







PLAZA ELÍPTICA TRANSPORT INTERCHANGE STATION

METRO DE MADRID S.A.



SERVICE OF INFRASTRUCTURES AND STATIONS

AREA OF CIVIL WORK



1919. LINE 1: SOL - CUATRO CAMINOS



On October 17, 1919, King Alfonso XIII officially inaugurated the first Metro line between Puerta del Sol and Cuatro Caminos.







Construction of Line 1. 1918







2021. MODERNIZATION OF GRAN VIA STATION















2024. MODERNIZATION OF SANTIAGO BERNABEU STATION



- Inspired by the Real Madrid football stadium.
- 68 million euros.

- 2024-2027.
- 4.000 m2 to 12.000 m2





NOWADAYS















5504 interfonos



1284 máquinas de venta





560 ascensores



2352 teleindicadores



9314 cámaras de seguridad

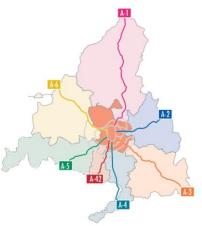
DATOS DE OCTUBRE 2023

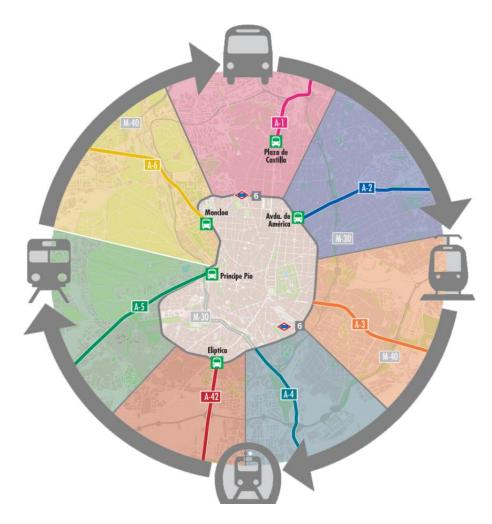


TRANSPORT INTERCHANGES IN MADRID

MAIN ENTRANCE ROADS TO MADRID











TRANSPORT INTERCHANGES IN MADRID

PLAZA DE CASTILLA, AVENIDA DE AMERICA, PRÍNCIPE PIO, MONCLOA















TRANSPORT INTERCHANGES IN MADRID

2024. NEW INTERCHANGES: CONDE DE CASAL AND VALDEBEBAS



- Cercanías C-1, Metro Line 11 and buses/taxi.
- 30 million euros.
- 7.000 m²

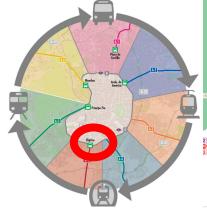
- Metro Line 6 and 11, A-3 highway and city and intercity buses.
- 36 million euros
- 20.000 m²

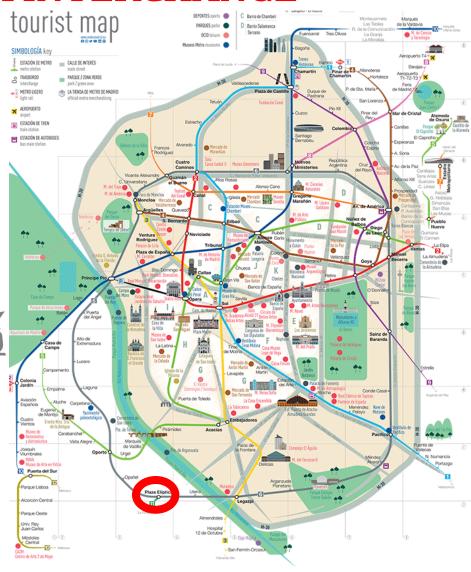


PLAZA ELÍPTICA INTERCHANGE







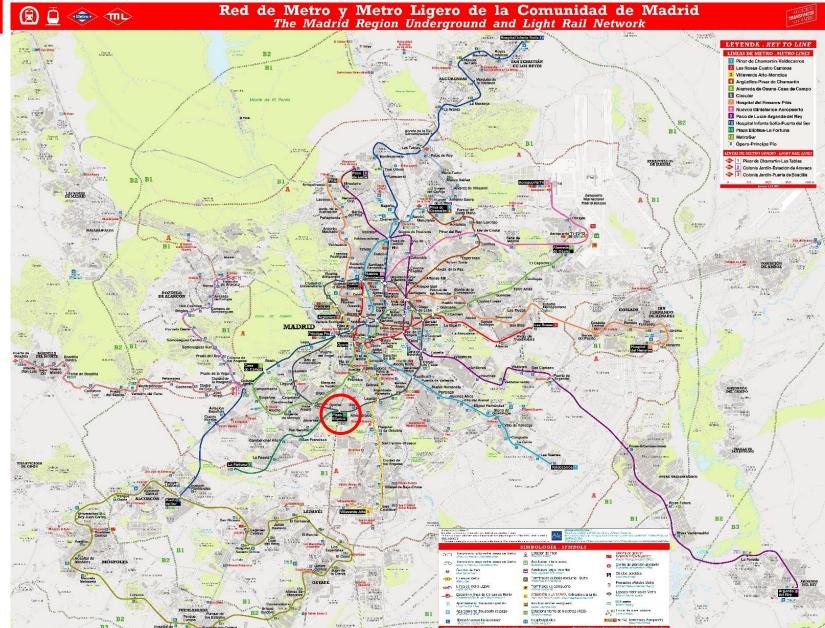








PLAZA ELÍPTICA INTERCHANGE **SITUATION**





PLAZA ELÍPTICA INTERCHANGE PROJECT

Key features

- Exclusive bus access tunnels.
- No pedestrian-vehicle conflict.
- Distance required to change modes has been minimized and kept inside the station.
- Vertical transport facilitates movement between different levels.
- 100 meter, two minutes.

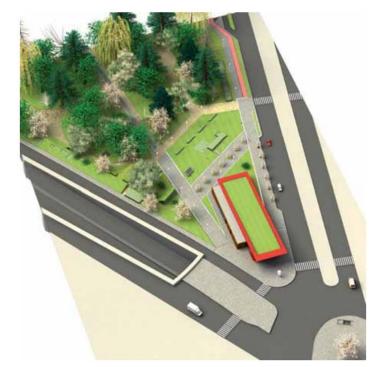


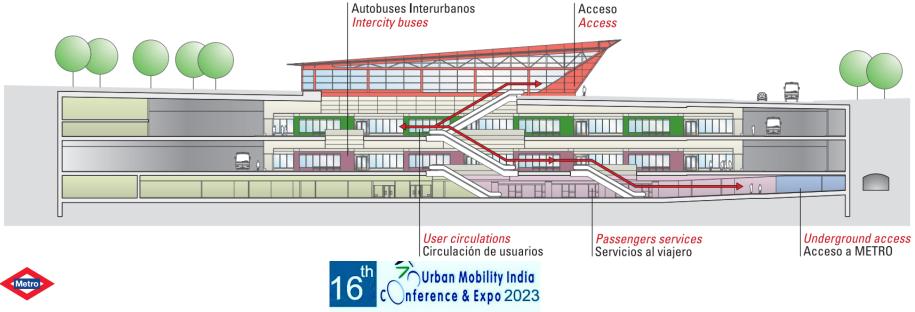




PLAZA ELÍPTICA INTERCHANGE PROJECT



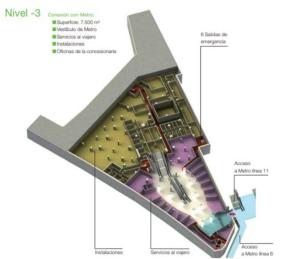






PLAZA ELÍPTICA INTERCHANGE PROJECT NI











PLAZA ELÍPTICA INTERCHANGE CONSTRUCTION



- Perimeter pile screen.
- Main pillars through pile piers.
- Excavation to the lower level of the slab for Level 0.
- Slab for level 0, concrete against the terrain.









PLAZA ELÍPTICA INTERCHANGE STATISTICS



- 126.000 travellers.
- 600 meters of tunnel.
- 30.000 square meters. 20 bus platforms.
- 3 levels

• 2 metro lines.







PLAZA ELÍPTICA INTERCHANGE ELEVATORS



- 4.570.341,51 €
- 22 months
- Underground galleries: 75 mts
- 5 wells with depths of up to 22 meters









PLAZA ELÍPTICA INTERCHANGE ELEVATORS

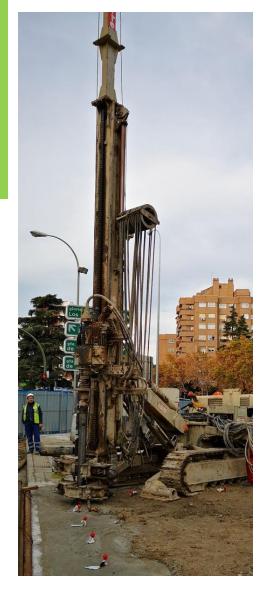
CONSTRUCTIVE PROCESS: WELLS OF ELEVATORS

- Length of micropiles (Φ 150mm and Φ 185mm) executed: 3.558 mts
- Staking and drilling
- Installation of metal armor and injection
- Excavation and execution of lining wall of reinforced concrete.
- Waterproofing of the lining wall
- Installation of the metal support structure for the elevator machinery.
- Execution of roof slab.





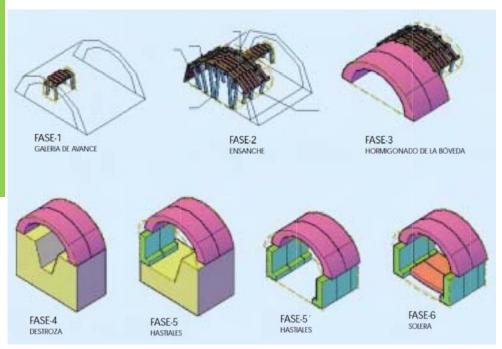






PLAZA ELÍPTICA INTERCHANGE ELEVATORS

CONSTRUCTIVE PROCESS: MADRID METHOD EXCAVATION



- Advance gallery excavation
- Widening excavation
- Concreting the vault
- Benching excavation
- Staged excavation
- Gables
- Execution of inverted vault
- Screed execution











CONCLUSIONS

- Vertical transport facilitates movements between different levels.
- No pedestrian-vehicle conflict → green spaces in the city.
- Distance required to change of mode of transport is really important.
- Thinking about interchange connection in all modes: airports and high speed trains.
- Same designs, same methods of construction with improvements due to experience.

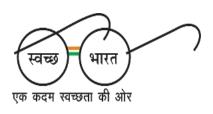












THANK YOU!!



