



EUREKATHON
Challenging Data for Sustainable Cities
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SCALING MICRO-MOBILITY TO MEET CITIZEN DEMAND IN MATOSINHOS



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MARTA
BESCANSÀ



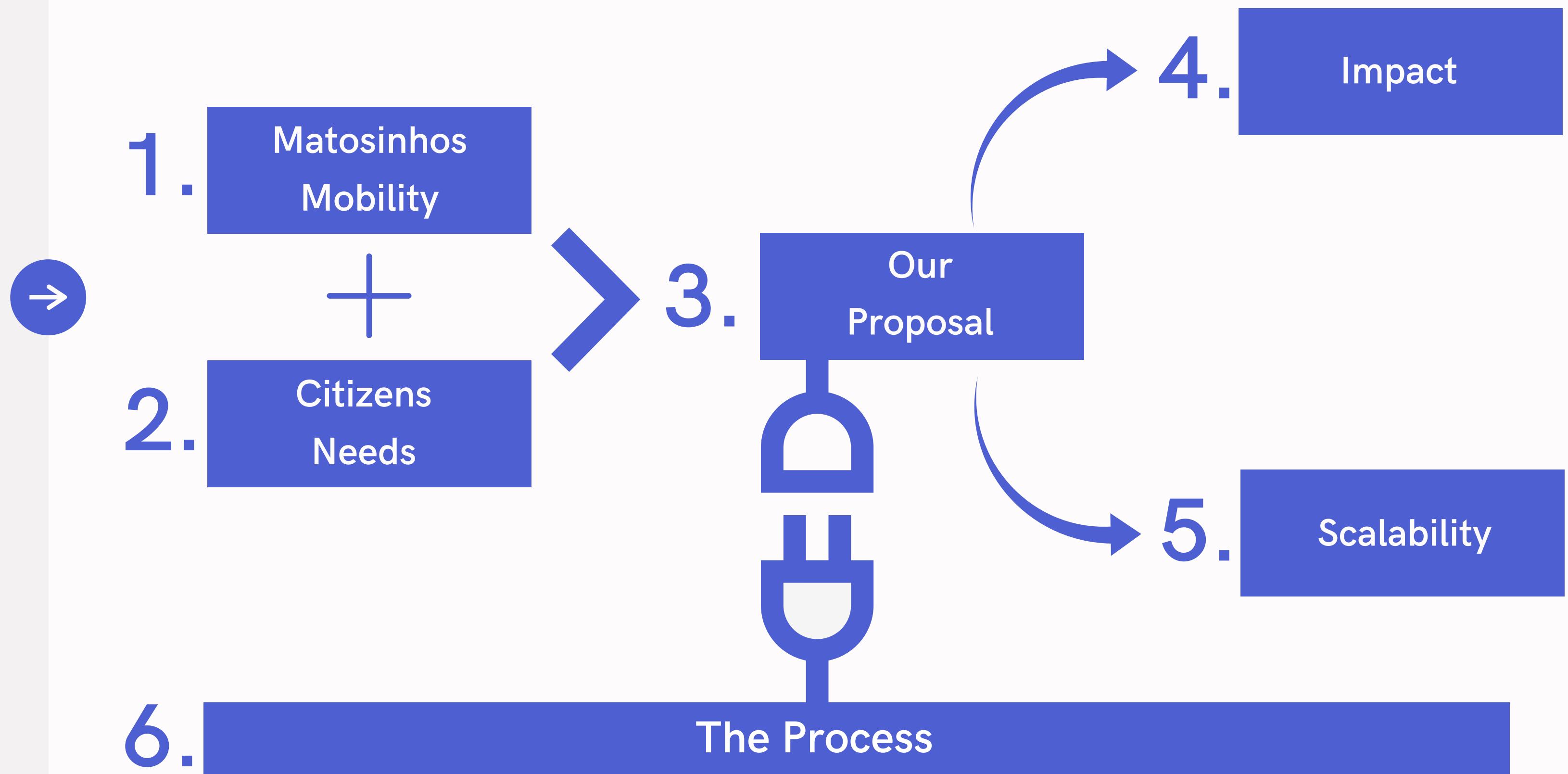
DESH
DEEPAK



ELENA
SALGUEIRO



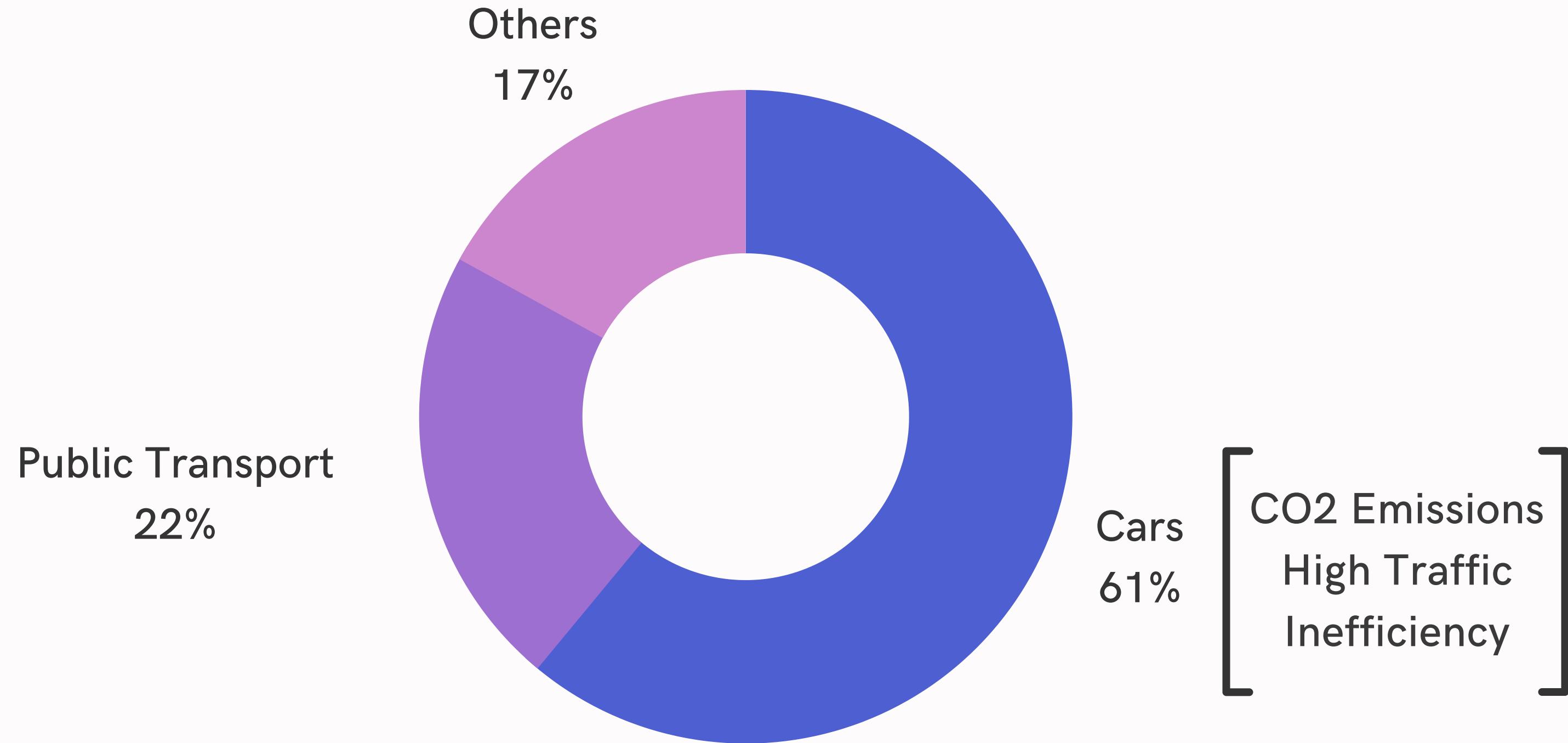
Executive Summary





Mobility profile of Matosinhos

*



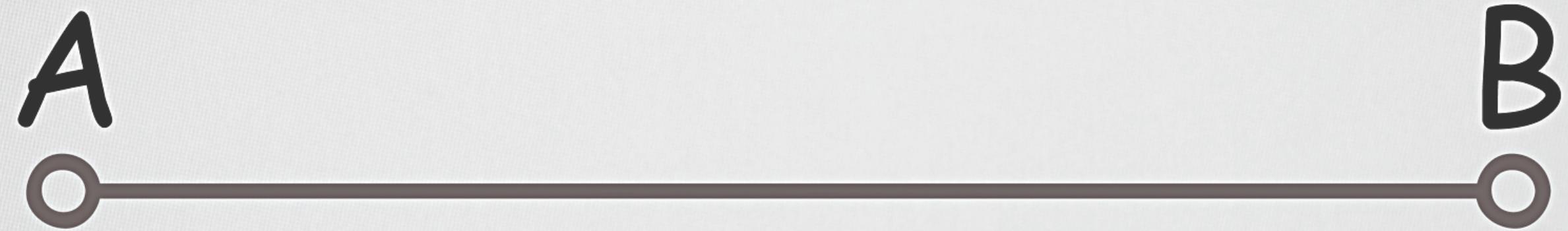
*Plano de Mobilidade e Transportes de Matosinhos (2018)



*
**11 million
trips**



*NOS.mobility_flows: trips over 4 months in 2019



90% < 3,25km





Mobility profile of Matosinhos

Micro-mobility

1.5% of short trips





Mobility profile of Matosinhos

Micro-mobility

1.5% of short trips



Offset =
21 tonnes CO2





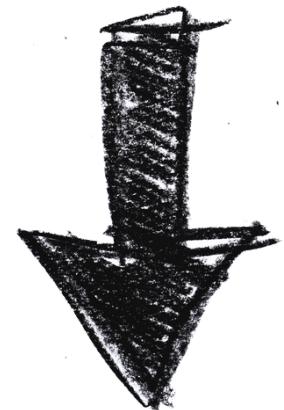
Mobility profile of Matosinhos

What if we could scale this up?



Mobility profile of Matosinhos

What if we could scale this up?



**Need for a targeted implementation of
micromobility infrastructure**



Citizens Needs



Catarina

26 years old
Santa Cruz do Bispo
Student
Commute by bus
+ 35 min walk



Diogo & Rita

42 years old
Senhora da Hora
Employed
Commute by car



David

17 years old
Leça da Palmeira
High school student
Car with parents

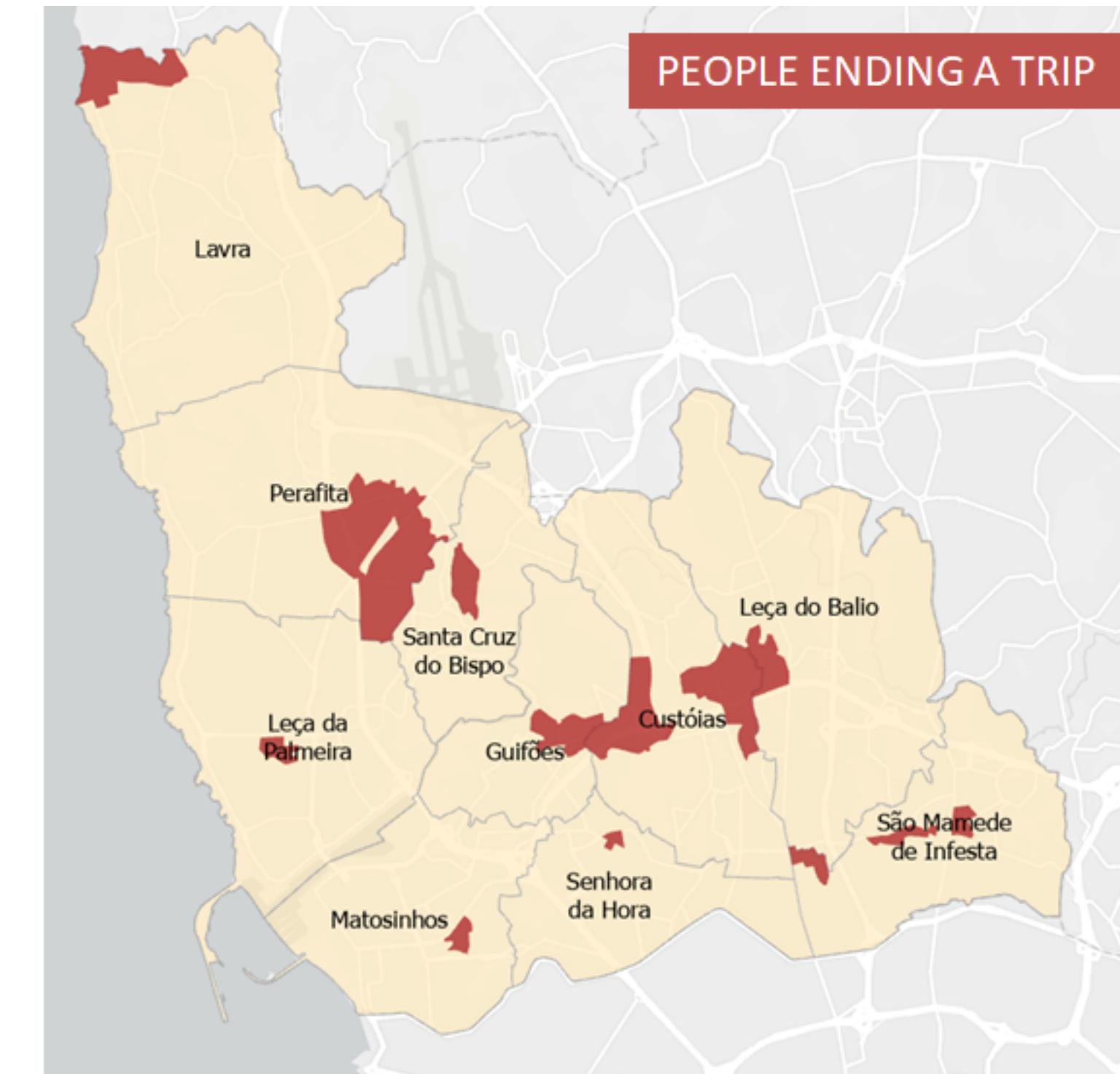
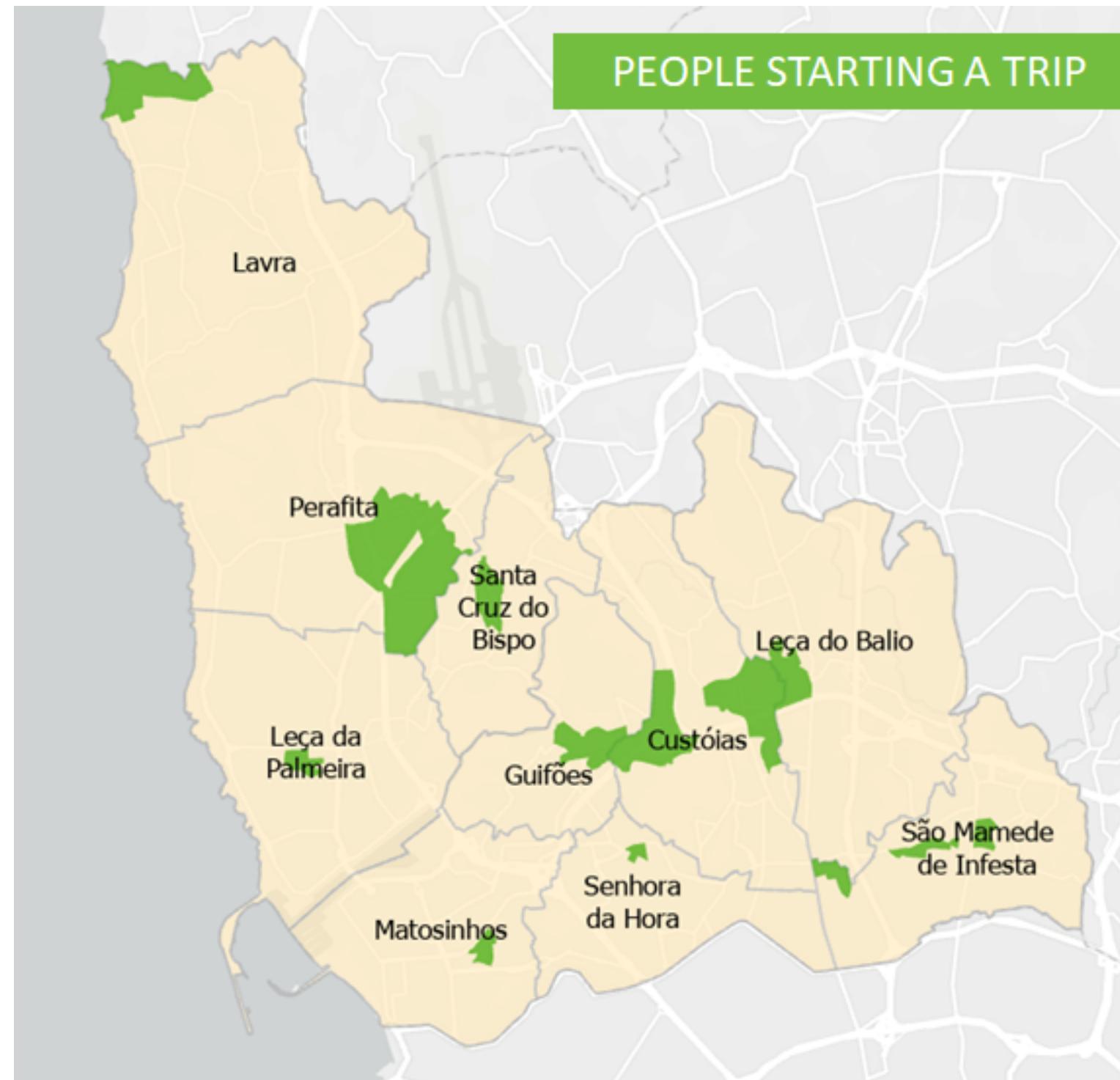


Our proposal

**Identify areas of Matosinhos
with the highest potential demand
for micro-mobility**

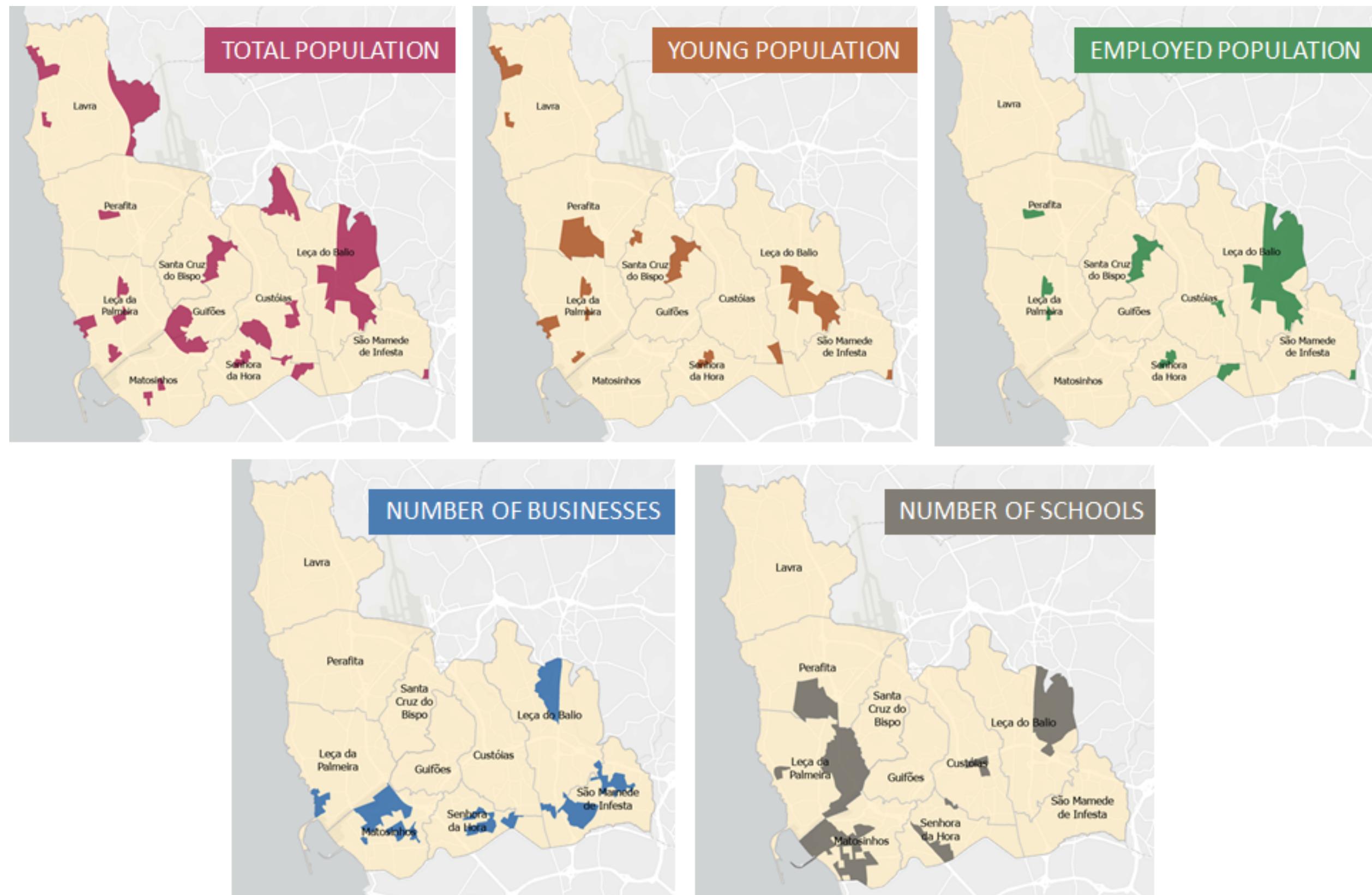


Start and End Points



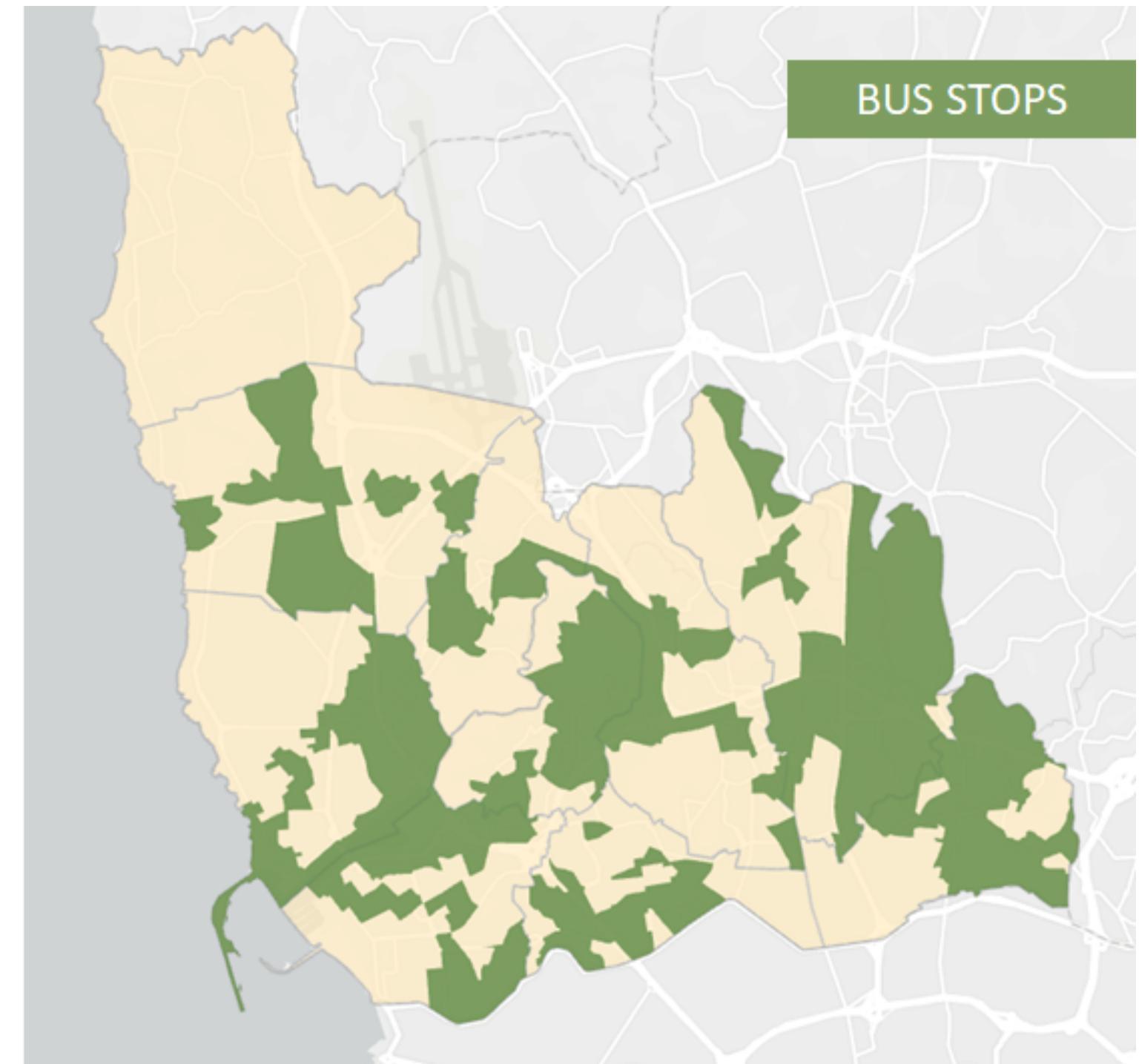
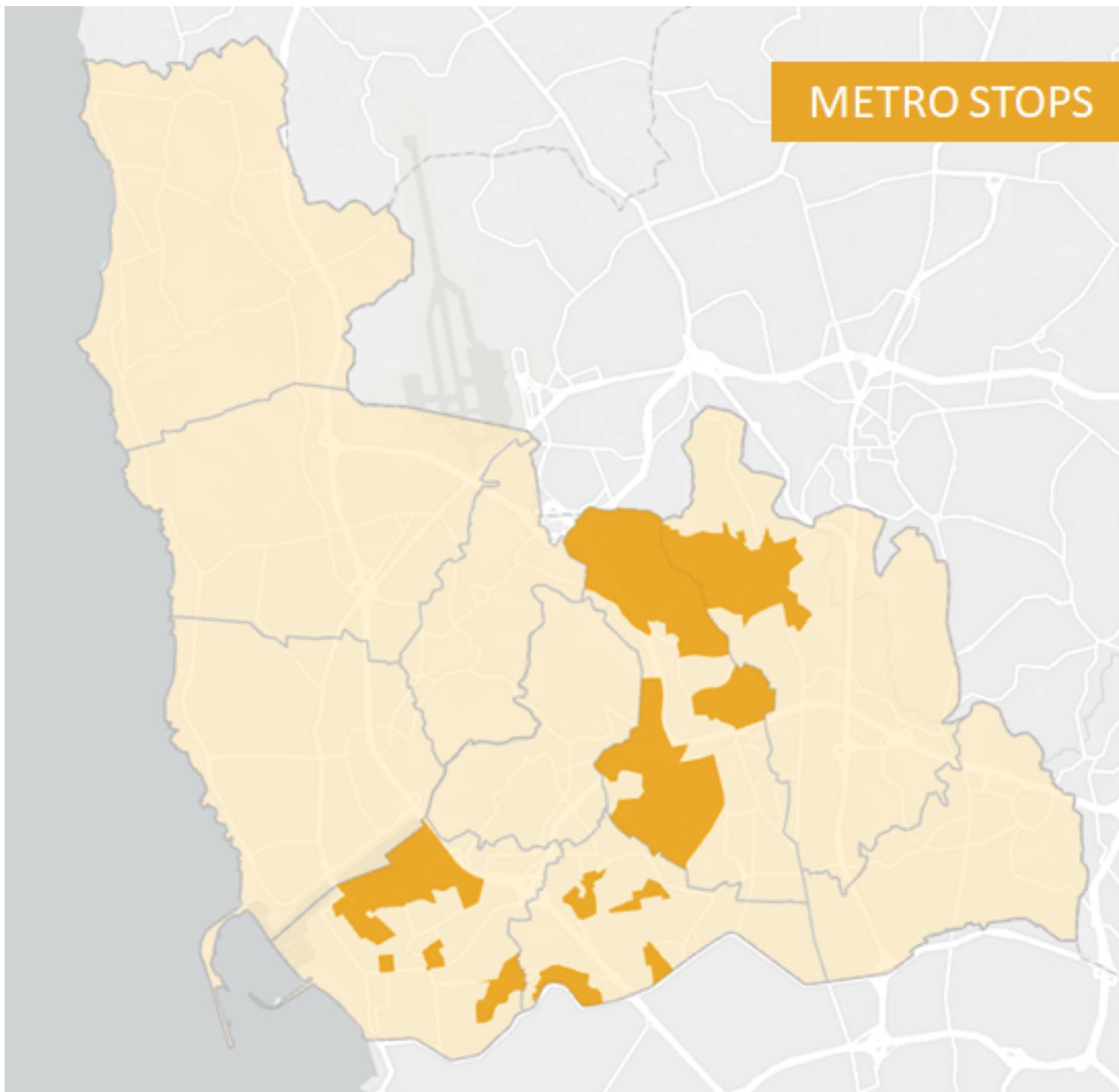


Socioeconomic aspects



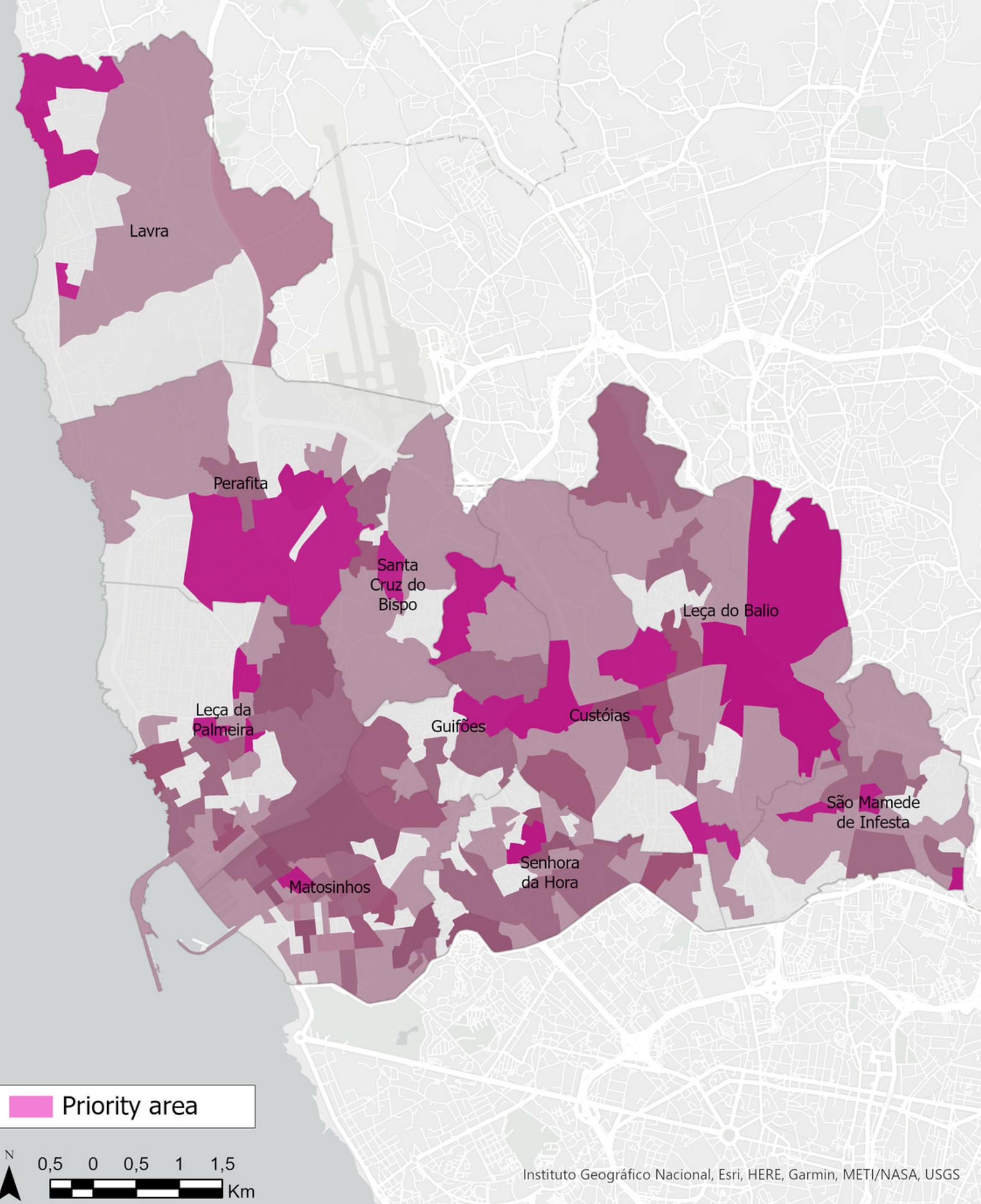


Public mobility infrastructure





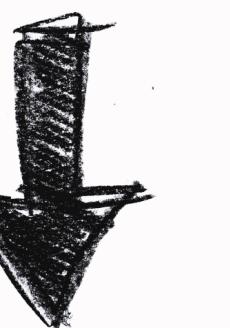
Priority Intervention Areas





Priority Intervention Areas

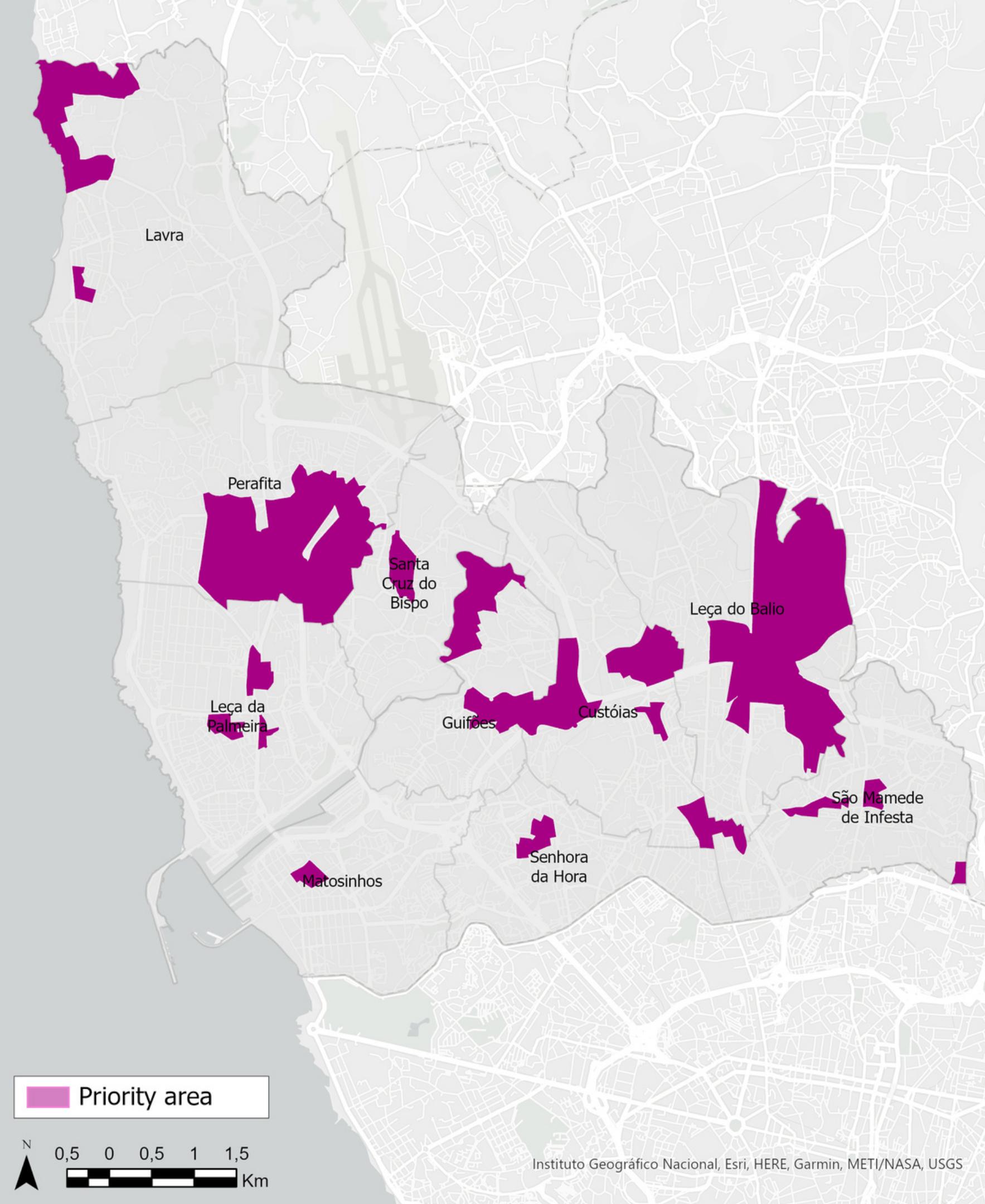
All freguesias register areas with high potential demand



Number of short trips

1.949.074

10% = 16.4 tonnes CO₂





Classification of Intervention Areas

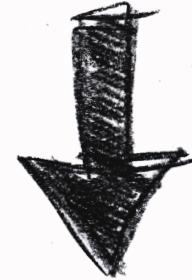
Cluster identification with unsupervised machine learning (KNN)

FEATURES

- Number of people starting a short trip
- Number of people ending a short trip
- Total population
- Employed population
- Young population
- Number of schools
- Number of businesses
- Number of bus stops
- Number of metro stops

Correlation analysis

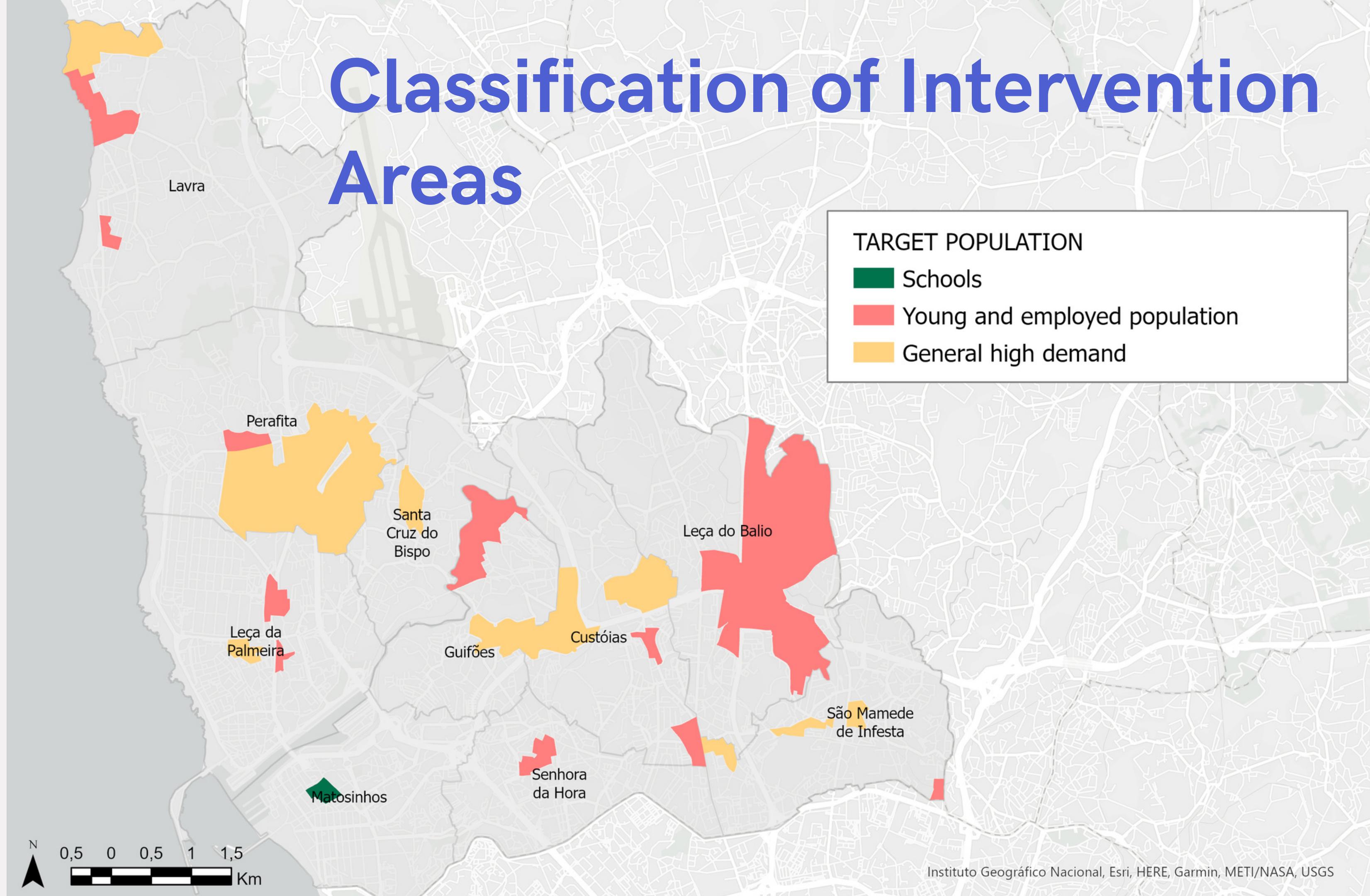
Main statistics in each cluster



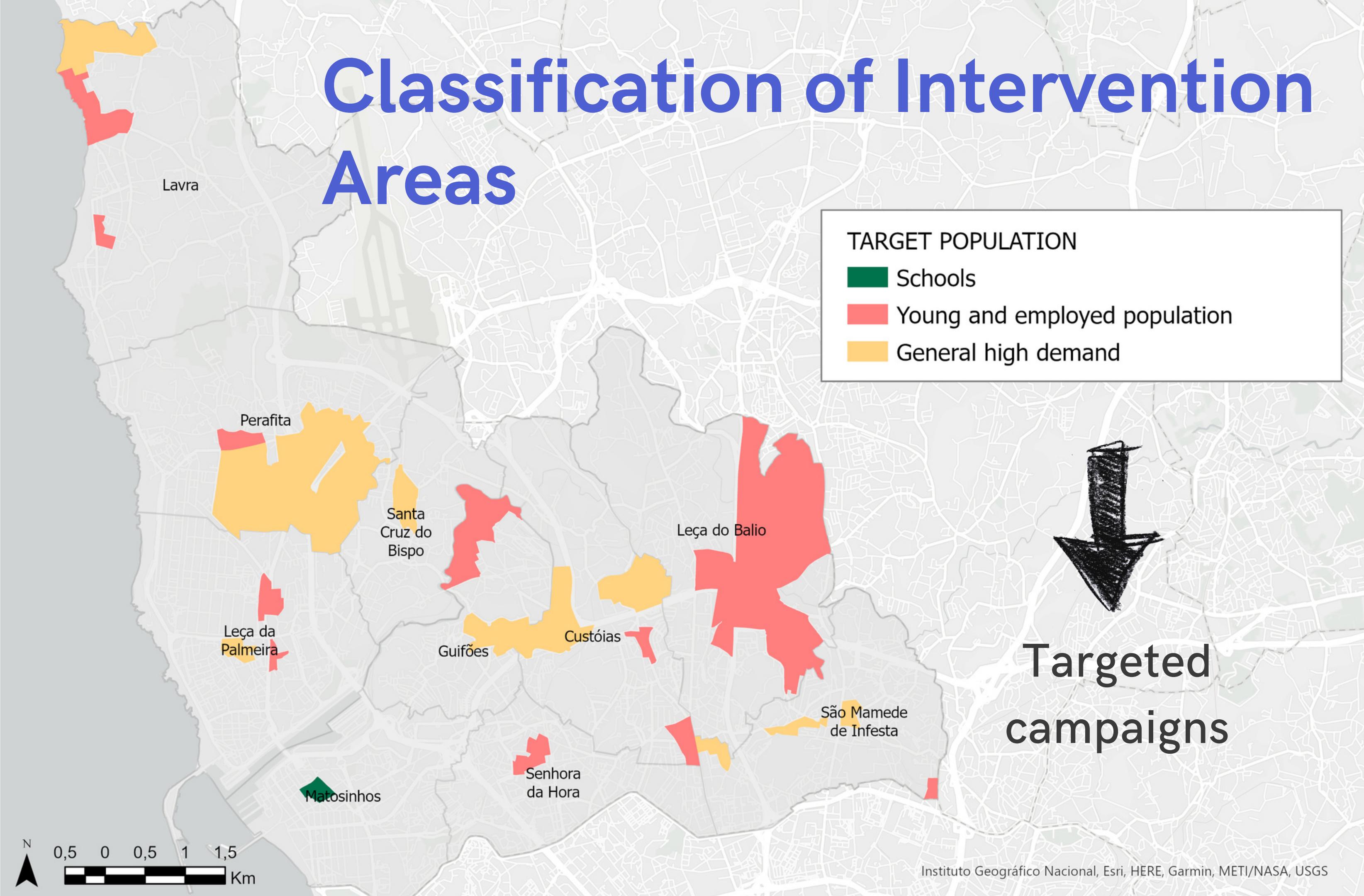
Identification of key drivers

Result: 3 differentiated clusters (types of intervention areas)

Classification of Intervention Areas



Classification of Intervention Areas





Classification of Intervention Areas

SCHOOLS

By car... 

By bus... 

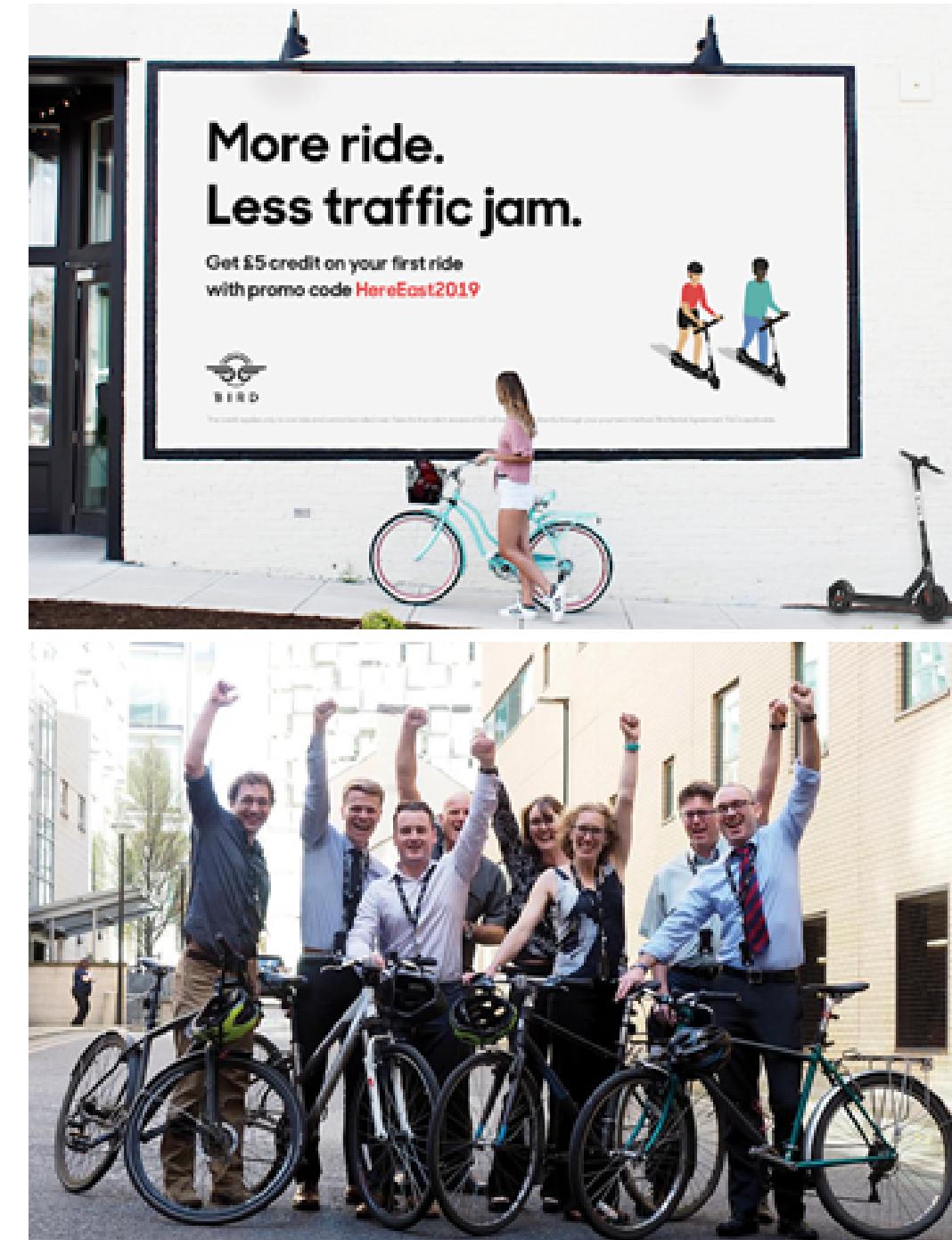
Youth who Bike to School
LEARN BETTER!

A Danish study of over 20 000 children found that youth mental alertness was advanced by half a school year if they used active transportation to get to school.

Biking provides more benefit in mental development than having breakfast or lunch! 

 SUPPORT EMPOWERING YOUTH WITH BIKES!
Contribute to our Indiegogo campaign! <https://www.indiegogo.com/projects/50-youth-on-50-bikes> #50youth50bikes

YOUNG AND EMPLOYED POPULATION

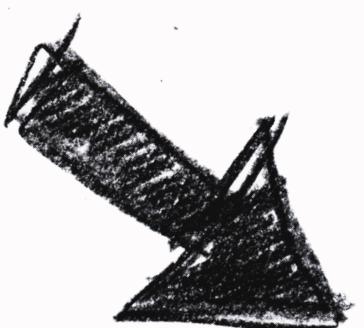




Our approach

1. Gather relevant data for the increase of micro-mobility
2. Identify high demand areas
3. Increase micro-mobility solutions and access
4. Classify demand areas
5. Specific implementation campaigns per area

Mobility behaviour
Socioeconomic aspects
Existing infrastructure



User-centric and data-driven approach



Impact of our solution

Tailor-made methodology to implement micromobility

Improve the traffic flow in the busiest areas of Matosinhos

Increase micro-mobility by 10%

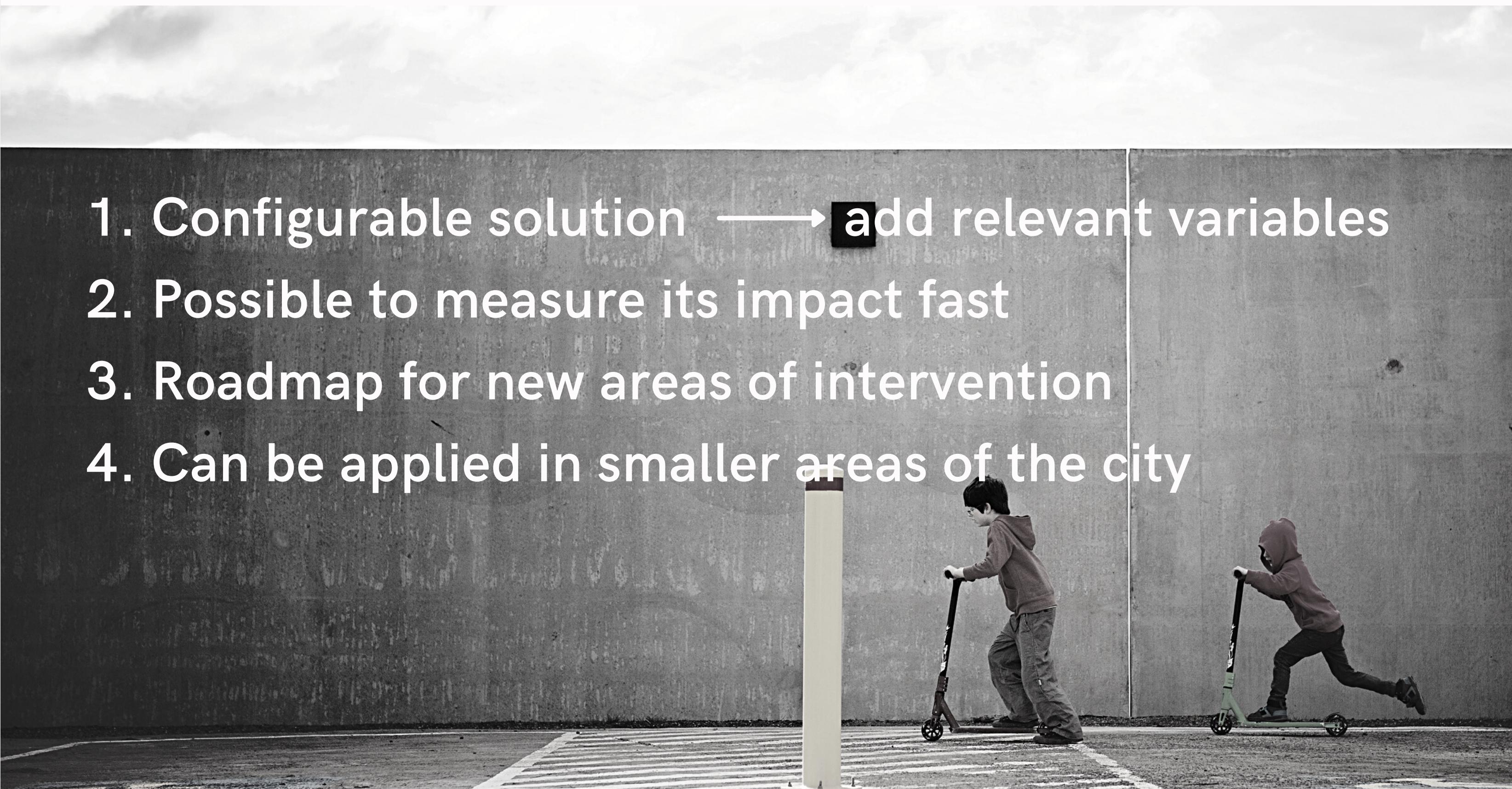


CO2 reduction by 16.4 tonnes in four months



Scalability

1. Configurable solution —→ add relevant variables
2. Possible to measure its impact fast
3. Roadmap for new areas of intervention
4. Can be applied in smaller areas of the city





Future Improvements

1. Adding more data will enrich the model
2. Analyses in-depth peak hours in each area
3. Improve findings by tracking users





**Questions?
Thank you for listening!**

