services and their investments, as well as the fare subsidy paid to operators.

CRTM BUDGET SETTLEMENT 2018 Limited and estimated budget/euros

REVENUE	Entitlements 2018	GEXPENSES	Obligations 2019
Chapter III. Fees and other income	3,781,657.06	Chapter I. Personal expenses	7,049,450.93
Chapter IV. Current transfers	1,382,153,839.45	Chapter II. Running expenses	5,078,765.57
Chapter V. Equity income	0.00	Chapter III. Financial expenses	5,017,152.99
Chapter VII. Capital transfers	10,342,876.00	Chapter IV. Current transfers	1,406,456,233.55
Chapter VIII. Financial assets	6,853.15	Chapter VI. Real estate investments	585,247.85
		Chapter VII. Capital transfers	1,625,000.00
TOTAL LIMITED REVENUE	1,396,285,225.66	Chapter VIII. Financial assets	2,520.00
Collection revenue	954,039,865.44	TOTAL LIMITED EXPENSES	1,425,814,370.89
		Raw materials in service operations	3,636,367.92
TOTAL ESTIMATED REVENUE	954,039,865.44	Other external work	34,704,856.94
		Collection repayment	940,647,470.79
TOTAL REVENUE	2,350,325,091.10	TOTAL ESTIMATED EXPENSES	978,988,695.65
		TOTAL EXPENSES	2,404,803,066.54

D.Rec-O.Rec. 2019

I.- LIMITED BUDGET OUTTURN -29,529,145.23 II.- RESTIMATED BUDGET OUTTURN -29,529,145.23

FINANCIAL YEAR INCOME(LOSS) (I+II) -54,477,975.44

In 2019, the total amount of revenue settled from both budgets amounted to 2,350.3 million euros and, in terms of expenses, the amount at 31 December represented a total of 2,404.8 million euros. The total revenues of the system from fares, including those received from operator tickets, which do not form part of the CRTM budget, amounted to 1,019.8 million euros in 2019. The difference between revenue – entitlements– and expenditure – obligations – places the budgetary result for the year at a deficit of -54.5 million euros, according to the figures below.















This budget result takes into account revenue and expenses irrespective of the actual year in which they are accrued. Their accrual leads to the financial result for the year, which for 2019 is equal to the budgetary result.

FINANCIAL RESULT euros

I. REVENUES	2,429,523,203.03	II. EXPENSES	2,484,001,178.47
Contributions to CRTM	1,392,381,903.57	Internal CRTM and commercial operations	56,074,362.20
Fare revenue applied	1,019,845,582.71	Fare payment to transport operators	2,342,954,943.82
Own CRTM and commercial income	17,295,716.75	Administrative concessions	83,346,872.45
		Other capital expenditure	1,625,000.00
III.- DIFFERENCE (I-II)		€ -54,477,975.44	

The financial flows of origin and application of funds for financial year 2019 may be seen in the following layout, which presents all revenue and expenses, and the economic result for said period.

FUNDING SCHEME FOR CONTRIBUTIONS FROM THE CRTM TO THE REQUIREMENTS OF THE TRANSPORT SYSTEM. FINANCIAL YEAR 2019 · Financial result/euros

SOURCE OF FUNDS 2019	APPLICATION OF FUNDS/ACTUAL NEEDS 2019
 NATIONAL PUBLIC ADMINISTRATION 126,894,000.00	 METRO DE MADRID, S.A. 927,854,555.24
 AUTONOMOUS REGION OF MADRID 1,067,536,978.55	 EMPRESA MUNICIPAL DE TRANSPORTES DE MADRID, S.A. 515,943,937.39
 MADRID CITY COUNCIL 166,789,370.00	 RENFE VIAJEROS 192,568,377.90
 LOCAL CORPORATIONS AND AUTONOMOUS REGIONS 31,161,555.02	RAILWAY CONCESSIONS     140,646,613.09
 FARE REVENUE APPLIED 1,019,845,582.71	 ROAD CONCESSIONS (CITY AND SUBURBAN BUSES) 565,941,460.20
	OTHER NEEDS (ADMIN. CONCESSION, ETC.) 84,971,872.45
	 CRTM OPERATING EXPENSES 38,778,645.45
TOTAL SOURCE OF FUNDS 2,412,227,486.28	TOTAL APPLICATION OF FUNDS (NEEDS) 2,466,705,461.72
FINANCIAL RESULTS FOR FINANCIAL YEAR 2019 · -54,477,975.44	

c. Profit and loss account for financial year 2019

LIMITED AND ESTIMATED BUDGET (€)	2019	2018
A) TOTAL ORDINARY MANAGEMENT REVENUE	2,333,272,738.07	2,321,613,477.84
1. Tax revenues and social contributions	30.05	565.25
Rates	30.05	565.25
2. Transfers and subsidies received	1,377,608,162.41	1,387,411,302.64
For the financial year	1,377,608,162.41	1,387,411,302.64
Subsidies received to fund expenses for the financial year	114,811.88	-101,947.44
Transfers	1,377,493,350.53	1,387,513,250.08
3. Net sales and provision of services	954,039,864.75	924,357,131.37
Net sales	954,039,864.75	924,357,131.37
6. Other ordinary management revenue	1,624,680.86	9,844,478.58
B) TOTAL ORDINARY MANAGEMENT EXPENSES	-2,417,619,568.63	-2,312,159,791.11
8. Personnel expenses	-7,049,128.57	-6,631,985.45
Wages, salaries and similar	-5,338,650.10	-5,078,453.65
Employee welfare expenses	-1,710,478.47	-1,553,531.80
9. Transfers and subsidies granted	-1,409,581,284.37	-1,329,725,963.64
10. Supplies	-974,368,763.12	-944,090,794.83
Consumption of goods and other supplies	-974,368,763.12	-944,090,794.83
11. Other ordinary management expenses	-23,126,315.24	-28,215,209.82
External supplies and services	-22,960,611.82	-27,639,808.53
Taxes	-165,703.42	-575,401.29
12. Amortisation/Depreciation of fixed assets	-3,494,077.33	-3,495,837.37
I RESULT (saving or dissaving) OF ORDINARY MANAGEMENT (A+B)	-84,346,830.56	9,453,686.73
13. Impairment and income(losses) on disposal of non-financial fixed assets and assets for sale	0.00	221.70
Disposals and sales	0.00	221.70
14. Other non-ordinary items	0.00	818.45
Revenue	0.00	918.45
Expenses	0.00	-100.00
II RESULT OF NON-FINANCIAL OPERATIONS (I+13+14)	-84,346,830.56	9,454,726.88
15. Financial revenue	2,158,946.10	264,501.23
From other marketable securities and long-term loans	2,158,946.10	264,501.23
Other	2,158,946.10	264,501.23
16. Financial expenses	-5,017,152.99	0,00
Other	-5,017,152.99	0,00
20. Value impairment, disposals and sales of financial assets and liabilities	-88,974,749.85	116,433,658.94
Other	-88,974,749.85	116,433,658.94
III RESULT OF FINANCIAL OPERATIONS (15+20)	-91,832,956.74	116,433,658.94
IV NET RESULTS (saving or dissaving) FOR THE FINANCIAL YEAR (II+III)	-176,179,787.30	126,152,887.05

d. Balance sheet at 31 December 2018

ASSETS (€)	293,959,120.97
A. NON-CURRENT ASSETS	23,018,029.93
I. Intangible fixed assets	13,166,810.72
Industrial and intellectual property	608.60
Computer applications	840,127.64
Investments in assets under lease	50,899.77
Other intangible fixed assets	12,275,174.71
II. Tangible fixed assets	1,004,364.76
Structures	82,111.73
Other tangible fixed assets	922,253.03
V. Long-term financial investments	8,846,854.45
Representative credits and securities	8,846,617.94
Other financial investments	236.51
B. CURRENT ASSETS	270,941,091.04
III. Debtors and other receivables	197,428,618.06
Debtors through management operations	-292,039,189.23
Other accounts receivable	13,181,935.79
Public authorities	476,285,871.50
V. Short-term financial investments	5,707.98
Debt securities and credits	5,707.98
VI. Accrual adjustments	4,002,530.75
VII. Cash and other cash equivalents	69,504,234.25
Cash and banks	69,504,234.25
NET WORTH AND LIABILITIES (€)	293,959,120.97
A. NET WORTH	158,150,605.89
II. Generated equity	158,150,605.89
Income (losses) from prior years	334,330,393.19
Financial year income (loss)	-176,179,787.30
B. NON-CURRENT LIABILITIES	32,550,031.60
I. Long term provisions	32,246,085.80
II. Long-term payables	303,945.80
Other payables	303,945.80
C. CURRENT LIABILITIES	103,258,483.48
II. Short-term payables	2,937.50
Other payables	2,937.50
IV. Creditors and other payables	94,581,558.59
Creditors from current budgetary operations	1,467,492.85
Other accounts payable	83,887,105.21
Public authorities	9,226,960.53
V. Accruals	8,673,987.39

2 The supply








over
11,000
kilometres
of networks

The public transport system of the Autonomous Region of Madrid comprises underground, light rail and Renfe-Cercanías suburban railway networks, and the city and suburban bus networks. This system includes operators, infrastructure and modes of transport, on which the CRTM performs its duties of planning and managing the transport services.

In 2019, the production of services for the public transport system as a whole stood at 349.5 million car-km of rail, and 273.8 million car-km of road, on an 11,249-km network serving all the municipalities in the region.

The following table summarises the main figures of the supply in 2018 by type of transport operator, in order to provide an analysis of the system as a whole.

2019 TRANSPORT SUPPLY

	 Metro de Madrid	 Urban bus Madrid city (EMT)	 Road transport concessions	 Other light rail and other railway concessions*	 Renfe-Cercanías
No. of lines	12+Branch	211	459	5	9
Length-network (km)	269.5	1,598.0	8,614.0	54.8	391.0
Length-lines (km)	269.5	3,856.8	21,271.0	54.8	713.8
No. of stations/stops-network	237	4,726	8,349	62	95
No. of stations/ stops-lines	287	11,074	21,797	63	178
No. of vehicles (cars/ buses)	2,320	2,082	2,057	241	1,127
Vehicle-km (millions)	176.1	93.0	180.8	16.8	156.6

* Light-rail vehicles and other railway concessions are recorded as cars, in total 44 trains.

2.1 Metro de Madrid



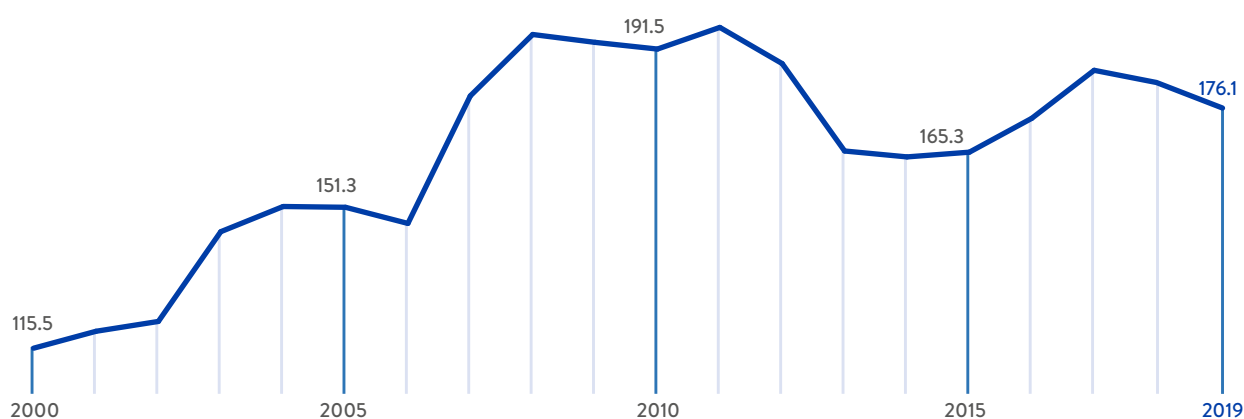
The Metro de Madrid network comprises a total of **12 lines** plus the branch between the Ópera and Príncipe Pío stations, covering a length of **269.5 km** and, following the opening of Arroyofresno station, a total of **237 network stations**, of which 39 are multiple-line (with connections between 2 or more lines), and 198 are single-line stations. If counted in terms of lines, the network has a total of **287 stations-line**.

Output in 2019 amounted to 176.1 million carriage-kilometres, 3.8% down in 2018, mainly as a result of the suspensions on line 2 because of repair work in 2019.

On a working day, the morning rush hour supply consists of 308 trains in service, with the average interval being 4.1 minutes (3.7 if weighted by number of trains), the average speed being 28.0 km/h (26.8 if weighted).

The rolling stock in service during 2019 is made up of **2,320 carriages**, and their average age is 19 years.

ANNUAL EVOLUTION OF PRODUCTION (million vehicles-km)



SUPPLY PER LINE AT MORNING RUSH HOUR ON A WORKING DAY

Line	Trains	Cars per train	Commercial speed (km/h)	Travel time (min) (round trip)	Interval (min)
1	36	6	22.4	117	3.2
2	19	4	22.6	71	3.7
3	27	6	23.6	69	2.5
4	26	4	21.2	81	3.1
5	32	6	23.2	116	3.6
Direction 1 6	20	6	24.3	58	2.9
Direction 2 6	12	6	24.7	57	4.7
7	20	6	27.0	85	4.2
MetroEste 7	6	3	34.9	30	4.9
8	12	4	40.9	46	3.8
9	23	6	25.4	97	4.2
10	34	6	29.9	94	2.7
MetroNorte 10	13	3	36.6	50	3.8
11	5	4	29.2	28	5.6
Direction 1 12	11	3	39.3	62	5.6
Direction 1 12	10	3	39.3	62	6.1
Branch R	2	4	11.6	10	5.0



2.2 Madrid EMT (urban bus)

The Madrid urban bus network, operated by Empresa Municipal de Transportes de Madrid (EMT), is made up of a total of **211 lines, of which 184 are day lines and 27 are night lines**, to which the 24-hour Airport Express line should be added.

During 2019 the following one-off projects were implemented across the EMT network:

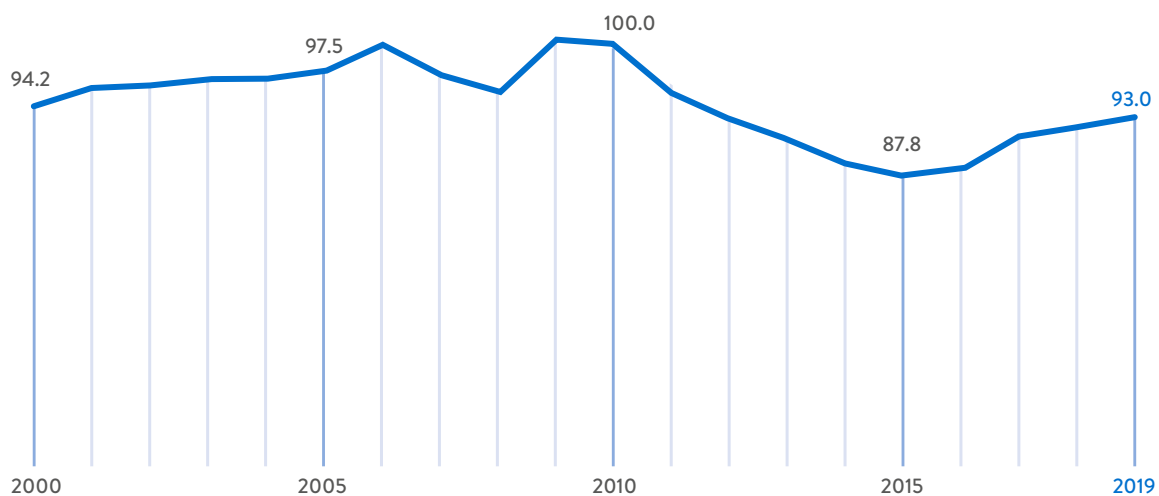
- ⇒ Lengthening of line 62 as far as the Hospital Clínico (Plaza Cristo Rey); line 73 to provide access to the IFEMA conference centre; line 138 to improve accessibility between the Las Águilas neighbourhood and the Hospital Clínico (alongside the elimination of line 117), line 161 as far as the urban section of Avenida del Talgo (Aravaca Sur), as well as the E1 express route at both ends, as far as Plaza de Cibeles and the PAU Carabanchel urban development.
- ⇒ Creation of line 166 to improve connections between the Barajas district and the Hospital Ramón y Cajal (formerly a special service).
- ⇒ Change to the layout of lines 3 and 37 because of incompatibility between the vehicles and the clearance height of the tunnel on Plaza de Olavide, line 49 in the PAU Arroyofresno urban development, line 50 because of the urban restructuring of the "Mahou-Calderón" area, and line 138 passing through the Plaza de España area.

The total number of kilometres covered in 2019 is 93.0 million, 1% above the previous year's output. In this regard, car-hours (7.2 million) also saw a similar relative increase and trips made (10.6 million) remained as in the previous year.

The characteristics of the scheduled offering vary due to the diversity of the lines making up the daytime network, although the main group consists of lines with an average daily frequency interval of between 8 and 12 minutes. At peak time, 35% of bus routes run at a frequency of every 8 minutes or less.

This year, provision was increased on 33 EMT lines, in 22 cases to adapt networks applied to evolving demand, on 10 lines because of restrictions in the Residential Priority Area of the centre district (Madrid Central), and in one case to increase the service provided at weekends.

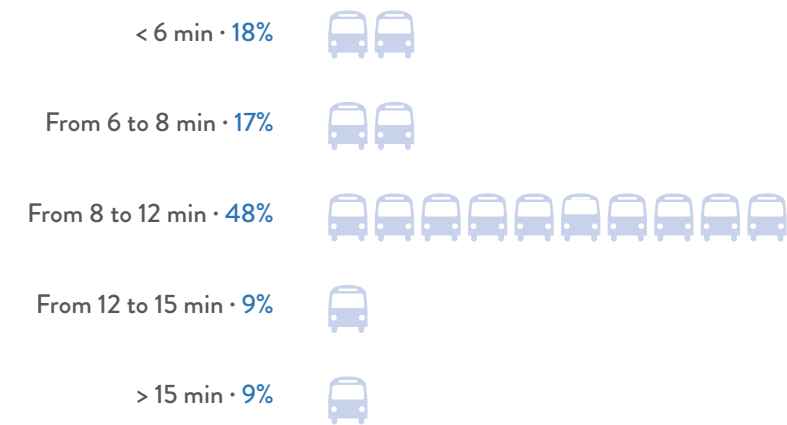
ANNUAL EVOLUTION OF PRODUCTION (million vehicles-km)



The average running speed in 2019 is 12.8 km/h, 1.5 % lower than the previous year due to the adaptation of service layouts to city traffic conditions.

In 2019, the EMT vehicle fleet consists of 2,082 active vehicles, with an average age of 6.6 years, of which 1,502 run on natural gas, 1 run on diesel-gas, 48 are hybrids, 50 are electric, and the remainder run on biodiesel. During the year, 204 new units (192 natural gas and 12 electric buses) were added to the fleet and 171 vehicles were written off. All buses have low floor and ramp for People with Reduced Mobility (PRM).

% EMT LINES BY INTERVAL AT RUSH HOUR





2.3 Road transport concessions

The bus network of the road transport concessions of the Autonomous Region of Madrid comprises **459 lines** at 31 December 2019, with **304 day suburban lines, 117 urban lines and 38 night suburban lines**.

The changes made during 2019 were:

→ Expansion of the night bus network to municipalities with more than 10,000 inhabitants, benefiting over 300,000 local residents. Expansion of the three existing routes and creation of the following:

N104 “Madrid (Plaza de Castilla) – San Agustín de Guadalix”

N403 “Madrid (Atocha) – San Martín de la Vega”

N505 “Madrid (Príncipe Pío) – Navacarnero”

N604 “Madrid (Moncloa) – El Escorial – San Lorenzo de El Escorial”

N808 “Madrid (Príncipe Pío) – Arroyomolinos”

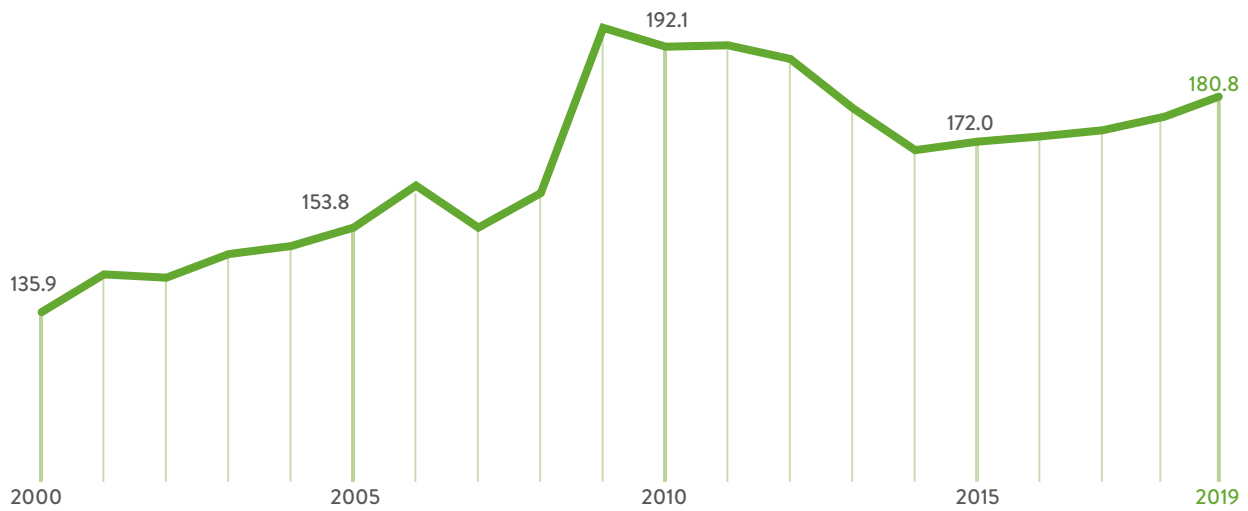
N907 “Madrid (Moncloa) – Villanueva de la Cañada – Brunete”

N908 “Madrid (Moncloa) – Villanueva del Pardillo – Valdemorillo”

- Increase in the bus service in the northern uplands, with new departures on lines 191 between Plaza de Castilla and Buitrago del Lozoya; and 193, between Plaza de Castilla and Pedrezuela. A number of the new services have their terminus at the Alcobendas Cercanías rail station and a stop at the Hospital Infanta Sofía to improve connections with the Metro and Cercanías rail.
- Modification of timetables and itineraries of several lines in Las Rozas. line 622 will now offer a night-time service at weekends, and a number of express Las Matas-Madrid departures have been added. line 620 has changed its itinerary to pass by the Grand Plaza 2 Shopping Centre, along with additional departures and itineraries on lines 628, L1 and L2.
- Reorganisation of transport in Paracuellos de Jarama and Belvis. Modification to lines 211 and 212, and creation of lines 213 and 215.
- Reorganisation of urban transport in Alcalá de Henares. A new loop line, L1A and L1B, has been set up, connecting the Cercanías rail stations to focal points for social life and leisure. The changes also affect the timetables and itineraries of the urban routes 2, 3, 5, 6, 7, 8, 9, 10 and 11.
- Improved transport in Guadarrama, with an increase in supply on the lines 682, 684, 685, 688 and 690, with new direct services and an extended itinerary. The N602 service to Guadarrama has also been expanded, along with improved coordination of the different routes.
- Creation of the new line 634 Colmenarejo-Galapagar-La Navata.
- Increased service on line 468, with the creation of the Griñón – Humanes – Hospital de Fuenlabrada direct itinerary.
- Reorganisation of urban transport in Colmenar Viejo. Creation of lines 1 and 2, following the reorganisation of the previous urban network and modification of the itinerary of line 720.
- Reorganisation of urban transport in Aranjuez. Modification of urban lines 1, 3 and 4, setting up 14 new bus stops in the town.

The system of lines is operated by 31 different companies under 36 administrative concessions and an agreement with a City Council. The urban service in the municipalities of peripheral zones B and C is provided through the municipality’s own urban lines or through the suburban bus network. In some municipalities, the urban service is provided through a combination of both networks.

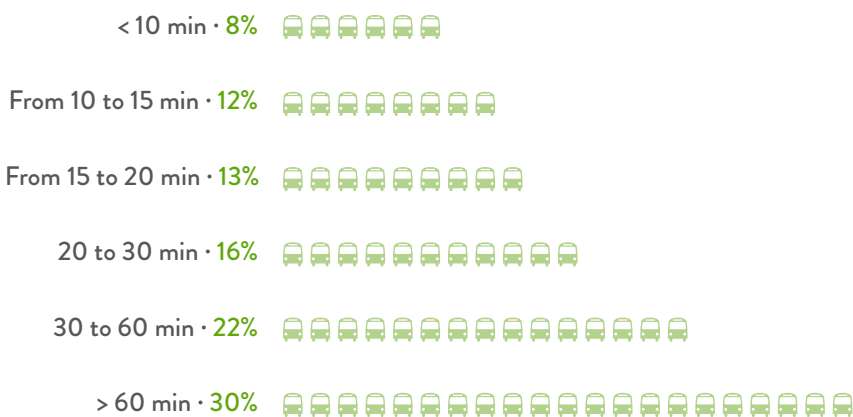
ANNUAL EVOLUTION OF PRODUCTION (million vehicles-km)



As a result, the actual supply of urban transport is much higher than that derived from the urban networks themselves. The specific network of urban lines in peripheral zones B and C reaches a total of 35 municipalities, although in only 6 of them is there an administrative concession for an independent urban service. In addition, in the municipality of Fuenlabrada the urban service is provided directly by the council, through a municipal company. The supply of services scheduled for the whole network amounts to 28,152 departures on a working day in winter.

The supply of the different lines of the network is, of course, diverse and responds to the different needs in municipalities with different populations and characteristics, as shown in the graph below that indicates the percentage of lines distributed according to the rush hour interval on a working day, in minutes.

% ROAD CONCESSION LINES BY RUSH HOUR INTERVAL

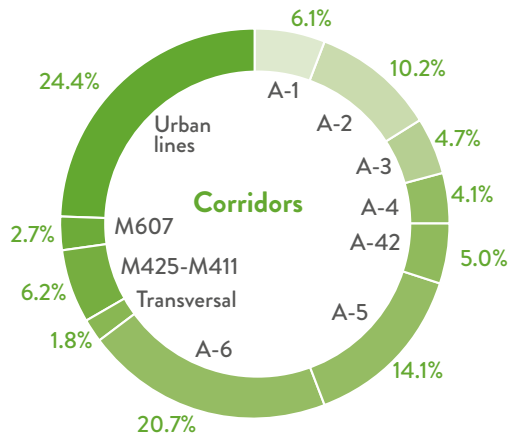


The vehicle fleet of road transport concessions comprises **2,057** buses. **262 buses were renovated in 2018, with the average age standing at 4.7 years.** As a result of this fleet renewal and improvement, **238 natural gas vehicles and 320 hybrid vehicles are available.** Likewise, 100% of the bus fleet is adapted for use by Persons with Reduced Mobility (PRM).

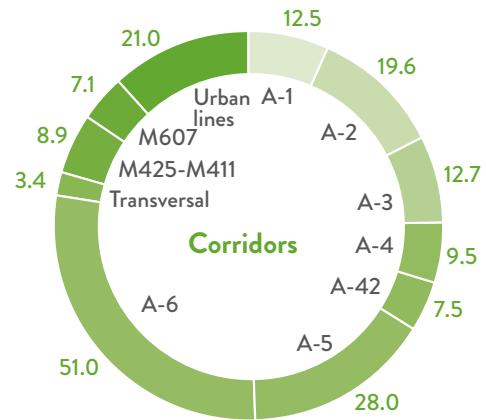
Distribution of supply by corridor

The supply generated during 2019 along the different corridors is shown below, these being broken down according to the motorways and main access roads to the capital. This also includes a group of transverse routes which cover connections between some of these main corridors, and a group of urban lines.

Suburban concession departures by corridor (% of departures)



Suburban concession supply by corridor (millions of km)





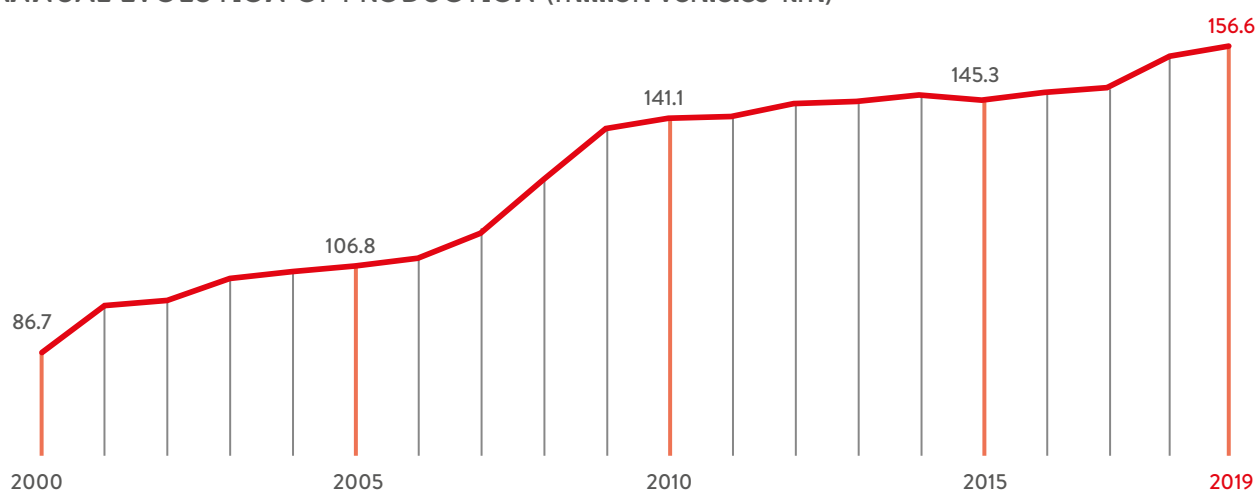
2.4 Renfe-Cercanías (suburban railway)

Renfe-Cercanías Madrid is a railway service operated by Renfe Viajeros on ADIF infrastructure, connecting the city of Madrid with its metropolitan area and with the main population centres of the region, along with the city of Guadalajara.

The Renfe-Cercanías network in Madrid operates a total of 9 lines, with 2 branches, and 95 network stations across 391 km, including the Azuqueca, Cotos and Guadalajara stations outside the regional scope of the Autonomous Region of Madrid, and the Zarzalejo, Robledo de Chavela and Santa María de la Alameda stations as an extension of the network from El Escorial.

Of all the stations, 43 serve at least 2 Renfe-Cercanías lines. Taking into account the total number of connections to other railway modes (underground and light rail), the figure increases to 54.

ANNUAL EVOLUTION OF PRODUCTION (million vehicles-km)



SUPPLY PER LINE ON A WORKING DAY

Line	C-1	C-2	C-3 C-3a	C-4a C-4b	C-5	C-7	C-8	C-9	C-10	Total
Number stations-line	11	19	27	18	23	24	32	3	21	178**
Number operations	75	211	160	264	262	80	42	5***	77	1,176
Number operations in rush-hour periods*	28	94	74	113	126	37	18	2	34	524
Cars per train	6/10	6/10	10	10	6	6/10	6/10	6/10	10	
Peak commercial speed (Km/h)	34.6	49.4	57.9	50.7	46.0	47.9	53.8	26.6	47.4	49.1

* Rush-hour periods: 6:00-9:00/13:30-15:30/18:30-20:30.

** The total includes the stations of Zarzalejo, Robledo de Chavela and Santa María de la Alameda (extension from El Escorial).

*** Only operates on weekends

The supply of scheduled transport for the Renfe-Cercanías services in Madrid stood at 1,176 operations in 2019 and more than 1.7 million passengers a day, resulting in a volume of 458.237 run over the year and an annual production of 156,6 million vehicles-km.

The vehicle stock comprises 279 trains, with an average age of 25.8 years.



2.5 Light rail

The light rail network consists of 4 lines, the names of which are indicated below:

- 1**
Pinar de Chamartín – Las Tablas

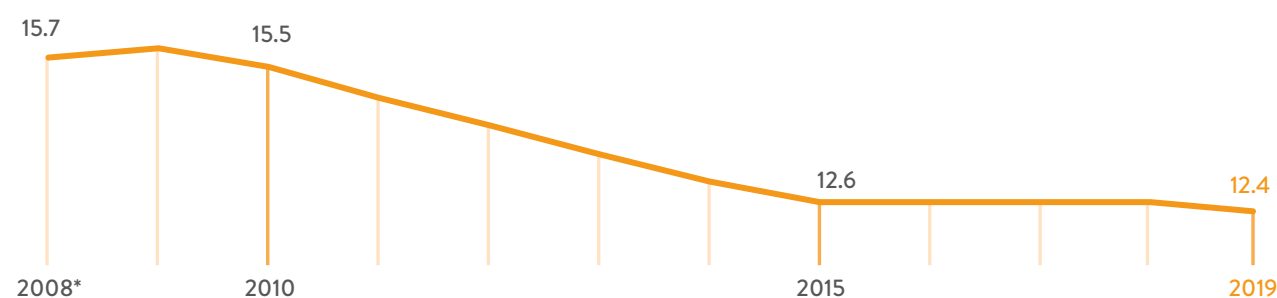
metros ligeros de madrid
 Metros Ligeros de Madrid S.A.
- 2**
Colonia Jardín – Estación de Aravaca

Metro Ligero Oeste S.A.
- 3**
Colonia Jardín – Puerta de Boadilla

Tranvía de Parla S.A.
- 4**
Tranvía de Parla (línea circular)

Overall 2019 output remained at 12.4 million vehicle-km.

ANNUAL EVOLUTION OF PRODUCTION (million vehicles-km)



* The light rail network started operating in 2007.

On a working day, the morning rush hour supply consists of 35 trains in service, with the average interval being 6.8 minutes and the average speed 21.5 km/h.

SUPPLY PER LINE AT MORNING RUSH HOUR ON A WORKING DAY

Line	Trains	Cars per train	Commercial speed (km/h)	Travel time (min) (round trip)	Interval (min)
1	7	5	19.1	34.0	5.0
2	9	5	23.5	44.0	6.0
3	12	5	25.4	64.0	6.0
direction 1 4	3	5	20.1	24.8	10.0
direction 2 4	4	5	19.6	24.8	7.0





2.6 Other railway concessions

This is the section of line 9 between the Puerta de Arganda and Arganda del Rey stations. It covers a length of 19.0 km and 6 stations-line, the Puerta de Arganda station being the link with the rest of line 9.

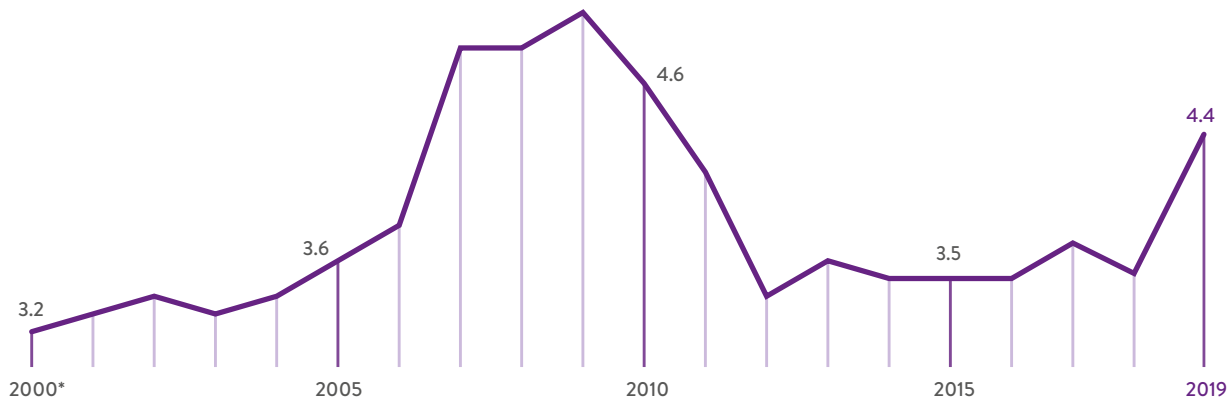
The services are provided by the concession company Transportes Ferroviarios de Madrid, S.A.

Adding this section to the Metro de Madrid section would give a network of 288.5 km, and a total of 242 stations-network and 293 stations-line.

From 1 January 2019 onwards, service operating hours were extended until 1:30 a.m., as across the rest of the Metro de Madrid network.

2019 output amounts to 4.4 million vehicles-km.

ANNUAL EVOLUTION OF PRODUCTION (million vehicles-km)



*Operations on line 9 began in 1999

SUPPLY AT MORNING RUSH HOUR ON A WORKING DAY

Line	Trains	Cars per train	Commercial speed (km/h)	Travel time (min) (round trip)	Interval (min)
9 b	7	2 double and 5 triple	53.4	42.9	6.0



3 The fare system



over 12 million Multi Cards in circulation

The fare system for public transport in the Autonomous Region of Madrid is defined as a zonal system, in which the price of travel is determined depending on the zones involved, and in which there are three types of ticket aimed at the same types of general categories of passenger.

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

All tickets, with the exception of single tickets of bus operators, are charged on the Public Transport Card, which is a contactless card with a microprocessor chip.



3.1 Zoning

The Autonomous Region of Madrid is divided into six fare zones:

- A central area (A), almost coinciding with the municipality of Madrid.
- Three metropolitan zones (B1, B2 and B3), with 8, 14 and 27 municipalities, respectively.
- Two zones (C1 and C2) to complete the administrative boundary of the Autonomous Region of Madrid, containing a population spread over the remaining 129 municipalities.
- In addition, two external zones have been defined (E1 and E2), included in the neighbouring region of Castile-La Mancha, up to a distance of 60 and 85 kilometres, respectively, from the capital city.

3.2 Ticket types

There are three main types of ticket:

- A **single ticket**, valid for each operator, aimed at the occasional user who purchases it at the time of use. In the case of Metro de Madrid and the underground and light rail concessions connected to it, there is a combined single ticket valid for all these services.
- A **ten-trip ticket** aimed at repeat users who purchase it in advance. In zone A, there are two types of tickets of this kind: a multimodal ticket (Metrobús), valid for use on the underground, EMT and ML1 indifferently, in addition to the concessions of the companies Prisei and Alacuber inside the municipal district of Madrid; and another, a ticket for ten trips with transfers, valid only on EMT and enabling passengers to change lines within one hour of the first validation. In zones B and C there is a ticket for ten trips (unified bus passes) for all urban and suburban road transport operators. Likewise, similarly to the combined single ticket for the connected underground and light rail services, there is a combined ten-trip ticket.
- A **personal, multi-modal, unlimited-use ticket** for the period and area of validity, called a Travel Pass, for regular users purchasing in advance. It remains valid for 30 days from when it is first used. The passes are priced differently depending on the age of the user, and there are three categories: young (up to 26); adult (between 26 and 64); and senior citizen (aged 65 and over).

Functional exceptions to this general pricing framework apply to the sections outside the underground network that, together with the Metro LigerO Oeste lines, make up a single fare area for non-personal tickets. Furthermore, the use of stations serving the airport terminals involves the payment of an additional ticket. Users of any form of Travel Pass and tourist tickets are exempt from this payment. Finally, the EMT Express Airport line has a specific ticket.

The so-called tourist tickets are also personal and unlimited-use tickets aimed at the floating population. They are split in two zonal forms: A and T (all zones, including external zones), each for six time slots: 1, 2, 3, 4, 5 and 7 calendar days starting from the first use.



3.3 Social fares

There are four types of group that benefit from a reduction in the general price established:

- **Large families** (20% and 50% discount in general and special categories, respectively).
- **People with disabilities** equal to or greater than 65% (20% discount). If the above two conditions are met, the corresponding discounts are added.
- **The over-65s or people** with disabilities residing in the municipality of Madrid whose personal income is less than a certain amount related to the IPREM (Public Multiple-Effect Income Indicator), with a specific pass, the Blue Card, which is valid on the Metro de Madrid (zone A), ML1 and EMT services in Madrid.
- Lastly, the **Children's Public Transport Card** allows for free use of all transport services in the Autonomous Region of Madrid for children aged 4, 5 and 6.

3.4 The distribution network

There are two main groups of distributors:

- **Transport operators**
- **Networks outside the operators**

Transport operators generally sell tickets for use exclusively on their network.

Multi-modal and multi-operator tickets, owned by the CRTM, are sold on the underground network (more than 1,200 automatic machines), at transport interchanges (10-trip tickets for suburban road operators), at Renfe-Cercanías (more than 500 automatic machines) and on two external networks: the network provided by Logista, basically made up of the tobacconists and other authorised establishments, which distribute all the tickets in a network of over 1,200 points of sale; and the Bankia ATMs in the Autonomous Region of Madrid (with over 1,600 points available), which top up the 30-day passes and 10-trip tickets.

Tourist tickets are distributed at the CRTM management offices located at the Airport, throughout the aforementioned external sales network, and in the automatic machines installed at the Renfe-Cercanías stations. The CRTM also sells these tickets directly to the groups and collectives requesting them, congresses, etc.

Various pilot schemes were undertaken during 2019 with real users to incorporate a new top-up channel via a mobile app next year.



3.5 The fares

The prices in force since 1 February 2013, when the last price review took place and that only affected the prices of the passes, were maintained in 2019.

The Ministry of Infrastructure Development is responsible for approving the fares corresponding to tickets of Renfe-Cercanías.

TRAVEL PASS (30-day)

	A	B1	B2	B3	C1	C2	E1	E2
Adult (aged 26-64)	€54.60	€63.70	€72.00	€82.00	€89.50	99.30€	€110.60	€131.80
Young (aged 7-25)	20.00€							
Senior (aged 65 and above)	12.30€							
Blue Card	6.20€							

INTERZONAL (except with area A)

	2 zones	3 zones	4 zones	5 zones	6 zones	7 zones
Adult (aged 26-64)	€47.90	€54.60	€63.70	€72.00	€82.00	€89.50

Yearly passes are valid for the calendar year, the price of which is 10 times the corresponding 30-day pass, with the exception of the pass for the unemployed. Children under 4 can travel without a ticket.

SINGLE AND 10-TRIP UNDERGROUND AND LIGHT RAIL TICKET

Zone	Metro A Zone +ML1	MetroNorte	MetroEste	MetroSur	TFM & MLO	Combined metro and light rail
	A	B1	B1	B1-B2	B1-B2-B3	A-B1-B2-B3
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 AND 10-TRIP TICKETS ON 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

Airport Express line €5.00

TOURIST TICKET

	1 day	2 days	3 days	4 days	5 days	7 days
A zone	€8.40	€14.20	€18.40	€22.60	€26.80	€35.40
T zone (all zones)	€17.00	€28.40	€35.40	€43.00	€50.80	€70.80

50% discount for children under 11

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
MULTI 2,50€ Hasta 3 títulos no personales. Up to 3 different types of non-personal tickets.	✓	✓	✗	✗	✓	✗	✓
PERSONAL 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 valid 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 autobuses 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.
(Artículo 24 del Reglamento de Viajeros del Ferrocarril Metropolitano de Madrid)

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.
(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 [A]

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]

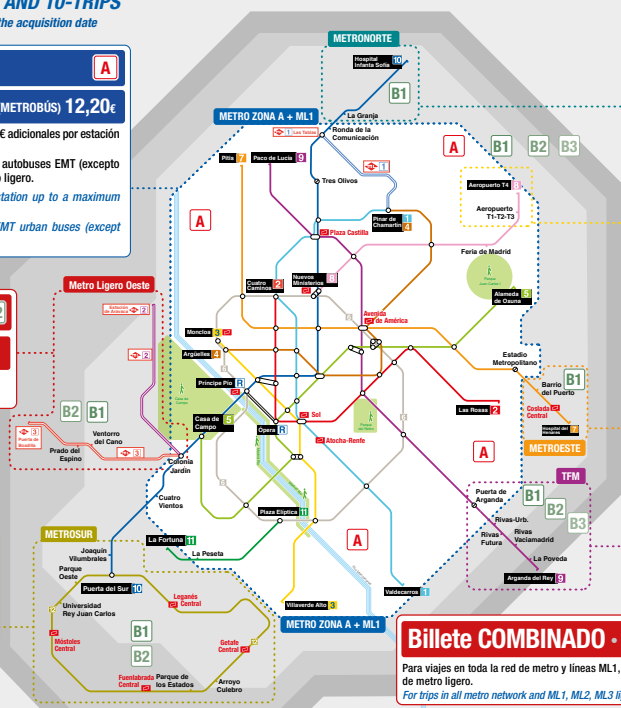
SENCILLO SINGLE 2,00€ 10 VIAJES 10-TRIPS 12,20€

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€

L7 (Hospital del Henares - Barrio del Puerto)

TFM [B1 B2 B3]

SENCILLO SINGLE 2,00€ 10 VIAJES 10-TRIPS 12,20€

L9 (Puerta de Arganda - Arganda del Rey)

Billete COMBINADO · COMBINED Ticket [A B1 B2 B3]

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.

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

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 autobuses 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€								
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 ó 7 días naturales y consecutivos.

A personal ticket that allows for unlimited use for 1, 2, 3, 4, 5 or 7 calendar consecutive days.

- Zona A: todos los servicios de esta zona.

- Zone A: all transport services of zone A.

- Zona T: todos los servicios de la Comunidad de Madrid, incluyendo E1-E2, excepto servicios Renfe a Toledo.

- Zone T: all transport services in the Madrid Region, including E1-E2 zones, except Renfe railway to Toledo.

No es válido en la línea de autobuses Expres Aeropuerto.

It is not valid for the Airport Express bus line.

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 zona A	8,40€	14,20€	18,40€	22,60€	26,80€	35,40€
ZONA zona 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 de Transporte Público
Public Transport Information
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



3.6 Technology

Contactless wallet technology is a strategic project for the integrated public transport system of the Autonomous Region of Madrid. Its consolidation as the medium used for 98% of transport tickets represents considerable progress towards achieving the unification of fares and technology across all transport systems and operators, benefiting public transport network users through new functionalities in terms of safety, convenience and flexibility.

In addition, this technology significantly increases CRTM management capacity for better service planning, efficiency improvements and cost reduction, and for obtaining new data that is now already used as the basis for analytical work with big data and Business Intelligence technologies.

The elements forming part of this new technological development especially include the ticket itself (Public Transport Card) and the test development centre (DCC) for progressive implementation and verification of successive modifications to the specifications.

a. The Public Transport Card ('TTP')

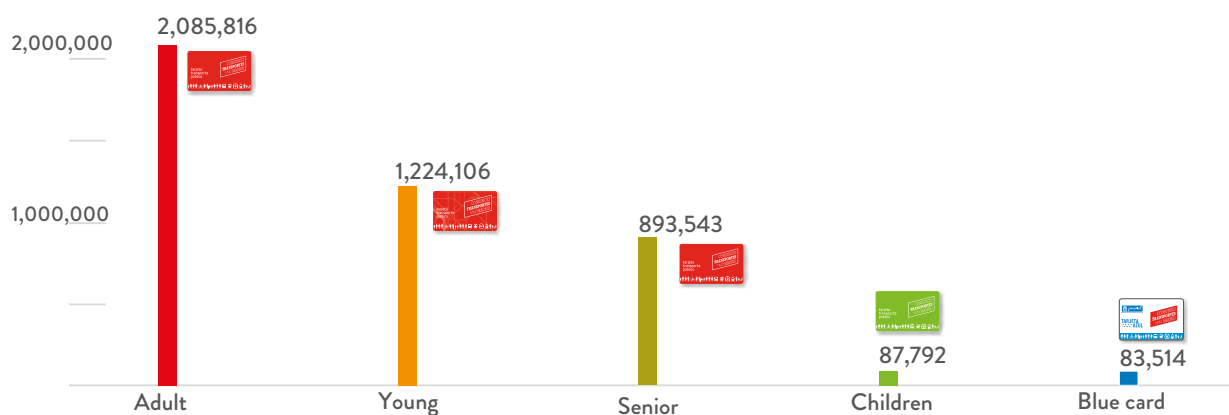
Different tickets can be contained in two types of public transport card: personal and non-personal. The former, introduced in 2013, may contain a personal ticket and two additional non-personal tickets. Non-personal cards, which have been on sale since 2017 under the 'Multi' brand name, only contain non-personal tickets, up to a maximum of three, with certain exceptions.

Personal Public Transport Card

The number of personal cards active at 31 December 2019 amounted to 4,374,771, 10.4% more than in 2018, with similar increases for all three profiles: Adult, Young and Senior. Blue Cards have increased by nearly 9%, as a result of renewals over the course of 2019 by the holders of cards which were deactivated last year because they had expired, and which had led to a downturn in the number of active units that year.

The number of new cards issued amounted to 494,964, 6.5% more than in 2018. The following table indicates their distribution by sales channel for each user profile, except in the case of the Blue Card, which can only be requested at the Citizen Assistance offices of Madrid City Council. Management Offices are the channel most commonly used by users, with 75.2% of cards issued, generating 5% more new cards, to the detriment of the other two channels available: Internet used by 18.3%, a drop of around 4 percentage points, and licensed tobacconists accounting for the remaining 6.5%, 1.5% lower than the previous year.

ACTIVE PERSONAL CARDS BY PROFILE



These averages differ, however, depending on the profile in question, with the digital channel reaching the largest share for children’s cards (23%), followed by youngsters (21%), senior citizens (17%) and lastly the standard adult category (15%). The last group most commonly use the in-person channel, issuing 80% of new cards.

The average monthly number of cards requested is 41,247, with the highest number of requests being made in September with more than 60,453 new cards, as is customary mainly due to the build-up of new requests at the start of the new academic year.

Multi Card

The Multi Card is intended to contain the non-personal tickets of users who do not have a personal card. The single tickets of bus operators remain in paper format and are paid for on board buses at the start of the trip.

The card can be purchased from the vending machines on the underground and light rail networks and at the points of sale of the Logista network, and lasts for ten years, just like the personal cards. The price is €2.50.

The following table summarises the Multi Cards distributed up to 31 December 2018, differentiating between those provided during their promotion and those sold through the two existing sales channels. In total, the number of cards in circulation amounts to 12.3 million, of which about 4 million correspond to sales produced in 2019.

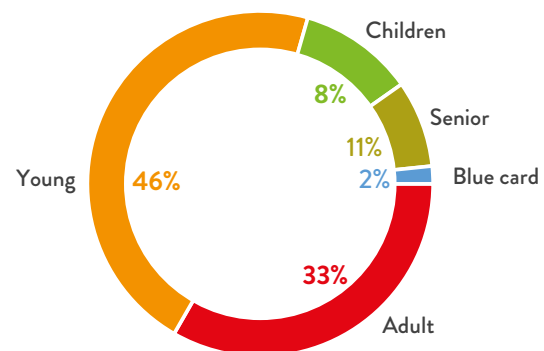
The significant growth in anonymous cards since they were launched in is mainly due to the demand generated by visitors to the region.

As for ticket purchases using the Multi Card, more than 41.1 million ticket top-ups were performed over the course of 2019, a 5.6% increase compared with 2018. Most ticket top-ups, 89.2%, are for Metro de Madrid, since slightly over half of the top-ups correspond to one-way tickets on the network. Aside from Metro, the second most commonly used network when acquiring tickets with this type of card is Logista, accounting for nearly 10% of top-ups. The remaining operations are performed across the ATM network, Management Offices and with the operator Metro Liger Oeste, all of which register numbers below 1%.

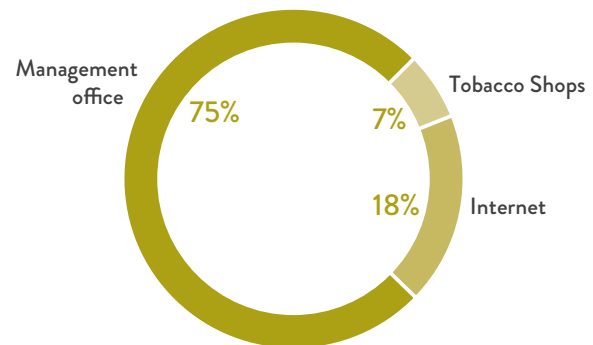
PERSONAL CARDS ISSUED BY PROFILE / CHANNEL

	Tobacconists	Internet	Management Office	Total
Adult	8,528	24,195	132,135	164,858
Young	13,528	46,943	167,890	228,361
Senior	3,556	8,856	40,963	53,375
Children	5,898	9,098	25,218	40,214
Total	31,510	89,092	366,206	486,808

Personal cards issued by profile



Personal cards issued by channel



MULTI CARDS IN CIRCULATION (at 31 December 2019)

Free of charge	1,231,425
Social services	38,000
Provided during promotion	1,193,425
Sales	11,035,604
Logista	598,015
Metro	10,437,589
Total	12,267,029

b. The Development and Compliance Centre (DCC)

The Development and Compliance Centre (DCC) was launched in 2006 and its basic aim is to be a technological flagship guaranteeing the compatibility of all elements, equipment and systems, both hardware and software, which constitute or may constitute part of the Smart Ticketing System of the Autonomous Region of Madrid.

During 2019, numerous tests were performed in the areas of card manufacture and supply, validation, top-ups and inspection. More specifically, physical (friction, roughness, gloss and stacking) tests of Multi Cards were performed to guarantee the correct automatic issuance of this type of card from Metro sales machines. Trials have likewise been conducted to incorporate additional functions (such as reduced fares on senior cards and invoice generation improvements) via the top-up application across various sales networks: Metro, Logista, Renfe-Cercanías and Bankia.

Validation tests have also been performed with the different transport operators with regard to updating of fares, trip extensions, integration with public car park usage discounts, sale of one-way tickets on board by suburban bus operators, along with ongoing work in the field of contactless Host Card Emulation on mobile phones, using the NFC communication protocol, to provide passengers with an alternative means of topping up their transport cards. Two new applications have also been tested (for top-ups and card inspection), developed for the CRTM and implemented on mobile phones.



4 The Passengers



1,600
million
trips in 2019

The total number of trips made in the public transport system of the Autonomous Region of Madrid in 2019 amounted to 1,600.7 million, representing an increase of 3.4% compared with the previous year, 52.3 million in absolute terms.

This figure represents an average of 240.2 trips per inhabitant per year, 2.0% more than the previous year, which still makes the Autonomous Region of Madrid the benchmark for the use of public transport throughout the country. It is worth noting that over the last 10 years the growth in trip numbers has been twice the increase in the registered population, highlighting the growing importance of public transport mobility for visitors and those not registered as resident in the region.

A trip is classified as each commercial stage completed by a user, which means that transfers are also calculated as such, except on the Metro de Madrid and Renfe Cercanías networks, where internal transfers are not penalised in terms of fares.

4.1 Evolution of demand by operator

Unlike in 2018, the best results regarding growth in demand were seen among road operators, with growth levels of nearly 5% on both urban and suburban networks. Metro de Madrid, which over the past two years had seen significant growth, at all times ahead of the overall group of operators, grew by slightly less than the system average in 2019. There was also favourable evolution in light rail services, with a similar proportional increase in demand to the overall number of trips on the public transport network. Renfe Cercanías nonetheless registered a slight downturn, leading to a loss in absolute terms of just under 350,000 trips, bringing to an end the upward path of the previous two years, with increases in demand of 5.6% in 2018 and 4.3% in 2017.

Modal distribution has remained essentially stable since 2005, with minor fluctuations of one or two percentage points across the two main operators. During the past year, 42.3% of trips took place on Metro de Madrid, and another 27.5% on the EMT de Madrid bus network.



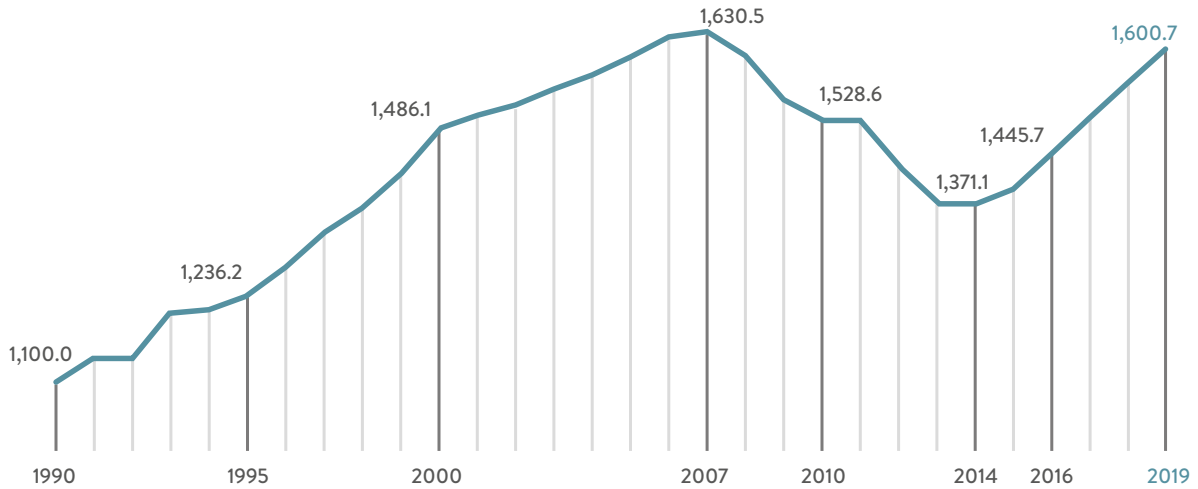
EVOLUTION OF DEMAND BY OPERATOR (million)

YEAR	Metro de Madrid	EMT	Road concessions	Renfe-Cercanías	Light rail ⁽¹⁾	Other railway concession ⁽²⁾	TOTAL
1990	416.3	433.3	154.1	96.3	-	-	1,100.0
% VAR 90/89	5.5%	-4.7%	10.5%		-	-	2.8%
1995	397.2	521.5	191.6	126.0	-	-	1,236.2
% VAR 95/90	-4.6%	20.3%	24.4%	30.8%	-	-	12.4%
2000	518.9	531.2	270.1	161.2	-	4.7	1,486.1
% VAR 00/95	30.7%	1.9%	40.9%	28.0%	-	-	20.2%
2005	643.6	470.2	275.6	199.0	-	6.7	1,595.1
% VAR 05/00	24.0%	-11.5%	2.0%	23.5%	-	42.9%	7.3%
2010	627.1	423.4	235.8	181.6	17.3	6.4	1,491.6
% VAR 10/05	-2.6%	-10.0%	-14.4%	-8.8%	-	-4.8%	-6.5%
2015	569.7	405.9	207.3	182.2	14.7	5.9	1,385.8
% VAR 15/10	-9.2%	-4.1%	-12.1%	0.3%	-15.0%	-7.8%	-7.1%
2016	584.8	430.1	224.1	184.6	15.8	6.2	1,445.7
% VAR 16/15	2.7%	6.0%	8.1%	1.3%	7.5%	5.3%	4.3%
2017	626.4	427.9	232.7	192.5	16.9	6.5	1,503.0
% VAR 17/16	7.1%	-0.5%	3.8%	4.3%	6.8%	4.7%	4.0%
2018	657.2	420.2	242.8	203.4	18.2	6.6	1,548.4
% VAR 18/16	4.9%	-1.8%	4.3%	5.6%	7.8%	1.5%	3.0%
2019	677.5	439.8	254.7	203.0	18.8	6.9	1,600.7
% VAR 19/18	3.1%	4.7%	4.9%	-0.2%	3.3%	4.5%	3.4%

In 2000, the procedure for calculating trips (cancellations instead of survey) was modified.

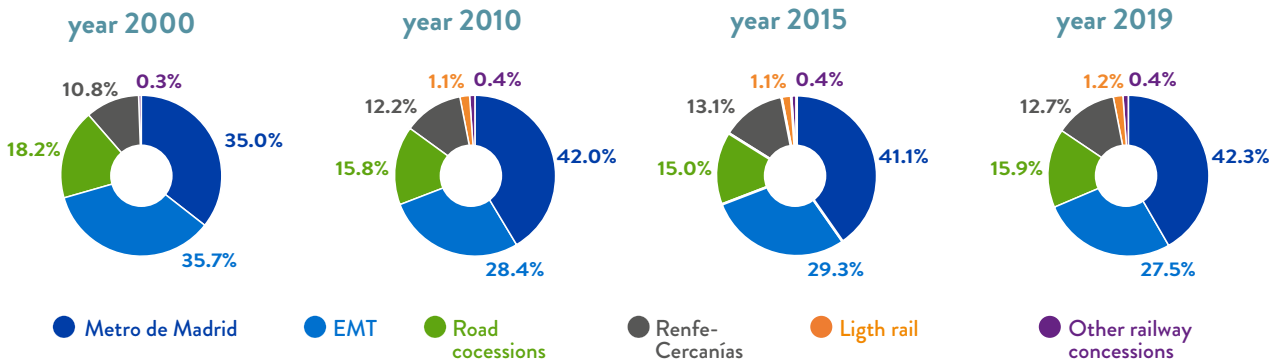
(1) Includes MLM, MLO and Parla Tramway operators. (2) Includes TFM.

EVOLUTION OF TOTAL DEMAND (millions of trips)



2007 saw the highest number of trips in the Madrid Region, and in 2019 demand was close to this maximum level, consolidating the growth seen since 2016.

EVOLUTION OF TOTAL DEMAND BY OPERATOR



4.2 Evolution of demand by ticket

The Transport Card accounts for the bulk of the registered growth, with 90% of additional trips taken in 2019 using this card, which furthermore reveals uniform increases in relative terms across all user profiles. In 2018 there was significantly greater usage of tourist tickets, a circumstance repeated in 2019, highlighting the growing importance of Madrid as a tourist destination.

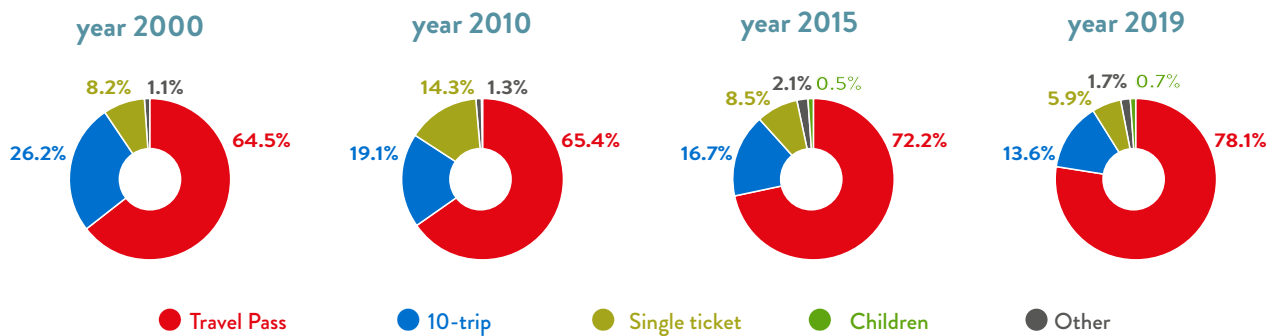
Child Card trips fell by 2.7%, probably as a result of the consolidation of visa cards and a greater control of proper usage. Single tickets barely increased compared with 2018 (0.3%), and although ten-trip cards saw a higher percentage increase (1.3%), this was also below the overall average demand. There has been a consolidation of the trend seen the previous year, 2018, following the introduction of the Multi Card, revealing an increase in the use of ten-trip tickets as opposed to singles.

Trips using other forms of card registered a substantial increase as a result of special services provided by EMT for other operators, Metro and Renfe-Cercanías, during refurbishment work on their infrastructure.

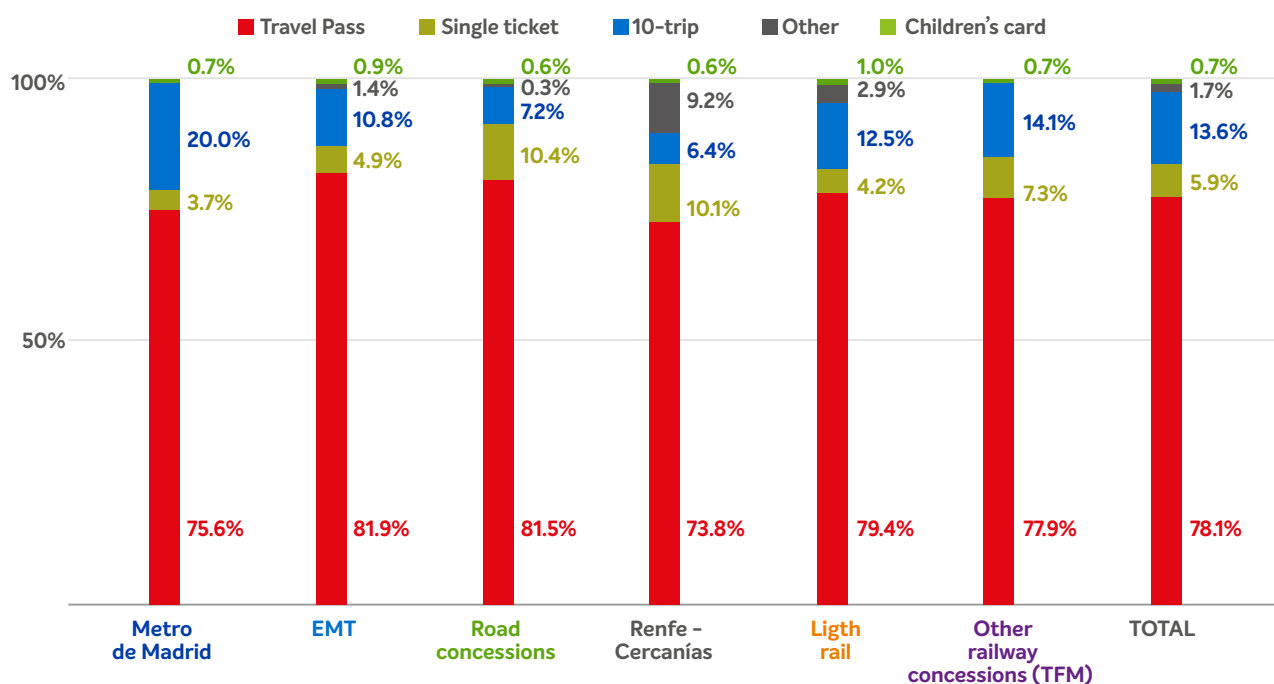
ANNUAL DISTRIBUTION OF TRIP BY TICKET TYPE 2019

		Metro de Madrid	EMT	Road concessions	Renfe-Cercanías	Light rail	Other railway concessions (TFM)	TOTAL
Single	Trips	25,074,410	21,628,502	26,529,634	20,493,098	786,397	504,473	95,016,515
	% Total	26.4%	22.8%	27.9%	21.6%	0.8%	0.5%	100.0%
10-trip	Trips	135,529,133	47,494,558	18,377,400	12,901,680	2,352,977	968,557	217,624,305
	% Total	62.3%	21.8%	8.4%	5.9%	1.1%	0.5%	100.0%
Travel Pass	Trips	512,168,744	360,338,329	207,540,027	149,729,418	14,949,990	5,357,282	1,250,083,790
	% Total	41.0%	28.8%	16.6%	12.0%	1.2%	0.4%	100.0%
Children's	Trips	4,673,256	3,987,448	1,444,944	1,239,610	188,088	45,156	11,578,502
	% Total	40.4%	34.4%	12.5%	10.7%	1.6%	0.4%	100.0%
Other	Trips	30,484	6,337,777	806,109	18,648,668	548,530	0	26,371,568
	% Total	0.1%	24.0%	3.1%	70.7%	2.1%	0.0%	100.0%
Total	Trips	677,476,027	439,786,614	254,698,114	203,012,474	18,825,982	6,875,468	1,600,674,679
	% Total	42.3%	27.5%	15.9%	12.7%	1.2%	0.4%	100.0%

EVOLUTION OF THE DISTRIBUTION OF DEMAND BY TICKET TYPE



DISTRIBUTION OF TRIP BY TICKET AND OPERATOR



The Transport Pass is the most widely-used ticket on all operators (78.1% of all trips made), and is particularly significant in the case of buses, with participation rates in excess of 80%. The average number of monthly trips by each holder is 56.8, practically the same figure as in 2018. The average value of monthly trips made by our pass holders has decreased gradually as a result of the increasing proportion of users eligible for substantial discounts out of sales as a whole, as seen below.

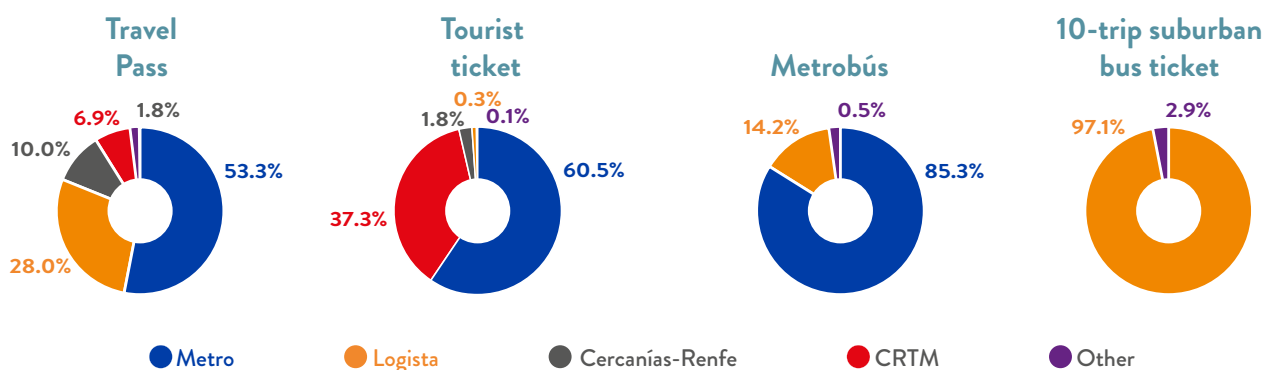
Single tickets have declined slightly, amounting for 5.9% of all trips completed, with greater penetration among suburban services, whether by rail or road, with 1 in every 10 trips using a single ticket. Ten-trip tickets achieve their highest penetration levels on Metro de Madrid, as in previous years, with the operator accounting for 20% of demand.

4.3 Sales of tickets

The sales of the different types of Transport Pass are analysed below. Information regarding the sale of the remaining tickets issued by the CRTM (combined one-way and ten-trip of the underground and light rail network and ten-trip Metrobús tickets and bus passes from suburban operators) does not offer significant added value to the distribution of the trips indicated in the previous chapter.

However, the following graph shows the distribution by commercial network of the sale of all tickets sold by the CRTM. Metro de Madrid is the main distributor with just over half of the passes and 85.2% of Metrobús, the ten-trip ticket for zone A. The Logista point of sale network then plays a very important role as external support for the transport network, with 28% of Pass sales, 14.2% of Metrobús and a majority 97.1% of suburban service bus passes. The Bankia ATM network plays a minor role (1.1%) in the sale of tickets, and is therefore included in the “Other” category. The CRTM is assigned a separate subsection, although its main role is the distribution of yearly cards, through the sale of cards for conventions and the sale of tourist tickets to end users via its Management Offices, in particular those providing the airport service.

DISTRIBUTION OF THE SALE OF TICKETS BY DISTRIBUTOR



A total of 21,275,432 passes were sold in 2019 across all user zones and profiles. This figure, representing a 4.3% increase on the previous year, includes 30-day ticket top-ups on contactless cards and annual passes distributed in monthly instalments. It does not include tourist tickets, which are analysed separately.

SALES OF THE TRAVEL PASS BY USER PROFILE

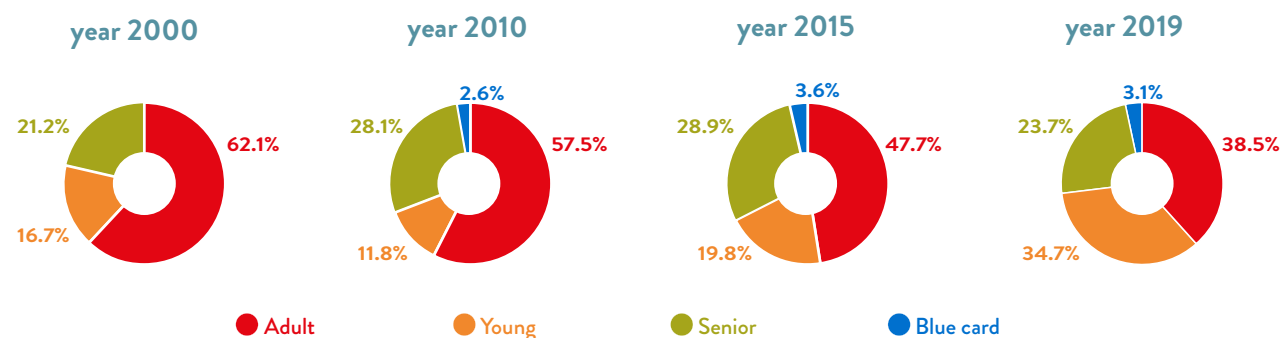
Year	Adult	Young	Senior	Blue Card	EAP	TOTAL
1990	3,404,593	1,260,108	599,477	-	-	5,264,178
1995	5,254,389	2,248,617	1,634,361	-	-	9,137,367
2000	7,732,219	2,079,622	2,647,205	-	-	12,459,046
2005	9,075,624	1,723,581	3,091,332	-	-	13,890,537
2010	8,386,456	1,724,270	4,102,935	377,426	-	14,591,087
2015	7,545,684	3,133,459	4,560,714	565,863	503	15,806,223
2016	7,243,501	5,794,760	4,662,945	594,615	4,669	18,300,490
2017	7,534,012	6,489,690	4,785,347	622,085	6,106	19,437,240
2018	7,838,161	7,001,096	4,909,269	646,393	9,597	20,404,516
2019	8,190,707	7,380,467	5,045,493	658,722	43	21,275,432
% VAR. 19/18	4.5%	5.4%	2.8%	1.9%	-99.6%	4.3%

The Young Card increased by almost 5.4% in comparison to the previous year, continuing the sharp upward trend seen since the introduction of the flat-rate fare in 2015. This growing trend is even more evident when we consider the evolution of its share of sales, which in 2015 held a 20% stake and currently stands at 34.7%. This growth, the result of the fare implemented from 2015 onwards, led the proportion of adult profile users to drop to 38.5%. The profiles with the biggest discounts, Senior and Young users, now account for 58.4% of Transport Pass sales.

There is a striking trend in the profile of pass holders over the years, and in this regard, beyond the points already made, it is notable that although the Senior pass accounts for a small proportion compared with the years prior to the implementation of the Young pass, its volume of sales reached its peak in 2019, with sales of more than 5 million. The same pattern is not seen among adult profile passes, where current sales are slightly over 1 million down on the figures seen in 2005, the historical maximum.



SALES OF THE TRAVEL PASS BY USER PROFILE



The evolution of sales by zones supplements the analysis with a regional viewpoint and, although the first conclusion to be noted is that, due to the importance of flat-rate fares, these already represent 58.4% of total sales, the zonal approach is limited exclusively to adult passes, which skews the comparison.

EVOLUTION OF THE SALE OF THE TRAVEL PASS BY ZONE

	zone A ⁽¹⁾	zone B	zone C	Inter-zonal ⁽²⁾	zones E ⁽³⁾	Senior	Young	EAP ⁽⁴⁾	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	6,489,690	6,106	19,437,240
2018	4,604,066	3,269,086	279,270	263,051	69,081	4,909,269	7,001,096	9,597	20,404,516
2019	4,807,561	3,369,597	291,525	306,627	74,119	5,045,493	7,380,467	43	21,275,432
%VAR 19/18	4.4%	3.1%	4.4%	16.6%	7.3%	2.8%	5.4%	-99.6%	4.3%

(1) Including the Blue Card from 2007 onwards (2) Passes B1-B2, B2-B3, B3-C1 and C1-C2 (3) Area outside the Madrid Region, encompassing part of Castile - La Mancha (4) The EAP programme ended in 2018, but in 2019 there was still residual top-ups by pass holders who had the option of purchasing this fare for a few additional months.

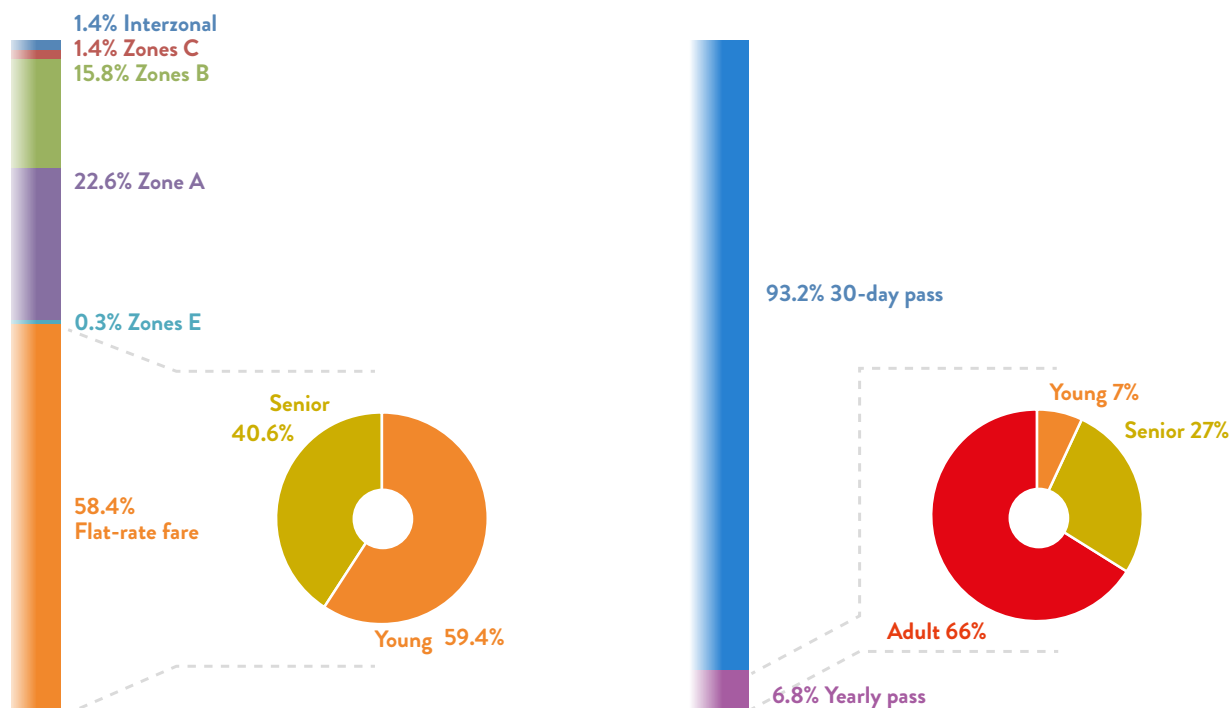
Over **21**
million
Transport
Passes
sold

The fact that 58.4% of tickets are sold on a flat fare basis makes it difficult to conduct a zonal analysis of Transport Pass usage. The evolution of the distribution of tickets by zone shows that there has been a greater movement of users from metropolitan areas towards the young flat-rate fare, as the loss in weight across zones B, C and E has been relatively greater than in zone A. In the past year, zone A represented 22.6% of the total, compared to 19.0% of the other zones. There is a striking increase in the number of inter-zonal tickets, rising by 16.6% in 2019 compared with sales the previous year.

93.2% of all passes sold are 30-day passes, compared to 6.8% of yearly passes. The latter are mainly adult pass holders, 66.2%, while yearly Senior Citizen pass holders account for 27.0%, and only 6.8% of yearly pass holders are youngsters. However, there is a general increase in the number of annual pass holders, in particular among Young Pass users, rising by 29.7%, and to a lesser extent, Senior pass holders, with 12.1%.



SALES OF THE TRAVEL PASS BY PROFILE AND ZONE



An average of 1.7 million pass holders use the 30-day option each month, with October registering the best month for sales, accounting for 1,848,414 units, 11.8% higher than the monthly average. The lowest number of sales inevitably occurred in the month of August, with approximately 1.2 million sold.

The ratio between sales in the peak months and the total population of the Madrid Region aged between 7 and 84 indicates a penetration of 32.9%, including use of both the yearly and 30-day passes. Throughout the year, 44.1% of all residents in the region used the Transport Pass at least once.

In terms of social tickets, a total of 2,079,849 passes from the different categories were sold in 2019, 5.3% more than in the previous year. The sale of tickets with a large family discount continues its upward trend, climbing by 7.5% compared to 2018. Despite the continued growth in such sales, the year-on-year percentage values are tending to stabilise. The remaining tickets are distributed between 31.7% corresponding to Blue Card beneficiaries and the remaining 6.1% to people with disabilities, both showing much lower increases than the average.

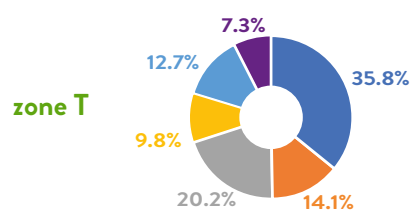
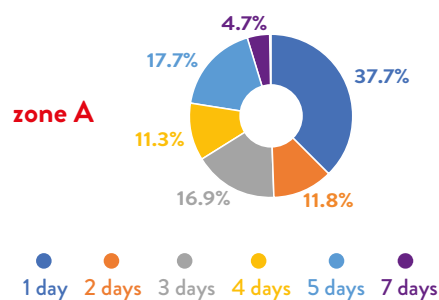
SALES OF SOCIAL TICKETS

	Large Family		Disability		Blue Card		Total	
	Sales	% of Total	Sales	% of Total	Sales	% of Total	Sales	% of Total
2010	358,286	45.5%	51,848	6.6%	377,426	47.9%	787,560	100%
2015	709,433	51.1%	112,468	8.1%	565,863	40.8%	1,387,764	100%
2016	975,660	57.8%	118,507	7.0%	594,615	35.2%	1,688,782	100%
2017	1,104,982	59.7%	122,720	6.6%	622,085	33.6%	1,849,787	100%
2018	1,203,418	60.9%	125,198	6.3%	646,393	32.7%	1,975,009	100%
2019	1,293,747	62.2%	127,380	6.12%	658,722	31.7%	2,079,849	100%
% 19/18	7.5%		1.7%		1.9%		5.3%	

With regard to the sale of the different tourist tickets (Adult, Children’s and Congress), in 2019 the figure is 741,156 units, an increase of 30.6% compared with the previous year and a significant rise, as was already the case in 2018. The greatest growth was seen in the sale of Congress transport tickets, increasing 3.6 times over compared with 2018, and albeit to a lesser extent, there was also a significant increase in Standard Adult profile tickets.

SALES OF SOCIAL TICKETS

Days	Adult	Children	Congress	Total
1 day, zone A	228,359	10,847	35,290	274,496
2 days, zone A	83,795	2,240	15	86,050
3 days, zone A	118,176	3,262	1,332	122,770
4 days, zone A	79,690	2,168	161	82,019
5 days, zone A	60,109	1,981	66,446	128,536
7 days, zone A	30,619	1097	2,135	33,851
Total zone A	600,748	21,595	105,379	727,722
1 day, zone T	4,646	170	0	4,816
2 days, zone T	1,861	39	0	1,900
3 days, zone T	2,644	64	5	2,713
4 days, zone T	1,294	26	0	1,320
5 days, zone T	1,679	25	5	1,709
7 days, zone T	947	29	0	976
Total zone T	13,071	353	10	13,434
Total 2019	613,819	21,948	105,389	741,156
Total 2018	524,397	20,477	22,612	567,486
%19/18	17.1%	7.2%	366.1%	30.6%



Zone A accounts for most of the sale of tourist tickets, 98.2% of the total, as in previous years. The best-selling tickets are the day tickets, 37.7%, followed by the three-day tickets, 17.6%.

In 2019 one single event, the staging of COP25, gave rise to a substantial increase in five-day tickets which were handed out to conference delegates.



5 Strategic lines

CRTM activity has a strategic side to it, the main objective of which is to achieve an integrated, efficient and high-quality public transport system that is environmentally friendly and universally accessible. The various significant actions taken within the network, the development and application of new technologies, the different technical studies it promotes, and the numerous projects in which it actively participates, are a true reflection of the strategic lines of this body.



**We created
the first
Innovation
and Training
Centre in Spain**

5.1 Intermodality

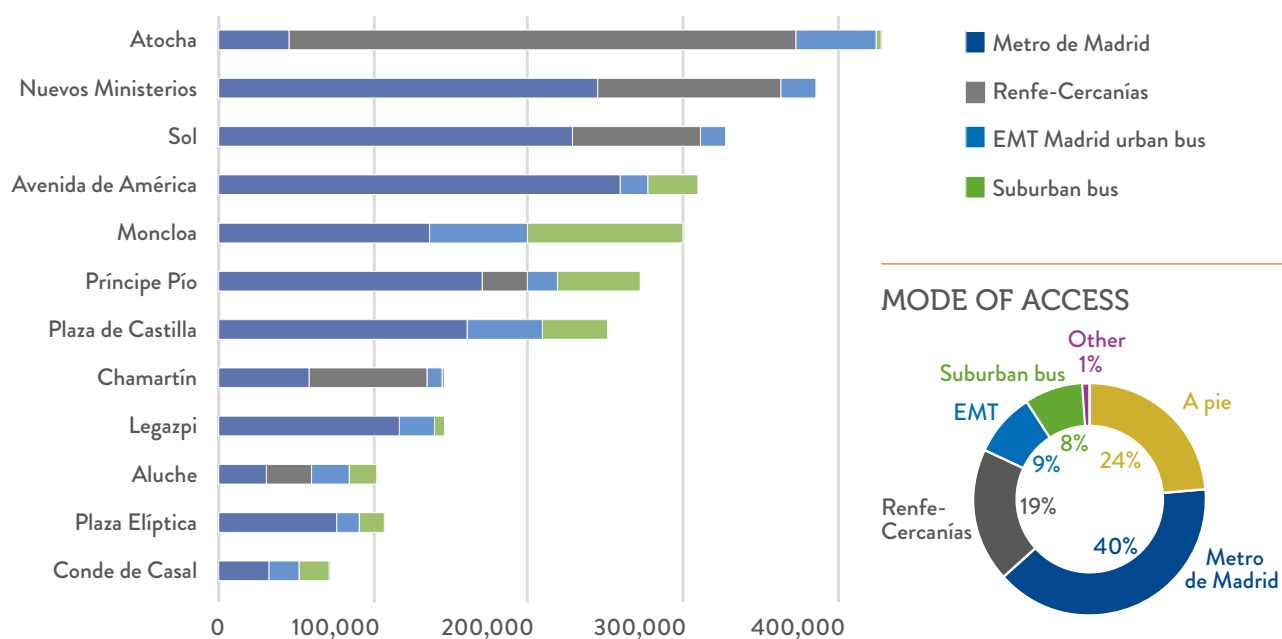
a. Interchanges

The interconnection of the different modes present in the public transport system is evident in the infrastructure used for modal integration. These facilities allow for the different transport networks to be structured, facilitating intermodal mobility and connections with high-capacity modes, whether underground or rail, in an efficient manner and with added features for passengers.

Based on the characteristics of their infrastructure, the main intermodal points are classified into three groups: interchanges, intermodal areas and points of interchange. Interchanges play a key role in accessing and dispersing metropolitan travel, whereas intermodal areas and other exchange points deal with urban travel. All in all, almost 16,000 suburban travel operations and more than 17,000 urban operations leave these locations each day.

There are up to twelve major metropolitan intermodal points located in the city of Madrid. These large nodes are used every day by more than 1.9 million passengers. 57% of them involve some kind of transfer or connection between modes of transport, while the remaining 43% are passengers entering or moving on by foot. Practically 1 out of every 2 trips by public transport throughout the region pass through one of these twelve nodes.

NUMBER OF STAGES AT THE MAIN INTERMODAL POINTS



SUPPLY AT THE MAIN INTERMODAL POINTS

	Metro and light rail lines	Renfe-Cercanías lines	Suburban bus lines	Urban bus lines
Atocha	1	8	3	26
Nuevos Ministerios	3	7	-	11
Sol	3	2	-	2
Avenida de América	4	-	12	11
Moncloa	2	-	48	19
Príncipe Pío	3	3	22	13
Plaza de Castilla	3	-	33	22
Chamartín	2	7	3	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 their terminus at the intermodal point or in the surroundings and passing lines.

b. Promoting the use of bicycles

In recent years, the use of bicycles in everyday mobility has undergone a qualitative leap in the Autonomous Region of Madrid. For several years now, the CRTM has maintained several operational approaches to promote this vehicle as an additional mode to the region's transport system. In this regard, work continued during 2018 on projects started in previous years

Use of the TTP in public bicycle systems

The operational approaches were upheld in 2019 to ensure the integration of the CRTM Public Transport Card and Multi cards and the application of benefits or discounts for their users in the public bicycle systems of the Autonomous Region of Madrid, using compatible, contactless technology. This service is available in the Getafe G-Bici bicycle system and in the electric bicycle system of Madrid City Council, BiciMad. During 2019 there was an increase in the number of users of BiciMad, more than half of whom used one of the CRTM cards as a key to unlock a bike.

Bicycle Parking Network (REB Plan)

By January 2019, the REB (Bicycle Parking Network) Plan had 200 bicycle parking spaces distributed across 26 different points of the underground, light rail, Renfe-Cercanías, interchange and suburban bus shelter network. REB parking spaces are located at points with good accessibility for cyclists and that facilitate modal exchange between bicycles and public transport. As for their location, they are preferably installed in covered, monitored spaces. The REB point is equipped with a U-shaped anchor support and an information panel containing user regulations and practical tips. Over the course of 2019 the number of parking spaces and car parks remained the same as in previous years, with an increase in usage as confirmed by various inspections conducted during 2019.

Cycle Route Network (RIB Plan)

This comprises a descriptive inventory, identifying possible actions to improve cycling routes to offer safety, speed and accessibility when travelling to or from public transport stations, along with a range of leisure and sporting routes. During 2019 the feasibility of new cycling routes was examined, along with the respective connections to modal interchange stations, some of which had already started up in 2018: the route to the Meco Cercanías rail station, the Corredor-Brigada Paracaidista Park and the former Cuatro Vientos-Leganés railway line.



5.2 The CITRAM

In 2019 the Madrid Region's Public Transport Information and Management Centre, CITRAM, continued to strengthen and deepen a management model based on mobility at the service of users, a high degree of coordination with transport operators and other organisations, and technological support as the basis for this innovative coordination model.

Throughout the year, CITRAM monitored events that had a particular impact on public transport networks, in which it played a fundamental role in coordinating and informing both users and operators.

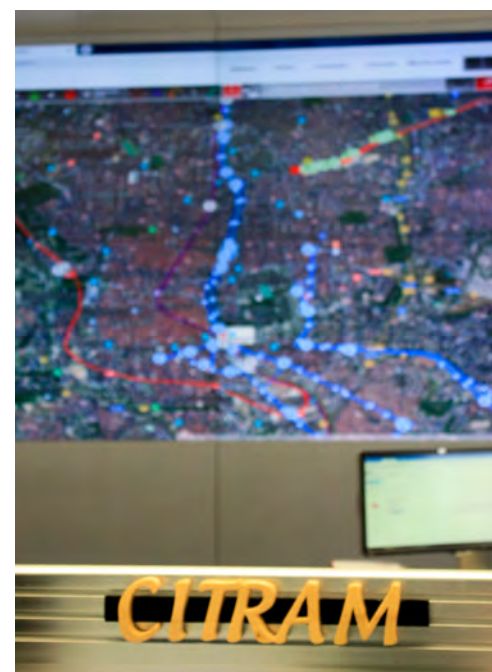
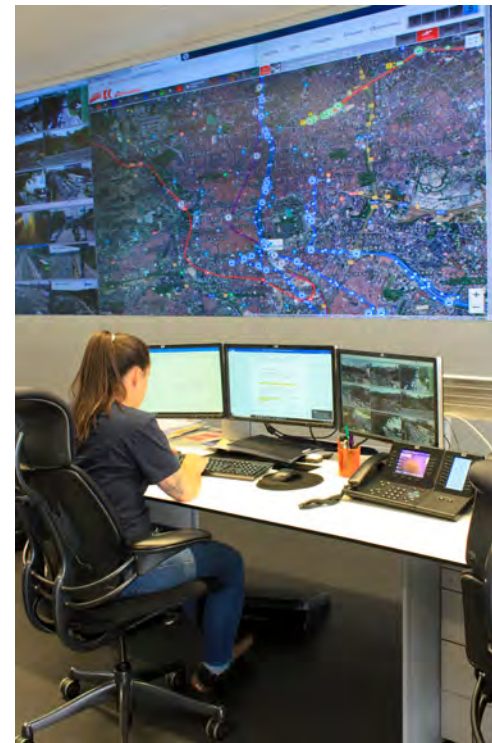
These include above all special operations to monitor the service suspensions caused by work to improve the Cercanías network in the Recoletos tunnel and on the Delicias – Méndez Álvaro section, conducted in the second half of 2019, along with the monitoring of the various actions that took place in Madrid as a result of the "COP25" UN Climate Change Conference, which was held between 2 and 13 December. Particular mention should also be made of the monitoring of major sports events, such as the Madrid Marathon staged on 27 April, and the Women's Half Marathon which took place on 27 October.

Another major event achieved this year was the awarding of the operation, maintenance and development contract of the existing systems at CITRAM, which will enable continued progress within a coordinated and innovative management model, and the contract for the implementation of a Backup Centre to be used in the event of a serious incident at the centre's current premises, to allow operations to continue the same as at the main site, so as to ensure effective real-time administration of the Madrid Region's public transport system.

Meanwhile, thanks to the awarding of the aforementioned contracts during 2019, CITRAM continued to embark on major technological developments placing it at the forefront of multimodal transport management. The highlights include:

- Improvements to CITRAM operational applications to optimise the everyday operations of room operators. These include in particular developments connected with multimodal CCTV improvements, and integration of this system with the graphical monitor.
- Development of a report website which can be used to perform analyses and export data from different developments undertaken at CITRAM in partnership with other areas of the CRTM.
- Development of an Open Source monitoring system (NAGIOS) used for equipment (hardware) and services (software), to monitor the different servers and services within the CITRAM network architecture, and the generation of alerts when they do not behave as desired.

All of which makes the CITRAM a pioneering centre in terms of how it manages mobility, as demonstrated by more than 40 visits received during 2019 from both national and international bodies with an interest in learning about the centre's operations and developments.



5.3 The CRTM-UITP Innovation and Training Centre

In May 2019 the CRTM and the UITP (International Association of Public Transport) signed a partnership agreement to set up the UITP Sustainable Mobility in Public Transport Innovation and Training Centre in Spain, the aim of which is to establish itself as a leading international centre for research, education and development of integrated and sustainable multimodal transport, serving as an think-tank and incubator for innovative projects. It involves the companies, organisations and bodies that make up the network within a context of collaboration, incentivising the development of cutting-edge research and projects, allowing it to operate as an accelerator for the creation and growth of companies in the Madrid area.

As set out in the agreement signed, CRTM and UITP share the aim of collaborating on joint activities in order to facilitate fulfilment of their purposes and responsibilities, the promotion and showcasing of their initiatives, training activities in the field of public transport and sustainable mobility, support for innovation and practical excellence, and any other actions deemed of joint interest in this sphere. To this end, the two parties have agreed to set up a mobility and public transport Innovation and Training Centre in Madrid, joining the two UITP Regional Training Centres which currently exist in Singapore and Dubai, thereby creating the first Innovation Centre of this kind in Europe and the Americas.

In order to develop its activities, a number of strategic strands have been defined, such as smart transport planning and management, mobility as a service (MaaS), energy sustainability and universal accessibility. In 2019, the CRTM signed partnership protocols with close on 20 companies and organisations. These partnerships include in particular the agreement signed by the CRTM with the Directorate-General for Traffic, the Autonomous University of Madrid and the company ALSA, for the launch of a loop line within the university campus operated by means of an autonomous bus, which will be the first such public transport service in Spain, managed by the CRTM, and starting up in early 2020.

In the sphere of training, the CRTM hosted the first training course in the context of the partnership agreement, staged between 2 and 4 December and entitled "Bus network design and route planning", involving 15 people from various countries around the world.



5.4. New technologies

The Regional Transport Consortium continues to undertake projects focused on implementing new transport technologies, prioritising the following lines of action:

1. The invoicing mechanism has been implemented throughout the scope covered by the CRTM (including sales networks) to provide the Spanish Tax Agency with immediate VAT information (under the 'SII' system), which has been in operation since 1 January 2019.
2. Development of the NFC top-up app, with the culmination of the second pilot:
 - a. First phase: launch on 28 January 2019 with 500 users.
 - b. Second phase: simplified invoice functionality added in August 2019.
 - c. Third phase: change of interface in December, using the new payment gateway awarded by public tender to Santander España Merchant Services.

3. Development of the inspection application for suburban operators, with operational start-up of the first phase at the operator Avanza in June 2019.
4. Framework agreement and integration tests with five suppliers to produce public transport cards.

5.5 Relevant activities

a. APARCA+T Park-and-Ride Plan



**RED DE ESTACIONAMIENTOS
COCHE + TRANSPORTE PÚBLICO**



**Estación Cercanías
COLMENAR VIEJO**



The Strategic Modal Interchange Parking Strategy of the Madrid Region which was drawn up in 2018 is under development, the aim being for the Madrid Region to create a network of modal interchange car parks associated with public transport infrastructure, identified for users under the unified "APARCA+T" brand, with the same

technical, technological, usage and image specifications throughout the region, thereby creating a compact network which public transport users can easily identify and make use of.

The APARCA+T Plan is an ambitious long-term plan (lasting 12 years), which aims to promote the use of park-and-ride facilities in the region, combining management at the Regional Transport Consortium, and giving the existing network a unified image and usage conditions, extending this network with new parking spaces and facilities, ultimately amounting to over 90 car parks providing some 50,000 spaces, and an investment in excess of 200 million euros.

Development of the Plan was launched with the preparation of a number of car parks as a pilot scheme, such as the Colmenar Viejo and Ciudad Universitaria facilities. Work also began to coordinate with the Valdemoro and Fuenlabrada Local Authorities to adapt intermodal car parks in these municipalities for integration within the APARCA+T network. The same applies to the El Casar car park in Getafe, which was included within the project to extend Metro line 3.



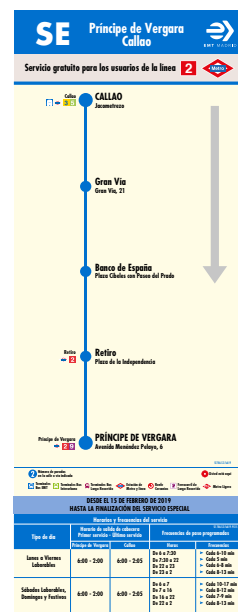
b. Improvement work on the underground network

Suspension of service on the Sol – Sevilla section of Metro line 2

Service was suspended for safety reasons on Metro line 2 on 25 January between the Sol and Retiro stations, following detection of a problem in the tunnel, as a result of construction work on the Canalejas Madrid Centre.

To resolve the transport problem, the CRTM devised an alternative EMT bus service at no additional cost to Metro users, linking the stations at Príncipe de Vergara, Retiro, Banco de España, on line 2, with the stations Gran Vía (lines 1 and 5), Callao (lines 3 and 5), and Santo Domingo (line 2), given the traffic difficulties and the impossibility of mirroring at ground level the layout of the areas affected by the underground outage.

The special service began operation on 15 February and ended on 31 May, following completion of work to repair the tunnel, and restoration of the Metro service. During this period the service carried almost 600,000 passengers, with a daily demand of 6,000 passengers.



Other improvement works

During 2019 progress continued on the work to connect the Gran Vía station (Metro lines 1 and 5) to the Sol Renfe-Cercanías station, furthermore including the installation of lifts and complete refurbishment of the station.

Meanwhile, Sevilla station (line 2) reopened on 31 May, following the completion of the modernisation and accessibility improvement works began a year earlier. The construction work involved the reorganisation of access points to create one single entrance, along with the installation of 3 lifts to make the station fully accessible,

alongside other improvements. The premises have also been decorated with old maps of Madrid and historic photos of the station exterior.

The Príncipe de Vergara station (lines 2 and 9) was also closed between 10 and 25 August to embark on work to modernise the station and install six lifts so as to provide total accessibility. The improvement work will continue for the next 24 months.



c. Improvement work on the Renfe-Cercanías network

During the year, Adif embarked on a series of infrastructure and installations improvement initiatives across the Cercanías-Madrid network, which will be extended over the coming years.

The main initiatives undertaken in 2019 affected the Recoletos tunnel, the backbone of the network handling daily traffic of 470 trains, with a transport capacity of 200,000 passenger places per day.

The specific work performed comprised the installation of ballastless track and rigid overhead contact lines, and the comprehensive renewal of the signalling systems. Other improvements were also made to the network, such as the reorganisation of the South terminus of Chamartín station, the adaptation of tracks 9 and 10, the structural consolidation of the Méndez Álvaro station, and the renewal of escalators at the Atocha station.

This required the suspension of the Cercanías service along the Recoletos tunnel stretch between Atocha and Chamartín stations (lines C-1, C-2, C-7, C-8 and C-10) for 168 days, between 2 June and 16 November, inclusive.

Meanwhile, as part of the additional works at Méndez Álvaro station and in the tunnel between Atocha and Méndez Álvaro, the Cercanías rail service was suspended between Delicias and Méndez Álvaro stations (lines C-1 and C-10), during the months of July and August.

Throughout the duration of the works, the Sol tunnel remained operational for travel between Atocha, Nuevos Ministerios and Chamartín.

Two special EMT replacement bus services were also established, at no additional cost for Cercanías rail users, to offset the effects of the suspension and to guarantee mobility between Nuevos Ministerios and Recoletos and Atocha stations, and between the Delicias and Méndez Álvaro stations. In total they carried a volume of 2,225,000 passengers, and were used by 20,000 passengers per day.

The additional measures also included establishment of a special Cercanías rail service along the peripheral track between Guadalajara and Chamartín, with support services being scheduled on 5 conventional routes of the EMT network to increase capacity and reduce waiting times, along with an increase in suburban bus route departures to handle possible passenger volume increases in the eastern municipalities.



d. Special transport plans in events

Champions League final

For the Champions League final held on 1 June at the Wanda Metropolitano Stadium between Tottenham Hotspur and Liverpool, the CRTM made a specific public transport plan to assist fans travelling to the stadium, the airport and the "Champions Festival" events held over the preceding days at landmark locations around the city centre.

The plan included an increase in the number of Metro trains over the weekend from 31 May to 2 June, with a more frequent service on line 8 for travel to the airport, and lines 2, 5 and 7 for travel to the Wanda Metropolitano stadium on the date of the match itself. The 3 EMT bus routes providing access to the football stadium also offered additional service that day.

Meanwhile, in order to help vacate the stadium, 2 special EMT shuttle bus services were set up, running every 3 and 6 minutes to airport terminal T4, where the Liverpool supporters were departing from, and to airport terminals T1-T2-T3, the departure point for the Tottenham Hotspur fan flights.



Davis Cup finals

Madrid was the venue for the 2019 Davis Cup finals, the largest international tennis tournament involving the world's 18 best teams with a new competition format, staged at the Caja Mágica venue between 18 and 24 November.

The Madrid Regional Transport Consortium worked in partnership with the event by providing spectators with public transport access to the Caja Mágica site during the days that the championship was held.

This involved a 20% increase in service on Metro line 3 on the dates of the semifinals and final, with EMT route 180 operating throughout the week of the competition, linking Plaza de Legazpi and Caja Mágica with departures every 10 to 15 minutes, depending on the tournament times. Fans were also able to use around fifteen regular EMT routes stopping in the vicinity of the Caja Mágica sports complex.

Other plans

As has been traditional over recent years, the Regional Transport Consortium organised a special public transport plan over Christmas, including increased service on the Metro, Cercanías and EMT networks to cover the shopping and leisure areas of the Central district, along with special service timetables on key dates over Christmas and New Year to ensure public transport access to the area, within the context of a system of private traffic restrictions to facilitate pedestrian transit and avoid overcrowding.

Over the course of the year transport plans were also launched for traditional events staged in the city of Madrid, such as the MADO (Madrid Pride) celebrations, the Mad Cool music festival and the Women's Race, along with one-off concerts by performers such as Metallica and Ed Sheeran.

e. Opening of the Arroyofresno station

On 23 March 2019 the Metro network opened its station number 302, by the name of Arroyofresno, as the completion of the extension to line 7.

The station represented an investment of 4.9 million euros, and will above all benefit the population of over 220,000 in the districts of Valdezarza, El Pilar, Peñagrande, Lacoma and Arroyofresno. All the facilities are 100% accessible to people with disability and reduced mobility thanks to three lifts, eight escalators and level access routes.



The Arroyofresno has a fully thematic décor featuring images and illustrations of the nearby mountains of the Sierra de Guadarrama. The themed design draws on illustrations of a number of the mountain chains in the Sierra de Guadarrama National Park, as well as photographs from its Document Archive.

f. The A-2 Bus-HOV lane

The plan to be implemented under the terms of the partnership agreement signed on November 2019 by 3 tiers of government (National Government - Ministry of Infrastructure and Directorate-General for Traffic, Madrid Regional Government - CRTM, and Madrid City Council) includes three phases, the first two corresponding to the inbound lane and the third for the outbound lane, with one single construction project having been defined, to be tendered by the Directorate-General for Highways of the Ministry of Transport, Mobility and Urban Agenda in 2021, for work to begin at the end of the same year over an expected period of 12 months, into 2022.

The proposed solution comprises reserving the left-hand lane of the highway entering and leaving Madrid for buses, motorbikes and vehicles with two



or more occupants (HOV) during peak times, or as a flexible measure whenever deemed appropriate, establishing a limited number of embarkation points, to allow buses and HOVs to enter the lane in the case of the inbound lane, following it as far as the endpoint in Madrid (Avenida de América), while providing various disembarkation points on the outbound lane. The solution is not only more affordable than separate roadways, but is furthermore a flexible solution, as it is capable of adapting to circumstances in each section, and temporary incidents. In order properly to operate the reserved lanes, a series of ITS devices will be installed (variable signage panels, marker lights, cameras to read registration numbers, etc.) to allow for real-time management.

The estimate is that this initiative will benefit a total of 11.2 million passengers per year, corresponding to the 40,000 passengers along the route who would use the Bus-HOV lanes each day, with the average travel time saving compared with current figures being estimated at around 7 minutes, although this could range from 15 to 25 minutes for those passengers travelling a greater length along the lanes.

This is a low-cost project in terms of investment (13 million euros) but has major social and environmental repercussions. The main aim is to reduce the number of private vehicles, encourage public transport and shorten trip times, as well as reducing pollutant atmospheric emissions. As this is a pilot scheme, if all goes well and the results are positive, it could be applied to other routes leading into the city of Madrid over the coming years.

g. The accessibility improvement plan at stops in municipalities with under 20,000 inhabitants

On 12 November 2019, once the various proposals submitted by the local authorities so wishing had been addressed, the Governing Council of the Autonomous Region of Madrid authorised the direct awarding of grants to 110 local authorities with a population of under 20,000 to implement accessibility improvement works at suburban bus stops dependent on the Transport Consortium.

The planned improvement works, totalling more than 3 million euros, will affect 435 bus stops overall, with the renewal of tactile paving, 16 large-scale initiatives, such as the construction and remodelling of sidings and other minor transport infrastructure, 330 projects to expand and remodel pavements, and 194 dealing with urban furniture, such as the relocation or installation of new bus shelters.



**Plan de mejora de accesibilidad
en paradas de autobús de la Red Interurbana**

ULTIMOS PERSONAS
EN EL TRANSPORTE
2023-2024



Instalación de pavimentos podotáctiles de botones y acanaladura



Instalación de marquesinas de refugio

- ✓ **435** actuaciones en pavimentos
- ✓ **234** avances de acera
- ✓ **96** prolongaciones de acera
- ✓ **43** obras menores
- ✓ **16** apartaderos
- ✓ **51** marquesinas nuevas



h. The UN COP25 Climate Change Conference

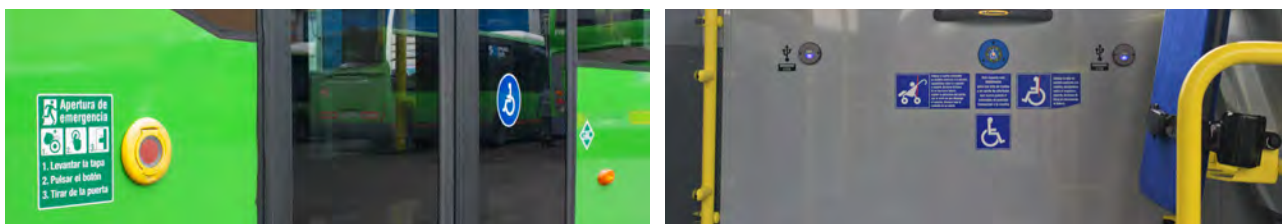
Between 2 and 13 December 2019 the IFEMA convention Centre played host to COP 25, the UN Climate Change Conference. This major international gathering could not be held in Chile, as planned, because of a far-reaching political and social crisis in the country, and so in late October Madrid took on the challenge of organising the event, with barely a month to get ready.

This organisational and logistical challenge, with all eyes on providing a sustainable mobility solution, involved a contribution by the Regional Transport Consortium (CRTM), which together with the Ministry for Ecological Transition and Madrid City Council signed an agreement to provide free transport to the 25,000 accredited attendees by means of a Zone A tourist travel card. The CRTM also collaborated in planning increased Metro and EMT services throughout the zone.

In order to deliver an effective response to doubts as to the mobility of thousands of conference delegates arriving from all around the world, the CRTM set up a stand to hand out over 25,000 contactless travel cards, and to top up their balance if the user had used them up within the first five days. The space set aside for the CRTM in Hall 4 became a focal point providing all manner of transport information, and handing out Metro maps in Spanish and English to commemorate the Conference.



5.6 Universal accessibility



During 2019, the CRTM continued its regular initiatives to promote Accessible Mobility for all citizens, both in order effectively to implement compliance with the accessibility regulations in force, and to further extend the offering of quality transport in a field which cuts across all services, and in one way or another affects a substantial proportion of the population, by fostering good practice in this regard.

The operational instruments were based on rigorous scientific analyses conducted by groups of experts in this specialist field, within the context of various forums at which the different measures were adopted by means of consensus among all agents involved in accessibility, in particular, aside from the different public authorities with responsibilities, representatives of the Disability Association Movement, establishing the basic principle of working for the entire population as a whole, without any restrictions that could lead residual groups suffering social exclusion to be overlooked.

The activity undertaken at the Council for the Promotion of Accessibility and Elimination of Barriers of the Madrid Region and its Technical Accessibility commissions proved fundamental, through its structure of working parties which have been undertaken technical operations through studies and the generation of a range of technical documents, the design of solutions, promotion of initiatives, a range of protocols and measures, regulatory development and the handling of general and one-off problems in this sphere, as well as the follow-up and resolution of contributions and complaints by users.

Technological innovation has a substantial role to play, and specifically the world of IT applications for smartphones requires sufficient user options to be available in order to include different types and levels of comprehension and "usability", to adapt to all intellectual capacities, a factor taken into account in the various CRTM developments and apps.

The working forums in which the CRTM has been involved include in particular the Cognitive Accessibility Group set up by the CEAPAT and the CRTM some years ago.

Great emphasis has been placed training on aspects, seen as being of particular importance, above all the CRTM's involvement in the Universal Accessibility Course for technical staff of the Madrid Region, and the development of practices within the context of the 4th "Más Empresa" enterprise programme, intended to promote accessibility among high school students, offering theoretical classes and conducting practical guidance visits to railway stations, transport hubs and suburban buses.

Considerable emphasis has been placed on improving accessibility conditions by intensifying inspections and maintenance of both the fixed installations (bus stops, stations and major hubs), and the rolling stock: buses and trains.

ACCESSIBILITY OF PUBLIC TRANSPORT MODES

Accessible Metro de Madrid stations



Number of Metro de Madrid lifts



Accessible light rail stations



Accessible urban and suburban buses



5.7 The environment

The CRTM continues to uphold a firm commitment to the environment, and is one of the main players responsible for implementing the measures envisaged regarding public transport in Madrid in the “Strategy for Air Quality and Climate Change of the Autonomous Region of Madrid 2013-2020. Plan Azul +”, highlighting its work as a member of the Air Quality Section of the Environment Council of the Autonomous Region of Madrid and of the Task Force responsible for the implementation of the Protocol of measures to be adopted during episodes of high nitrogen dioxide pollution in the city of Madrid.

One of the main measures taken in 2019 in the field of environmental sustainability, and in application of the Modernisation Plan for suburban buses in the Autonomous Region of Madrid, was the incorporation of 262 cutting-edge vehicles in terms of atmospheric emissions to replace older models with less evolved technologies, which were therefore more polluting.

With the renewal complete, more than 62% of the fleet providing regular public transport services for suburban passengers in the Autonomous Region of Madrid fulfils the most demanding levels established in the Euro VI standard, with almost all fulfilling the levels corresponding to the Euro V or EEV standards. The Madrid fleet is therefore confirmed to be the most modern in Spain in its category, with an average age of less than 5 years, making it once again the benchmark in the field of environmental sustainability.

As for the EMT de Madrid fleet, in 2019 250 new vehicles were added, 231 powered by conventional natural gas and the remainder electric, replacing the 217 oldest units and so reducing the average fleet age to 6.5 years.

CHARACTERISATION OF TRANSPORT FLEETS

By emissions regulation (EU Directives)

	Euro VI	Euro V/EEV	Euro IV	Euro III	0 emissions	TOTAL
Urban buses of Madrid (EMT)	901	763	363	5	50	2,082
CRTM Road concessions	1,286	764	6	1	0	2,057

By type of fuel

	Diesel	Natural gas	Natural gas/diesel	Hybrid	Electric	TOTAL
Urban buses of Madrid (EMT)	461	1,522	1	48	50	2,082
CRTM Road concessions	1,495	238	4	320	0	2,057



5.8 Service quality

The CRTM understands that service quality should focus on users. Quality and Customer Service therefore share an increasingly interwoven space. This ensures that user expectations and satisfaction play their part and are compared with the criteria and indicators adopted when measuring service quality and adopting improvement initiatives. In recent years, control and supervision procedures have been refined for the different operating, supply and service contracts and the service provided by the different transport operators. This involves the development and measurement of quality indicators in accordance with objectives in line with the demands of users and those established contractually with these operators.

The service is monitored and controlled using in-house resources, through the body's inspection team, as well as by contracting technical support implementing specific measurements and studies. The work performed directly by inspection staff exceeded 7,600 hours of effective inspection work in 2019. This work involves actions to check legal obligations, supervise studies, and to control assessment indicators. To achieve greater development and depth in the evaluation of various indicators, specific work is outsourced.

Perception studies of different modes of transport and analysis of complaints and suggestions received are used to incorporate and compare the user perspective. The perception studies of each mode of transport provide an overview of customer expectations and their level of satisfaction. Meanwhile, an analysis of the complaints and suggestions received serves to focus and weigh up specific issues, by subject-matter, mode of transport, operator, or even line, identifying aspects for strategic or short-term involvement, as applicable, and incorporating swift improvements.

In addition, the extensive network of in-person support offices, as well as telephone and online information services, are an additional element of great usefulness in relation to service quality control and the early detection of anomalies, especially in terms of issues relating to tickets and cards. During 2019 nearly 1.3 million people were dealt with in person, and almost 670,000 by telephone or digitally.



5.9 Studies

The studies and projects carried out by the CRTM correspond to the functions and objectives of the different areas of activity of this body in fulfilling its responsibilities.

a. Studies assessing the quality of transport services

In 2019, more than 10,000 surveys were conducted on users of the public transport network of the Autonomous Region of Madrid in order to determine their satisfaction with the service.

The various studies conducted across the different means of transport reveal an average overall rating of 7.57 points out of 10 for the modes of transport that make up the Madrid network as a whole. The overall score is derived from the general rating given to the service by each survey respondent.

In 2019 the same score (7.57) was also obtained as the average of the combined service quality indices. This index combines the partial ratings given to different aspects of the service. Aspects such as **accessibility, safety, comfort and customer service** achieve ratings above the combined values. Nonetheless, the most demanding user expectations focus on the service offering, revealing the complexity of this issue and the difficulty of adapting the offering at all times to users' differing expectations.

b. Verification study of the established indicators in the suburban transport Quality Plan

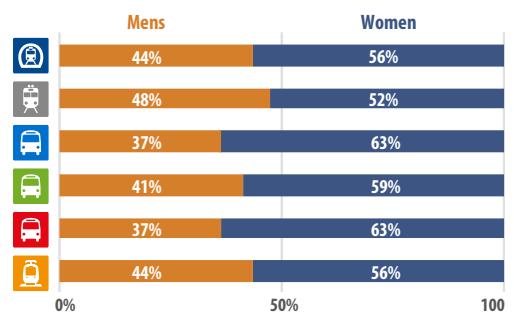
Monitoring and oversight of the Madrid Region Suburban Road Transport Quality Plan draws on a range of different sources of information. This involves using systematic records of service operations, inspections of the organisation and oversight based on specifically contracted studies. In 2019 work was undertaken with external support to examine the telephone support and online information services provided by transport operators, the functioning of dynamic passenger information points, and various aspects regarding cleanliness and upkeep of vehicles.

c. Mobility in the Madrid Region: a gender perspective

A study was conducted in 2019 into mobility patterns by gender, based on the exploitation of data from the household survey conducted the previous year (edM2018). The CRTM felt it would be appropriate to study this aspect as an essential factor in advancing inclusive mobility, the development of initiatives and strategies aiming to reduce or eliminate the gender gap in public transport.

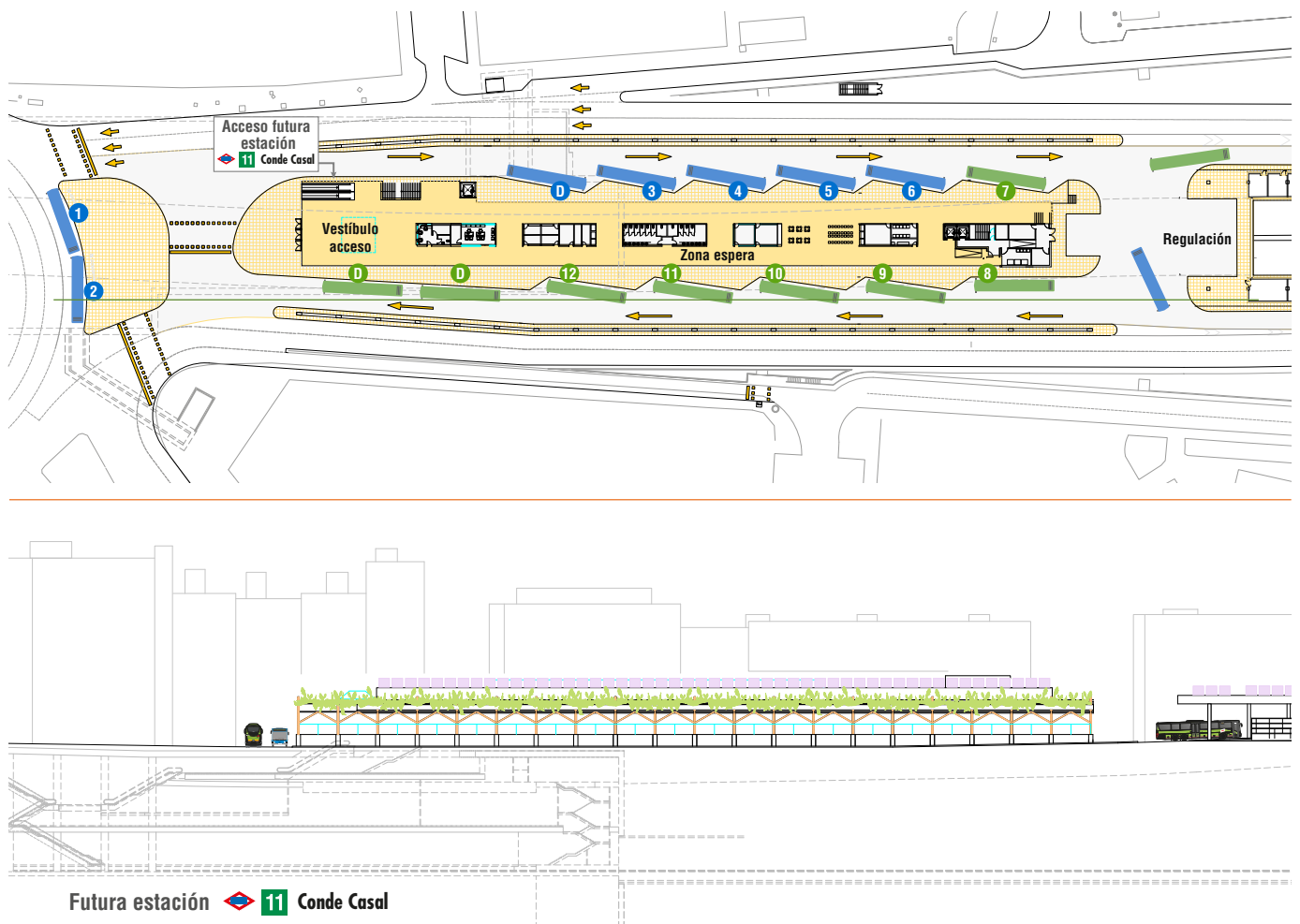
As for the results, it may be stated that although differences in mobility between women and men have narrowed in the Madrid Region over recent years in variables such as the number of trips they make, they remain significant in terms of their reasons for travel, the means of transport they use, the time they spend travelling, and above all the distances they cover. In general, women make trips for a wider range of reasons. Among men, travelling to work or study is the main purpose, while women travel more to shop and for reasons connected to do with accompanying other people, medical appointments, etc. Women also use a more diverse range of means of transport, and travel by private vehicle much less. While for men the car is the predominant means of travel, women travel more on foot or by public transport.

Trips by means of transport and gender edM2018



d. Adaptation of the design of the Conde de Casal transport interchange in accordance with the project to extend Metro de Madrid line 11

Modal integration is one of the central strategic strands of the regional public transport system, with transport interchanges acting as a fundamental element. The Plaza de Conde de Casal is one of the entry points to the city which is still awaiting the construction of such an intermodal facility.



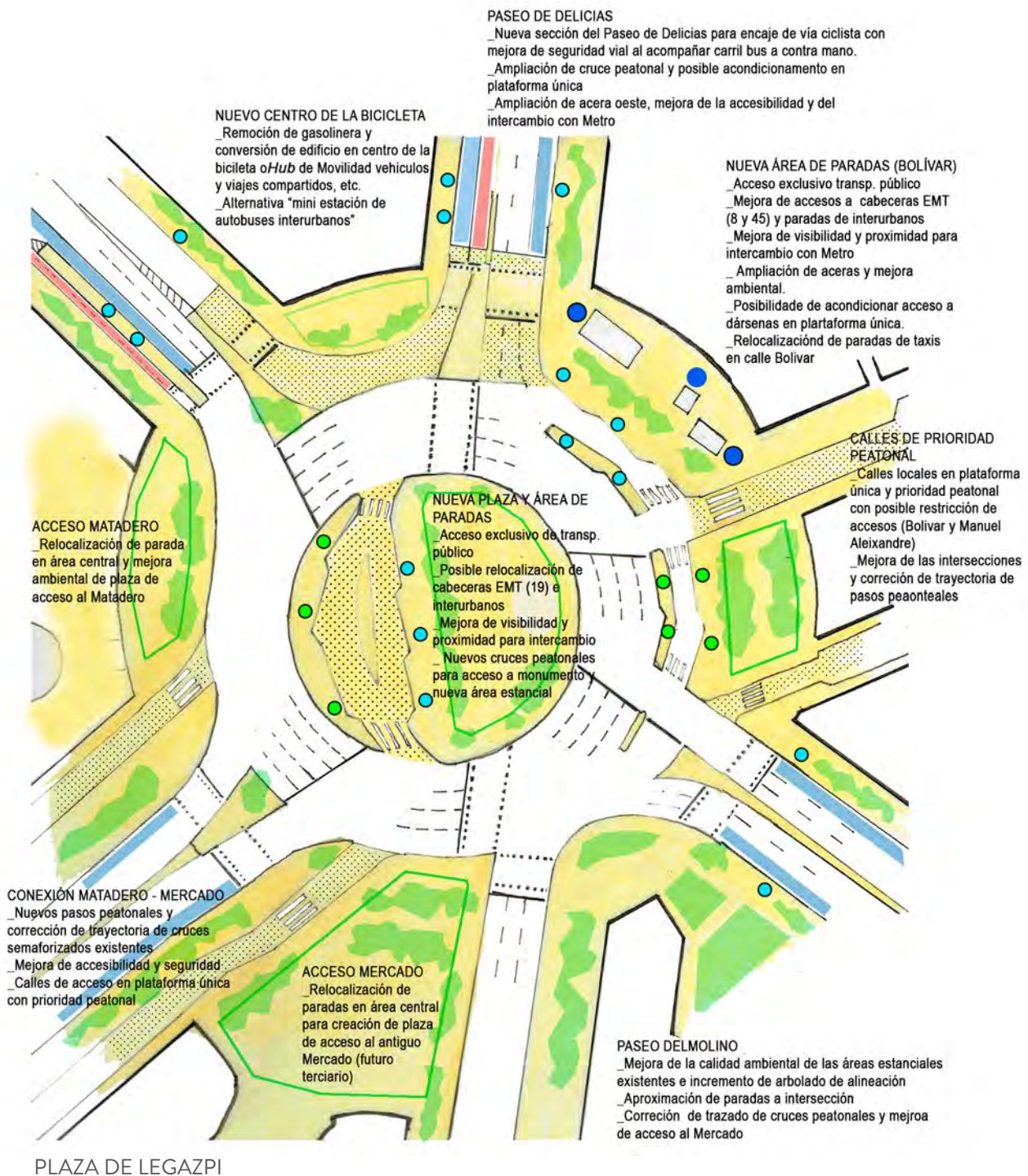
The addition of the new line 11 metro station at Conde de Casal is the decisive element in the preliminary plans drawn up by the CRTM for the Conde de Casal hub. The study aims to adapt and reorganise the connection and interchange spaces between means of transport, and to calculate the loads that the bus building could transmit to the metro station structure.

The aim is to achieve a transport interchange hub that will minimise connection times and distances between the metro and the bus network, while maintaining a balance between infrastructure functionality, and optimal sustainability and accessibility conditions.

e. Study to improve accessibility and intermodality at transport nodes

The purpose of this study is to analyse a selection of 30 public transport nodes located both in the city of Madrid and in the cities of the metropolitan area, so as to draw up a diagnosis and present design and urban development recommendations to improve their accessibility and intermodality characteristics.

One of the main results is the definition of functional mobility and urban space structures at 4 of the selected nodes at least, in connection with their appropriateness and general interest, to enable solutions to be provided for municipal corporations in improving public spaces.

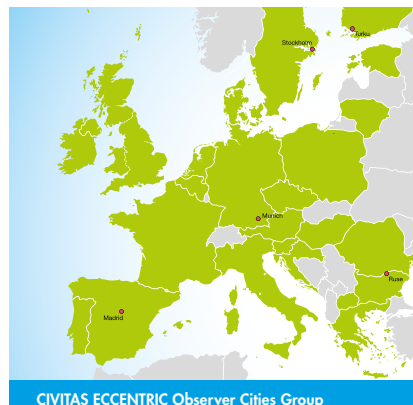
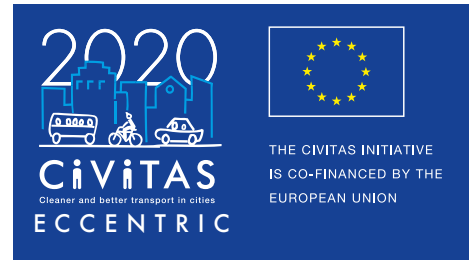


5.10 European projects

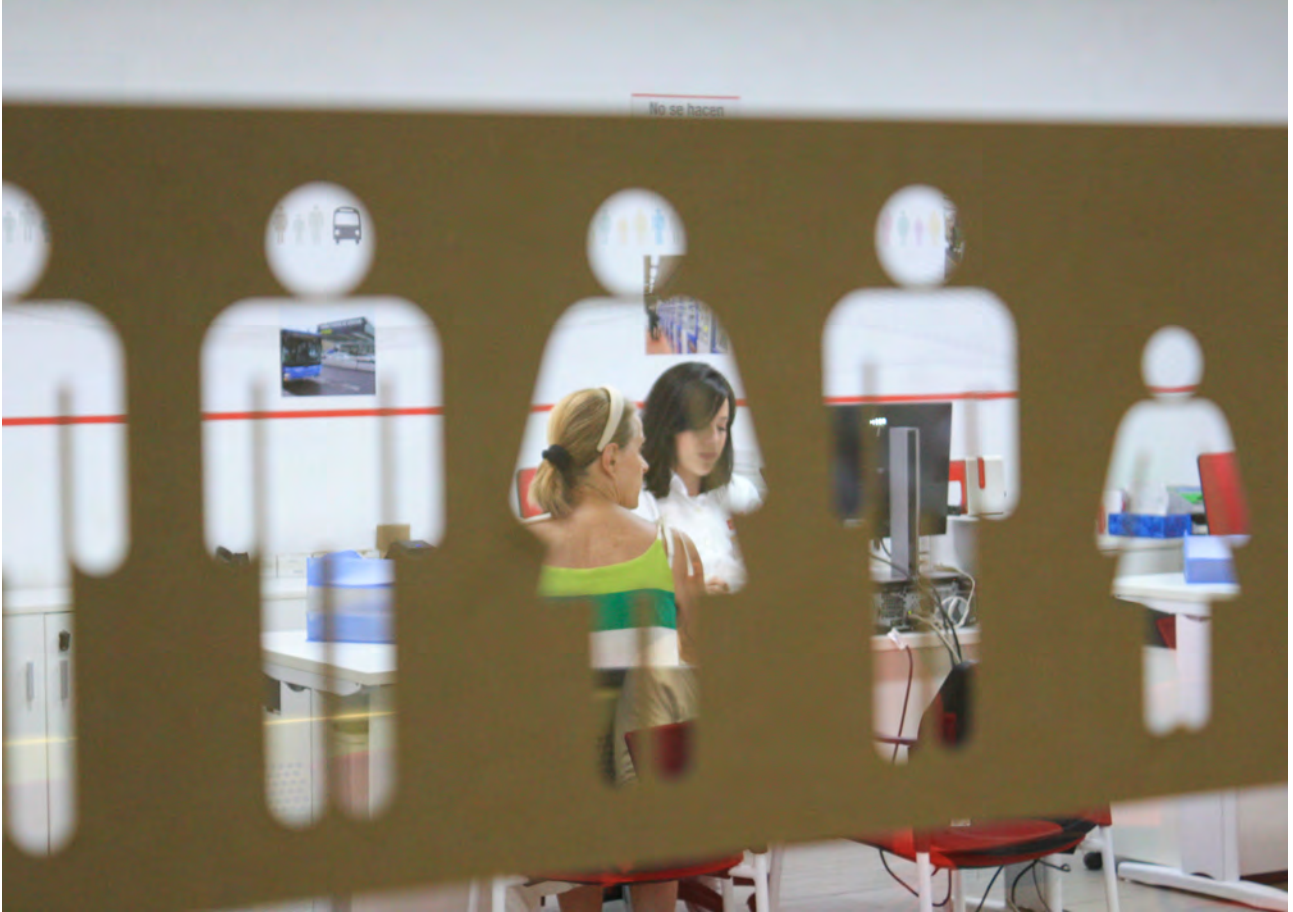
The CRTM is heavily involved in numerous European projects aimed at research and technological development in the field of transport and mobility, fostering cooperation and the exchange experiences with its European counterparts.

2019 saw the continued development of the CIVITAS ECCENTRIC project, which began in 2016 with the aim of demonstrating and proving the potential, viability and replicability of integrated and inclusive urban planning measures, innovative policies and emerging technologies, to improve sustainable mobility in the periphery of cities, and to foster clean, silent and CO₂-free urban goods logistics, thereby improving quality of life for the general public.

Further info at www.civitas.eu/eccentric



6 Citizen relations



Over
1.2
million
visits handled
at Management
Offices

The CRTM places great importance on information regarding the activities carried out by the agency, not only to raise awareness of the new services available to public transport users, but also to inform them of its management and lines of action. Good examples are the CRTM institutional website, Public Transport Card real-time and balance enquiry apps, the Open Data portal or the “Pide Tu Bus” service.

In addition, the CRTM is firmly committed to serving public transport users, and has to this end defined a user service policy to provide citizens with access to the Public Transport Card and the services and information relating to it, as well as to assist with their complaints and claims.

Corporate Social Responsibility and the initiatives covered by it (Public Transport Friends Club, Ventex20 website, agreements with NGOs, etc.) mean that the customer’s travel experience significantly improves their perception of Madrid’s transport system.

6.1 User information

a. The www.crtm.es website

The CRTM corporate portal (www.crtm.es) is the largest source of information on the public transport system of the Autonomous Region of Madrid thanks to the constant work in updating its contents (service modifications, new developments in transport network design, maps and publications, etc.). As demonstrated by the visits received by the website, more than 26.6 million in 2019, as well as the more than 7 million visits to the public transport card administration module.

<http://tarjetatransportepublico.crtm.es>

This year the content and classification of the Green Routes was modified, within the "Madrid by bike" section, and the number of routes for which information is available was also increased.

A subsection was also created under "Apps" for two pilot schemes on which the CRTM has been working: the "Mi Tarjeta" ("My Card") pilot app (to top up transport cards, which began with 30-day pass holders) and the "Muévete x Madrid" ("Get Around Madrid") pilot, which features a trip planner.



In addition, great efforts have been made to provide information on the institution's most notable actions and news for the media. To this end, during 2019 the institutional website published 135 press releases (67 in the 'Press Room' and 68 in 'News') with their respective photographic support.

We would emphasise in this regard all the information generated to cover COP25 (including information, maps and banners).

b. The "Mi transporte" app



"Mi Transporte" is the official CRTM mobile app that provides real-time information on the entire public transport system of the Autonomous Region of Madrid. The app lets you know which stop or station is nearest to the user's position, and when the next service will arrive, among other utilities. During 2019 there were more than 210,000 downloads and over 4.7 million visits, a considerable increase on the number of downloads the previous year.

The creation of the app involves the integration of data from the 40 operators offering public transport services in the region, totalling over 700 lines and 13,000 stops, and provides real-time knowledge of all underground, urban and suburban bus, Renfe-Cercanías trains and light rail timetables. In addition to information on public transport, "Mi Transporte" includes another type of useful information for users: the location of the public bicycle system bases in Madrid (BiciMad), top-up points for the Public Transport Card, park-and-ride at public transport stations, green cycle routes, tourist information and more.

c. The balance enquiry app

In 2014, the CRTM launched the first version of the “Public Transport Card” (PTC) smartphone app, which provides information on the PTC balance. In addition, thanks to an interactive map, users can also locate the Management Offices and top-up points nearest to them. The app will be replaced with the top-up app, testing of which began during 2019 with a pilot scheme for 500 users.

This app is very handy for users, as demonstrated by the 120,000-plus people who installed it in 2019.

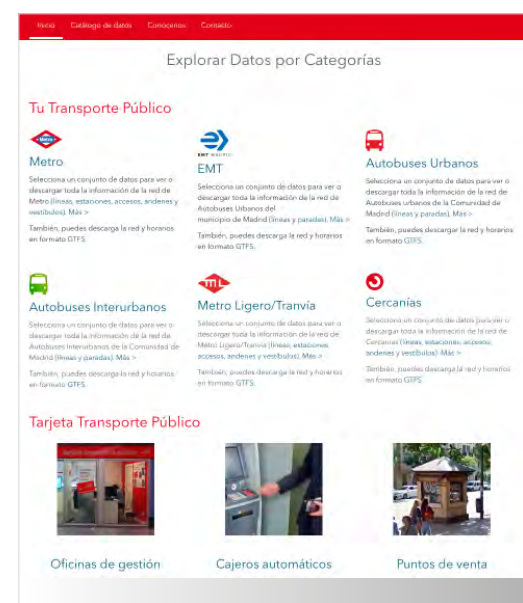
d. The Open Data portal

With the aim of spreading information about the Madrid Region's public transport system, the CRTM continued over the course of the year with its roadmap for progress in its open data policy. This is a pioneering initiative in the Madrid Region, the fruits of which can now be seen in the CRTM Open Data platform (<https://datos.crtm.es>); in the re-use of this information by companies, non-profit organisations, universities and the entire general public; and in the Multimodal Mobility Portal (<https://datos-movilidad.crtm.es>), published within the operational context of the European CIVITAS ECCENTRIC project, a portal allowing users to explore and download mobility data, discover and create applications, and involve others in resolving major problems connected with mobility and personal transport.

This operational approach of opening up data involves the integration and standardisation of transport data from all the operator companies that make up the Madrid Region's public transport system, on both the supply and the demand side, planned, implemented and in real time, among other aspects. Given the diversity of these datasets, a data model capable of characterising the reality of the "standard Madrid" transport system has been generated, offering a clear and simplified representation of mobility across all means of transport present in the Madrid area. These datasets are provided under their own data usage licences drawn up by the CRTM with the clear aim of allowing the datasets published to be reused to the greatest possible extent.

This data generated by the CRTM is being used as a raw material, providing value-added services and innovative products to citizens. During 2019, the contents of the portal received more than 36 million requests.

The work undertaken on the open data portal also involves providing the infrastructure and tools required so as to achieve three stars under the system to measure the quality of open data based on the level of reuse, as defined by Tim Berners-Lee, out of a maximum of five.



e. "Pide Tu Bus"

"Pide Tu Bus" is the first "Stop on Demand" bus smartphone service in the Autonomous Region of Madrid. Installed at a bus stop in the municipality of Valdemorillo, "Pide Tu Bus" users inform buses that they are waiting at the stop so that it can pick them up. To do so, they can scan a QR code or send an SMS, which will alert vehicle drivers of the need to stop at that point, while the system informs users of the waiting time for the service to arrive.

As a result, the 22 daytime services for line 641 (Valdemorillo - Moncloa) using this stop and the further 29 operations of line 642 (Colmenar de Arroyo - Madrid) significantly increased the supply of transport for users in this area.

During 2019, its fifth year in operation, it received some 4,400 service requests, 65% arriving via SMS, and 35% by scanning a QR code at the bus stop.



f. Passenger Information Points (PIV)

Real-time information panels are another of the CRTM's major technological initiatives.

The so-called Passenger Information Points (PIV) are panels placed at bus stops that provide real-time information on the arrival of the next bus at the stop, as well as any incidents or other information of interest to passengers.

This year, this type of panel was installed at 35 bus shelters located in the different municipalities of Madrid, reaching a total of 459 real-time information points (corresponding to 568 screens) installed by the end of 2019. In the case of the EMT network, the number of panels available is 670 devices, 156 more than the previous year, of which 155 have operational WiFi.



g. Transport maps

The CRTM develops the Transport Information Publication Programme ('PPIT') in compliance with one of its basic functions, "user information" (Art. 2.2.j of the CRTM Creation Act). In 2019, in line with this programme, the following transport information publications were published:

Series 1. Map of the Madrid Region Metro network

A special edition of the map was issued in July 2019 to mark the Centenary of Metro de Madrid.

In December 2019 versions of the map were produced in Spanish and English to cover the mobility needs of more than 25,000 accredited delegates attending the COP 25 Climate Conference.

Series 3. Madrid Transport Map

This 1:20,000 scale map in PDF format for the CRTM website was kept up-to-date during 2019, with a total of three updates. This publication covers the entire EMT, underground and Renfe-Cercanías network in the city of Madrid.

Series 4. Transport map for the Autonomous Region of Madrid

During 2019, this publication was kept up to date in PDF format for the CRTM website, on the front side at a scale of 1:50,000 and on its reverse at a scale of 1:200,000, including the updated data on suburban transport operators. Two updates have been uploaded to the website.

Series 5. Transport maps for districts of Madrid

The collection of district transport maps was conceptually redesigned during 2018, with this initiative culminating in 2019 with the publication of all the sheets making up the project. This is one single 1:10,000 scale map of the municipality of Madrid covering the entire transport network. The map draws on a geographical database with a high level of detail, which can be easily updated. This continuous mapping layout is sectioned into 11 sheets rather than municipal districts, as had previously been the case.

Series 6. Transport Maps for municipalities in the Autonomous Region of Madrid

Work continued during 2019 with updates to the maps in series 6, a total of 21 municipalities being updated for inclusion on the CRTM website as PDF files. This update of maps is in line with the programme established by the CRTM and also responds to changes and improvements in municipal transport networks. Once the maps have been updated they are made available at bus stops in each municipality.



Zonal maps of Metro and Cercanías stations

This project was launched in 2019, involving the creation of new zonal detailed maps to be made available in Metro station lobbies and platforms. The project will be extended to the Cercanías network in 2020. The pilot scheme was undertaken for Arroyofresno station, and a total of 15 zonal maps will have been produced by the end of the year.



Historic map of the Metro network

To mark the Centenary of the Metro, this map which had previously been published in 2009 was revised and updated, including a timeline of the network between 1919 and 2019. Web-only publication.

Information brochures and publications

These are brochures in various formats published to support different events in which the CRTM collaborates or to provide information on the latest developments in the transport network:

- 2019 Madrid Marathon public transport map (Series i)
- 2018 CRTM annual report
- Map of the circuit and accessibility options for the 2019 Women's Race (website)
- Graphical materials connected with the UEFA Champions League final held on 1 June at the Wanda Metropolitano stadium
- Online leaflet for travel to the Madrid Tennis Open (May) and the Davis Cup (October), both events held at the Caja Mágica (online publication)
- Map of the circuit and accessibility options for the 2019 Papa Noel Race (website edition)
- Map of the circuit and accessibility options for the Madrid Half Marathon held in April 2019 (website edition)
- Information materials about the suspensions on Metro lines 1, 2 and 5, including user information leaflets about the suspension of line 2, in partnership with Metro de Madrid
- Information materials about the suspension of the Cercanías service between Atocha and Chamartín via Recoletos, because of works on the tunnel connecting the stations. Leaflets and posters
- Graphical materials connected with the hosting of the COP 25 Climate Conference in December 2019: Metro maps in Spanish and English, Travel Card folder, leaflets with mobility instructions, etc.
- Map of extended suburban night-time routes in the Region of Madrid

Other maps and graphical materials on transport activities

Over the course of 2019, 16 maps were produced to announce modifications to EMT line routes, 6 maps for modifications to suburban lines and numerous support materials for information panels and press releases. Work also continued with Metro de Madrid on updating the network maps installed on platforms and in lobbies in each of its areas: Central, Metrosur and Metronorte.

6.2 Customer service

a. The Public Transport Card Management Offices

The face-to-face service channel comprises a network of 25 Management Offices strategically located in the Autonomous Region of Madrid. In 2019, these offices received a total of 1,279,154 visits from users providing assistance in different services.

The Alcalá de Henares office was relocated in 2019 to a new site, more accessible to the public.

Of all the operations performed at the Management Offices, 33% corresponded to the incorporation into the system of new users (new PTCs and tourist cards), and 67% to the management of after-sales services.

TYPE OF OPERATIONS PERFORMED IN MANAGEMENT OFFICES



The Management Offices serving the most users during 2019 were: Airport T4 with 159,450, followed by Sol with 155,440 users, Airport T2 with 107,436 users and Atocha Renfe station with 104,060 users.

b. The tarjetatransportepublico.crtm.es website

488,946 users were assisted via the website, of which 66% requested a prior appointment and 25% requested a PTC using this channel. The remaining 9% corresponded to information and incident solving services via the e-mail address tarjetatransportepublico@crtm.es

c. The telephone customer service

Over 2019, a total of 178,302 calls related to the public transport system of the Autonomous Region of Madrid were received on the 012 hotline, with an average waiting time of 60 seconds and an average assistance time of 3.5 minutes. This service works in coordination with the CRTM to meet the information needs of transport users in the Autonomous Region of Madrid.

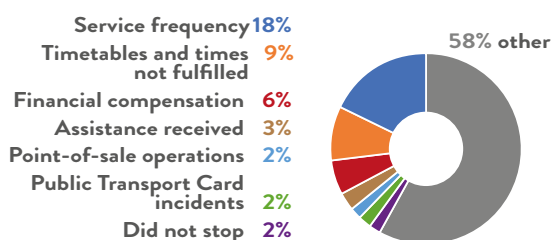
The channel provides information to users and receives and records complaints. However, the most popular service is the request for a prior appointment for the Management Offices. This service was the reason for 117,408 calls.

6.3 Complaints

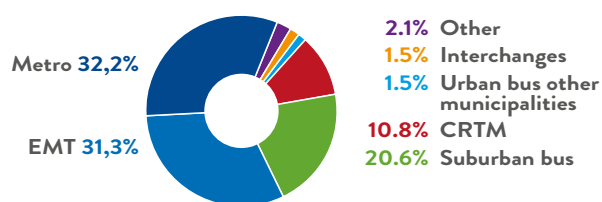
In 2019, the Autonomous Region of Madrid transport system registered 68,034 complaints, an increase of 9.1% over the previous year (62,365). The ratio of complaints per million passengers stood at 39.0. These figures include the complaints received through the different channels available to the user: CRTM website and offices, complaints books and offices of the different public transport operators, 012 hotline, the general suggestions and complaints system of the Autonomous Region of Madrid (SUQUE), and other bodies through their respective registers.

The following graphs show the seven reasons accounting for some 42% of all complaints received, while the remainder are distributed across an extensive list of 67 other reasons, along with the distribution of complaints by means of transport.

REASONS FOR COMPLAINTS



DISTRIBUTION OF COMPLAINTS BY MODE



6.4 The Friends Club

One clear goal which was set for 2019 at the Friends Club was to improve user experience and perception in connection with public transport in Madrid. The activities undertaken at the Friends Club have therefore always aimed to ensure that prize-winners not only receive a tangible reward: show tickets, discounts, etc., but also the chance to enjoy distinctive experiences, exclusive premières, backstage passes and shows featuring their favourite star and special discounts.

Notable examples would include the musical "Billy Elliot", the play "One Flew over the Cuckoo's Nest", "Kooza" (Cirque du Soleil), where the prize-winning users had the chance to meet the stars and cast of each of the shows.

The Public Transport Friends Club has also continued its activities, providing users with numerous activities and events of various kinds: cultural, musical, sports and leisure.

In summary, among the activities undertaken particular mention should be made of the Film Symphony Orchestra concerts, plays such as "Ghost", involvement in International Kids' Weeks with "Billy Elliot", to provide access to musical theatre for new generations of audience members, a range of Teatro Real drama initiatives, such as Opera Week, and various film premières. Notable events in the sports category include the Heart Classic Match, the Women's Race and the Dog-athon.

Lastly, collaboration with Parques Reunidos continued throughout 2019, offering discounts and tickets for Friends Club members throughout the season.

Communication of all activities has always been conducted via the clubdeamigos.crtm.es website, which received over 180,000 visits in 2019, and provided a channel for participation by 1,841 users in the 17 promotions offering prize draws and benefits.

6.5 The “ventex20” campaign



te presentamos actividades para ti, joven de 7 a 26 años

The different promotions offered to young users in Madrid on the microsite ventex20 reinforce the satisfaction of young users of public transport.

Various promotions are staged, including numerous theatre shows and performances (such as “Las Noches de El Club de la Comedia”, “Toc Toc” and “El Brujo”), sporting events (basketball matches of Real Madrid and El Estudiantes or football matches of Rayo Vallecano), and cultural events (Auschwitz exhibition, Japan Weekend or visits to the Prado, Reina Sofía and Thyssen art galleries).

All these promotions are broadcast over the ventex20 website and social networks of Metro de Madrid, reaching 8,263 people registered for the 95+ promotions carried out over the year. The microsite has received more than 58,000 visits in the same period.

6.6 Communication campaigns

The CRTM conducts communication campaigns to promote public transport and sustainable mobility, and to inform users of the activities organised by the body.

During 2019, the Transport Consortium's international facet could be seen in its partnership with global campaigns:

- A campaign was staged to publicise the Climate Change Conference organised by the UN (COP25), held in Madrid from 2 to 13 December. The CRTM had a presence at the international conference, promoting the exchange of knowledge and participating with its own stand, offering a special discount for conference delegates on their transport card, distributed via various channels and platforms. In parallel, the ONEPLANet campaign promoted by the International Association of Public Transport (UITP) was highlighted as a focus to underpin the use of public transport which generates increasingly low pollution levels, the coexistence of different means of transport, and the transition to mobility models based on clean energies.
- Meanwhile, efforts began at the end of the year to publicise the new senior transport card fare which will take effect on 1 January 2020.



6.7 Corporate Social Responsibility

As the cornerstone of mobility for society at large, the Transport Consortium is a key driver of economic and social development in the Madrid Region, focused on corroborating its support and commitment to fulfil the 2030 Agenda.

In this regard, the CRTM engages and encourages all operators, manufacturers, suppliers and users to comply with the sustainable development goals (SDGs), through specific and visible actions improving social, economic and environmental performance, in particular:

- Creation of the first Spanish Mobility Innovation and Training Centre.
- Reorganisation and modernisation of urban and suburban bus fleets, to make them less polluting.
- Modernisation of stations and stops, to make them more accessible and sustainable.
- Development of the aparca+T Plan.
- Development of an app to facilitate mobility and public transport usage.

In the field of collaboration, information and communication with other stakeholders, the CRTM's involvement in European Mobility Week 2019 and cooperation in the 4th University Challenge Day for Sustainable Mobility organised by Madrid's public universities and the UNED, as well as the Madrid Civil Engineers' Week, help to raise awareness of the consequences that everyday mobility has on the environment and the urban context, promoting public transport and cycling, and encouraging healthy lifestyles.

NGOs are taking on an increasingly central role in our new social model, along with initiatives by other public and private institutions who see the Transport Consortium as an ally in showcasing their corporate values. As a result, and given the CRTM's role as a socially responsible institution, it has cooperated with the Spanish Heart Foundation, the Real Madrid Foundation, the Women's Race, the Books on the Street initiative and the International Gathering of Peace without Borders in Madrid.

Within this context, values such as social commitment, knowledge, innovation, transparency, trust and safety are values that the Consortium aims to convey to society, aligned with the values that are best perceived by people, placing users at the heart of its operations: "We Bring People Together".



7 Institutional relations



44 visits by national and international delegations

The experience of the CRTM and the integrated model of the transport system of the Autonomous Region of Madrid have made this body a valuable member of the most important associations in the sector.

These include the International Association of Public Transport, which brings together the main operators, industry representatives and public transport authorities worldwide; the Association of European Metropolitan Transport Authorities, a forum for the exchange of information and experiences among the main European public transport authorities; and the Metropolitan Mobility Observatory, which has the main sector authorities of the principal Spanish cities.

In addition, the quality of the services provided over the course of its 35-year history has given this body great appeal for numerous delegations of mobility and public transport experts interested in learning about the model developed by the CRTM and its management system.

7.1 International presence

The CRTM is present in the most prominent industry associations:



UITP (International Association of Public Transport)

UITP is an association that promotes the exchange of knowledge and experiences among different public transport agents on a European and global level, as the leading association in the sector with over 1,500 members in 96 countries.

Further info at www.uitp.org

The CRTM participates in various committees and commissions of this association, such as that of the Transport Authorities, as well as being a member of the Executive Board. This active presence of the CRTM has given our body relevance at both European and global level.

During the year, the CRTM signed a Partnership Agreement with the UITP to establish an Innovation Training Centre in Madrid at the CRTM headquarters, for the field of mobility and public transport. This Innovation and Training Centre acts as a think-tank and incubator for innovative projects, with the capability of operating as an accelerator to create and grow enterprises in the region. Meanwhile, training initiatives serve to expand knowledge in spheres of interest to the CRTM and to publicise the innovation projects developed.



EMTA (European Metropolitan Transport Authorities)

The CRTM is the Treasurer of EMTA, and since its creation in 1998 it has actively participated in the meetings, forums and working groups promoted by the association, as well as being the member responsible for the preparation of the Public Transport Barometer of the European Metropolitan Areas, which includes data on the public transport systems of the 26 partners that form the association.

Two General Assembly meetings were held in 2019. The first, in Palma de Majorca, Spain, and the second, in Turin, Italy, where the inclusion of two new members was approved: Krakow (Poland) and Thessaloniki (Greece).

Further info: www.emta.com



Metropolitan Mobility Observatory (MMO)

The Metropolitan Mobility Observatory (MMO) is an analysis and reflection initiative formed by the Public Transport Authorities (PTA) of the main Spanish metropolitan areas, the Ministry of Agriculture, Food and Environment, the Ministry of Development, the Ministry of Industry (through the Institute for Diversification and Energy Savings) and the Ministry of Internal Affairs (through the DGT), in order to reflect on the contribution of public transport to improving quality of life and sustainable development in cities.

The MMO publishes an annual report analysing the mobility of the participating metropolitan areas, which is presented at technical meetings where aspects related to sustainable mobility are also discussed.

Since the launch of this initiative, the CRTM has been a constant presence at its annual meetings. In 2019 the regional body was involved at the 16th MMO Technical Seminar, entitled "Public transport as the backbone of new forms of metropolitan mobility", held in Valencia on 26 April.

International visits and advice

The experience of the CRTM and the integrated public transport management system of the Autonomous Region of Madrid attract many delegations that are interested in finding out about the planning and construction methodology of the regional infrastructure and the integrated management system for public transport in Madrid. More specifically, in 2018 the CRTM, CITRAM and the interchanges received 44 visits from all over the world.

The countries that have shown an interest in the public transport system of Madrid cover a wide geographical range. Over the year, the CRTM received delegations of experts and researchers from the following regions and countries: Albania, Latin America, Argentina, Brazil, Chile, China, Colombia, Korea, Costa Rica, Spain, USA, Europe, France, Israel, Mexico, Peru, Poland, UK, Russia, Serbia and Sweden.



The Public Transport System of the Autonomous Region of Madrid, a world benchmark Country delegation visits in 2019



The CRTM is a member of the international organisations UITP and EMTA.

7.2 Accolades for the CRTM



On 29 March 2019 the Local Authority of Humanes honoured the CRTM at the "6th Town of Humanes Awards Ceremony" for the initiative undertaken under recent years in partnership with the local authority to improve public transport in the municipality.



Meanwhile, the Local Police of Boadilla del Monte gave the CRTM an award on 23 April 2019 for its collaboration with the force in recovering objects lost on board buses.



The Association of Traffic Engineers and Mobility Technicians has traditionally handed out its "Women and Traffic Management" awards for women from government, university and private companies who work hard to improve traffic and mobility in Spain. The four women from the CRTM who have received this award in previous years are now joined by the 2019 winner, Laura Delgado, the body's Head of External Relations. These awards acknowledge the high level of commitment and professionalism of the body's employees in managing mobility, in order to offer a quality public transport service in the Autonomous Region of Madrid.

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