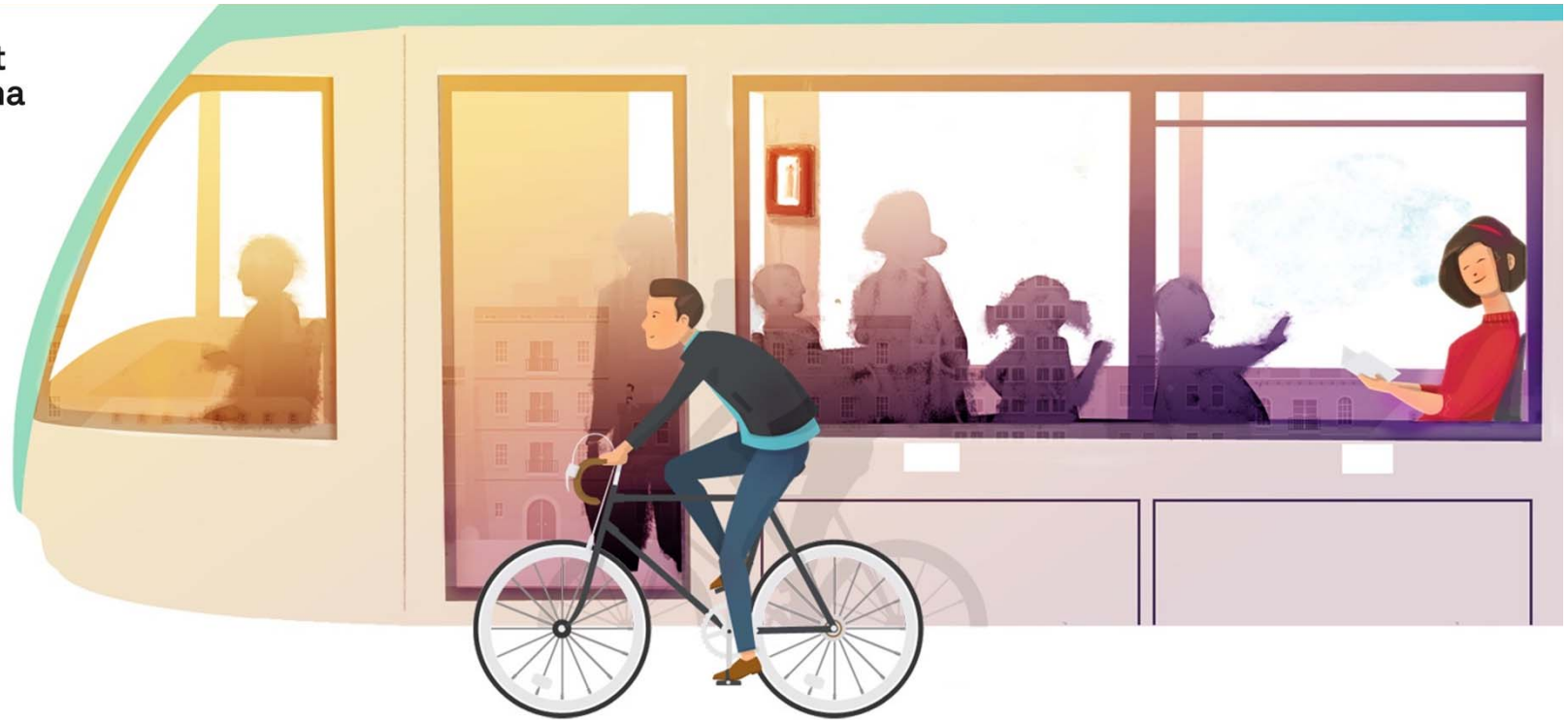




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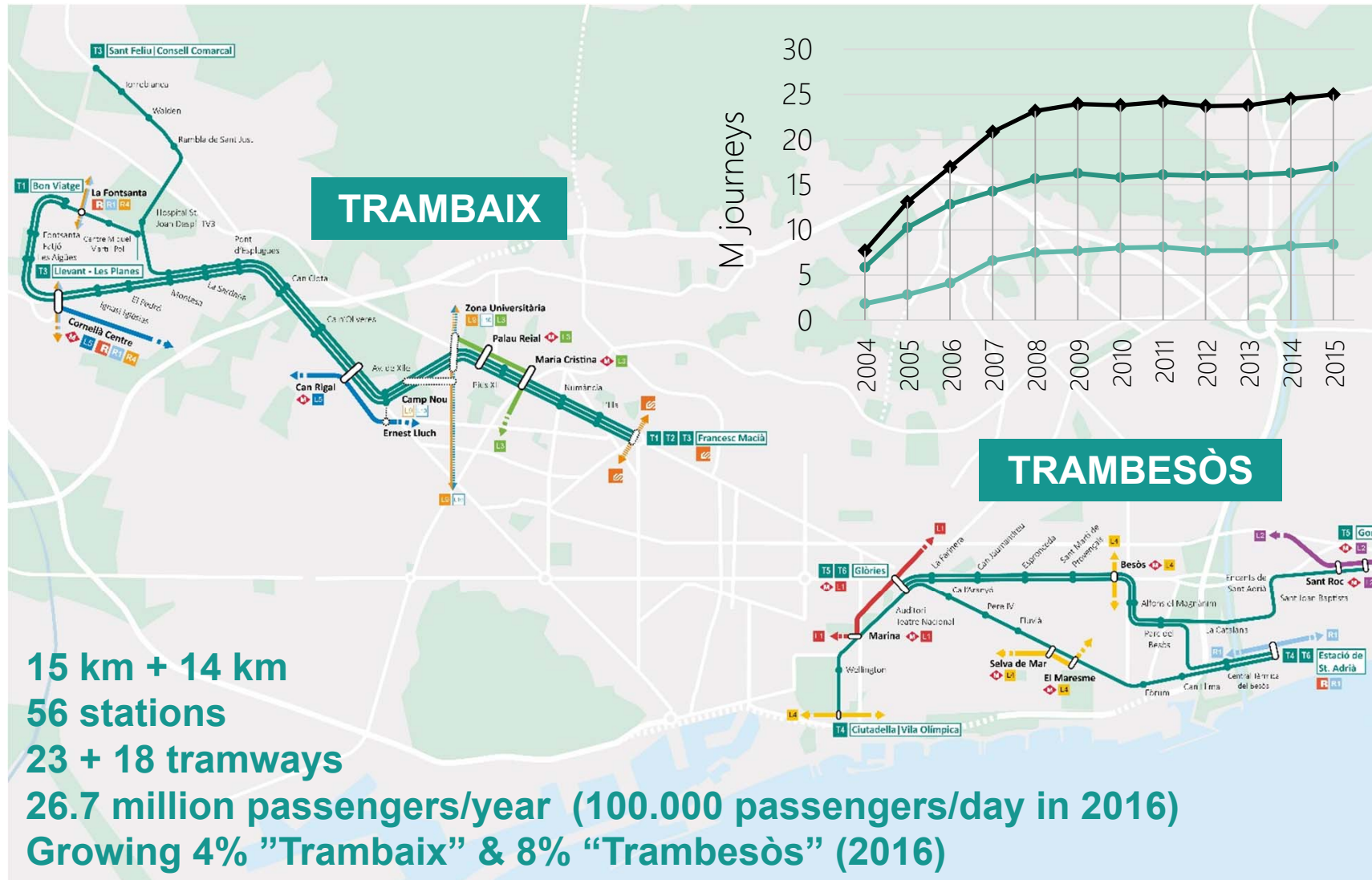
Connecting the Barcelona tramway network

2018 IMPACTS Conference, Tallinn
Thursday 31st May



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The actual Tram Network





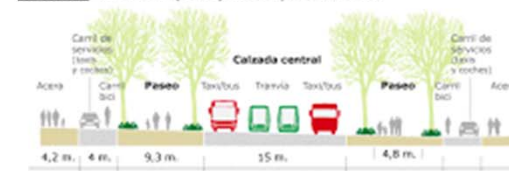
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2010



PROPUESTAS DE PACIFICACIÓN DE LA DIAGONAL (diseño Francisco Macià-Sardanyà)

OPCIÓN A Un bulvar que se parece al paseo de Gracia



OPCIÓN B Una rambla que se basa en la distribución del tramo Glòries/Fòrum



Proposta A - el nou bullevard de Barcelona



Proposta B - la nova rambla de Barcelona





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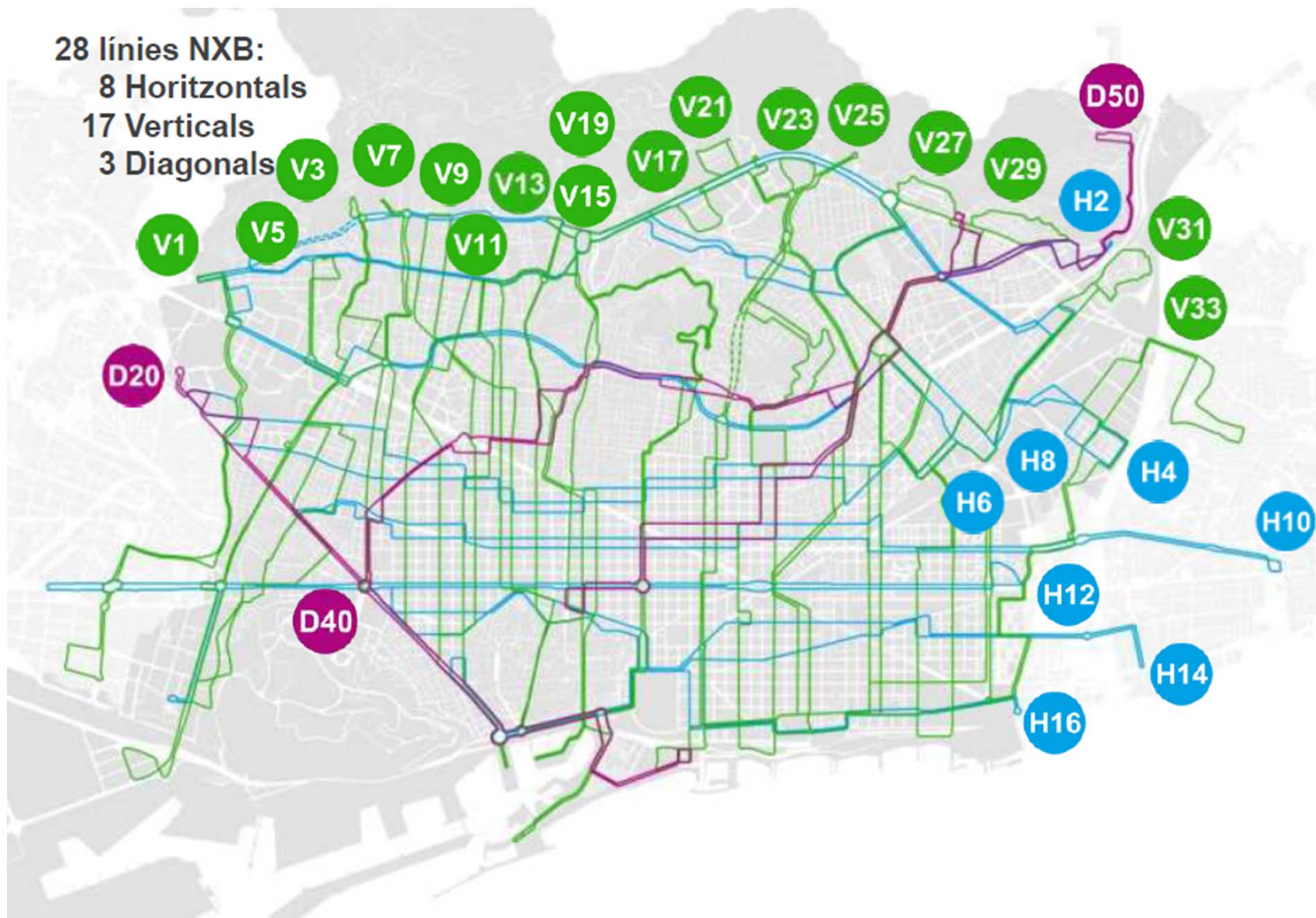
2012 – 2018

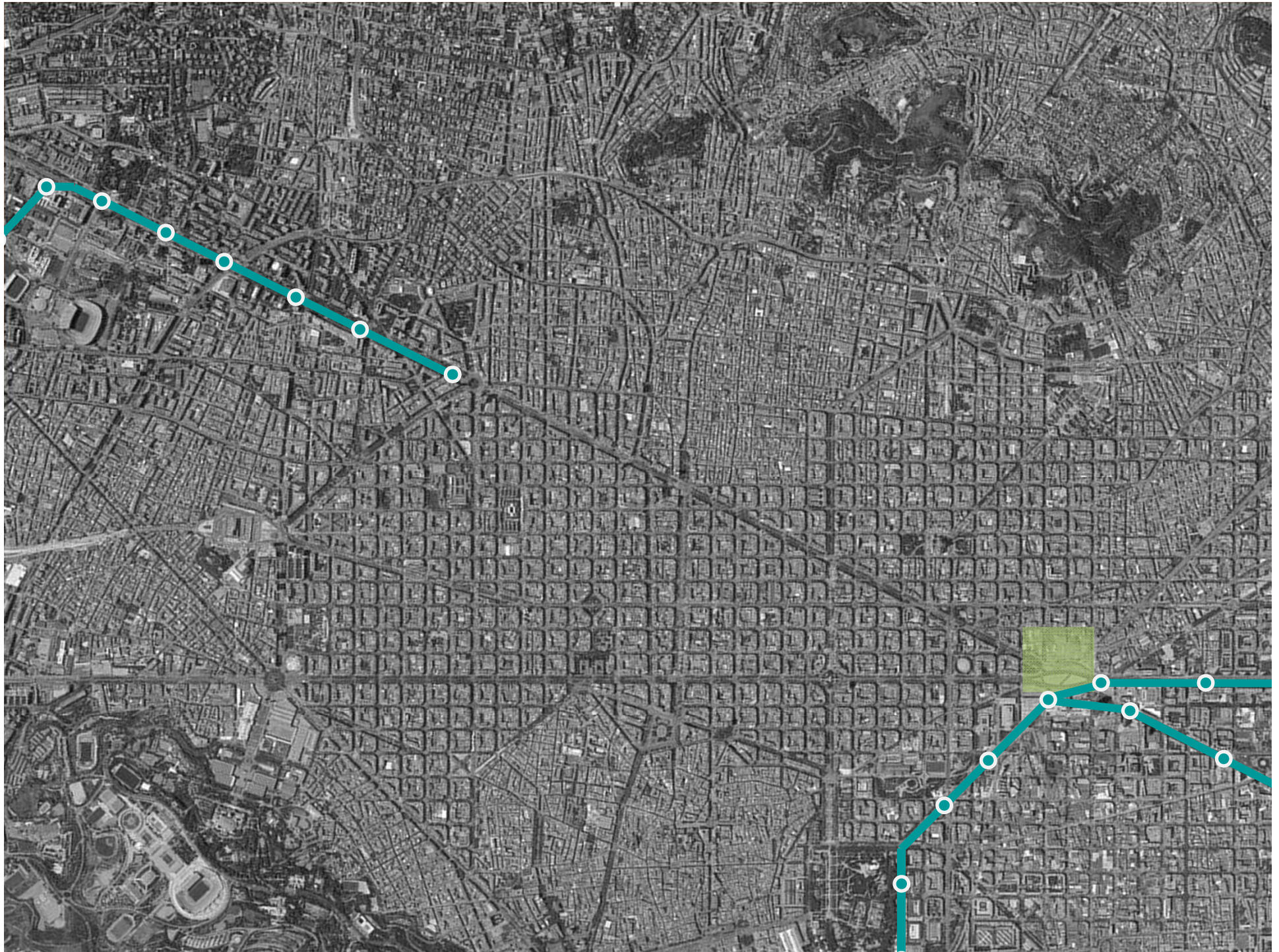
28 línies NXB:

8 Horizontals

17 Verticals

3 Diagonals

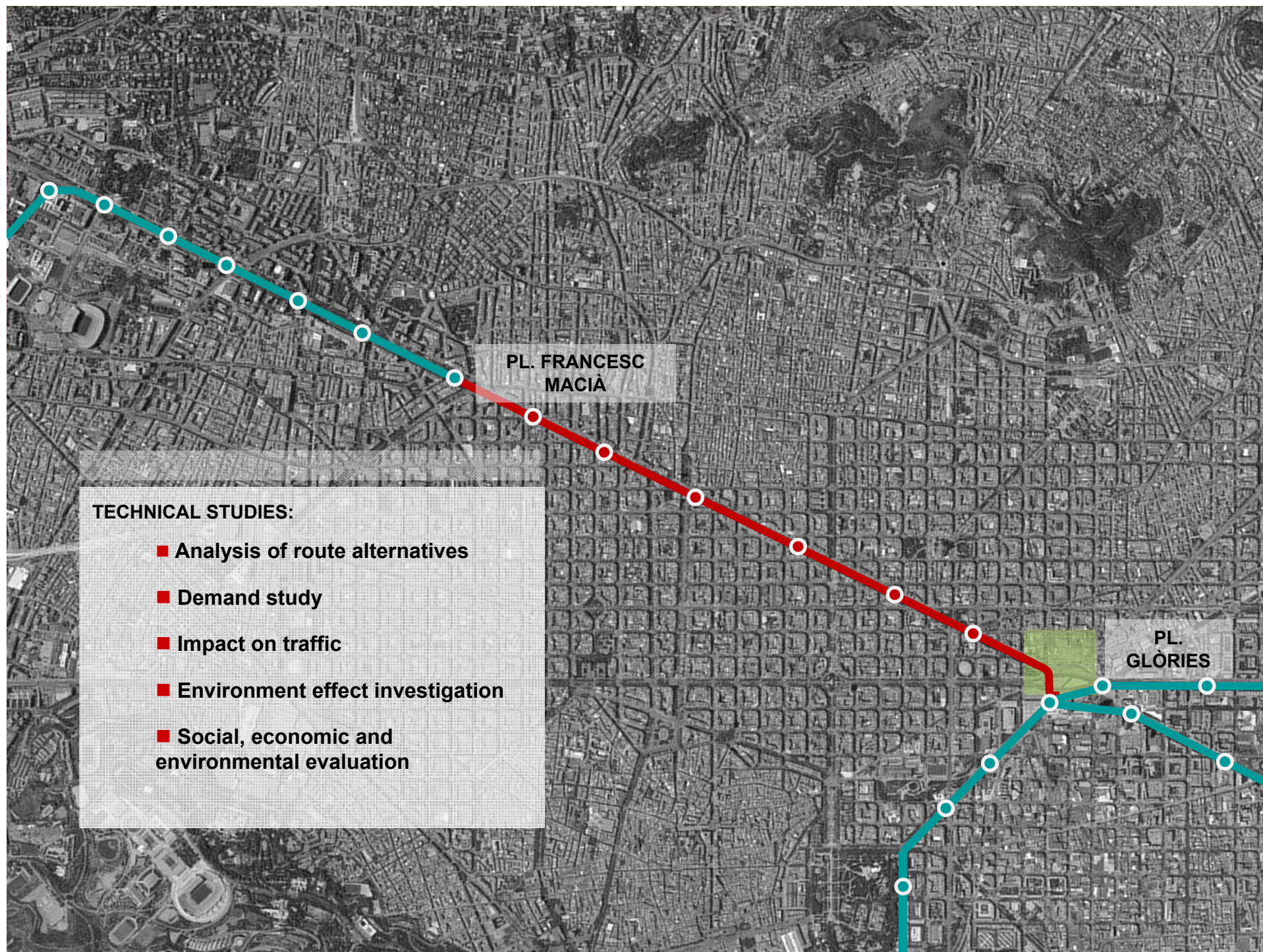






PL. FRANCESC
MACIÀ

PL.
GLÒRIES



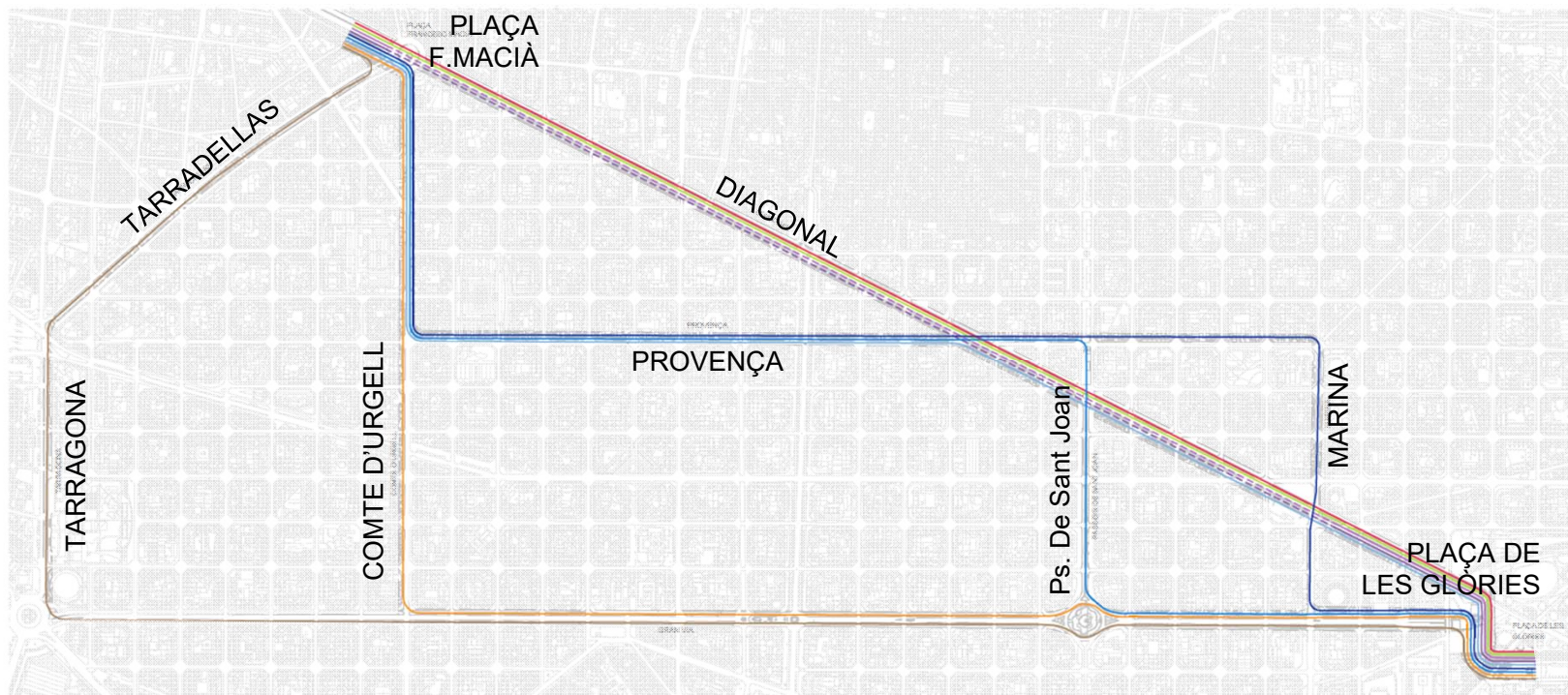


THREE BASIC QÜESTIONS TO ANSWER:

- **Is this connection necessary?**
- **Which is the best transport mode to do it?**
- **And, which is the best path?**



ROUTE ALTERNATIVES



Alternative 1: Diagonal tramway

Alternative 2: Underground Diagonal tramway

Alternative 3: Eixample streets tramway

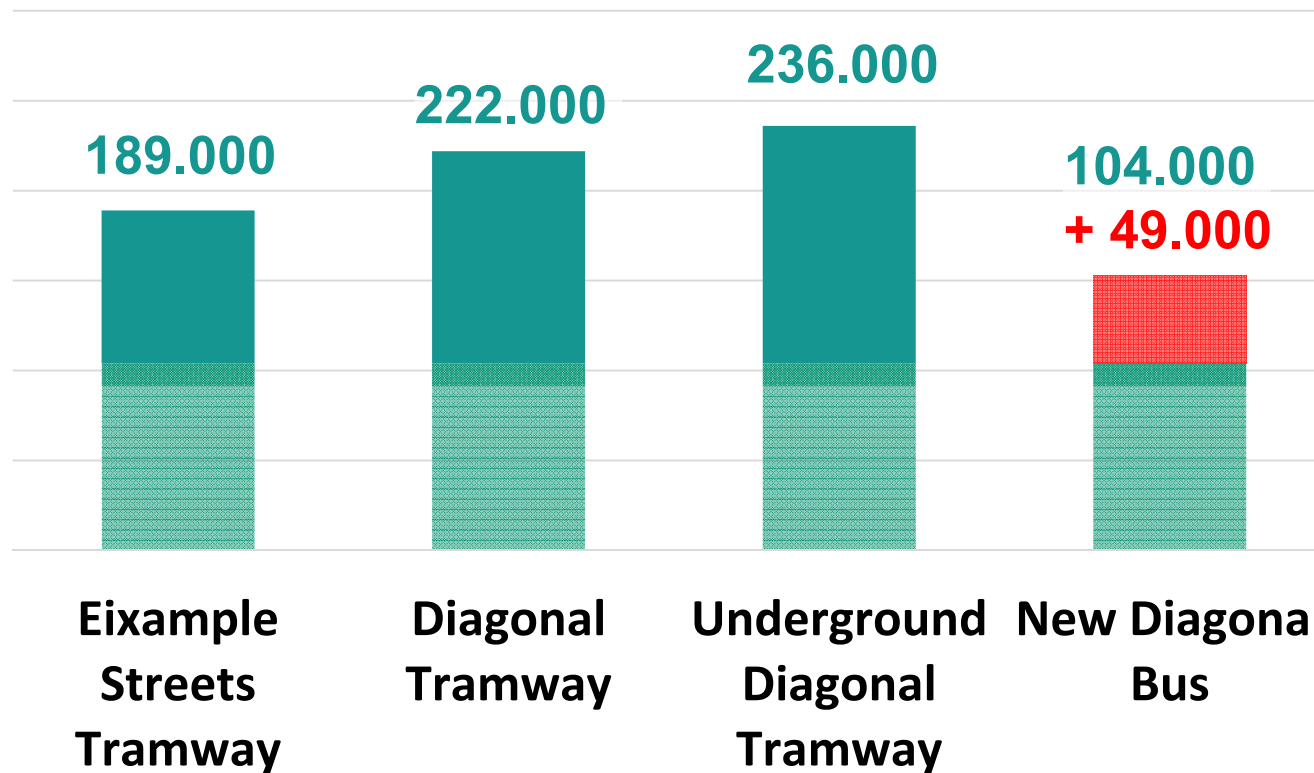
Alternative 4: New electric bus



DEMAND STUDIES

Captured the first 3 years after entering into service

- The connection between two tramway networks **doubles the user's demand**.
- Scenario of connecting tramway network by Diagonal Av captures **222,000 pax/day**.
- Scenario with tunnel captures more passengers, the demand is close to **236,000 passengers**.

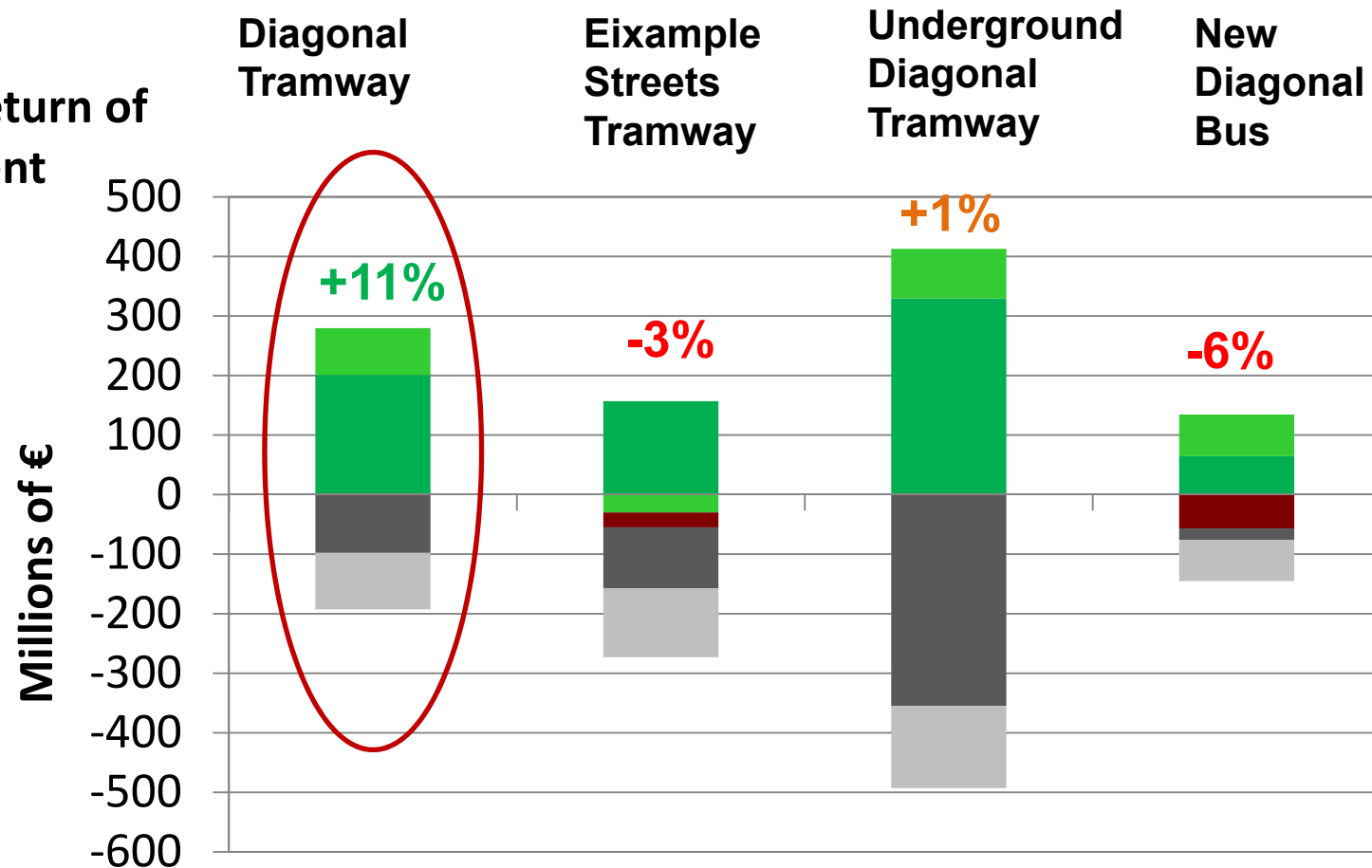




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SOCIAL, ENVIRONMENTAL AND ECONOMIC EVALUATION

The Social Return of the Investment

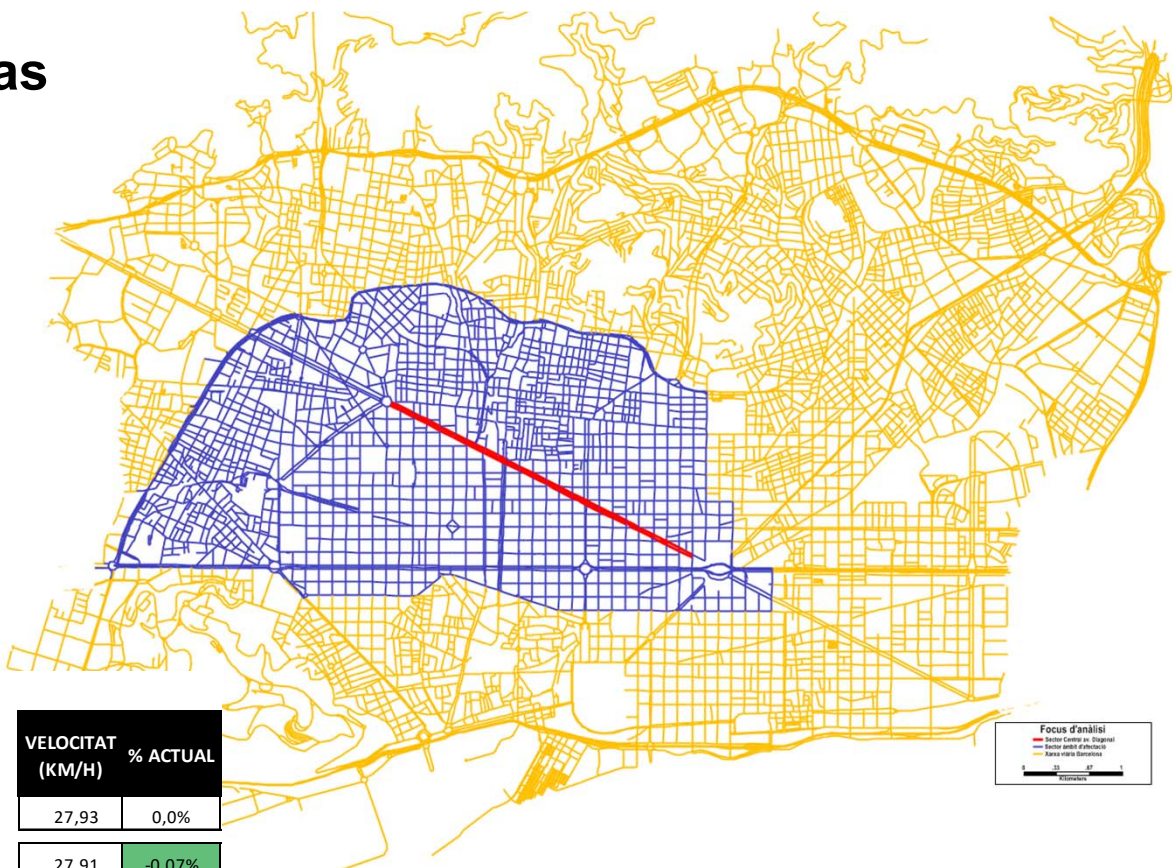


- Cost de manteniment i explotació del projecte
- Inversions del projecte (infraestructura, material mòbil, cotxeres)
- Cost de l'increment de congestió del trànsit
- Balanç de la reestructuració d'autobusos associada al projecte
- Estalvis de temps dels usuaris del transport públic



IMPACT ON TRAFFIC

Simulation areas



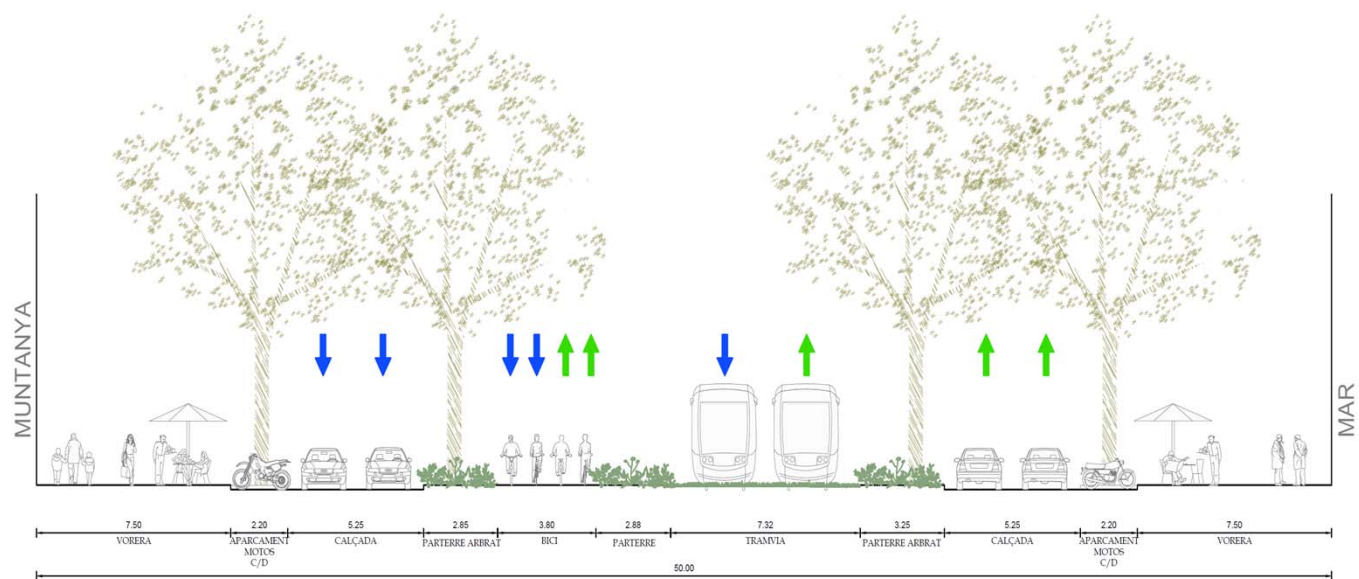
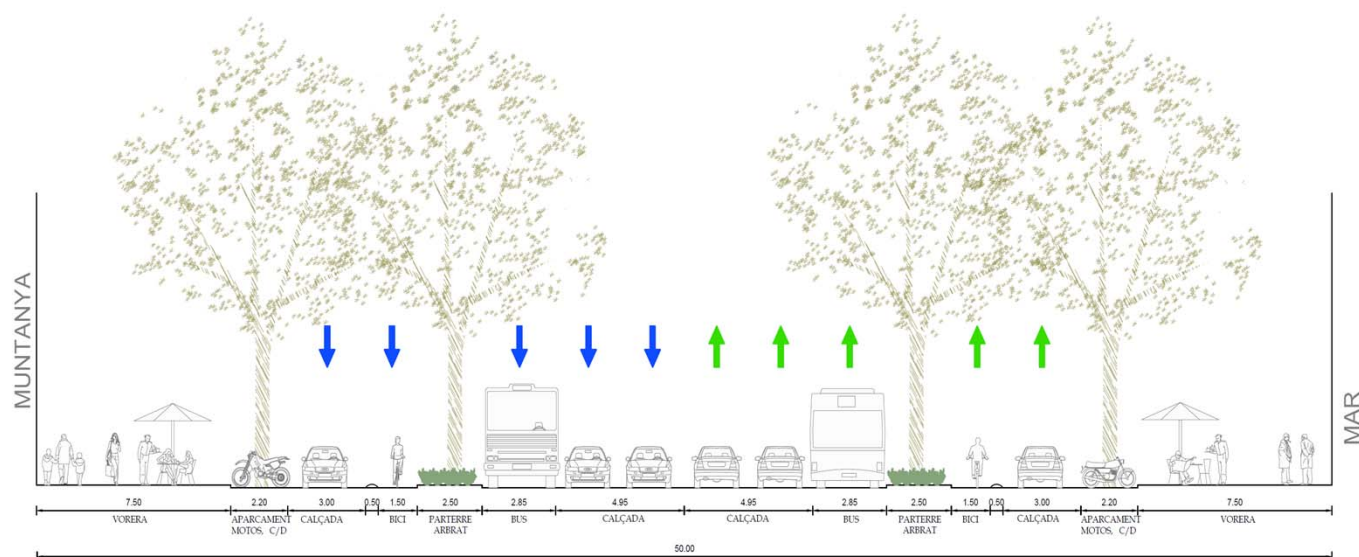
VEH x KM: CENTRE				
ESCENARI	TOTALS	LOS F	% LOS F	% veh x km LOS F respecteACTUAL
0	4.208.382	91.631	2,2%	0,0%
0'	4.195.123	124.072	3,0%	35,4%
1	4.240.650	98.186	2,3%	7,2%
2	4.241.707	99.240	2,3%	8,3%
3	4.245.984	99.407	2,3%	8,5%
4	4.246.784	91.454	2,2%	-0,2%
5	4.234.875	111.268	2,6%	21,4%
6	4.237.375	106.261	2,5%	16,0%
7	4.226.313	95.026	2,2%	3,7%

VELOCITAT (KM/H)	% ACTUAL
27,93	0,0%
27,91	-0,07%
27,76	-0,61%
27,72	-0,75%
27,72	-0,75%
27,72	-0,75%
27,58	-1,25%
27,87	-0,23%
27,70	-0,82%

LOS LEVEL OF SERVICE

DIAGONAL'S TRAMWAY







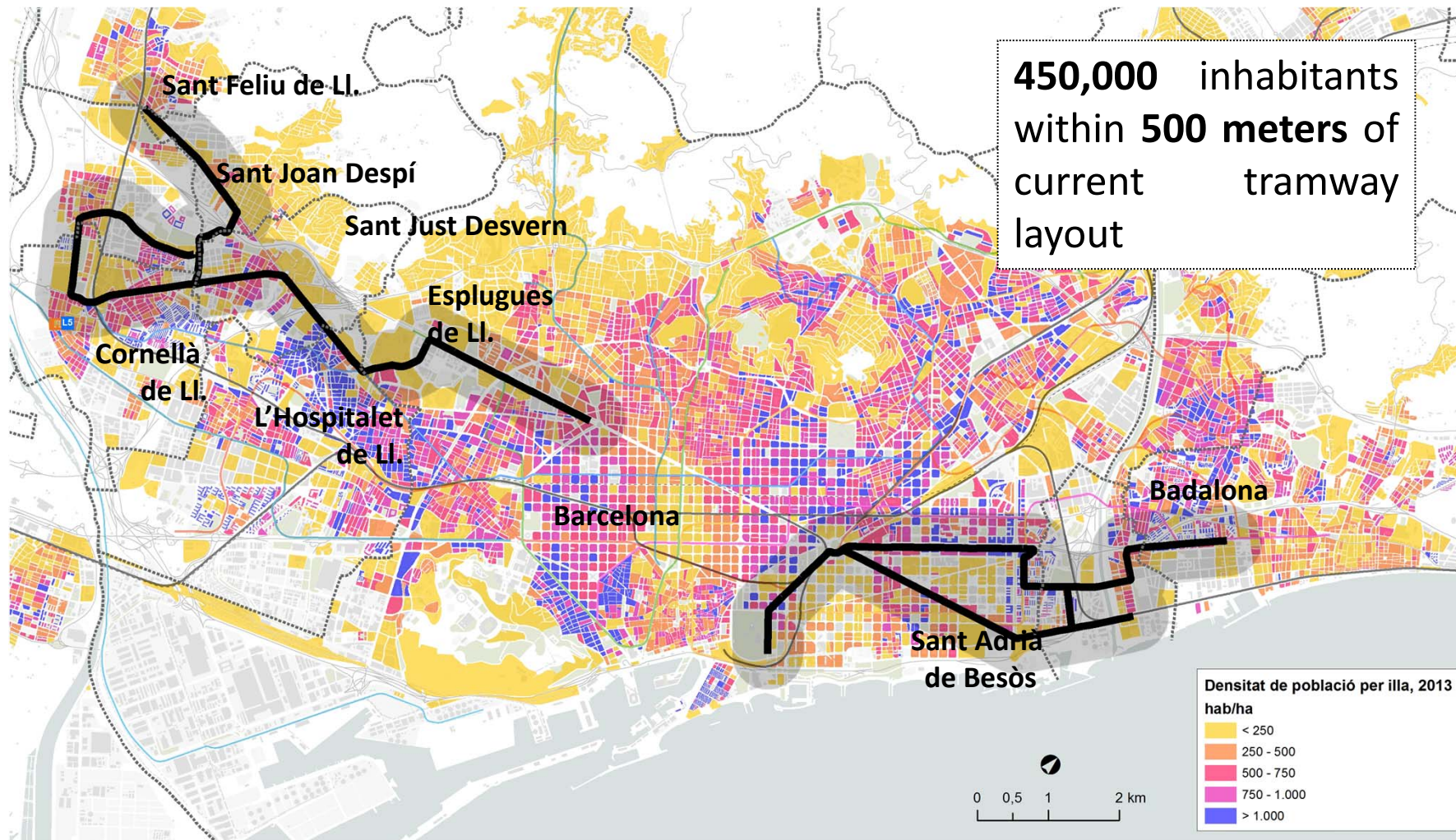
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DIAGONAL'S TRAMWAY Objectives

- Increase the **competitiveness, comfort and quality** of **public transport**, making it more attractive.
- Increase the **quality and healthiness** of **urban spaces**.
- Promote **modal split**. Reduce the weight of private vehicle inside Barcelona.
- Reduce **travel time**. Attract the maximum possible demand.
- Increase the **connections** with the rest of public transport.
- Improve the connection of public transport in the **Metropolitan Area**.

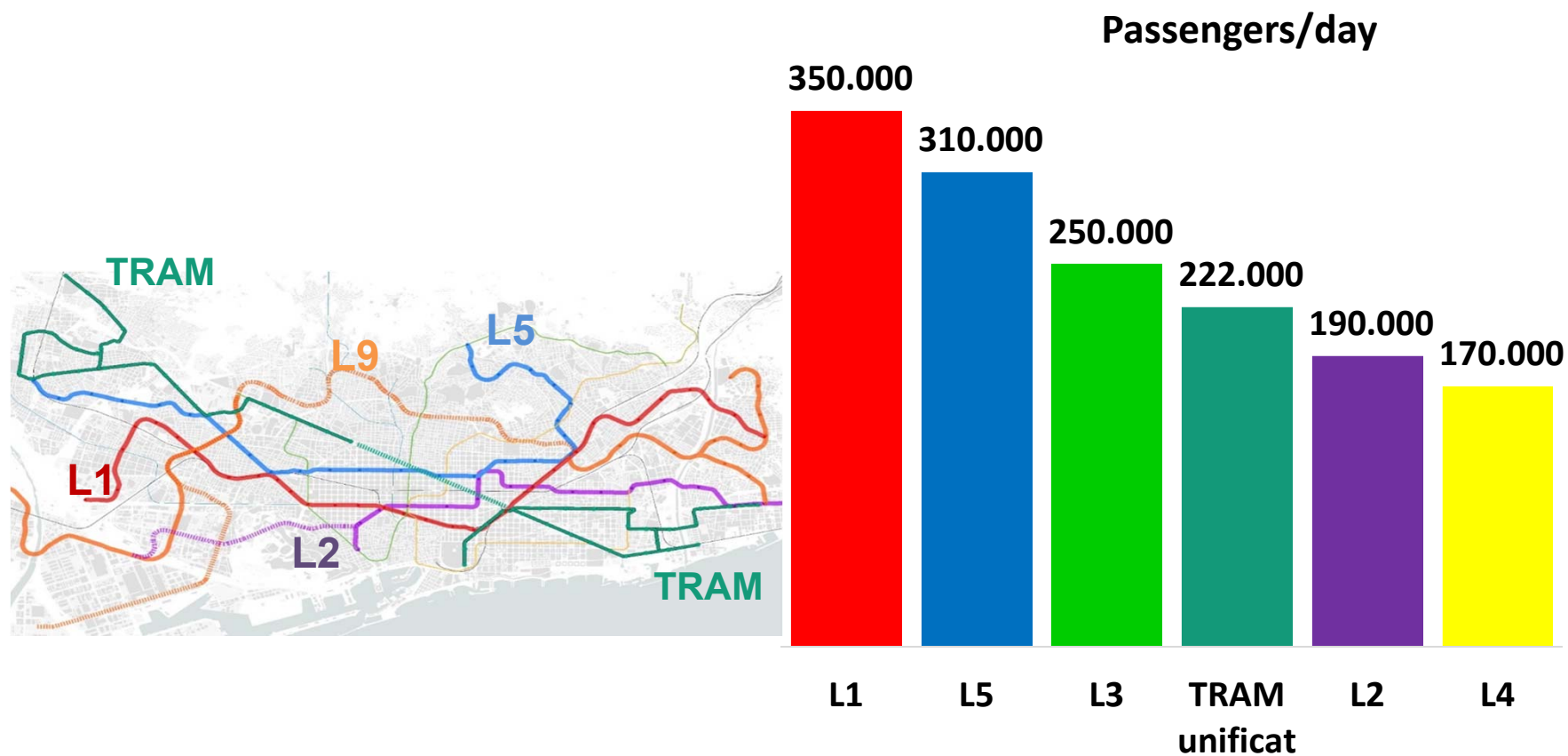
METROPOLITAN SCOPE

9 metropolitan municipalities



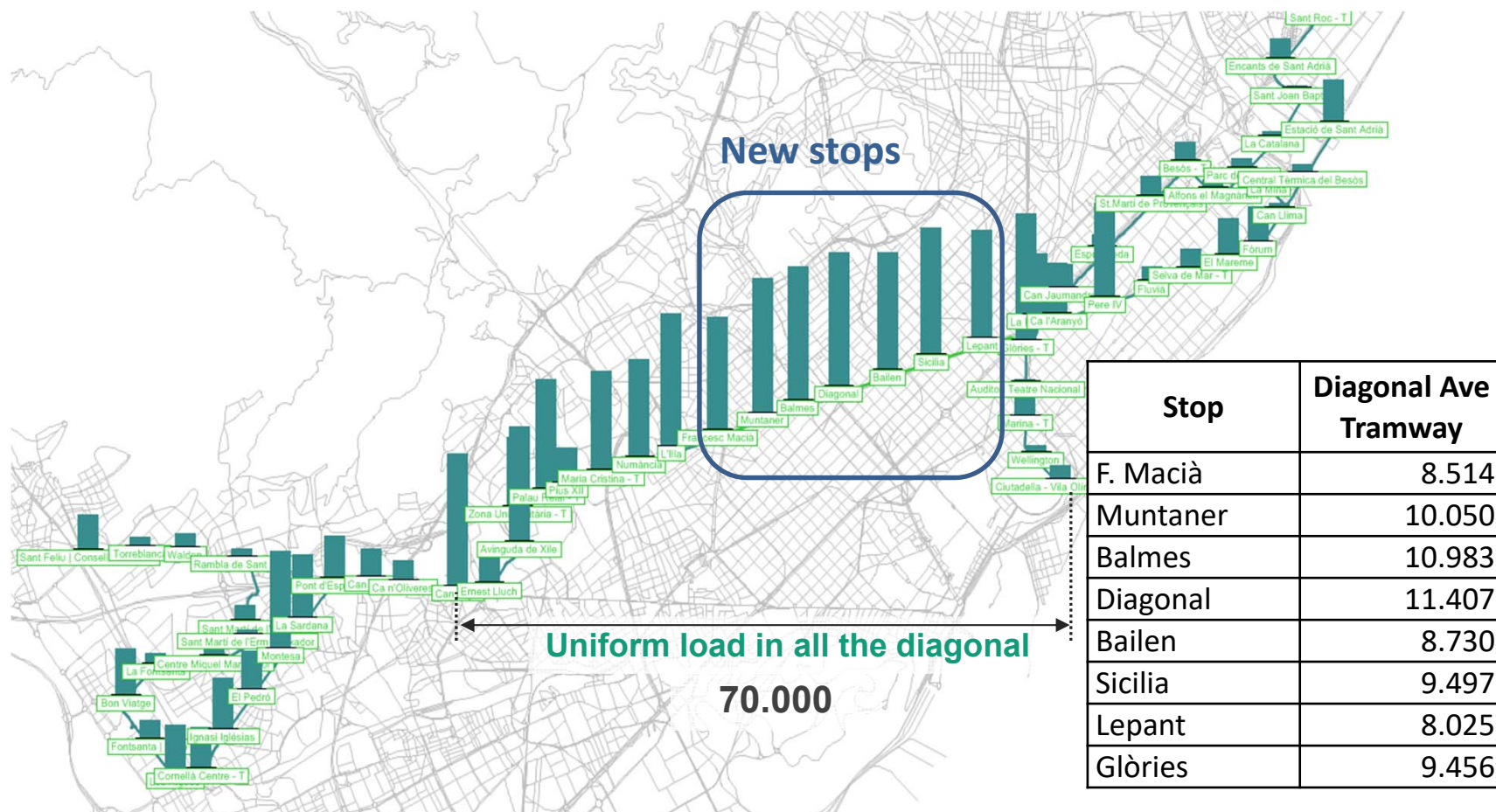
DIAGONAL AVE TRAMWAY DEMAND

Estimated demand of **222,000 passengers**, comparable to a metro line.



DEMAND PER STOP

Average demand per stop up to **10,000 commuters/day** in the central section



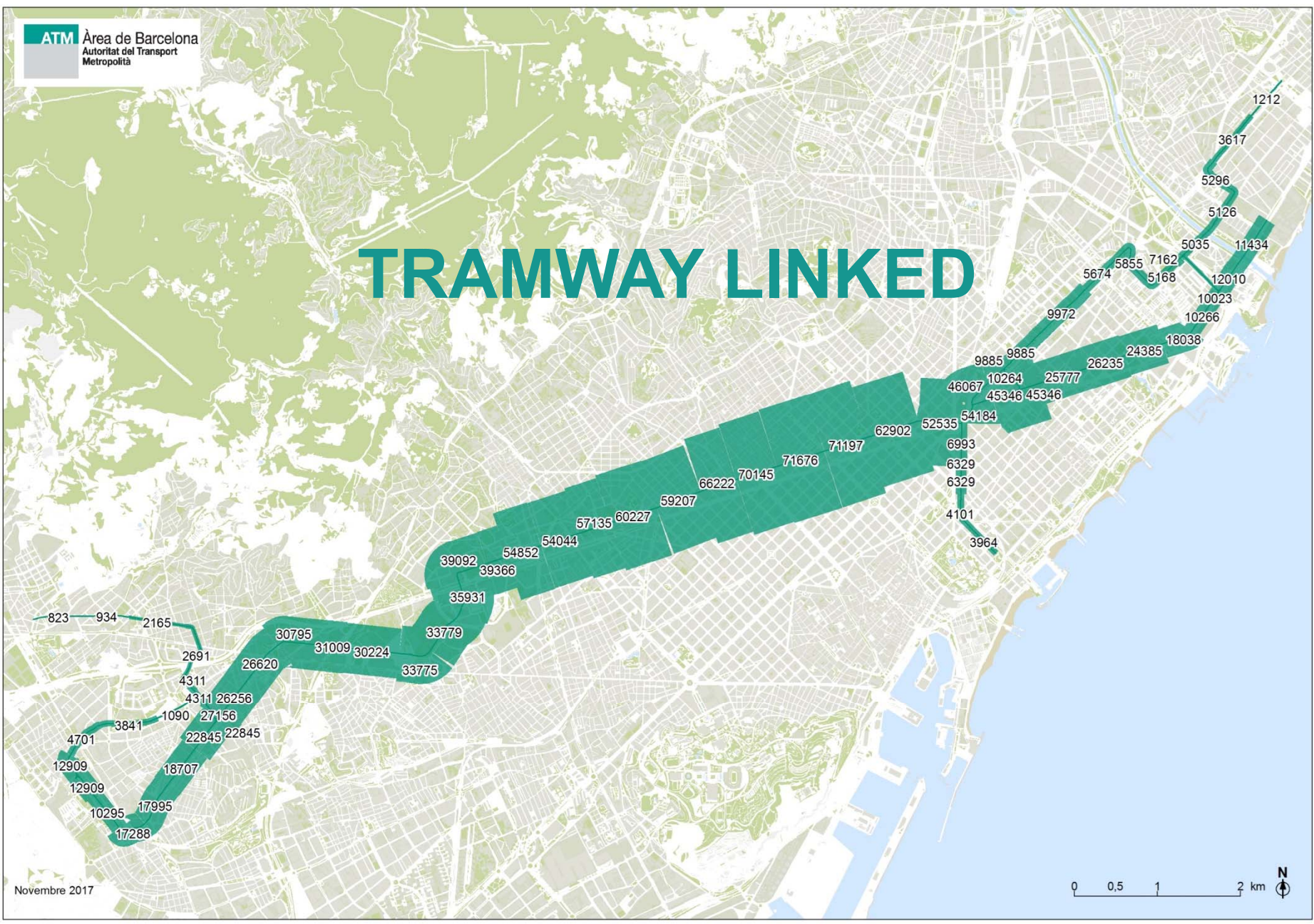
TRAMBAIX

TRAMBESÒS

Novembre 2017

0 0,5 1 2 km N

TRAMWAY LINKED



NEW DEMAND: 60 million per year (2021?..)

OLD DEMAND: 27 million per year (2016)



BCN Airport: 44 million per year (2016)



PEDESTRIANS



- **Enlargement of sidewalks**
- **Reduction of the roadway to be crossed**
- **Removal of bike lanes on sidewalks**
- **Provided traffic lights allow pedestrians to cross every crossroad adequately**



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BICYCLES



- **Creation of a separated bike lane, with more security and comfort**
- **Extension of the city bike lane network. Generation of new connection nodes**
- **It is estimated that each rider can win 5 minutes on the route of the new urbanized section**



PUBLIC TRANSPORT

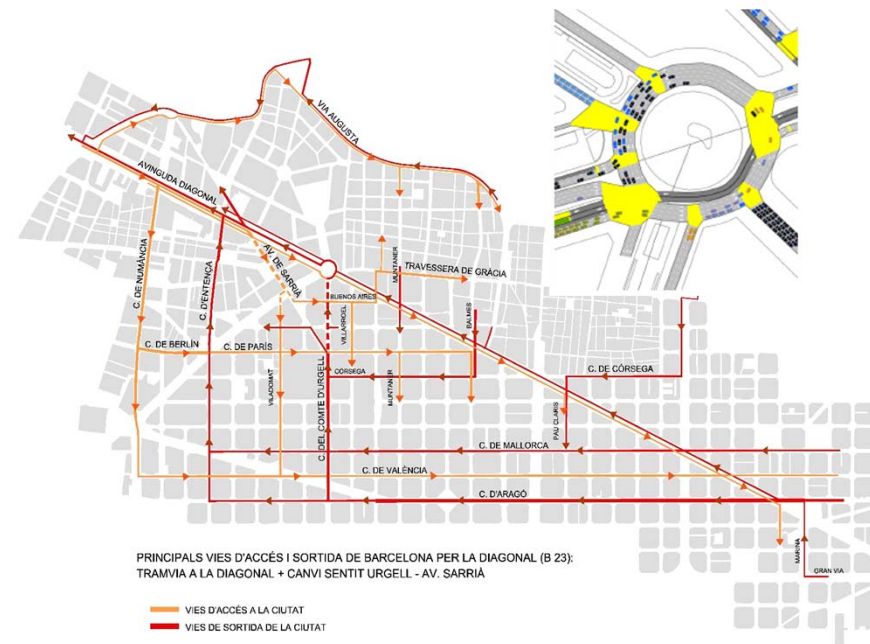


- Possibility to travel along the entire avenue
- Highest transport capacity
- Impact of traffic jams minimized
- Diagonal corridor becomes a public transport axis with important benefits: regularity and frequency
- Network effect
- Adjustment of bus lines to new configuration

PRIVATE VEHICLES



- **Some street management changes are needed in the surrounding streets to minimize the impact on traffic**
- **Traffic lights optimization allow to reduce queues**



CURRENT SITUATION

Two public administrations commitment:

ATM (Metropolitan Transport Authority) – Railway project

Barcelona Municipality – Urbanization project

✓ Project done

✗ Pending political agreement for execution





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Thank you!

B

C

