

POLIS

ANNUAL
CONFERENCE
2023

CITIES AND REGIONS FOR TRANSPORT INNOVATION

PEDRO FERNANDEZ

Head of Department for International Mobility Projects,
City Council of Madrid



MADRID

30 November 2023

09:00 AM



SESSION 4G

[HTTPS://POLISCONFERENCE2023.EU/](https://polisconference2023.eu/)





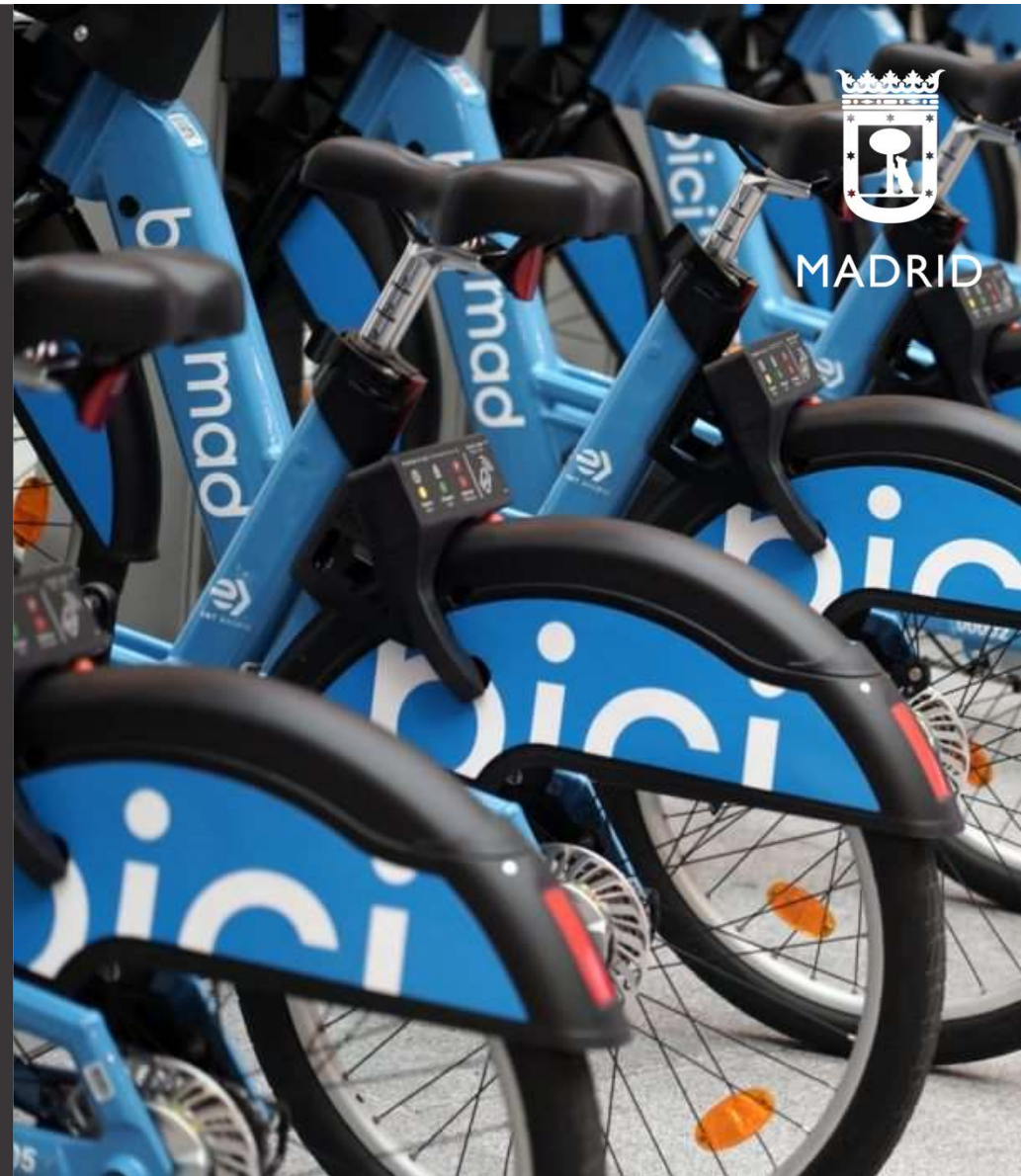
MADRID

BiciMad: Bicycles for all, all over Madrid

POLIS, Leuven, 30.11.2023

Index

- I Introduction & context
- II Timeline of BiciMad and the City Council
- III Evolution of BiciMad since 2019
- IV The new expansion project
- V Qualitative aspects of the new expansion project
- VI Insights on 2023 results
 - Operative stations
 - Available bikes
 - Registered trips
- VII Integration in Madrid 360 strategy
- VIII Outlook



Introduction & context

Madrid 360 Environmental Sustainability Strategy



- In 2019, Madrid 360 Environmental Sustainability Strategy was designed and launched
- Madrid 360 is an alive strategy, that encompasses more than 200 initiatives
- The Strategy has evolved to account for the new demands from its citizens



by Madrid City Council



Mobility

This vector leads to the promotion of **micro mobility/active mobility**, **public transport** optimisation and the increase of the number of **environmentally friendly** vehicles in the city.

Integration in Madrid 360 strategy



The promotion of micromobilities and active mobility is one of the main vectors of the Madrid 360 strategy. As such there are multiple measures dedicated to it aligned with a common goal. An increase in cycling in the modal share.

■ More segregated cycling lanes

The **Castellana bike lane** that connects the north of the city (Plaza Castilla) to the south of the city (Atocha railway station) is one of the newly constructed segregated bike lanes to highlight in Madrid. It will have a length of **13 km** counting both ways.

Starting from this project the City Council will continue expanding the bike network all over the city.

Integration in Madrid 360 strategy



The promotion of micromobilities and active mobility is one of the main vectors of the Madrid 360 strategy. As such there are multiple measures dedicated to it aligned with a common goal. An increase in cycling in the modal share.

■ More public parking spots

There will be more than 24 thousand new municipal parking spots implemented for bikes, PMV and motorcycles.

Fuerthermore the Sustainable Mobility Ordinance has been modified to regulate circulation and parking of shared e-scooters and e-bikes to reduce the frictions between cyclists.

2014

BiciMad was launched in 2014 with a fleet of 1.560 bicycles (100% electric) and 123 stations in the 6 most central districts of the municipality.

2016

In September of 2016 the management of BiciMad was taken over by EMT, the municipal transport operator.

2020

Expansion of BiciMad to neighbourhoods located outside the M-30 ringroad, reaching a total of 15 districts.

2021

Vandalism of bicycles and stations during the central months of the year (may – august)

In December of 2021 the City Council announced that it will be directly managing BiciMad through EMT. This will make the management of BiciMad more flexible and enables the City Council to adapt expansion measures to mobility strategies.

2022

The new expansion project for BiciMad to extend all over the municipal territory was launched to be completed during 2023

2023

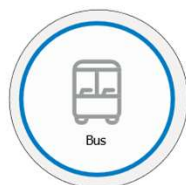
BiciMad for free from March until December to accompany the new expansion project and incentivize use.





EMT is the reference on surface mobility in the city of Madrid. It has almost 10,000 workers, 8 business lines and 5 Operational Centers that enable the company to provide integrated, client-oriented services that foster sustainable and efficient mobility.

BUS
2.068 buses
84% green fleet
219 lines | 10.574 stops
3.861 km network
5 operational centers



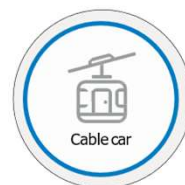
BiciMAD

PARKING NETWORK
28 parking lots
1 mobility hub
12.555 spaces



TOWING SERVICE
77 tow trucks
6 bases

CABLE CAR
80 cabins
2 stations



MOBILITY 360

ADVERTISING
+4.000 advertising suport



CONSULTANCY
8 projects

bicimad

Initial Study



1

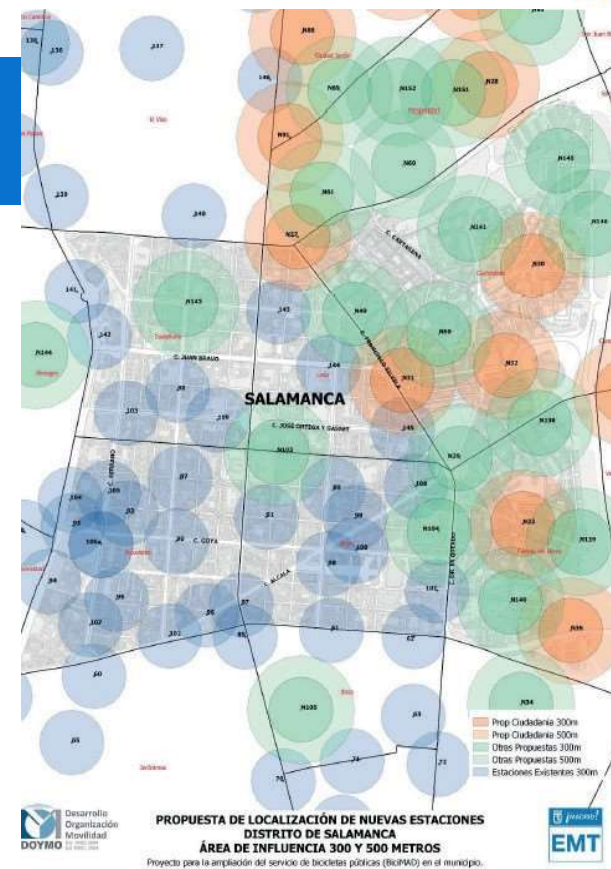
EXTERNAL CONSULTANCY
INITIAL STUDIO FOR SYSTEM
DIMENSIONING:

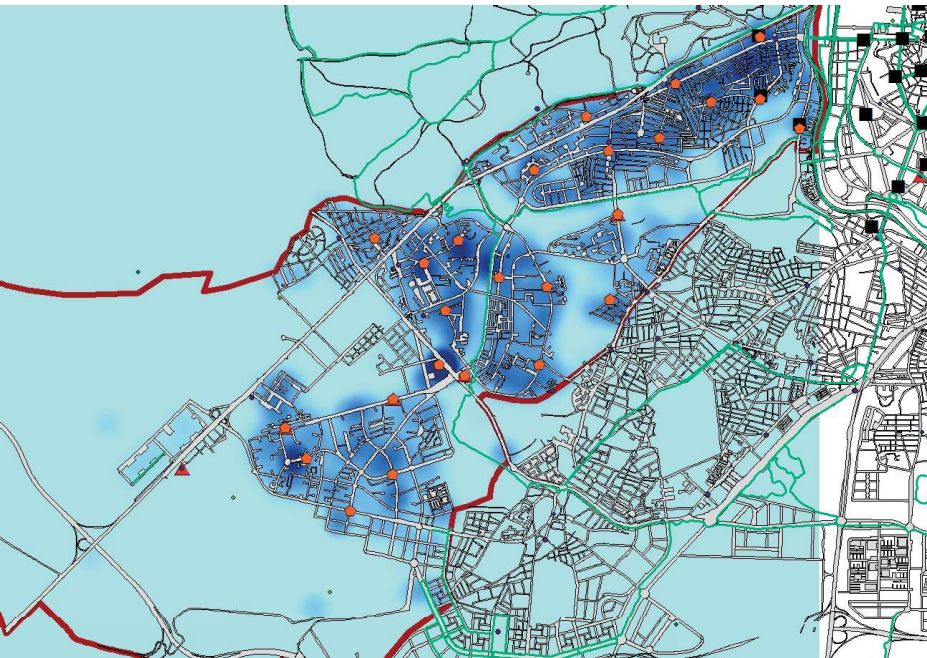
- District Population
- Sociodemographic variables











2

FIRST DIMENSIONING
FOR THE ENTIRE CITY





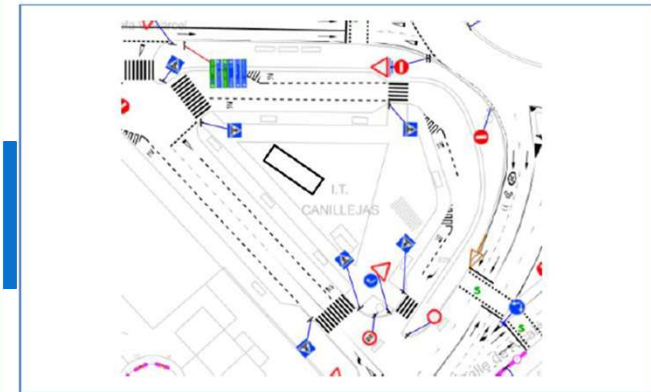


Starting from the initial dimensioning study, the analysis is enriched with more detailed variables

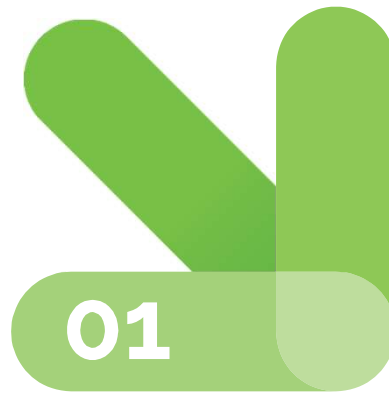
-  Population
-  Sociodemographic Characterization
-  EdM Origin-Destination matrix
-  Land usage characterization
-  Multimodal leverage
-  Attraction points
-  Cycling infrastructure connectivity and bike friendly routes
-  Stakeholders participation

Ubicación: Avenida de América con Avenida de Logroño (Intercambiador-Metro Canillejas)				
Fecha: 19/04/2022		Designación N 378		Distrito: San Blas-Canillejas
Asistentes	Sergio Martín Sánchez Christian Mateos Paredes Francisco Javier Durán Velasco			
Tipo de estación				
Doble <input checked="" type="checkbox"/> Lineal <input type="checkbox"/>				
Número de anclajes	24			
Longitud estación (m)	15,00			
Anchura estación (m)	4,50			
Servicios afectados	Alcantarillado <input type="checkbox"/> Señalización <input type="checkbox"/> Mobiliario urbano <input checked="" type="checkbox"/> Otros (indicar) Sería conveniente modificar ubicación de bancos en otro lugar del Intercambiador			
Disponibilidad conexiones	Electricidad <input checked="" type="checkbox"/> Datos <input type="checkbox"/>			
Próximo a cruce semaforizado	Si <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Estado del pavimento calzada/acera	Adecuado <input checked="" type="checkbox"/>	Necesita reparación <input type="checkbox"/>	En protección (pendiente de comprobación) <input type="checkbox"/>	En protección (confirmado) <input type="checkbox"/>
Estacionamiento	No regulado <input checked="" type="checkbox"/> ZAV <input type="checkbox"/> PMR <input type="checkbox"/> Carga/Descarga <input type="checkbox"/> SER Residentes <input type="checkbox"/> SER Rotación <input type="checkbox"/>			
Plazas de estacionamiento	5			
Ubicación	Calzada <input type="checkbox"/> Acera <input checked="" type="checkbox"/> Carril bici <input type="checkbox"/>			

Información Incaweb					
Dirección emplazamiento: Calle de Alcalá, 629					
Coordenadas (ETRS89/H30) X: 448328.62 Y: 4477747.67					
Distrito	Barrio	Ubicación	Servicio afectado	Tipo de estación	Número de anclajes
San Blas-Canillejas	Canillejas	Acera	Zona Intercambiador	Doble	24
Observaciones: Dada la imposibilidad de ubicación en las zonas próximas de calzada, se propone la ubicación sobre la zona de tránsito del intercambiador, siendo recomendable desplazar parte del mobiliario urbano (bancos)					
 					



Implantation challenges



NEW SYSTEMS

Electrical Supply
Initial space requirements for assembly and reception
Technological integration with the operator



SYSTEM SWITCHING

Coexistence of both systems stage

Operations *bicimad*



BiciMad evolution: 2019 - 2022

In terms of fleet (bikes available) ...

2019	2020	2021	2022
2.496	2.964	2.964	2.964

In terms of trips - daily average trips ...

Type of day	2019	2020	2021	2022
Work days	11.688	12.033	10.729	10.083
Holidays	8.065	9.482	7.832	7.441

In terms of trips - daily record trips ...

Type of day	2019	2020	2021	2022
Work days	17.146	17.338	16.638	15.668
Holidays	12.168	16.357	12.165	11.060

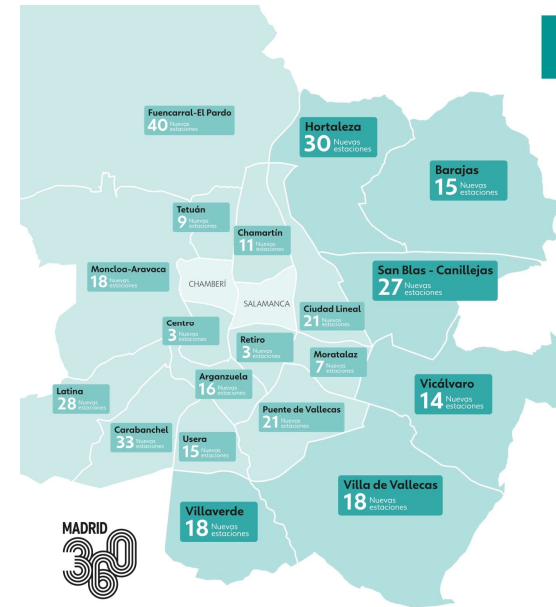
The new expansion project

The **new expansion project** launched in 2022 aims to reach all districts by 2023, duplicating the existing system to reach **611 stations and 7,500 vehicles**. The system will integrate a **hybrid operation system** adding free floating bikes to the existing dock-based system.

21 districts (+6 new: reaches all districts)

611 stations (+347 new: more than doubling the existing ones)

7.500 bicycles (+4.536 new: more than doubling the existing ones)



BiciMAD

NUEVO PLAN DE EXPANSIÓN

347 Nuevas estaciones

225 Nuevas estaciones
En distritos con servicio ya implantado

122 Nuevas estaciones
En nuevos distritos

System expansion to cover the whole municipality of Madrid

2.964 ebikes
264 stations
Dock based system



7.500 ebikes
611 stations
Hybrid operation



System expansion and technological transformation tender

1

CONTRACT SCOPE



Bikes and station delivery

Civil works execution to provide electrical Energy

Swapping old stations by the new ones

New stations instalation

System and sofware license

Technical assistance in maintenance, training and Operational support

New software developments

Spare parts and specific equipment delivery



System expansion and technological Transformation tender

1	CONTRACT PERIOD	
	3 años	
2	CONTRACT BUDGET	
	Basic Budget	48.860.660 €
	Contract maximum budget	63.518.858 €
	Technological Swap	17.756.852 €
	Technological Swap +	43.662.660 €
	Annual license fee	1.272.000 €
	Spare parts delivery	1.000.000 €
	European Funds	40.738.680,72 €

System expansion and technological Transformation tender



1 HYBRID OPERATION

Physical stations

Virtual station

Free-Floating operation

Station Overflow

2 SYSTEM ACCESS MEANS

NFC CARD

MOBILE PHONE NFC

mPASS

3 COEXISTENCE PHASE

Virtual stations

Common NFC card

Fare Structure

bicimad

Suscribers			Occasional / Pay per use		
Annual suscription	w. Transport card	15,00 €	Pay per use	First hour	2,00 €
	Wo. Transport card	25,00 €		Next hours (per hour)	4,00 €
Pay per use	0-30min	0,50 €	Bonus	Take a bike in a full station	- 0,10 €
	30 min- 2 h (each 30 min)	0,60 €		Leave a bike in a empty st.	- 0,10 €
	> 2h (each hour)	4,00 €		Dock reservation (non commulative)	- 0,10 €
Bonus	Take a bike in a full station	- 0,10 €			
	Leave a bike in a empty st.	- 0,10 €			
	Dock reservation (non commulative)	- 0,10 €			

Qualitative aspects of the expansion project

- New bikes (E-FIT model from recycled aluminium)



- More manoeuvrable, ergonomic, robust
- Equipped with
 - information system.
 - GPS
- Speed is shown on the LCD display.

This display also incorporates the state of the battery.

Batteries have a **range of 70 kilometres**.

Bikes will incorporate technical innovations such as 250 W motor, three gears system, and a new developed drum **brakes with a light signal** that is activated during braking for increased safety while riding.

Furthermore, it contains improved aspects for user convenience as for example a **more resistant basket**, with a specific compartment for a handbag, **wheels with a puncture-proof system**, and a saddle that is adjustable in height.

Qualitative aspects of the expansion project

■ Improved payment methods

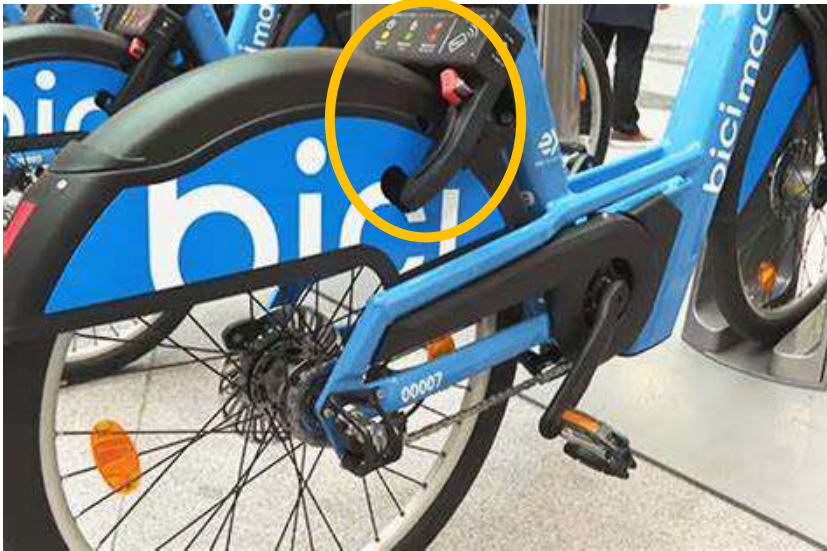
All thanks to the **MPass service**, the single account system associated with **all EMT services** (bus, car parks, bicimad and bicycle parking), and its new features in relation to payment: the user will associate their MPass profile with a means of payment on which they will be charged for journeys made or subscriptions taken out, so it will **not be necessary to pre-load the current wallet**.

■ New flexible subscription

A model adapted to the needs of the user that allows to select an **annual or occasional subscription**. An occasional subscription enables the user to ride **1, 3 or 5 days** and is easily accessible at every station. This increases the possibility for temporary and spontaneous use of the new public bikes.



Qualitative aspects of the expansion project



■ Possibility to park outside of stations

The new models will have a **smart lock** at the back of the bike configured to be able to **start or end journeys both inside and outside stations**. So if you are leaving your bike at a station that is full, you no longer need to look for another available station, just place the bike next to the station and lock the lock.

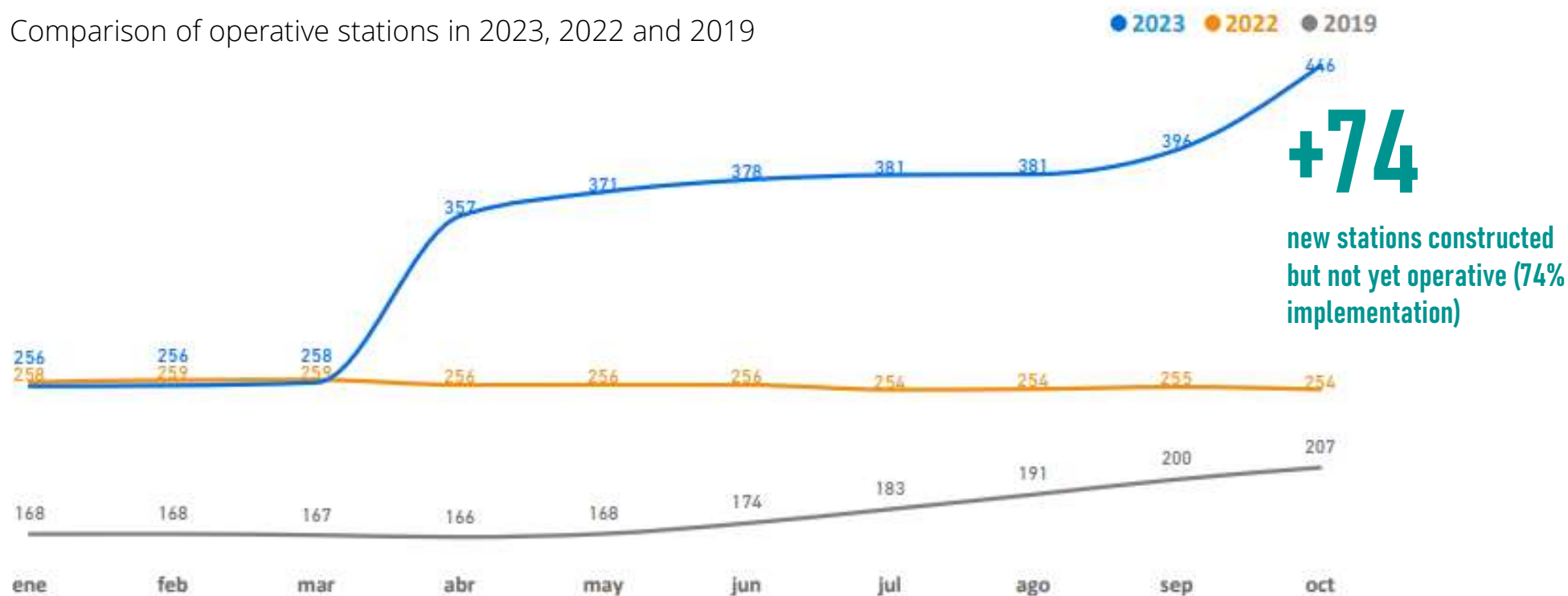


■ Temporary virtual stations

The new app makes it possible to enable geo-referenced spaces to function as a **station for certain events** or to create temporary stations when an existing one is disabled.

BiciMad evolution: 2023 – operative stations

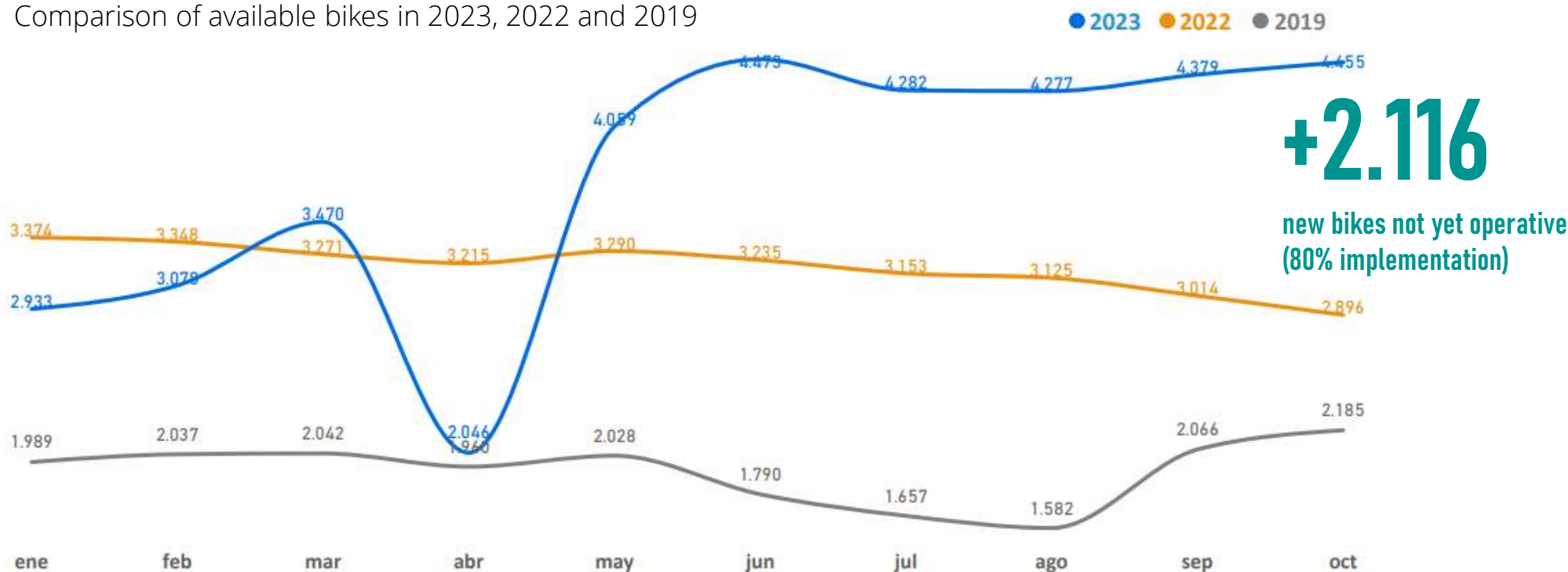
Comparison of operative stations in 2023, 2022 and 2019



In October 2023 there are already 446 stations operative which is equal to an increase in 182 new stations and translates to an implementation of 52% of the proposed expansion project.

BiciMad evolution: 2023 – available bikes

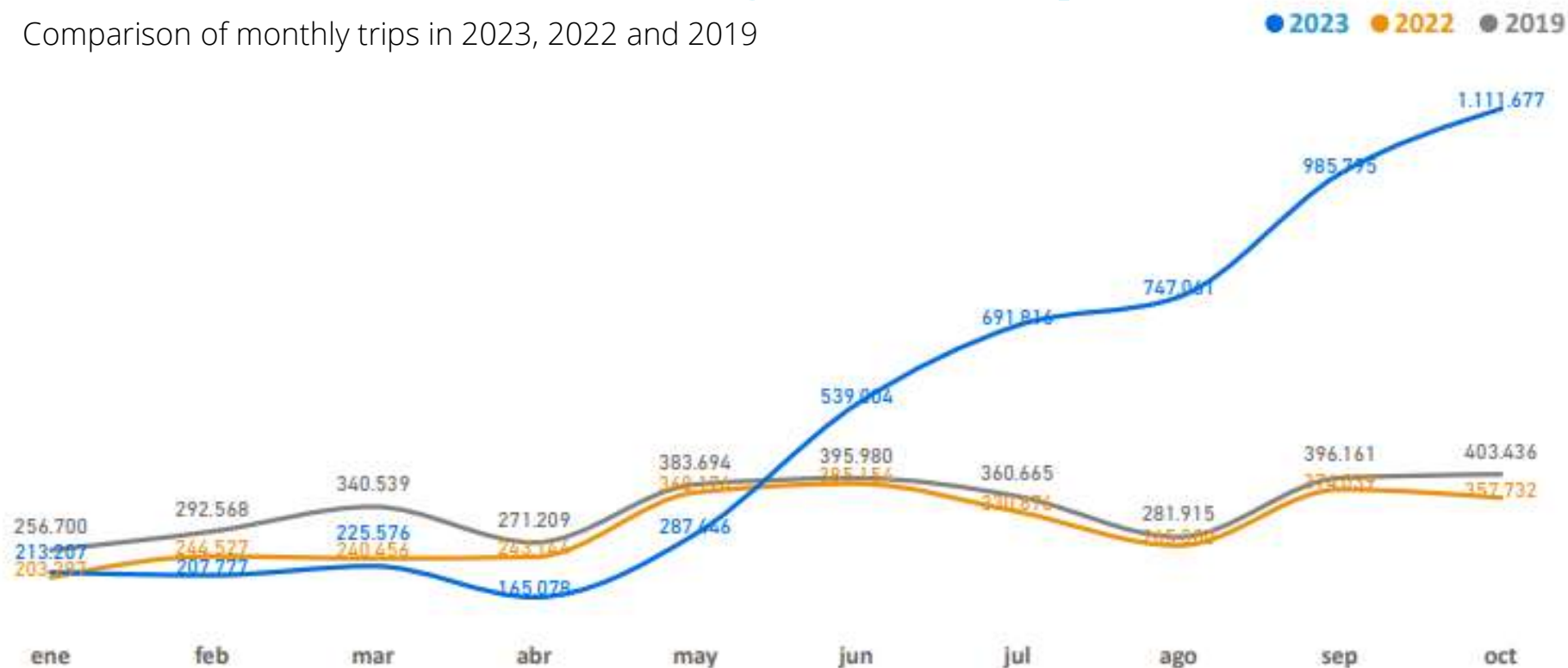
Comparison of available bikes in 2023, 2022 and 2019



In October 2023 there are already 4.455 bikes available which is equal to an increase in 1.491 new bikes and translates to an implementation of 33% of the proposed expansion project.

BiciMad evolution: 2023 – registered trips

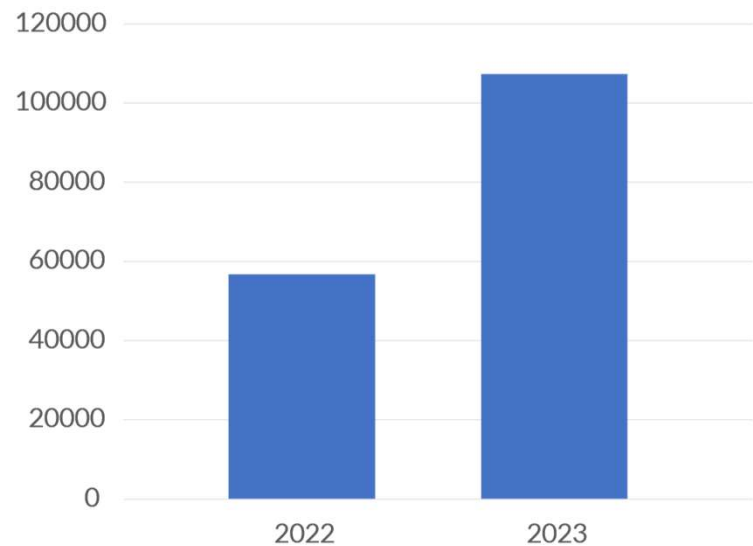
Comparison of monthly trips in 2023, 2022 and 2019



In October 2023 the monthly record for trips was registered, over 1 million trips. This represents an increase of 211% with respect to October 2022 and 176% with respect to October 2019.

Users

bicimad



SYSTEM SUBSCRIBED USERS

SUSCRIBER

2022

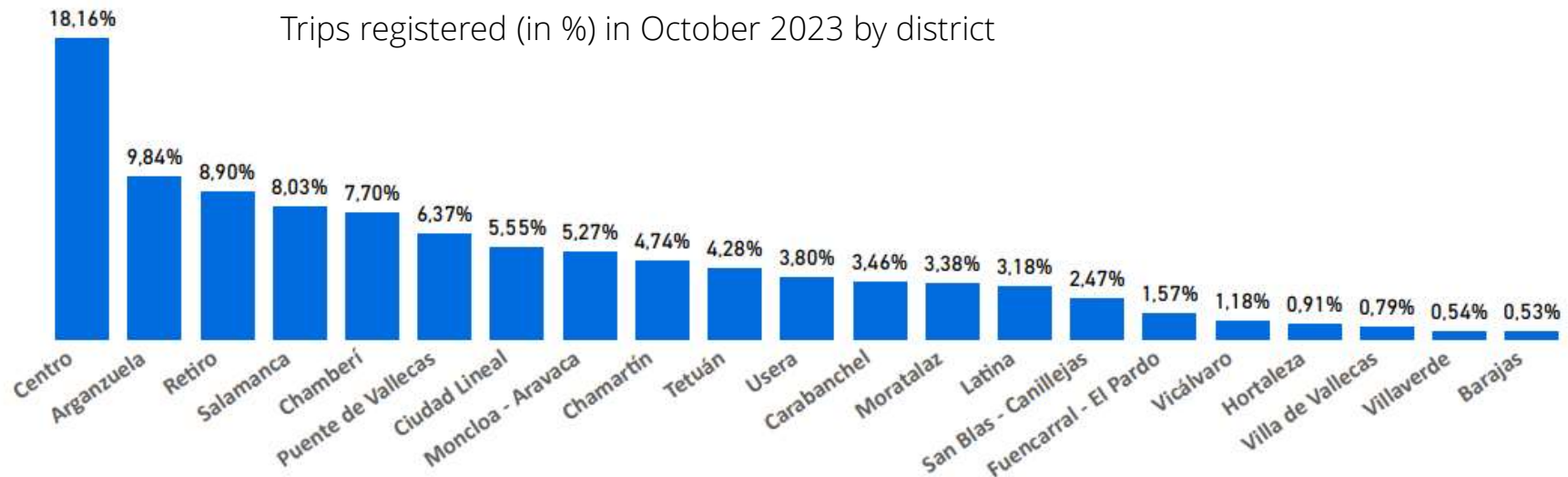
56.746

2023

107.297

Source: emtmadrid.es

Outlook BiciMad



The districts with the highest use of BiciMad are the central districts, where BiciMad was first launched. We are tracking the evolution of trips by district as one of the major KPIs to evaluate the impact of the new expansion project.

We are eager to see how this territorial distribution continues once the system reaches consolidation in all districts.

Outlook BiciMad: most used public bike sharing system in Spain

57.116 trips

New daily record achieved on Friday 17th of November

8,5% trips

made from 19:00 to 20:00 on November 17th

Hortaleza and Barajas

Districts added by the new expansion project in the top 10 on November 17th



POLIS

CITIES AND REGIONS FOR TRANSPORT INNOVATION

ANNUAL
CONFERENCE
2023

LEUVEN, BELGIUM 29-30 NOVEMBER 2023



leuven