



**EUREKATHON**  
Challenging Data for Sustainable Cities  
Powered by

## Urban\_Geeks



# SCALING MICRO-MOBILITY TO MEET CITIZEN DEMAND IN MATOSINHOS



NICOLÒ PAOLO  
FERRARI



MARTA  
BESCANSÀ



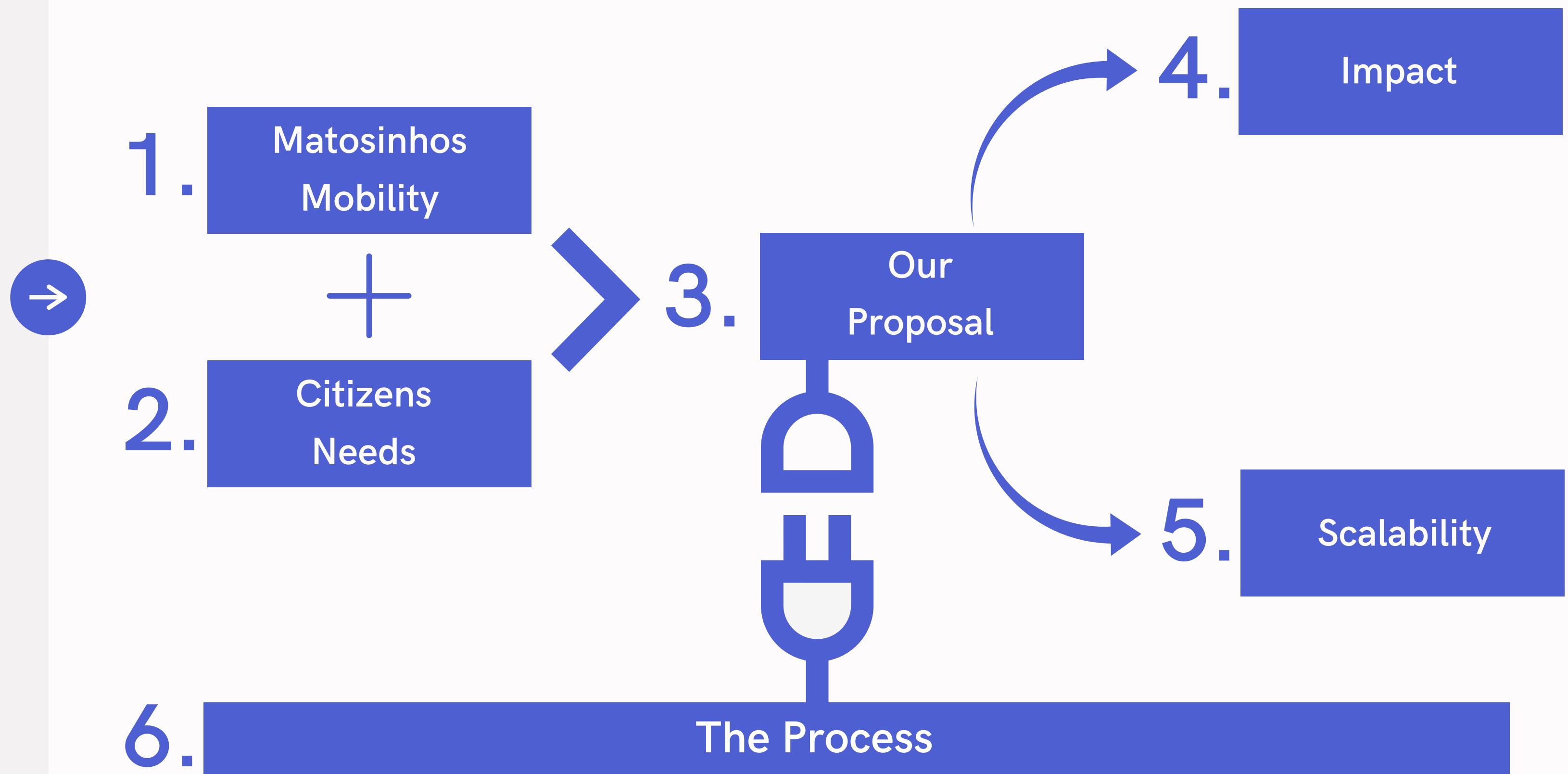
DESH  
DEEPAK



ELENA  
SALGUEIRO



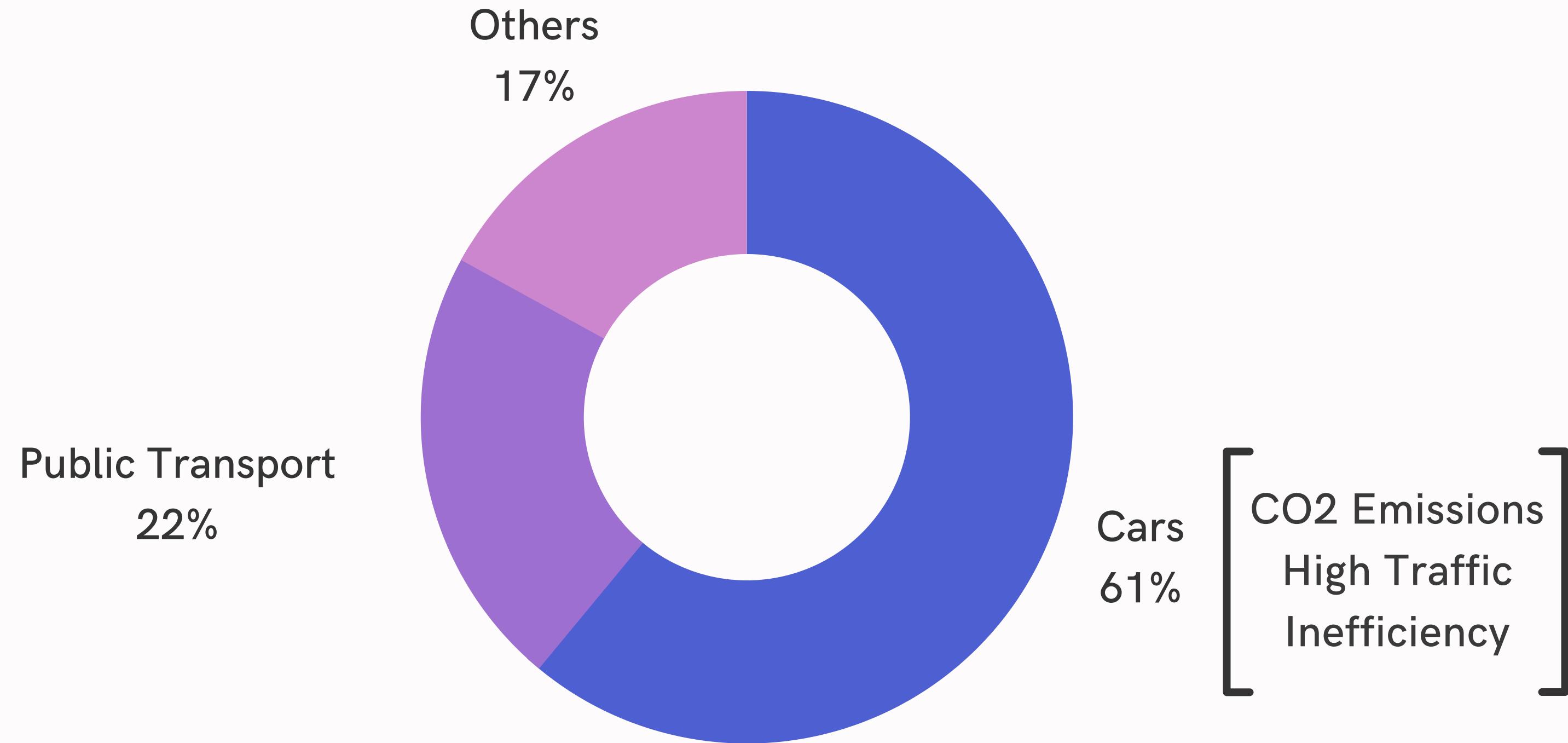
# Executive Summary





# Mobility profile of Matosinhos

\*



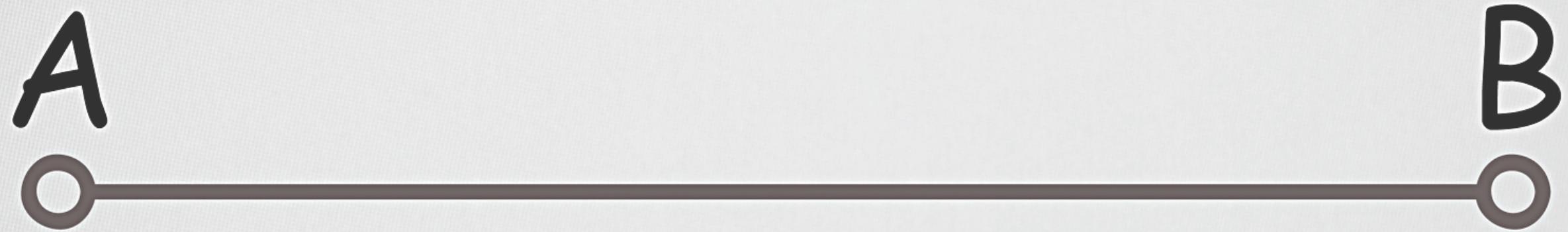
\*Plano de Mobilidade e Transportes de Matosinhos (2018)



\*  
**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

---

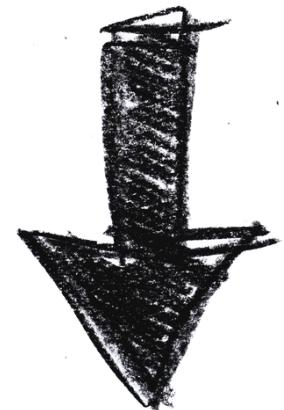
**What if we could scale this up?**



# 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



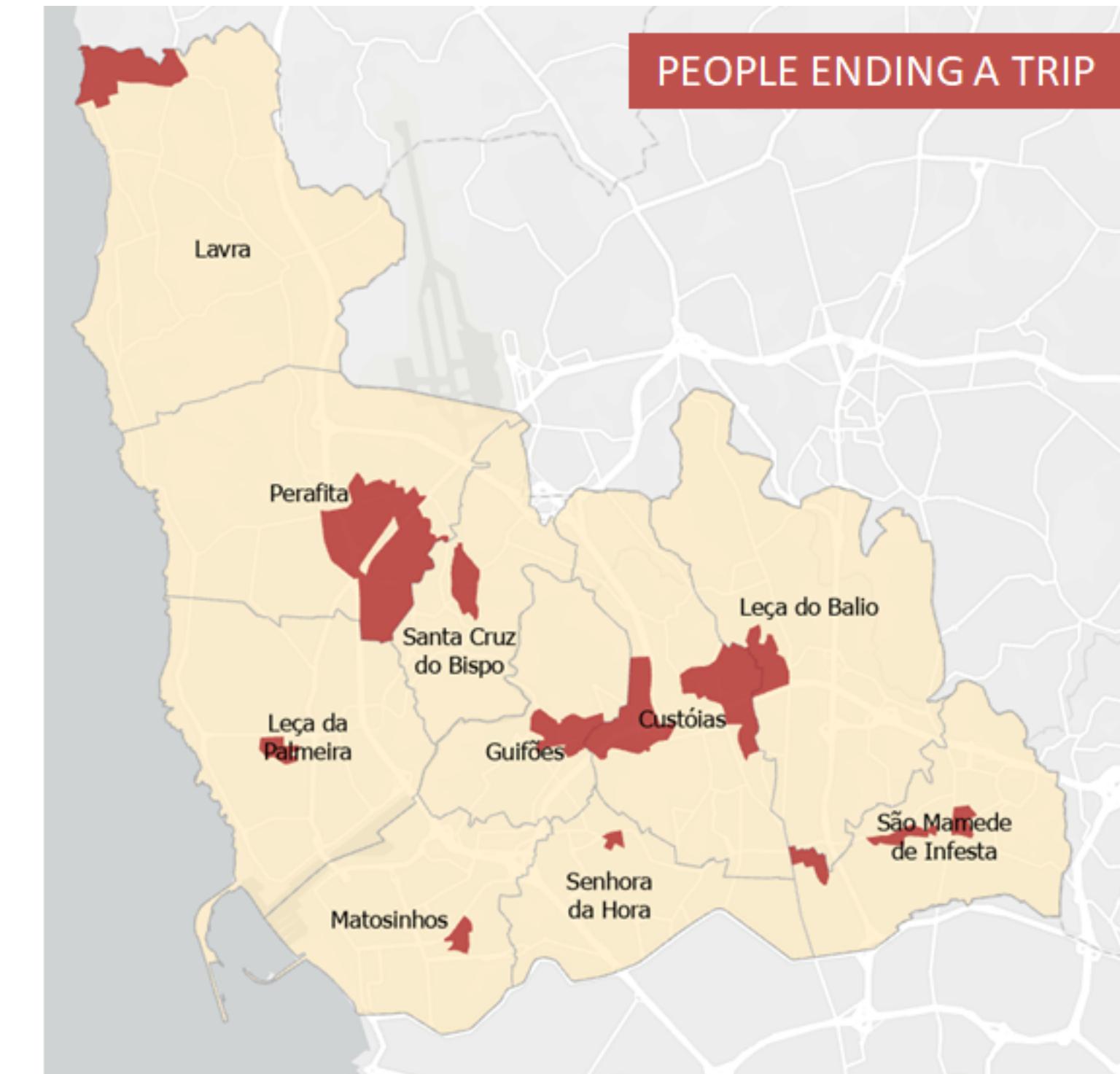
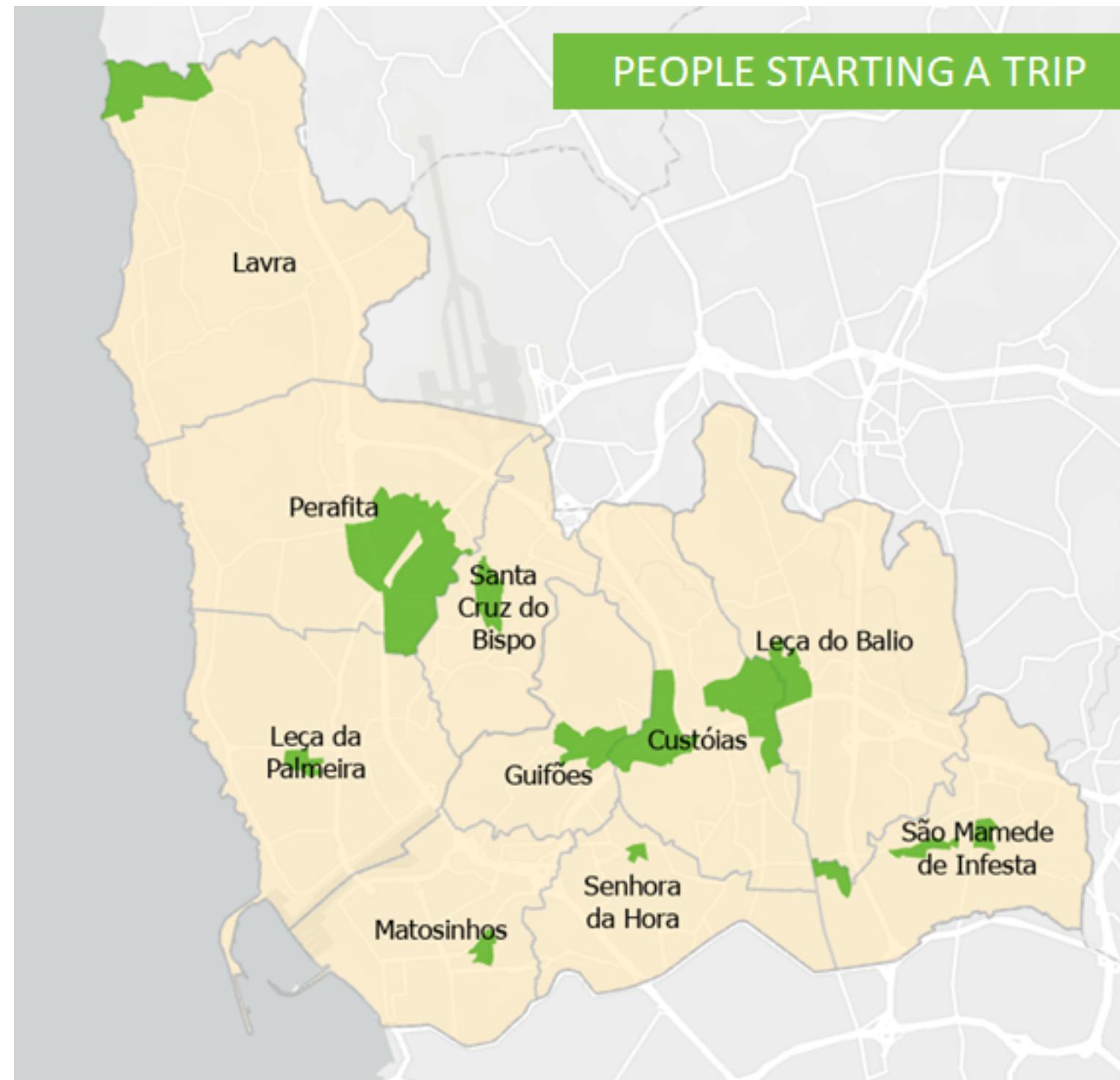
# Our proposal

---

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

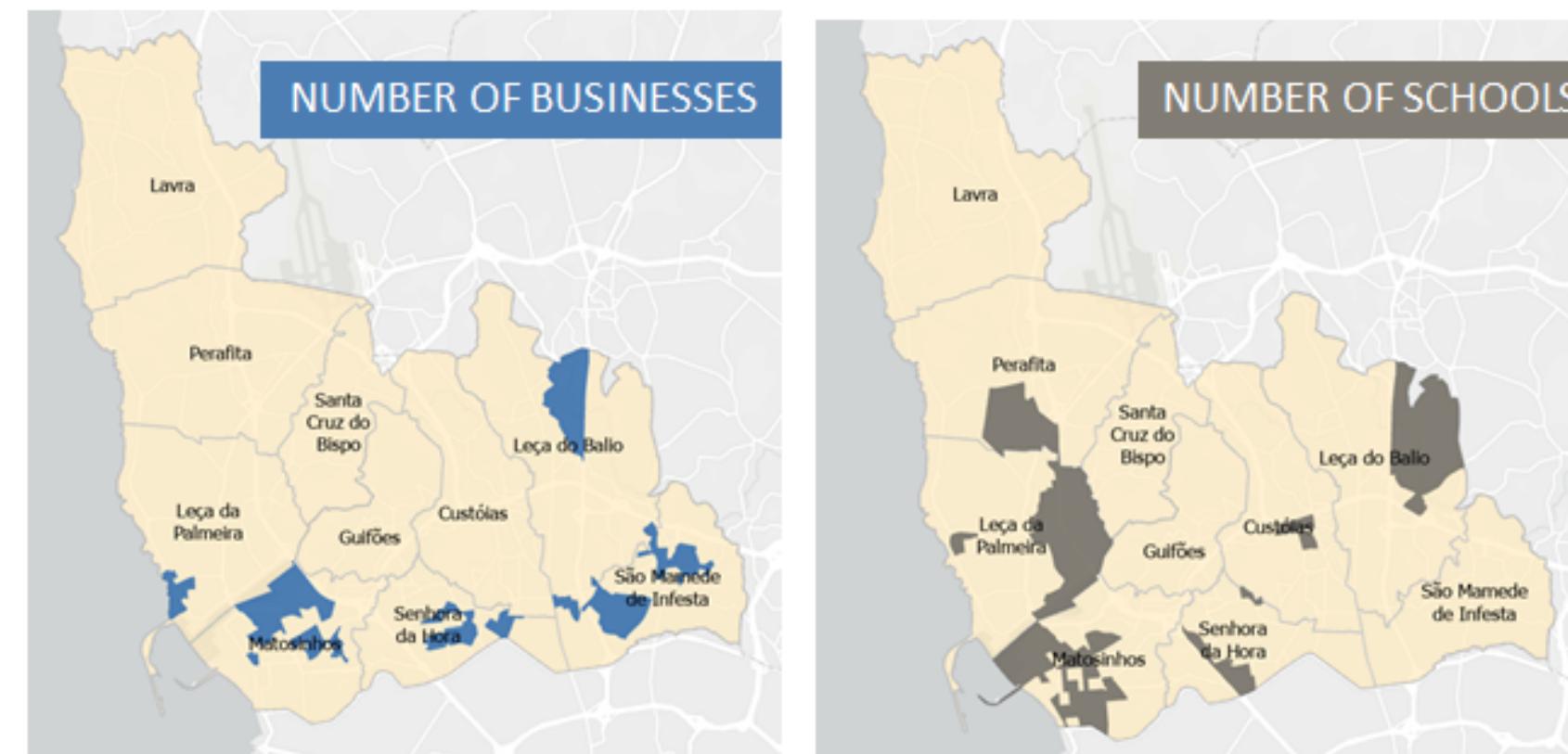
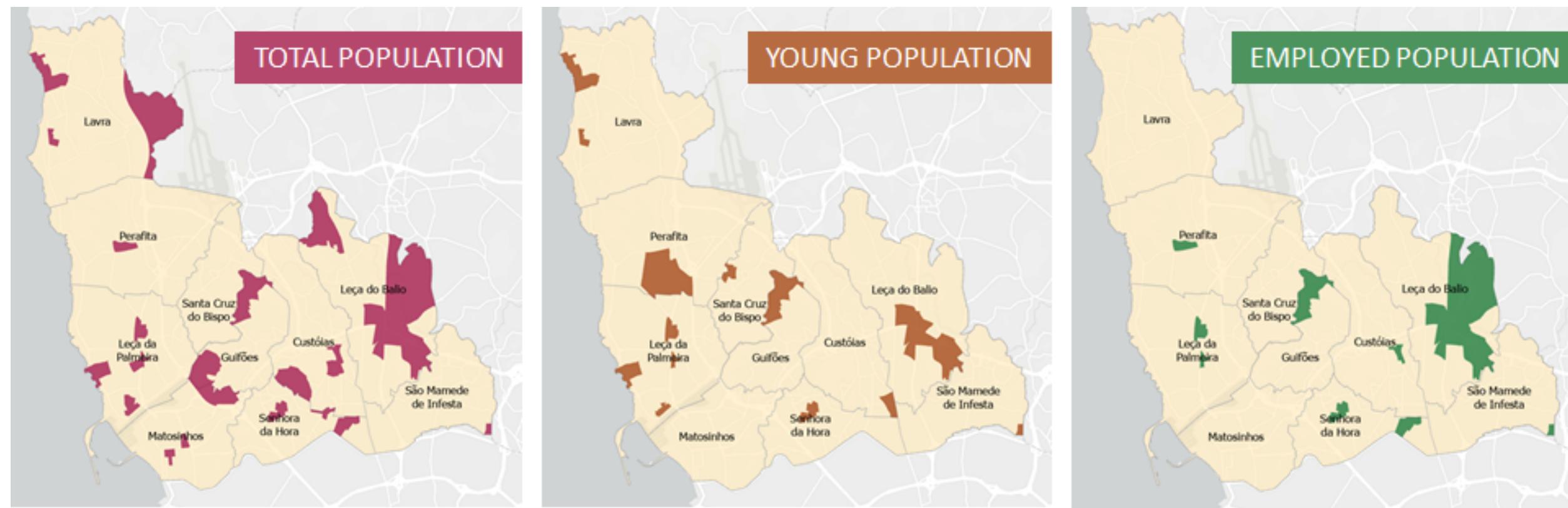


# Start and End Points



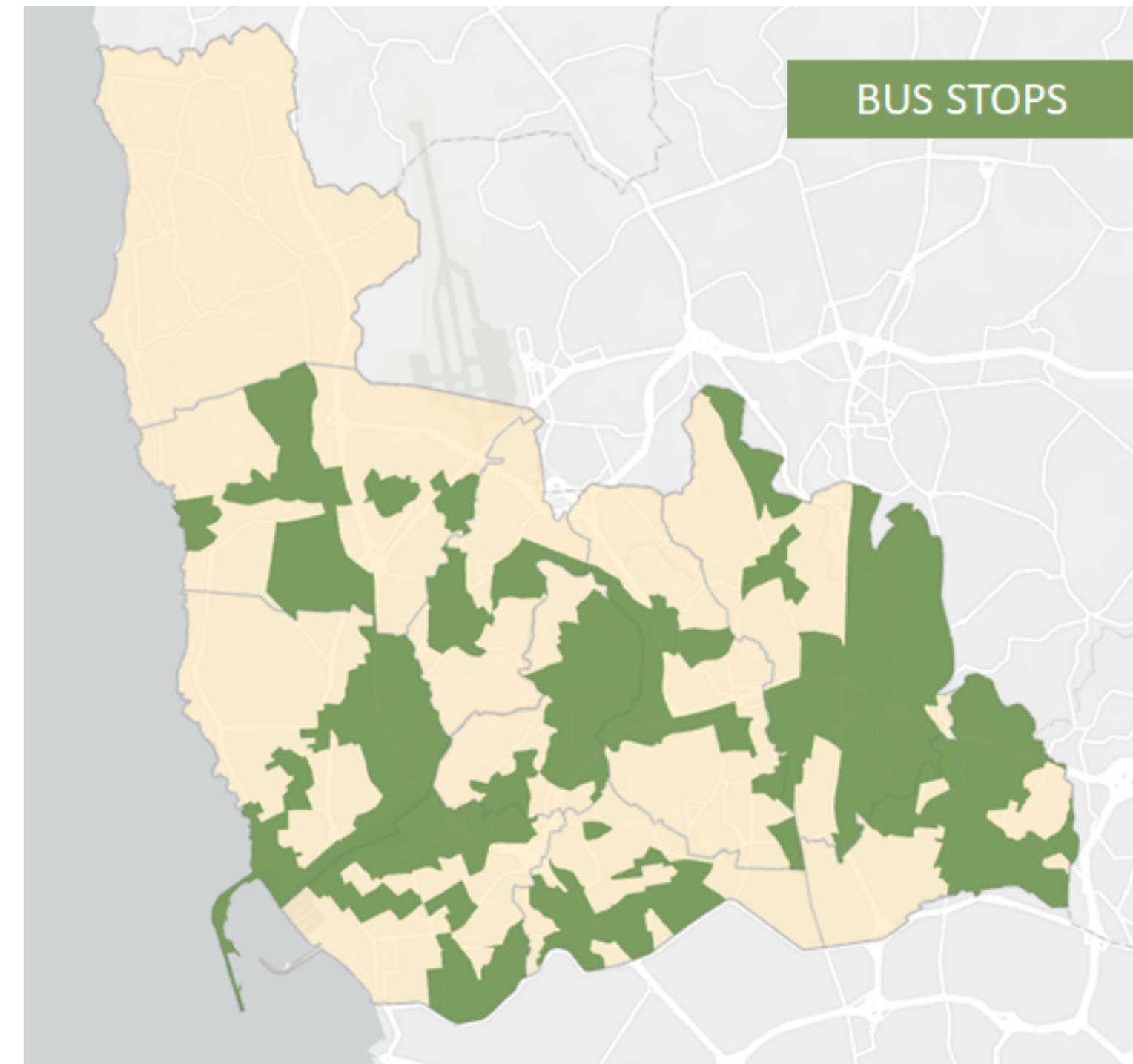
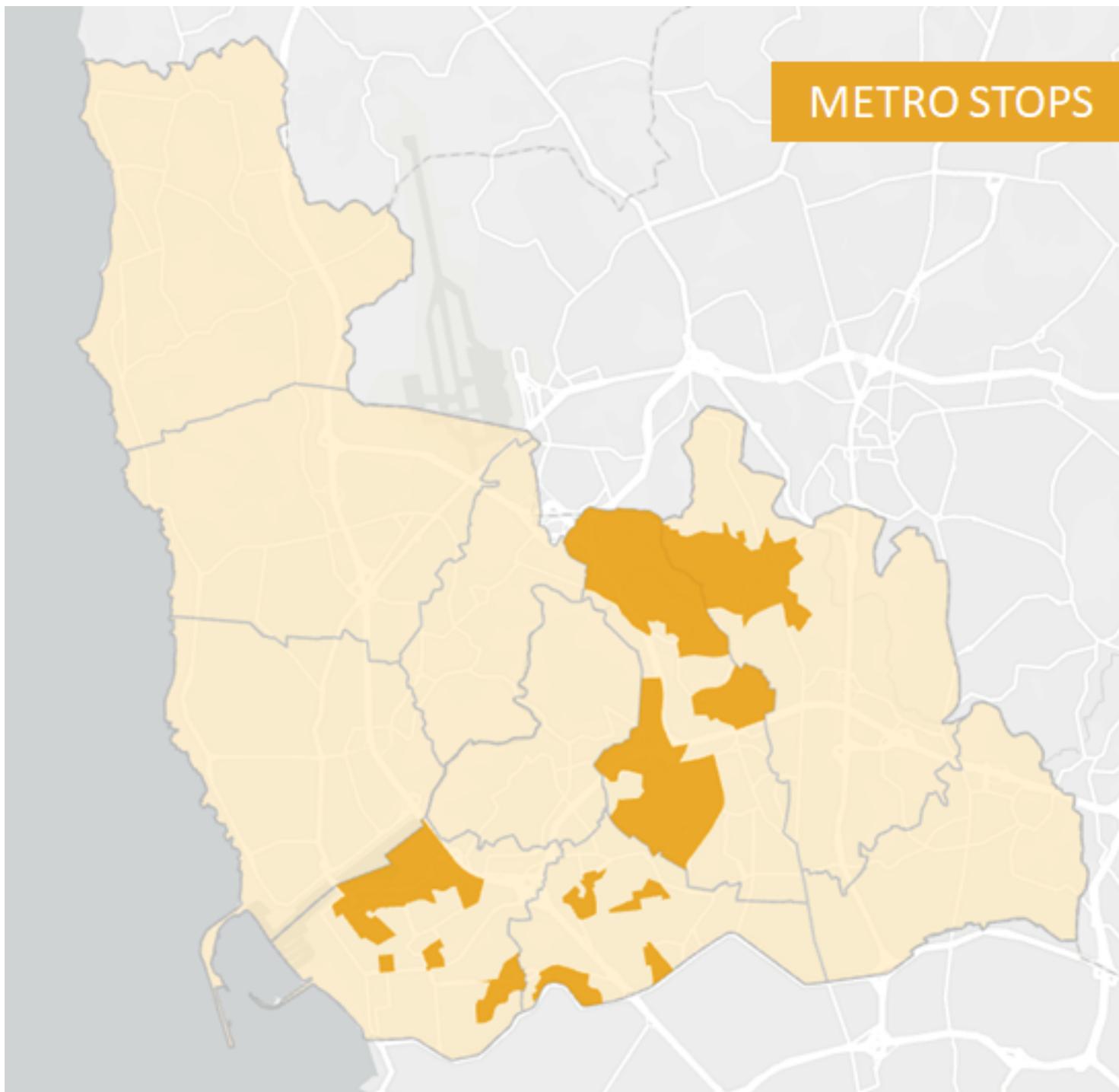


# Socioeconomic aspects



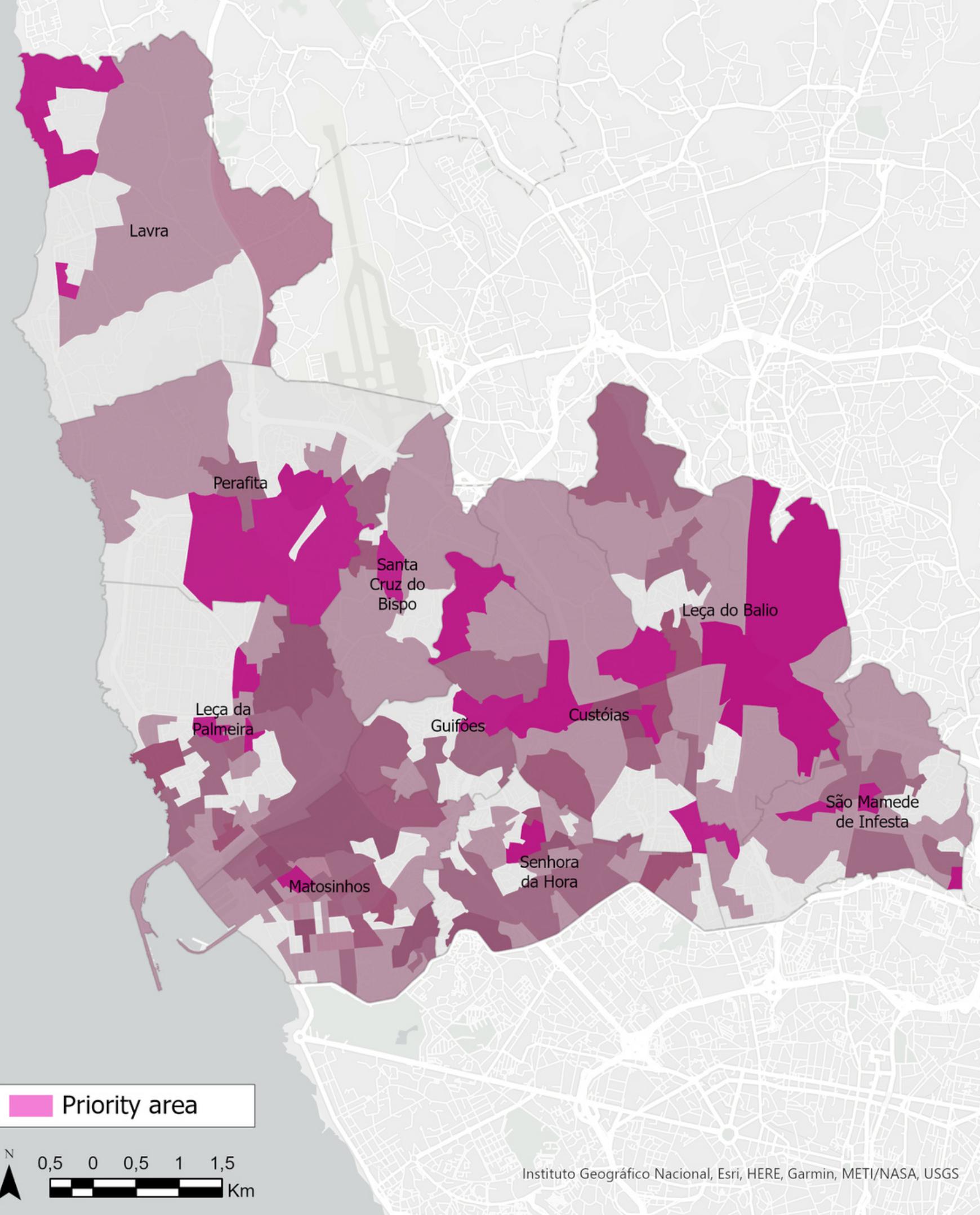


# Public mobility infrastructure





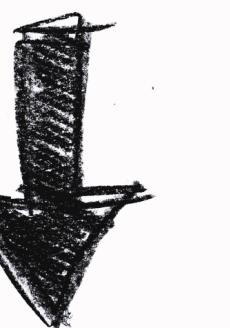
# Priority Intervention Areas





# Priority Intervention Areas

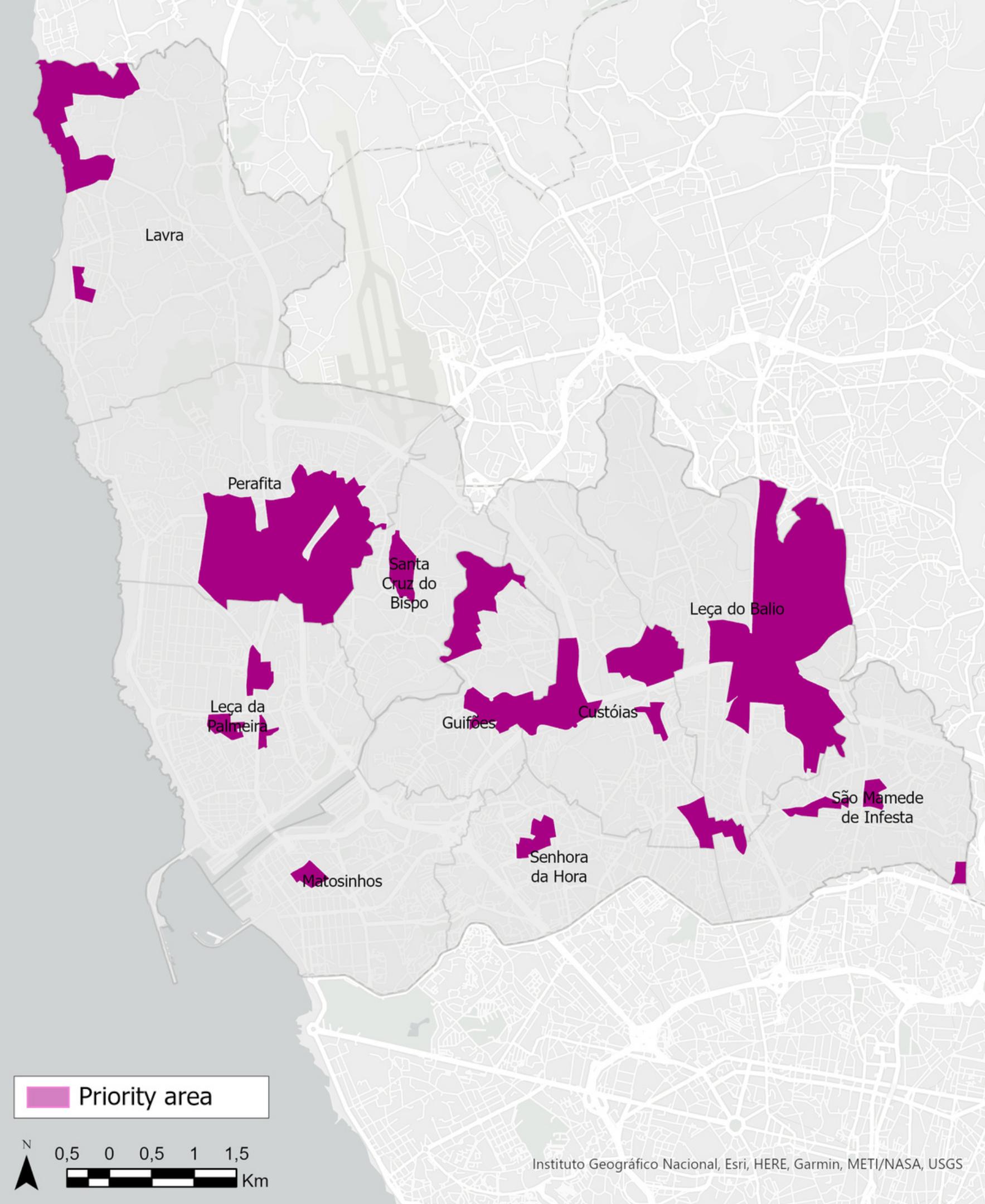
All freguesias register areas with high potential demand



Number of short trips

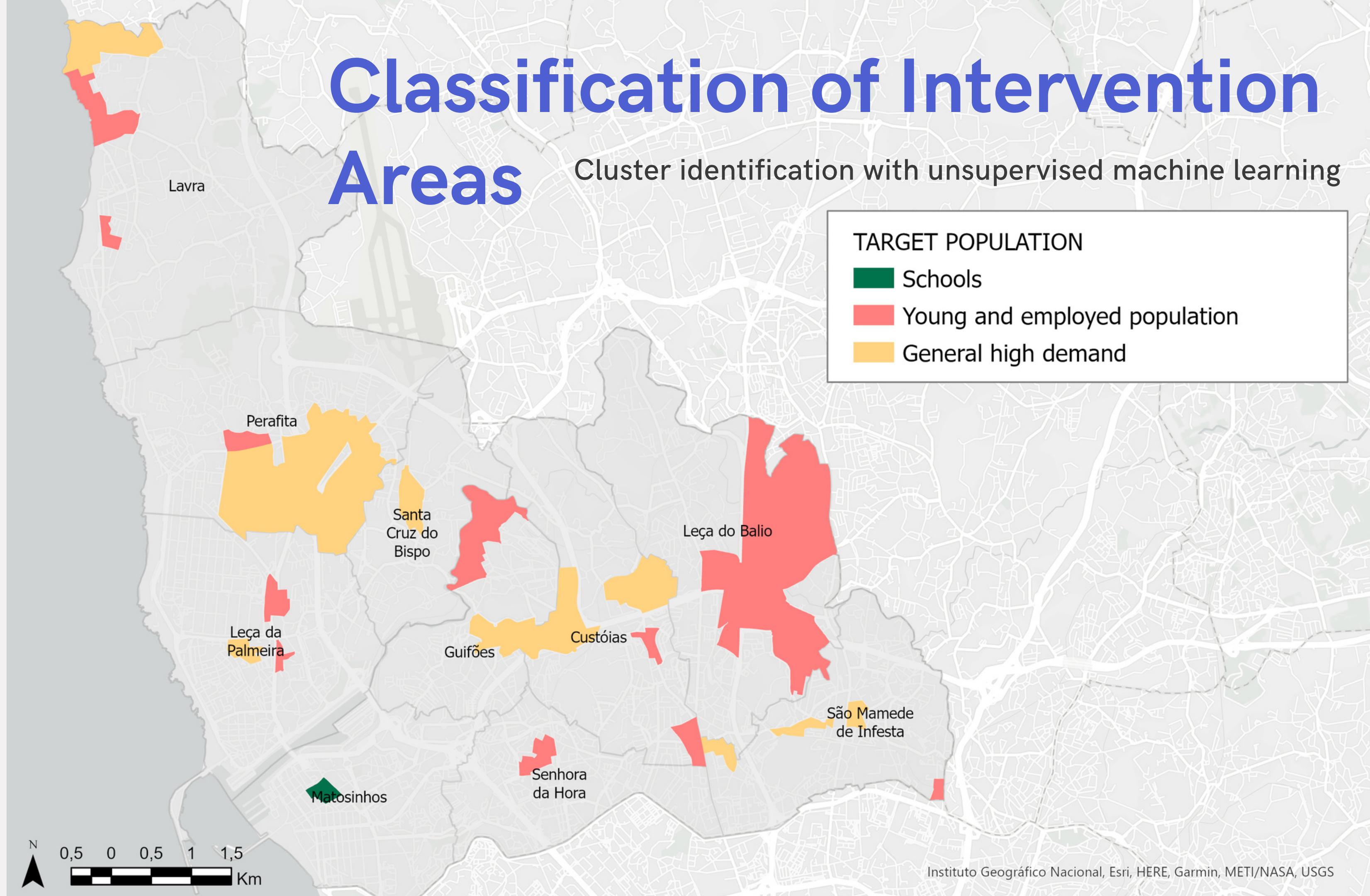
1.949.074

10% = 16.4 tonnes CO<sub>2</sub>



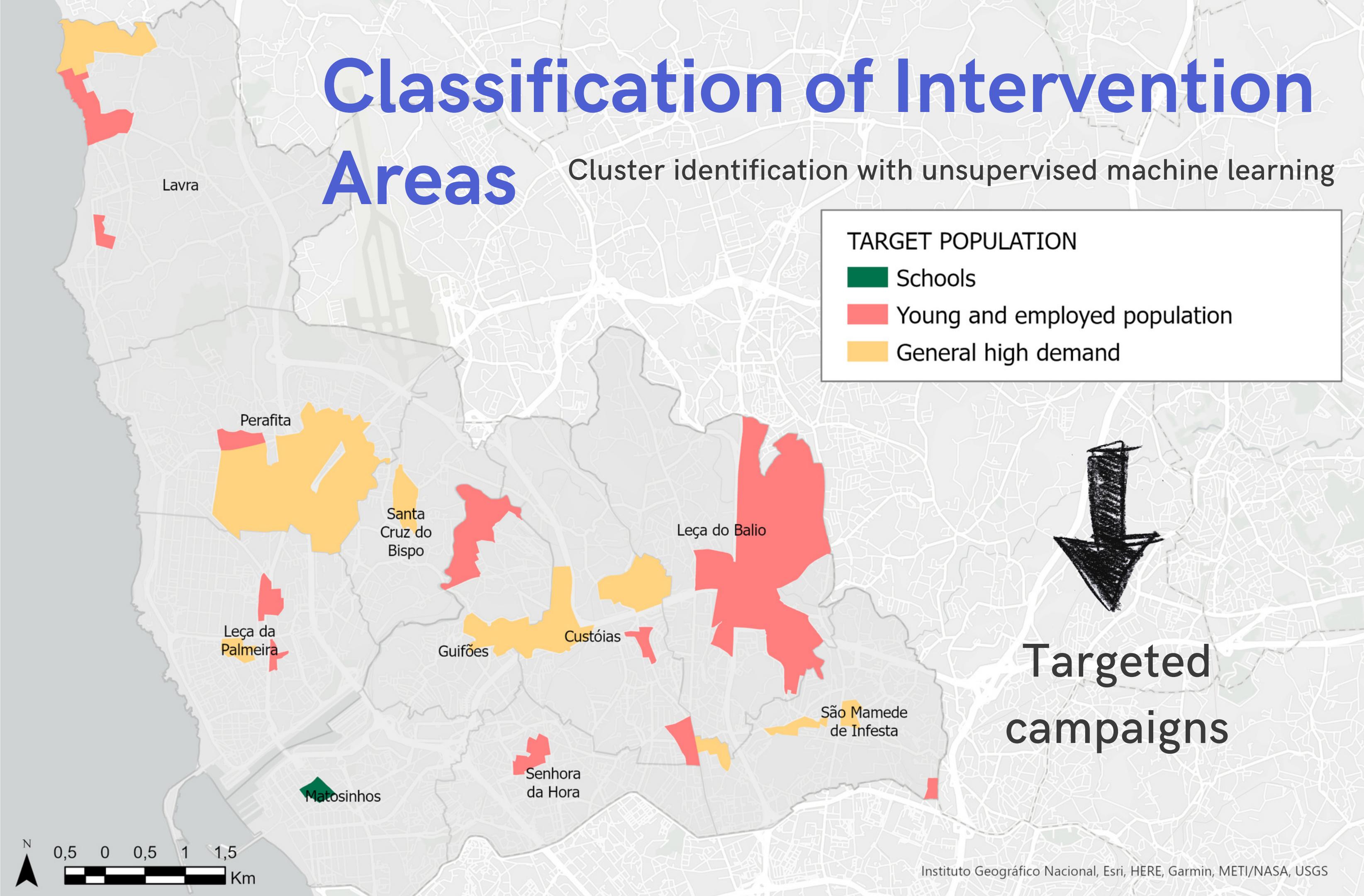
# Classification of Intervention Areas

Cluster identification with unsupervised machine learning



# Classification of Intervention Areas

Cluster identification with unsupervised machine learning





# Classification of Intervention Areas

## SCHOOLS

By car... 

By bus... 

Youth who Bike to School  
**LEARN BETTER!**

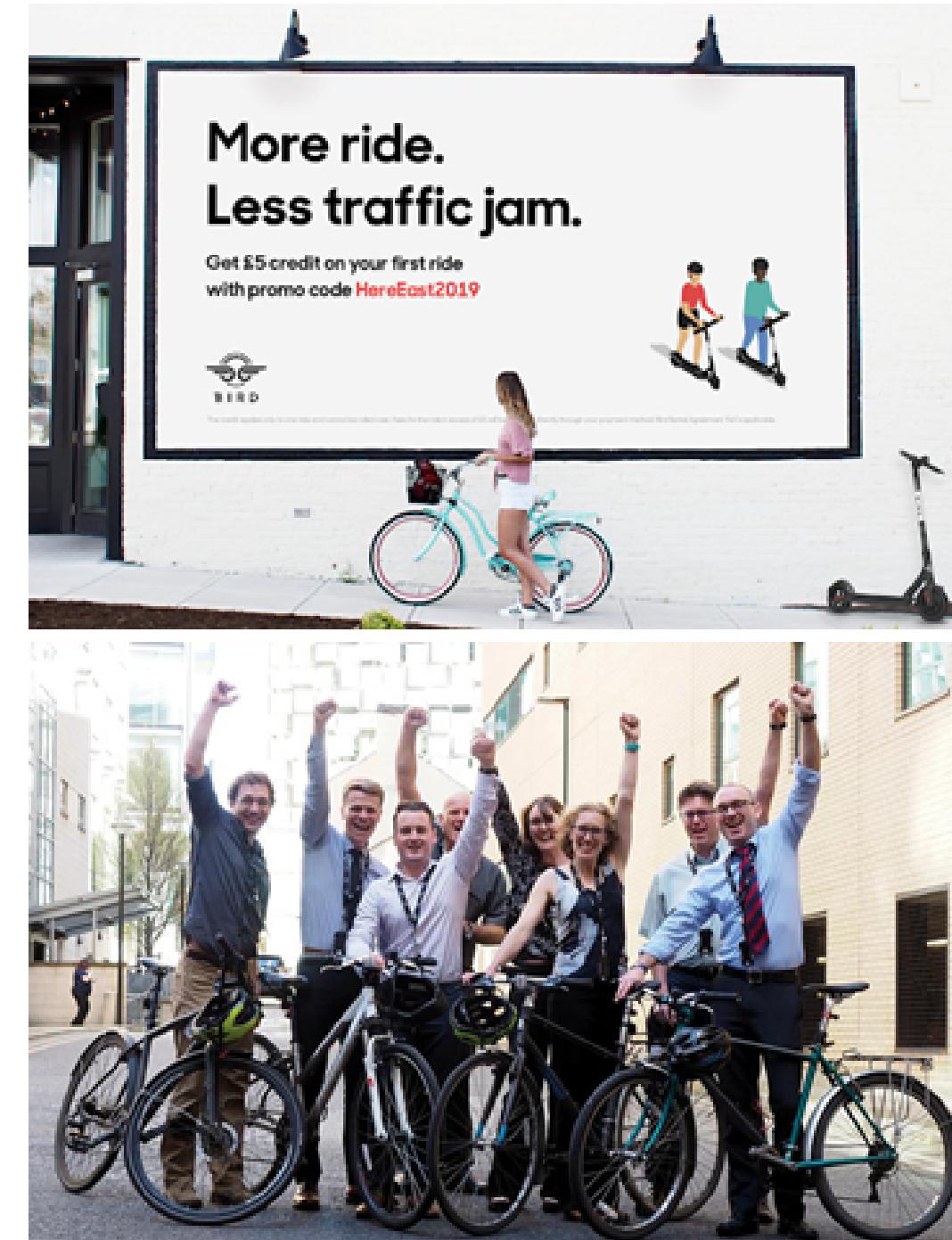
A Danish study of over 20 000 children found that youth mental alertness was advanced by half a school year if they used active transportation to get to school.

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

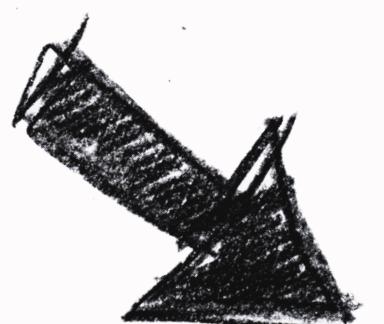




# Our approach

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%**

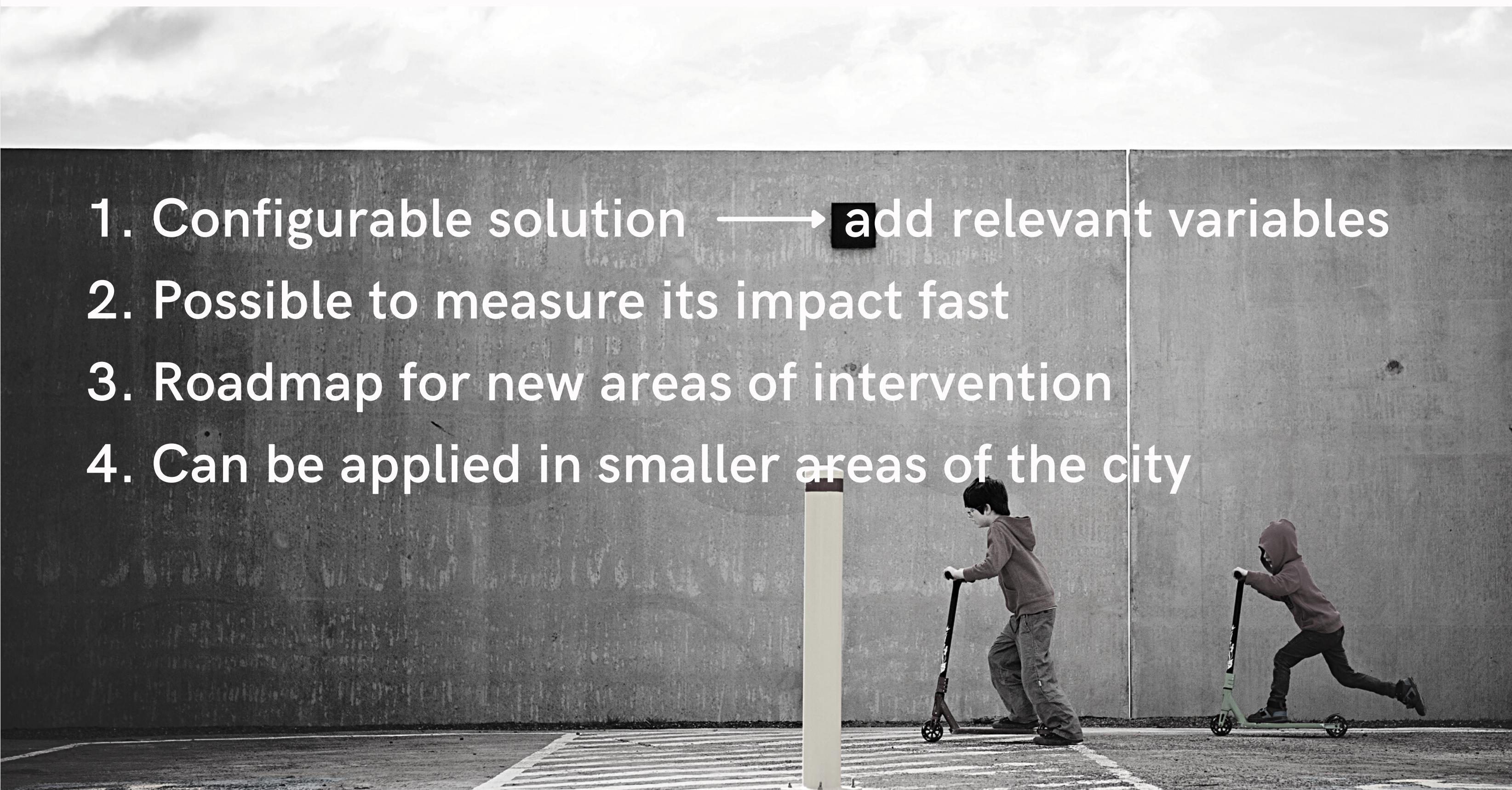


**CO2 reduction by 16.4 tonnes in four months**



# 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!**

