

# How can parking policy change the city?

Outcomes from new parking policies in Madrid

EPA POLIS SEMINAR  
Krakow, September 15th, 2016  
Sergio Fernandez Balaguer

Empresa Municipal de Transportes de Madrid



# How can parking policy change the city?

Outcomes from new parking policies in Madrid



INTRODUCTION



ON-STREET INTELLIGENT  
PARKING SCHEME



OFF-STREET PARKING:  
TRENDS AND NEW SERVICES



ADDING VALUE TO PARKING  
INFORMATION:

“MADRID PARKING” APP

MADRID “APARCABUS” APP



SOME RESULTS



UPCOMING INITIATIVES: NEW  
MADRID PARK&RIDE PLAN

## MADRID: some figures



- 3,23 million inhabitants
- 1,72 million vehicles
- 8,4 million trips/day (2,5 million trips/day done with private car)
- 150.000 parking lots managed by licensee companies



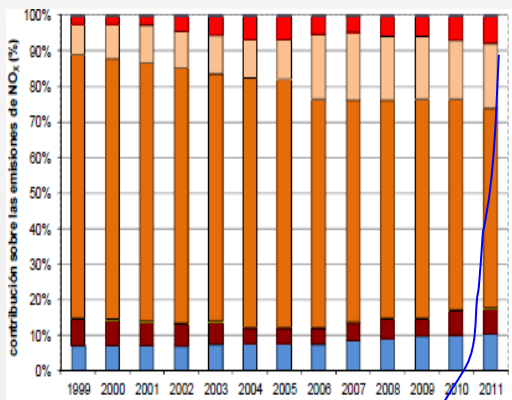
## AIR POLLUTION

- Road transport is the main GHG source and air pollutant agent in the city of Madrid



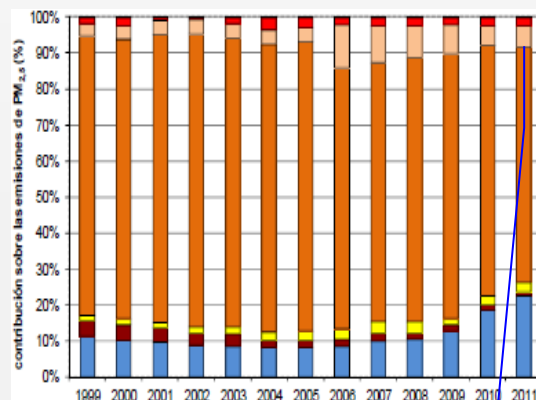
### Evolution:

NOx



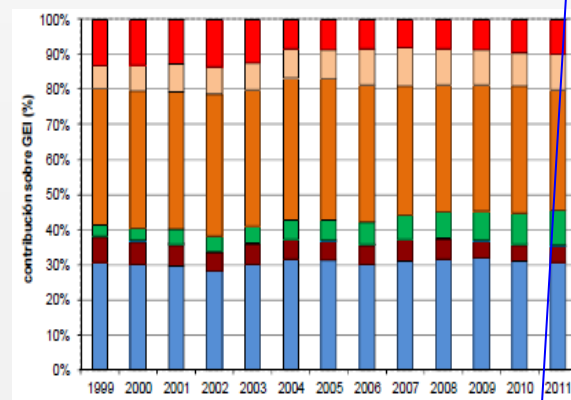
56 %

PM



65 %

GHG



34 %

## OBJETIVES

### New approach of city government



- Improve urban mobility, especially at peak hours.
- Reduce air pollution in Madrid.
- Improve the urban environment. Fewer vehicles accessing the city.
- Improving the sustainability of transport in the city, increasing ridership in public transport means.

# ON-STREET INTELLIGENT PARKING SCHEME



- First contract in Spain with 3 different fully integrated models of parking meters
- **Dynamic pricing according to:**
  - **Vehicle technology**
  - **Occupancy levels**
- Centralized real time information

- 1st August 1st, 2013: call of tender
- Nov 1st, 2013 awarding
- July 1st, 2014 launch of the operations



# ON-STREET INTELLIGENT PARKING SCHEME: VEHICLES CLASIFICATION

Class	Type of vehicles by category		
	Category (Sector)	Fuel	Technology
<b>A</b>	Passenger cars	Non plug-in hybrids, LPG y CNG	
<b>B</b>	Passenger cars < 80mg/km	Petrol	EURO 4-5-6
		Diesel	EURO 6
	Light vehicles	Petrol	EURO 4-5-6
		Diesel	EURO 6
	Heavy vehicles		EURO VI
Bus/coach (not EMT ones)	All	EURO VI	
<b>C</b>	Passenger cars 80-250 mg/km	Petrol	EURO 3
		Diesel	EURO 4-5
	Light vehicles	Diesel	EURO 5
	Heavy vehicles		EURO V
<b>D</b>	Passenger cars 250-500 mg/km	Petrol	EURO 2
		Diesel	EURO 3
	Light vehicles	Petrol	EURO 3 & previous
		Diesel	EURO 3-4
	Heavy vehicles		EURO III-IV
Bus/coach (not EMT ones)	All	EURO V & previous	
<b>E</b>	Passenger cars >500 mg/km	Petrol	EURO 1 & previous
		Diesel	EURO 2 & previous
	Light vehicles	Diesel	EURO 2 & previous
	Heavy vehicles		EURO II & previous

## FARE TYPES: DISCOUNTS AND PENALTIES

**Green: priority to residents (lable-annual fee). More expensive to visitors**

**Blue: visitors (+ residents )**

### TARIFA BASE ZONA DE BAJAS EMISIONES

ZONA AZUL ZBE		ZONA VERDE ZBE	
Tiempo	Importe	Tiempo	Importe
Mínimo 20 min	0,25 €	Mínimo 20 min	0,60 €
MEDIA HORA	0,45 €	MEDIA HORA	1,10 €
1 HORA	1,20 €	1 HORA	2,35 €
1 HORA Y MEDIA	2,05 €	1 HORA Y MEDIA	3,55 €
2 HORAS	2,95 €	MÁXIMO 2 HORAS	4,70 €
2 HORAS Y MEDIA	4,00 €	FRACCIONES	0,05 €
3 HORAS	5,40 €		
3 HORAS Y MEDIA	6,90 €		
MÁXIMO 4 HORAS	8,40 €		
FRACCIONES	0,05 €		

**MADRID**  
ESTACIONAMIENTO  
REGULADO  
Inteligente

Para más información consulte: [www.madrid.es](http://www.madrid.es)

### TARIFAS (BONIFICACIÓN Y PENALIZACIÓN)

Nueva ordenanza fiscal: bonificaciones y recargos

TIPO DE VEHÍCULO	BONIFICACIÓN/ RECARGO	NIVEL DE OCUPACIÓN	BONIFICACIÓN/ RECARGO
A	-20%	A	-20%
B	-10%	B	-10%
C		C	
D	10%	D	10%
E	20%	E	20%

Para más información consulte: [www.madrid.es](http://www.madrid.es)

**MADRID**  
ESTACIONAMIENTO  
REGULADO  
Inteligente



## ALL PAYMENT SYSTEMS



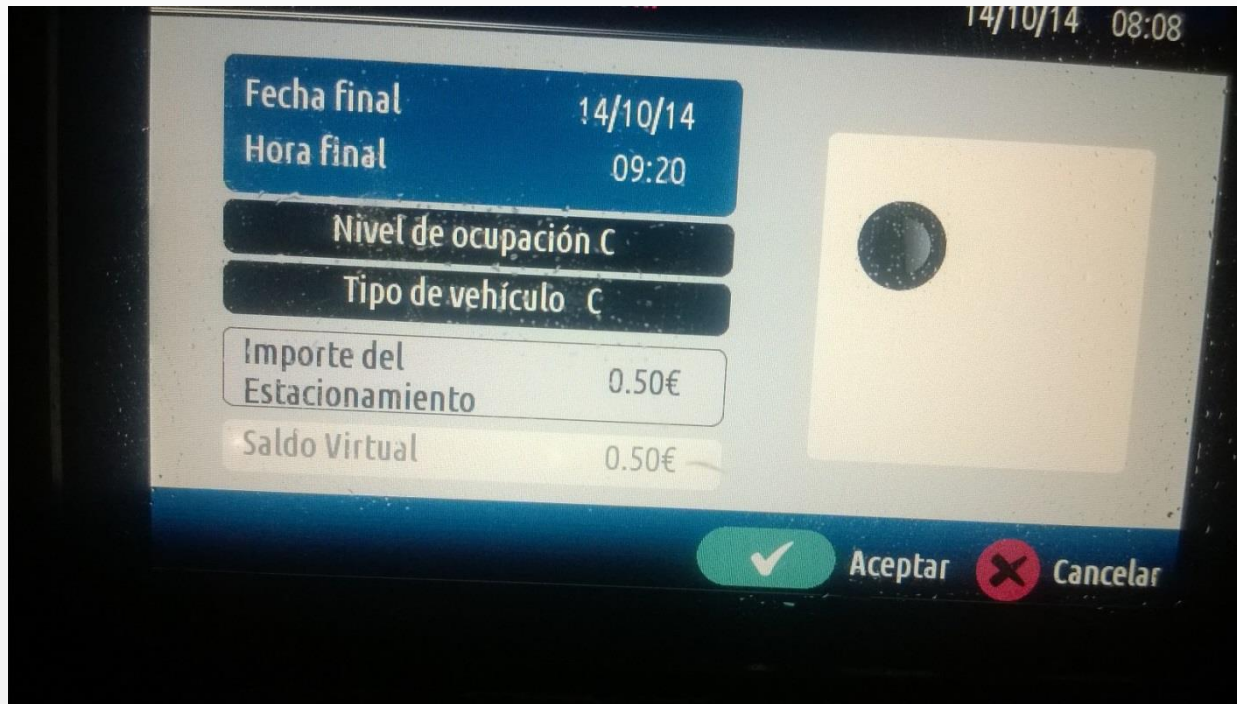
- Cash
  - At the moment
  - Virtual balance
- Credit card
- Prepayment contactless card
- Smartphones apps



**MADRID**  
**ESTACIONAMIENTO**  
**R|E|G|U|L|A|D|O**  
inteligente

- **2 million tickets every day**

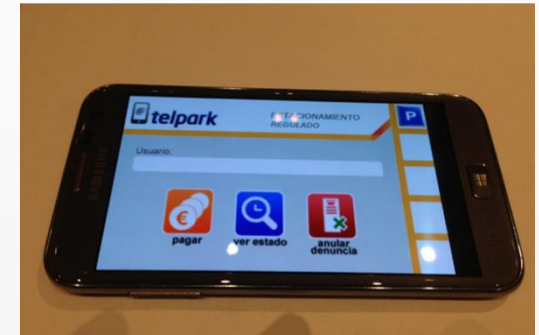
## VIRTUAL BALANCE



The system keeps the remaining payment linked to the plate number of the vehicle

## THREE DIFFERENT APPS: INTEROPERABILITY

- Telpark



- E-Park

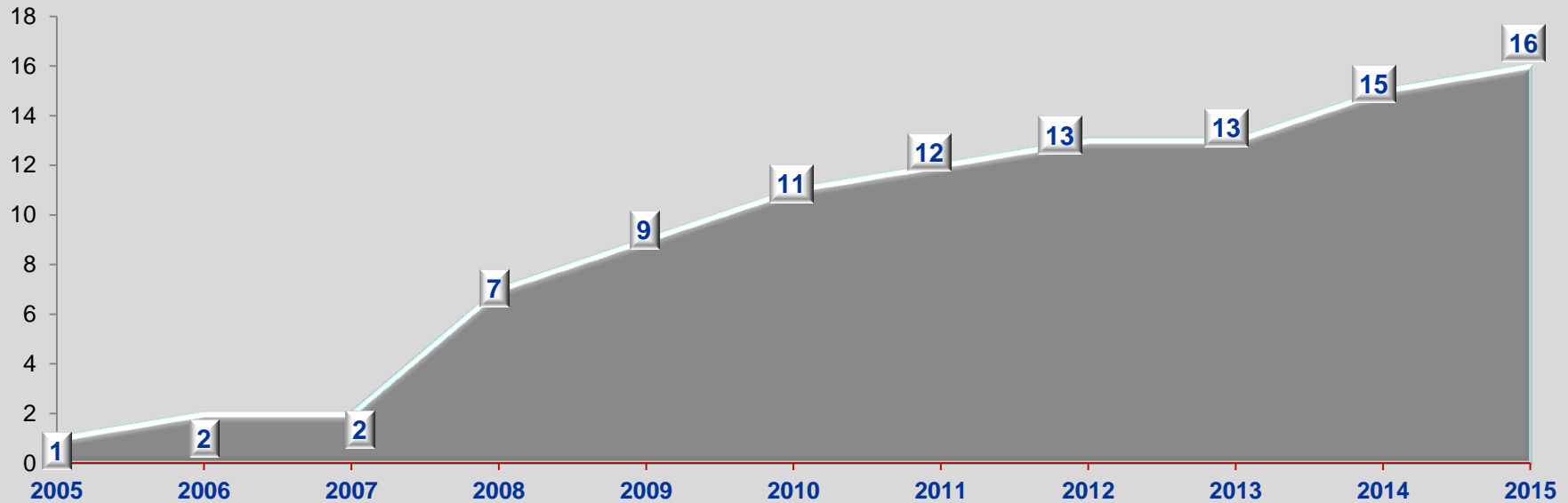


- EyssaMobile



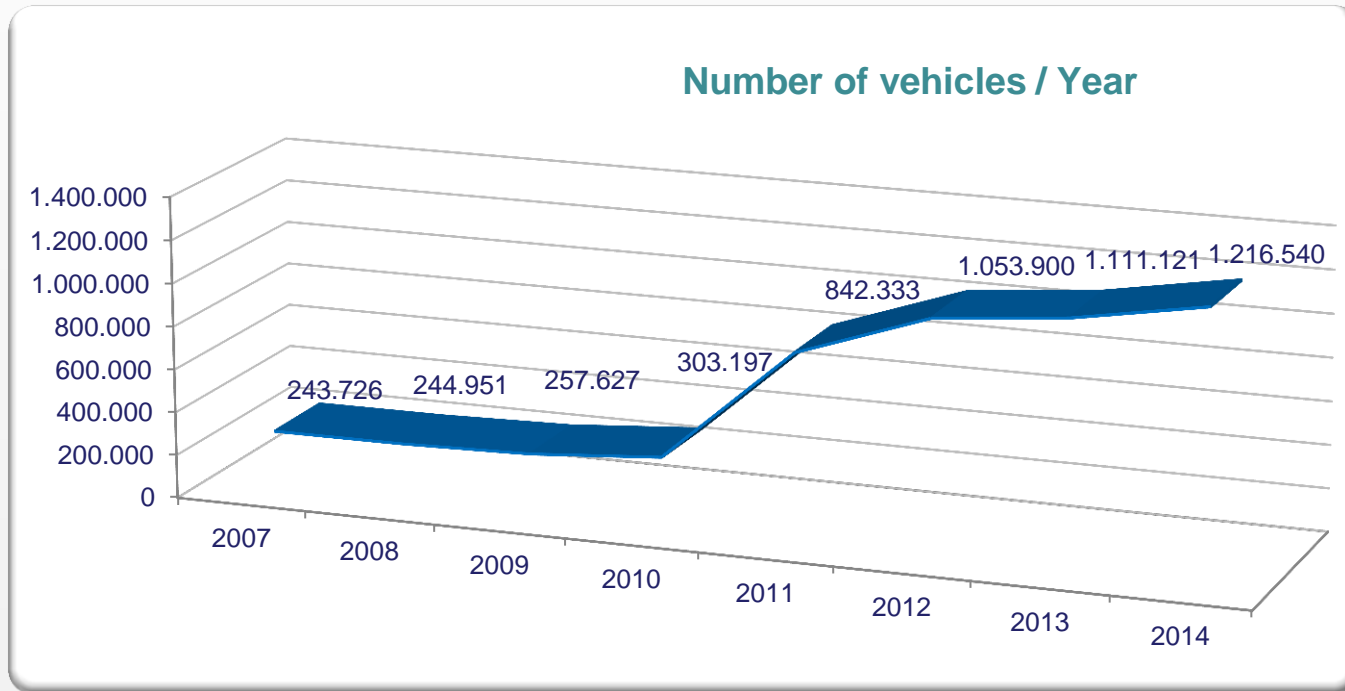
## INCREASING TREND

**Number of off-street parking facilities directly managed by the city 2005-2015**

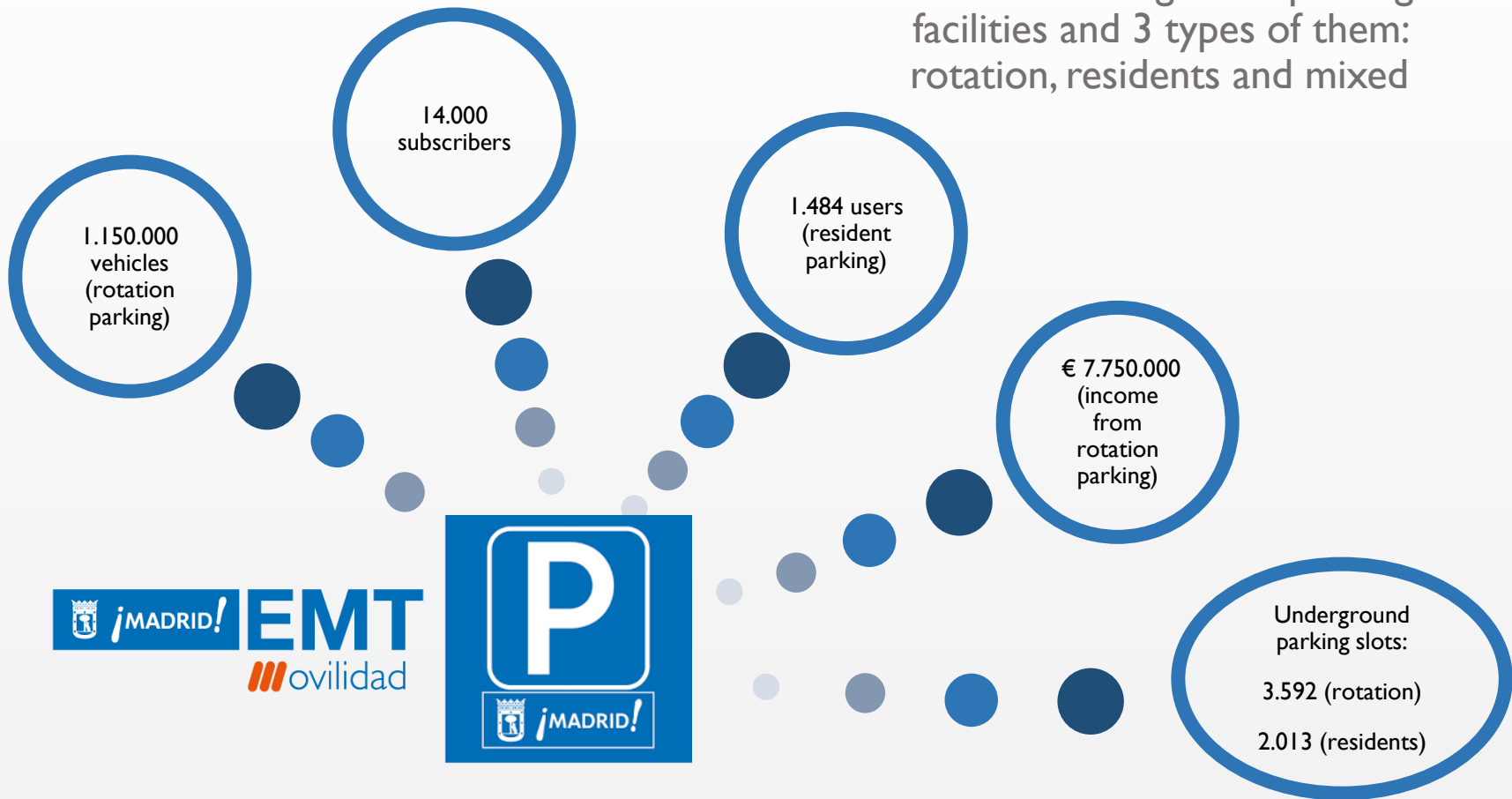


250 off-street public parking facilities in Madrid (public and private)

## INCREASING TREND



EMT: 16 underground parking facilities and 3 types of them: rotation, residents and mixed



2015 figures



## ADDING NEW SERVICES

PARKING	EV CHARGING POINTS
NUESTRA SEÑORA DEL RECUERDO	36
ORENSE	5
SAN EPIFANIO	8
AVENIDA PORTUGAL	20
MARQUES DE SALAMANCA	6
<b>TOTAL</b>	<b>75</b>



Instalación	Empresas de Carsharing			
	BLUEMOVE	AVANCAR	RESPIRO	CAR2GO
Aparcamiento ROTACIÓN Almagro	4	2	3	0
Aparcamiento ROTACIÓN Marqués de Salamanca	2	0	2	0
Aparcamiento ROTACIÓN Orense	2	0	0	12
Aparcamiento ROTACIÓN Recoletos	2	0	0	0
Aparcamiento MIXTO Avenida de Portugal	2	0	0	12
<b>TOTAL</b>	<b>12</b>	<b>2</b>	<b>5</b>	<b>24</b>

Parking  
Nuestra Señora  
del Recuerdo

Parking  
Orense

Parking  
Marqués de  
Salamanca

Parking  
Avenida  
de Portugal

Parking  
San Epifanio





## EASING ACCESS TO DATA: APPS

---

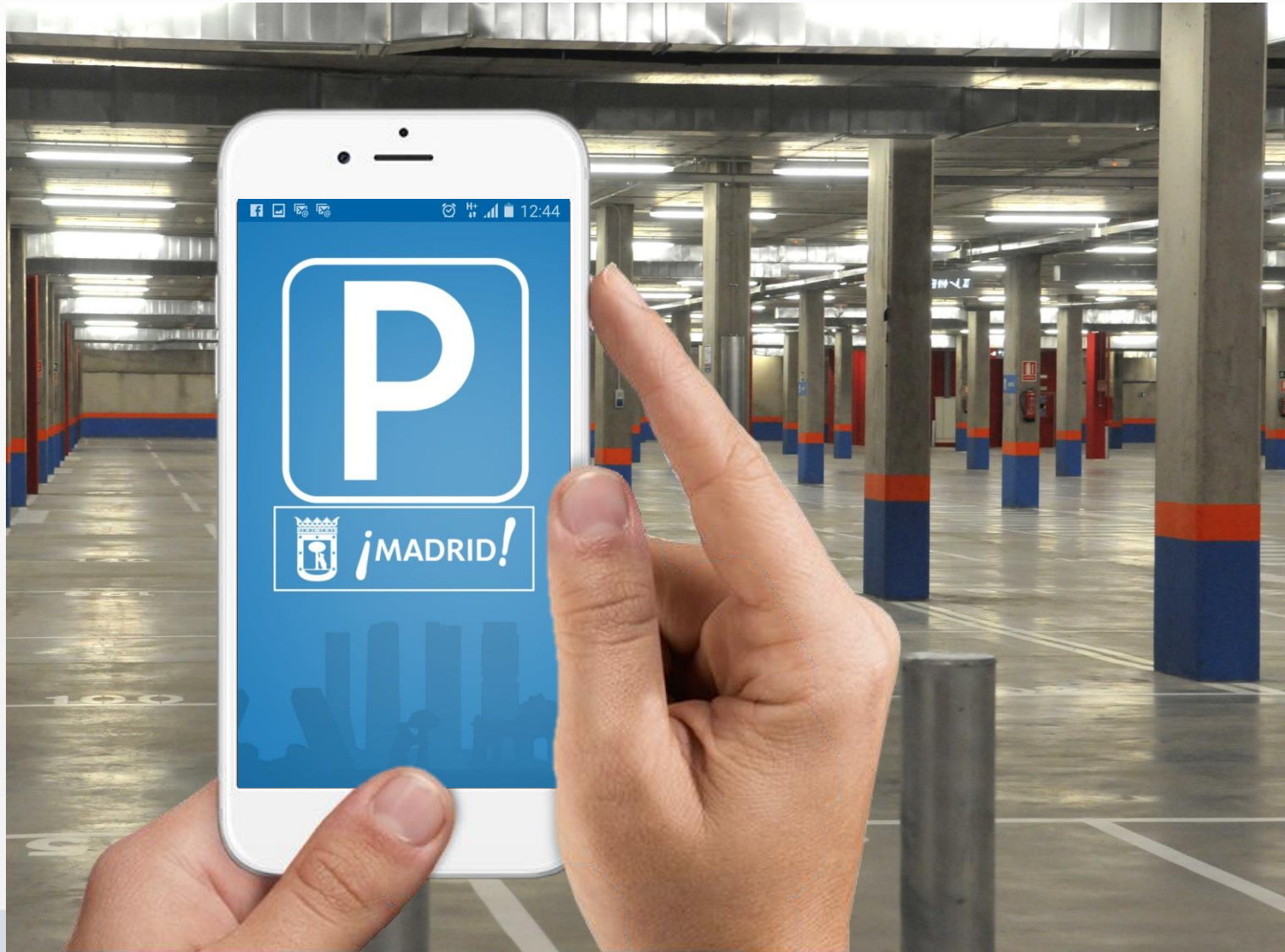
- Shortly after taking over the responsibility for managing public parking facilities, EMT developed in September 2014 a protocol for exchange of information in order to include all parking's managed from EMT.
- This protocol was also introduced to private parking licensees.
- A information managing portal was also developed, so private managers can get updated information about each parking facility.
- Last August 2015 EMT Madrid launched **“Parking Madrid” app**, and shortly after, the **“Madrid Aparcabus” app**

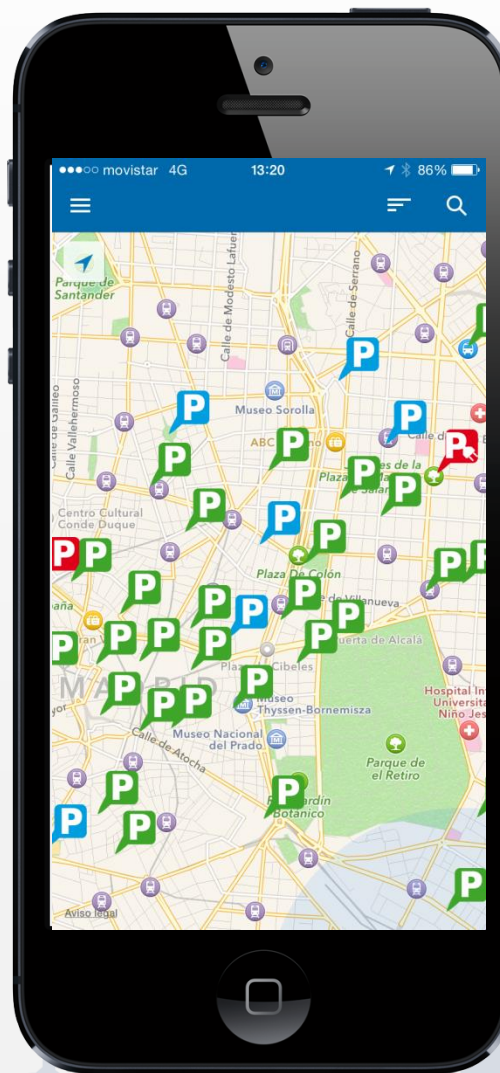


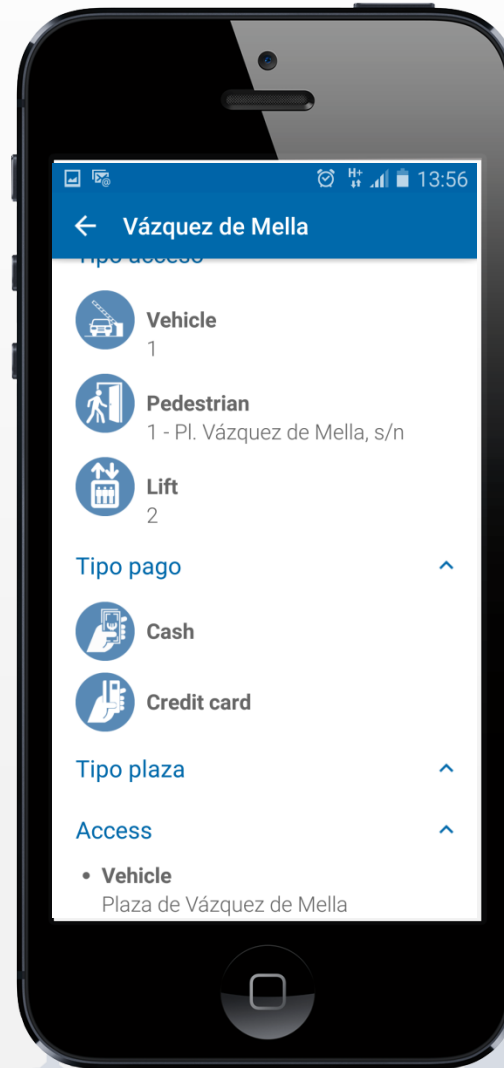
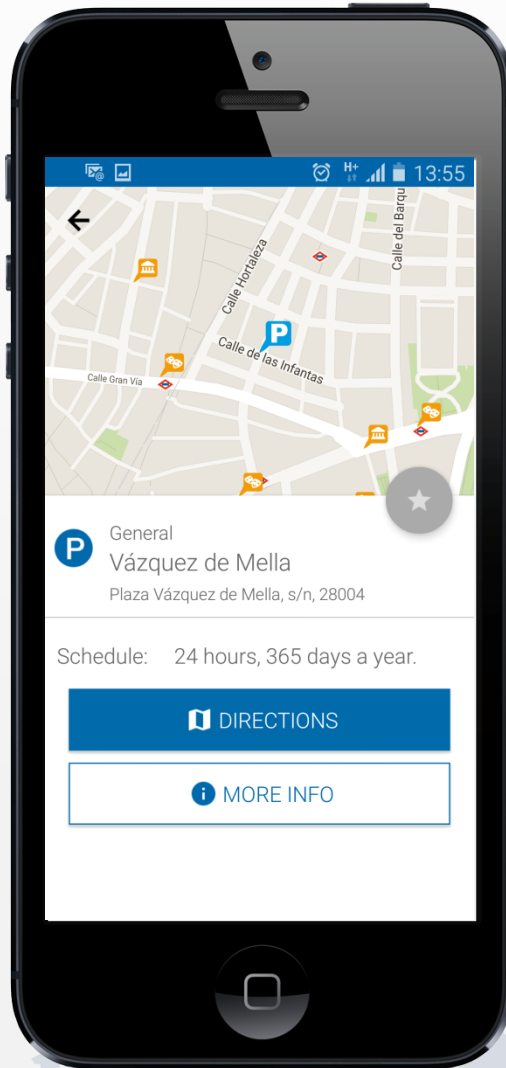
Empresa Municipal de  
Transportes de Madrid



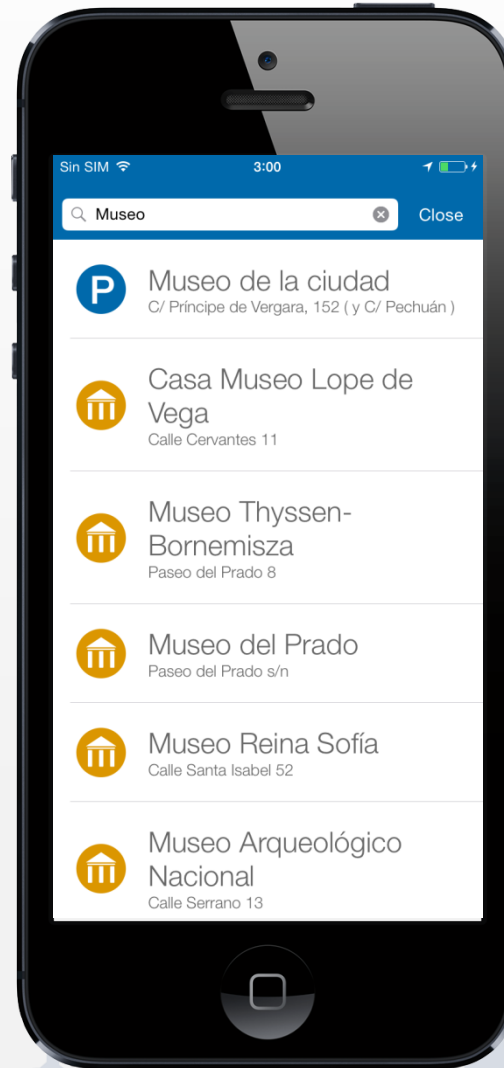
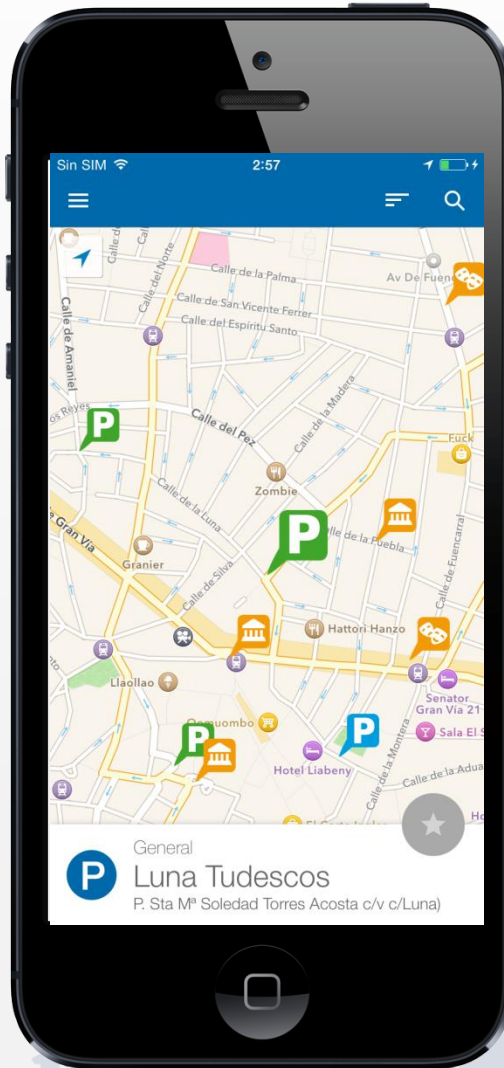
# “MADRID PARKING” APP



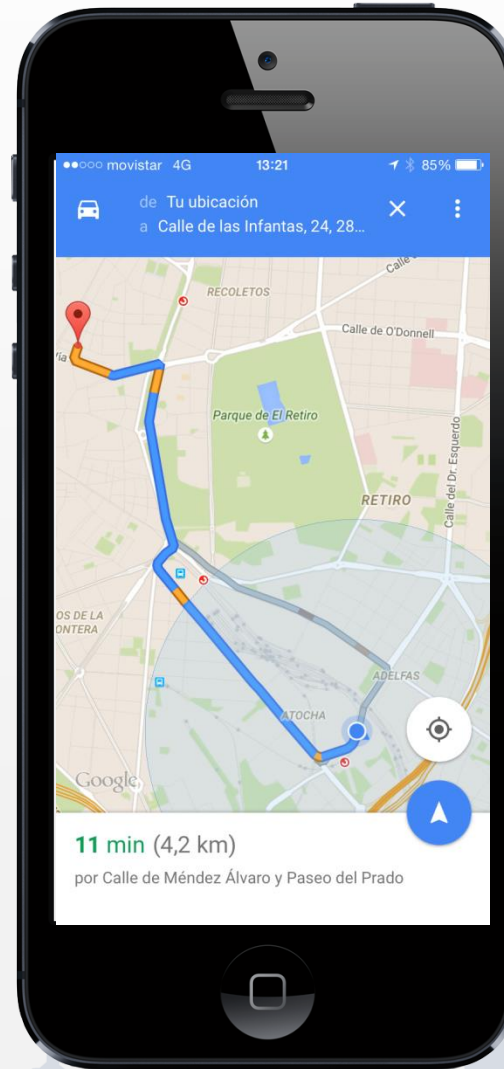
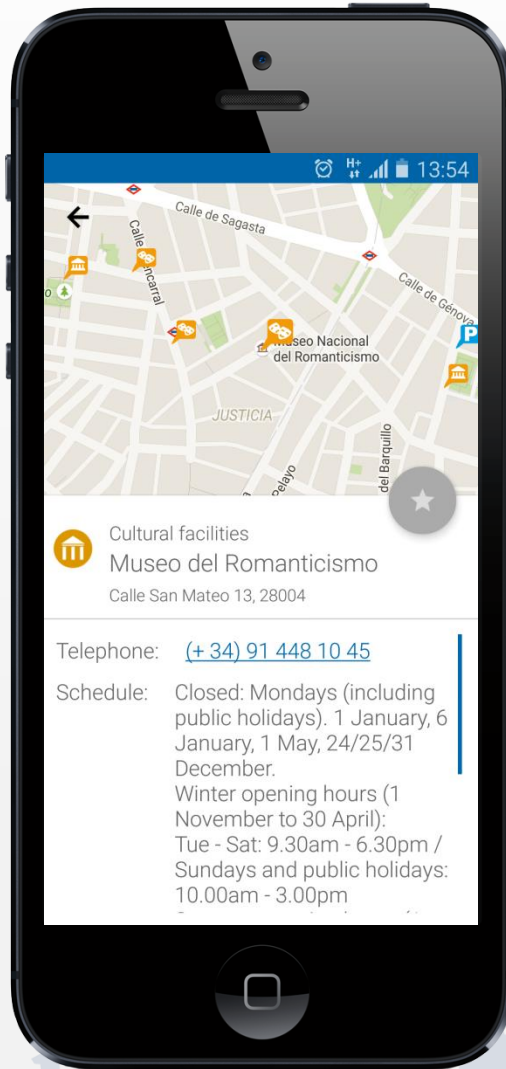




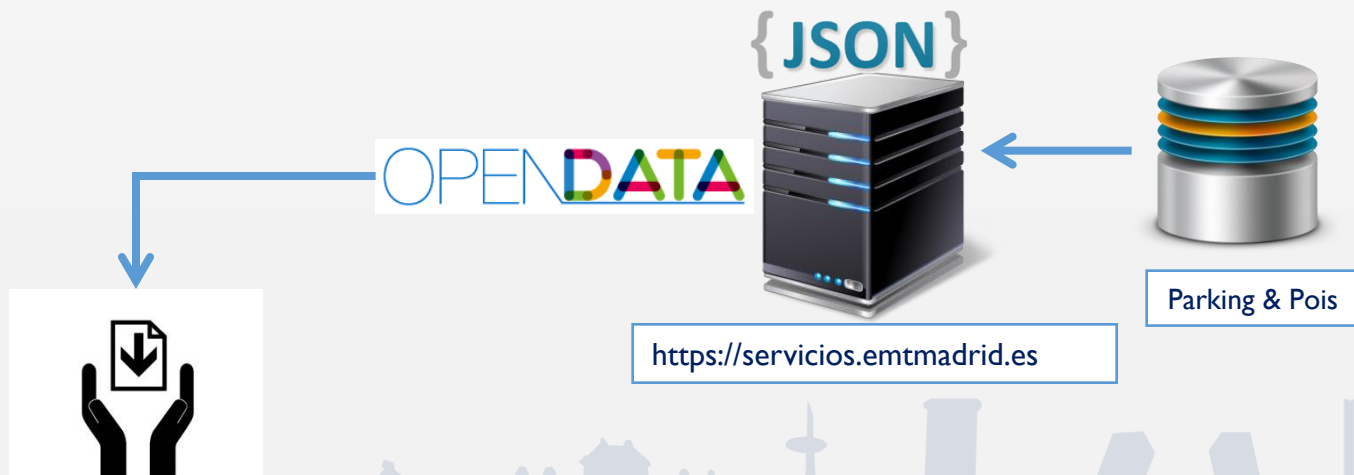
## PARKING MADRID APP



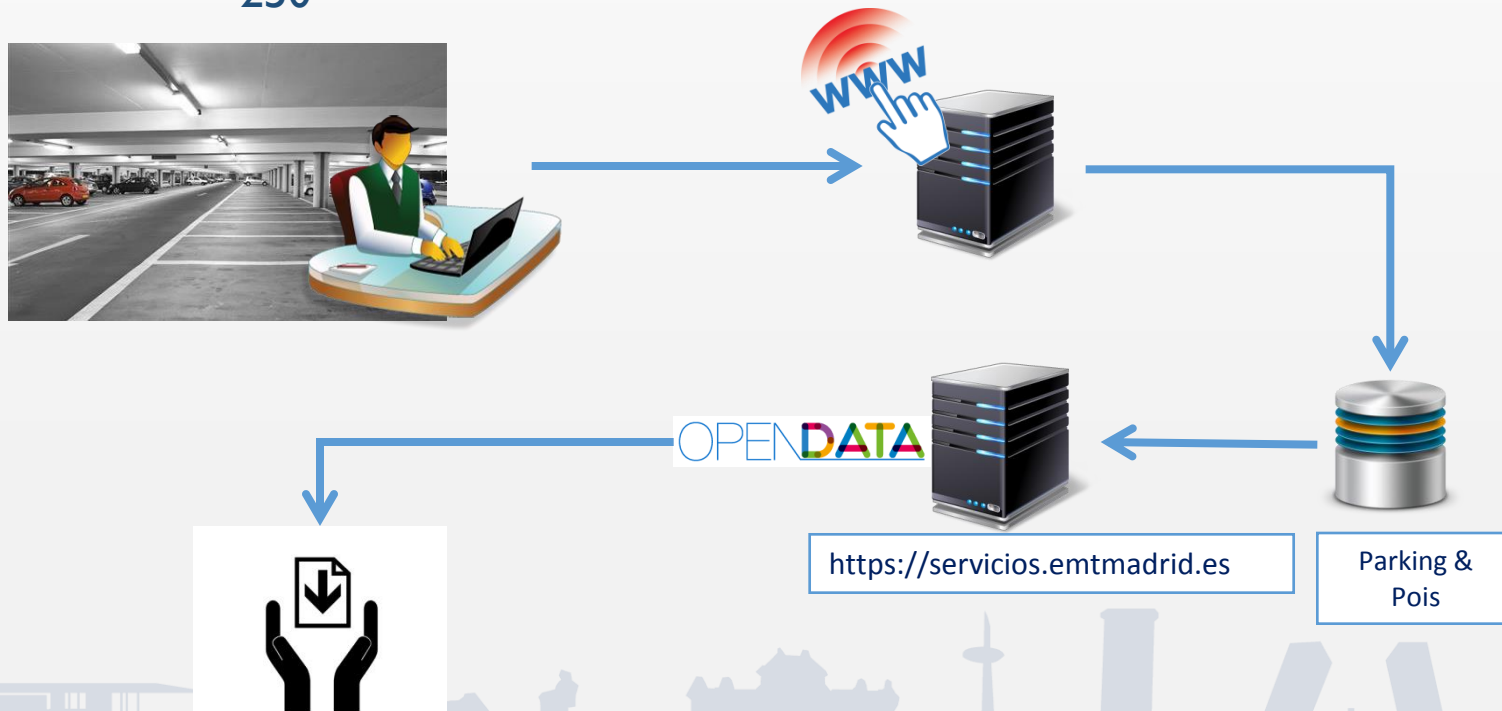
## PARKING MADRID APP



- All the information can be obtained by open sources. The parking API is documented in <http://opendata.emtmadrid.es>
- The API offers data about available parkings and points of interest
- It allows making geocoding queries about parkings and points of interest (Pois) around a certain city place of the city.
- It offers to other apps the possibility of integrating data freely



- A web portal has been developed so other parking managers can provide their data and keep them without any managing cost.
- Data provided by other managers is automatically integrated on the system, and it is made available automatically through the Open data API
- So far the app includes information of 58 parkings out of a total of 250





10.9.14.87

https://myb...&parades=99 X http://webexter...heckPoint.aspx X http://webexter...specificas.aspx X Comando SQL - Adminer X +




















webexterna.desarrollo.emt.es/InfoParking/caractEspecificas.aspx

Buscar



Nueva Característica

CARACTERÍSTICAS PARA EL PARKING ALMAGRO

Idioma	Tipo	SubTipo	Contenido	Desde	Hasta
  ES	Contacto público	Fax público	91 440 11 63	01/01/2014	01/01/2078
  ES	Contacto público	Email público	aparcamientos@madridmovilidad.es	01/01/2014	01/01/2078
  ES	Contacto público	Teléfono público	91 787 72 92	01/01/2014	01/01/2078
  ES	Información	Altura máxima	2.00 m	01/01/2014	01/01/2078
  ES	Servicios adicionales	Disponibilidad de abonos		01/01/2014	01/01/2078
  ES	Servicios adicionales	Car sharing		01/01/2014	01/01/2078
  ES	Tipo pago	Pago en efectivo		01/01/2014	01/01/2078
  ES	Tipo pago	Pago con tarjeta		01/01/2014	01/01/2078
  ES	Tipo plaza	Total	445	01/01/2014	01/01/2078
 ES	Tipo pago	Pago en efectivo	prueba	30/06/2015	30/06/2015

10.9.14.67

https://myb...&paradas=99 x http://webexter...heckPoint.aspx x http://webexter...ng/tarifas.aspx x Comando SQL - Adminer x +

webexterna.desarrollo.emt.es/infoParking/tarifas.aspx

Accesos Tarifas Horarios Características

Nueva Tarifa

	Desde	Hasta	Idioma
	01/01/2014	01/01/2078	EN
	01/01/2014	01/01/2078	ES
	01/01/2014	01/01/2078	EN
	01/01/2014	01/01/2078	ES
	01/01/2014	01/01/2078	EN
	01/01/2014	01/01/2078	ES
	01/01/2014	01/01/2078	EN
	01/01/2014	01/01/2078	ES
	01/01/2014	01/01/2078	EN
	01/01/2014	01/01/2078	ES

**MODIFICACIÓN Tarifa**

- Desde: 01/01/2014 Hasta: 01/01/2078
- Idioma: EN
- Periodo Tarifación: Minutos
- Min. Estancia Inicio: 31
- Min. Estancia Fin: 90
- Hora Inicio: 00:00
- Hora Fin: 23:59
- Tarifa: 0,0370
- Descripción: Desde el minuto 31 el 90: 0,0370 € cada minuto

Confirmar Cancelar

Gestión Datos Parking EXIT

Descripción
minuto 0 al 30: 0,0412 € cada minuto
minuto 0 al 30: 0,0412 € cada minuto
minuto 31 al 90: 0,0370 € cada minuto
minuto 31 al 90: 0,0370 € cada minuto
minuto 91 al 660: 0,0494 € cada minuto
minuto 91 al 660: 0,0494 € cada minuto
minuto 661 hasta máximo 24 horas: 31,60 €
minuto 661 hasta máximo 24 horas: 31,60 €



Link to Google Play:

[https://play.google.com/store/apps/details?id=com.emt.emt\\_parking&hl=es](https://play.google.com/store/apps/details?id=com.emt.emt_parking&hl=es)

Link to Apple Store:

<https://itunes.apple.com/es/app/parking-madrid/id985106342?mt=8>

**<http://opendata.emtmadrid.es>**



<http://showroom.emtmadrid.es/aparcabus/index.html>



*Sistema de estacionamiento  
de autobuses de Madrid (SEA)*

HOME

INFORMACIÓN  
OBJETIVOS  
DE LARGA ESTANCIA  
UBICACIÓN DE  
ESTACIONAMIENTOS  
RECORRIDOS DE  
TRASLADO  
CONTACTO  
DISPONIBLE EN

2014 © E.M.T. Madrid.



### ¿Dónde se encuentran los estacionamientos de autocar?

Haz un uso correcto de los estacionamientos regulados y mira dónde están ubicados.



### Decreasing trend

---



2.246.756 in 2015 (half of 2005)

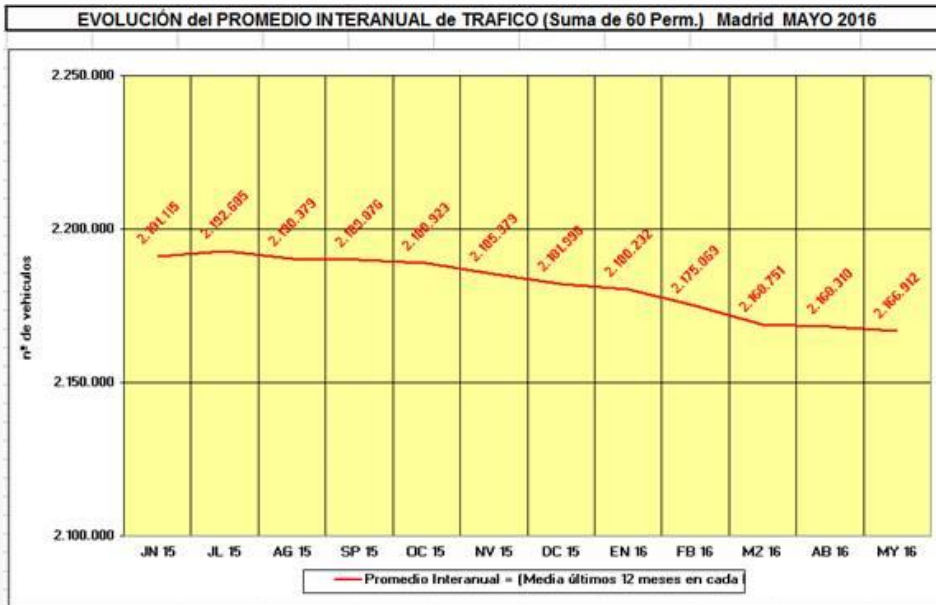
1.854.303 fully resolved

6,87% reduction from 2014 to 2015

**44,78% of them related to parking  
indiscipline, with more than 1 million of  
them for not issuing the ticket (however,  
compared to 2010 the parking fines have  
decreased by 55,28%)**

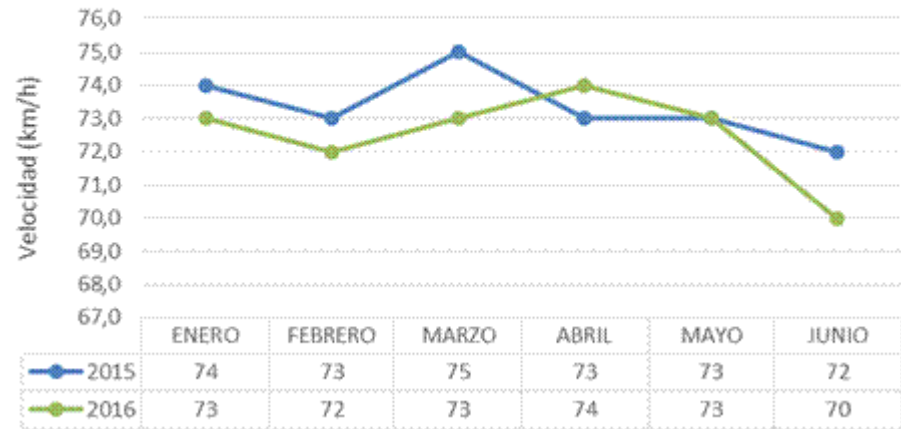
# SOME RESULTS: Traffic evolution

← At a city level



At the first ring →

## COMPARACIÓN 2015 - 2016 EVOLUCIÓN VELOCIDAD MENSUAL EN M-30



## NEW PARK & RIDE PLAN



Both Madrid region and city have already P&R facilities

However, the capacity is limited and there is room for improvement.

Complying with the measure number 53 of Madrid SUMP (implementing and managing P&R facilities)- Dec' 14

Combining Metropolitan Area and Municipality

Other examples studied: Paris, Bordeaux, Hamburg, Munich, Stuttgart, London, Bristol and Bilbao



## Current capacity

In Madrid province there are 61 parking facilities “considered as P&R” with a total of 27.836 parking lots (60,06% of them are free of charge = 14.949 parking lots)

The next table shows the parking lots in the different road axis entering the city and the tariff area of public transport system

ROAD AXIS	TOTAL NUMBER PARKING FACILITIES	TOTAL PARKING LOTS	FREE OF CHARGE LOTS	PAY LOTS	TARIFF ZONE
A-1	4	1.419	1.019	400	A / B1
A-2	11	2.895	2.230	665	A / B1 / B2 / B3 / C1
A-3	10	1.793	1.793		A / B2 / B3
A-4	11	5.163	5.163		A / B1 / B2 / B3 / C1
A-42	6	2.567	2.567		A / B1 / B2 / B3
A-6	16	8.616	1.590	7.026	A / B1 / B2 / B3 / C1 / C2
M-607	3	2.438	588	1.850	B1 / B2 / B3



## Parking models

### Location and building characteristics

- With good connections with the PT network: train, metro, bus
- Out of congested areas at peak hours
- Great accessibility from the main nearby roads
- Maximizing sustainability. Minimizing building works and cost (including maintenance).
- Whenever possible, maximum distance of 200 meters from the parking lot to the public transport mean. Optimum distance of 50 meters away.



## Parking models

### Management characteristics

- Free of charge (beyond the cost of the PT ticket). Exceptionally, minimum cost could apply (0,50-1,50€ / day)
- Exclusivity. The validation is made using the PT ticket linked to a certain specific parking facility
- Minimum stay: 2-4 hours
- Maximum stay: 16-24 hours
- On-street parking regulation in the surroundings to avoid indiscipline
- Fast, convenient and efficient payment systems



## Measures to promote its use

---

- Use of information panels and development of telematic tools and mobile devices to:
  - Provide real time information to those circulating in the access roads on the availability of parking lots, estimated arrival time and fastest route
  - Provide information on the estimated arrival time of the next PT service associated to the P&R facility
  - Provide any other relevant information
- Easy access by using dedicated traffic lines
- Including charging infrastructure and synergies with other mobility solutions (cycling, taxi, shared mobility, etc.)



## Efectiveness

---

**time**

Total time since parking the car until final destination by PT must be lower than driving your own car

**price**

Total cost of service (parking + PT ) must be more economic than using your own car

**convenient**

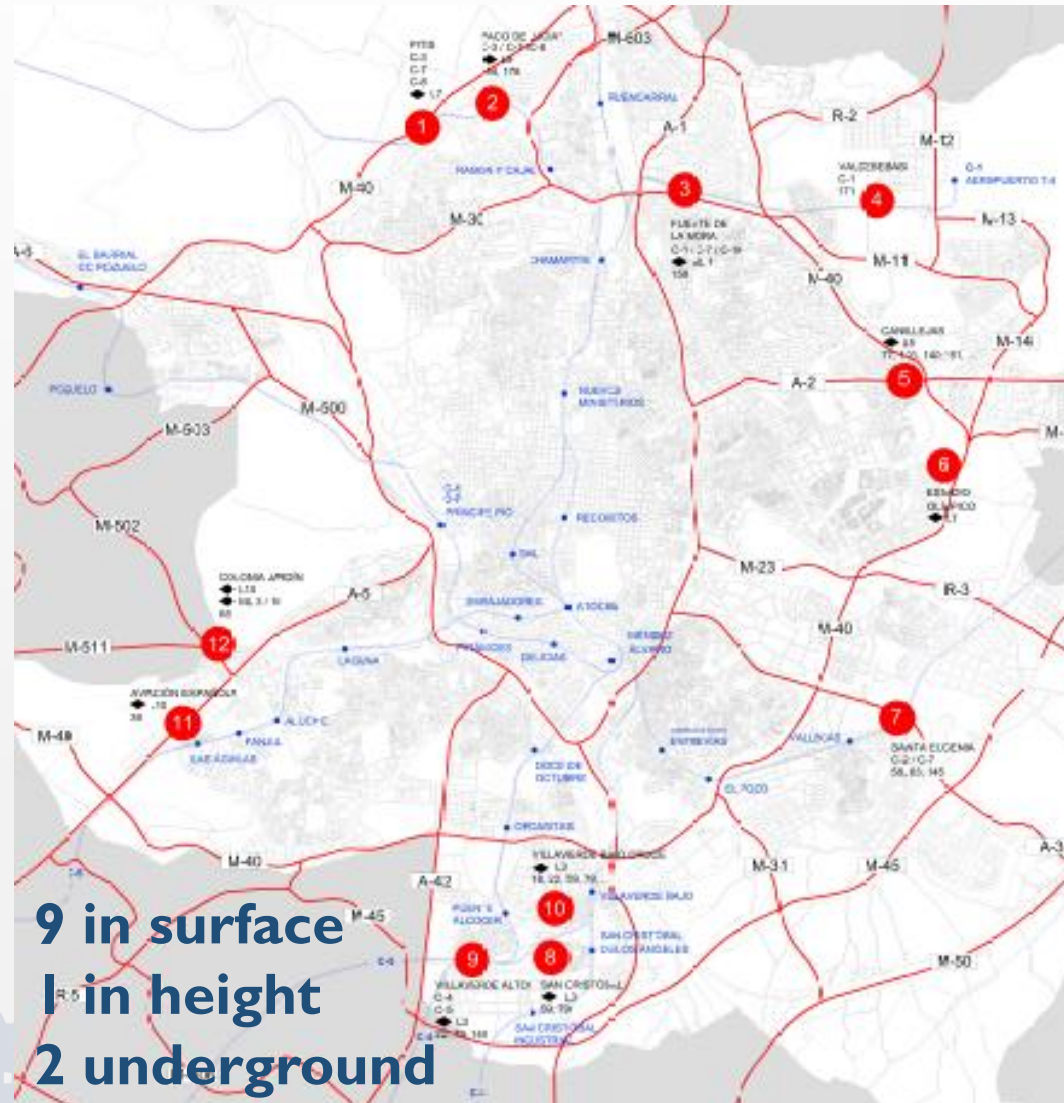
Good and convenient location. Good accesibility for vehicles. Easy access on foot

# NEW PARK & RIDE PLAN

## LOCATION PROPOSAL

9.570 new parking lots  
12 new locations:

1. *Pitis*
2. *Paco de Lucía*
3. *Fuente de la Mora*
4. *Valdebebas*
5. *Canillejas*
6. *Estadio olímpico*
7. *Santa Eugenia*
8. *San Cristóbal*
9. *Villaverde Alto*
10. *Villaverde Bajo Cruce*
11. *Aviación Española*
12. *Colonia Jardín*



## BUDGET AND STATUS

Budget: 139.757.193 €

Status:

Approved by the Government Board of the City  
last July 14th, 2016

Works from now until May 2019





Thank you very much!  
[sergio.fernandez@emtmadrid.es](mailto:sergio.fernandez@emtmadrid.es)

---

Empresa Municipal de  
Transportes de Madrid

