Fabrizio Cominetti

MOBILITY IN NORTHERN SARDINIA

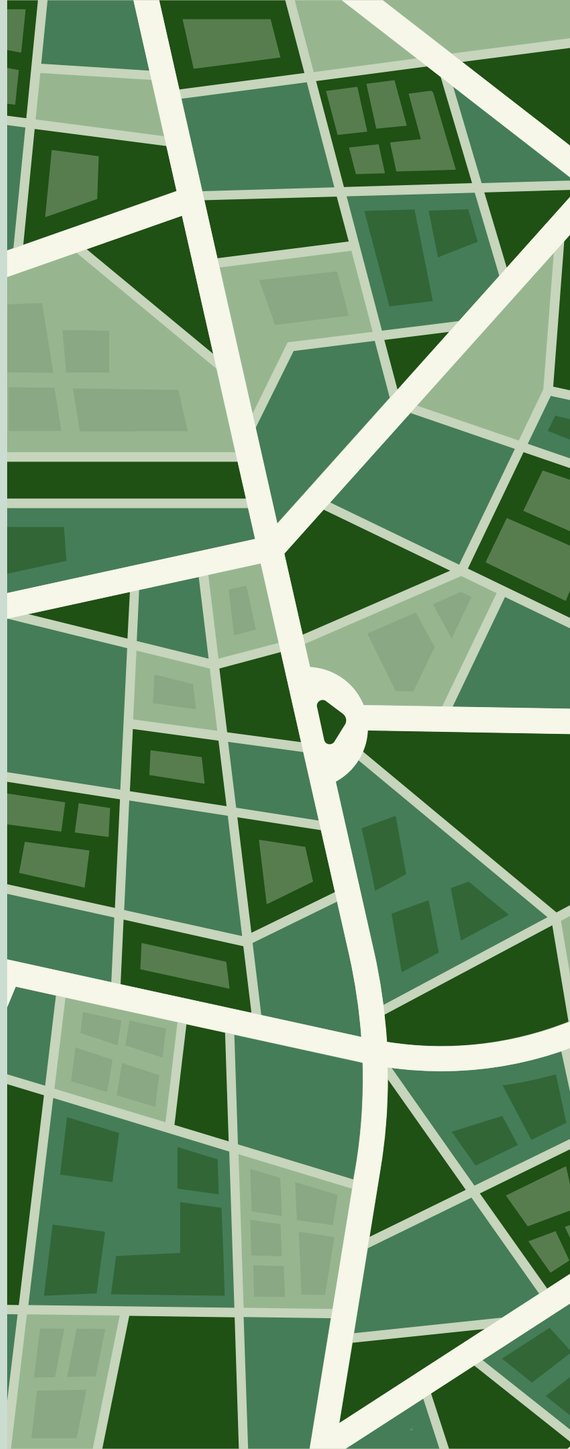
Data Science Lab for Smart Cities

In this project, we’re diving into how people move around in the northern part of Sardinia, starting from the arrivals by airports and ports and focusing mainly on public transport stops to reach key facilities. To analyze the situation, several indicators are calculated, accompanied by data visualizations.

To analyze the situation, several indicators are calculated, accompanied by data visualizations. As for airports and ports, the project aims to examine the flows both on a seasonal basis, differentiating by the airport of arrival and departure, and by checking the number of domestic and foreign tourists. The analysis then focuses in particular on the situation of public transportation for tourists, analyzing their current conditions and the possibility of reaching popular destinations such as beaches, as well as for residents and connections to more populated areas.

INTRODUCTION

- Mobility issues in Northern Sardinia, especially in the province of Sassari, have far-reaching consequences.
- Public transport infrastructure is often inadequate, with problems like outdated facilities, and limited coverage.
- Inefficient public transport affects tourism, increases traffic congestion and pollution, and exacerbates social inequalities.
- Parking shortages near key facilities lead to inefficiency and rising park ticket prices for tourists.
- Addressing these issues through better public transportation infrastructure and connectivity is essential for sustainable growth and well-being in the region.

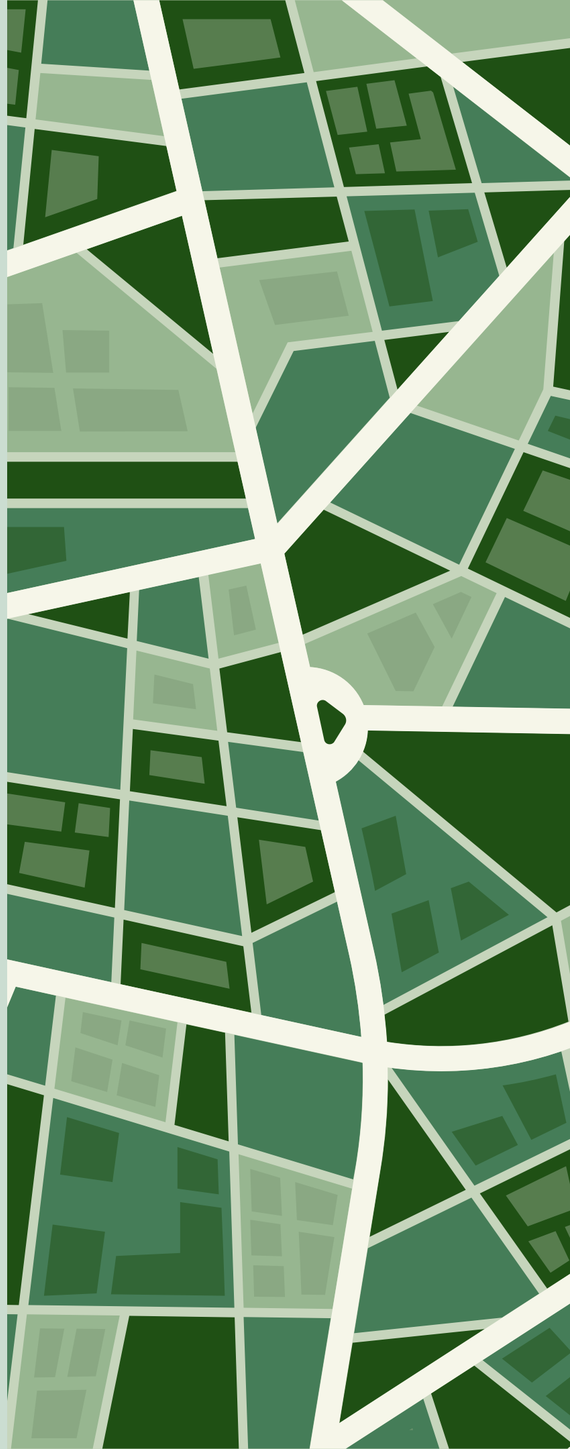


INDICATORS

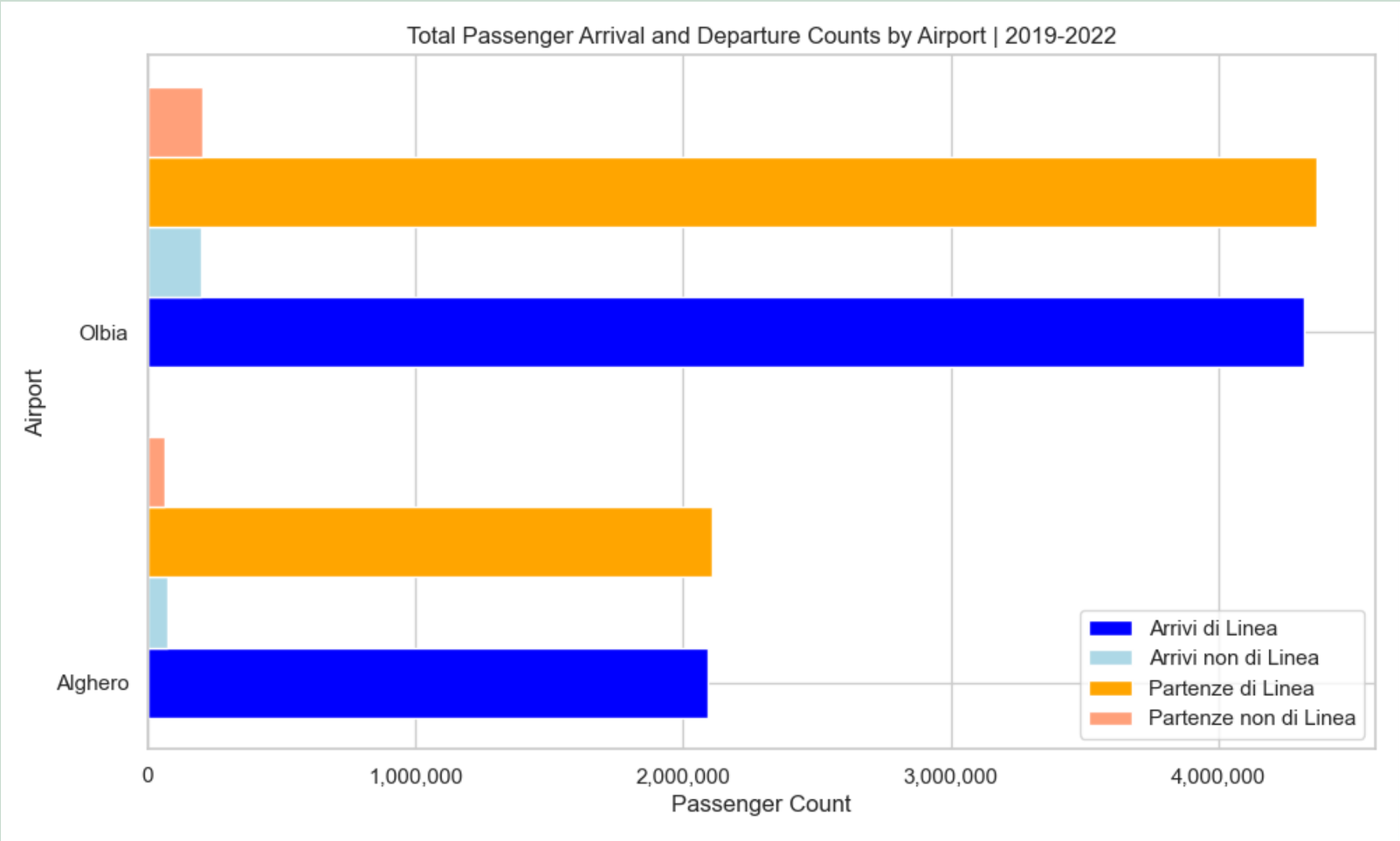
- Passenger Flows
- Seasonal Variation
- Domestic vs. International Passengers
- Transportation Infrastructure Connectivity
- Bus Stop Density
- Bus Stop Location in Relation to Population Density
- Sea Accessibility Index

DATA

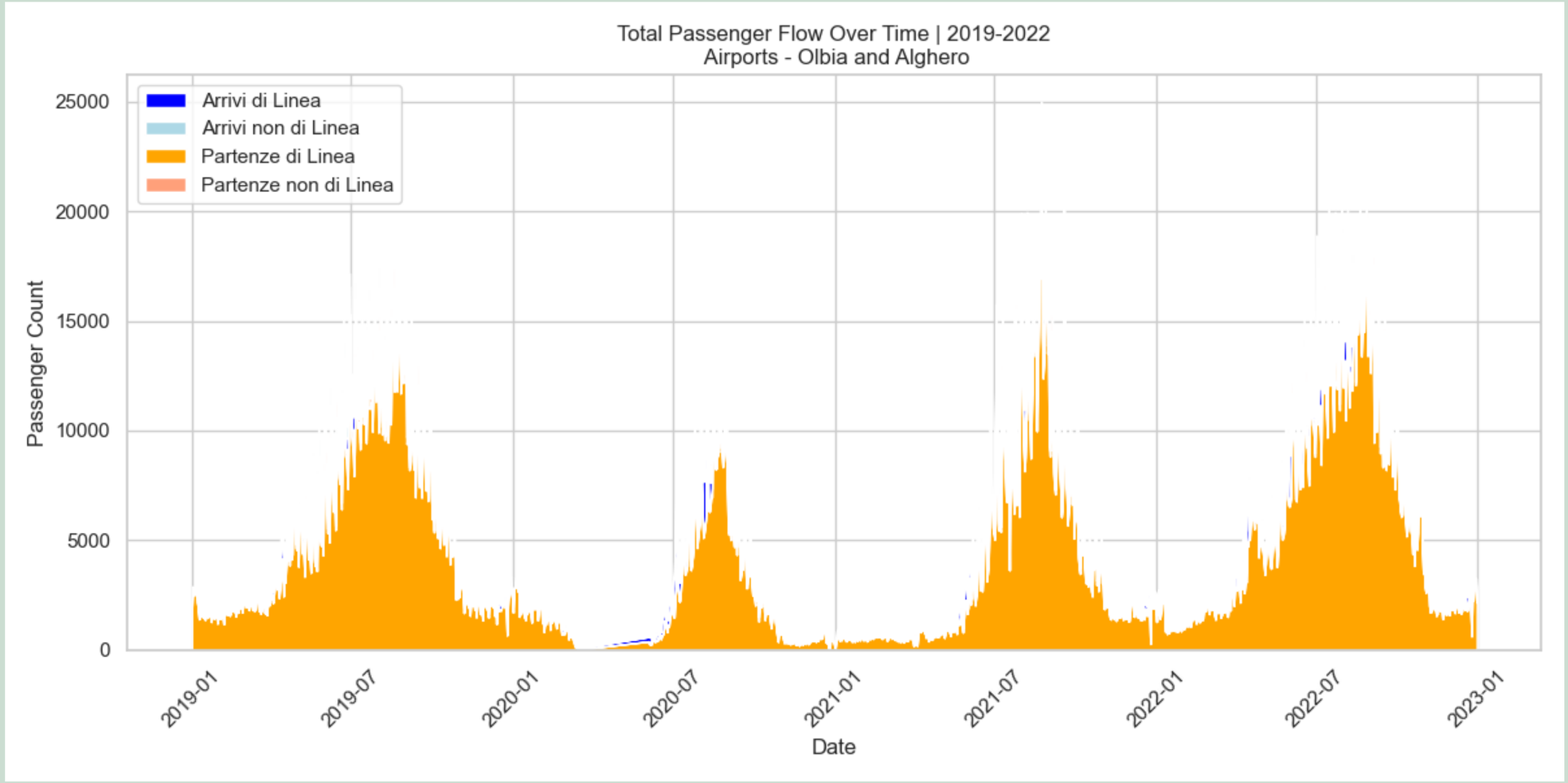
- Italian Administrative Borders
- Arrivals and Departures Bulletin - Airports and Ports (Sardinia)
- Passenger Flows at Sardinia’s Airports
- Passenger’s Origin and Destination Zones
- Public Transport Stops Sardinia
- Resident Population in Sardinia
- Beach Systems in Sardinia
- Airports Location (Sardinia)



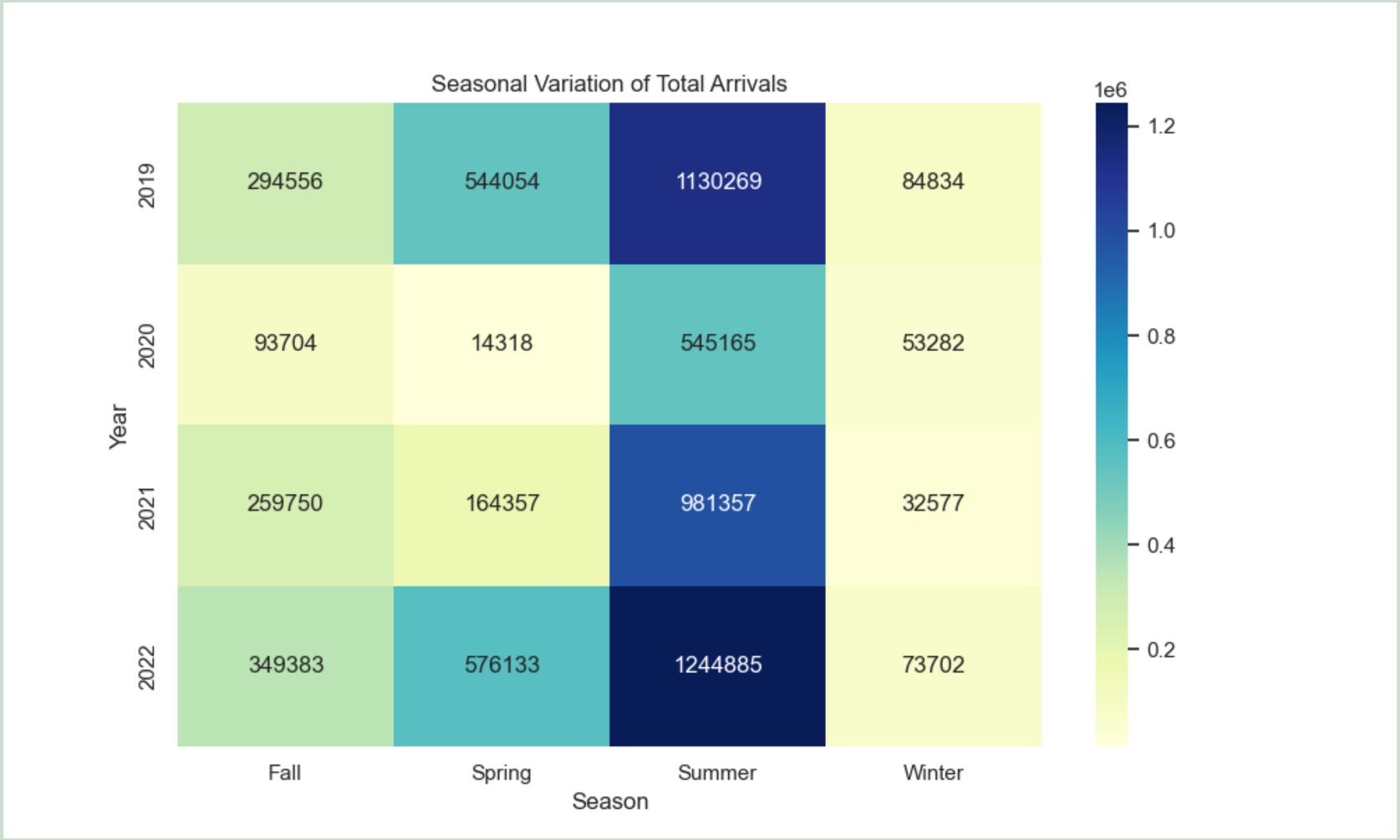
PASSENGER ARRIVAL AND DEPARTURE COUNTS



PASSENGER ARRIVAL AND DEPARTURE COUNTS



SEASONAL VARIATION



SEASONAL VARIATION

Season	Total Arrivals	Total Departures
Fall	249348.25	291089.500
Spring	324715.50	285936.500
Summer	975419.00	985070.250
Winter	61098.75	62593.375

Figure 7: Seasonal Passenger Data

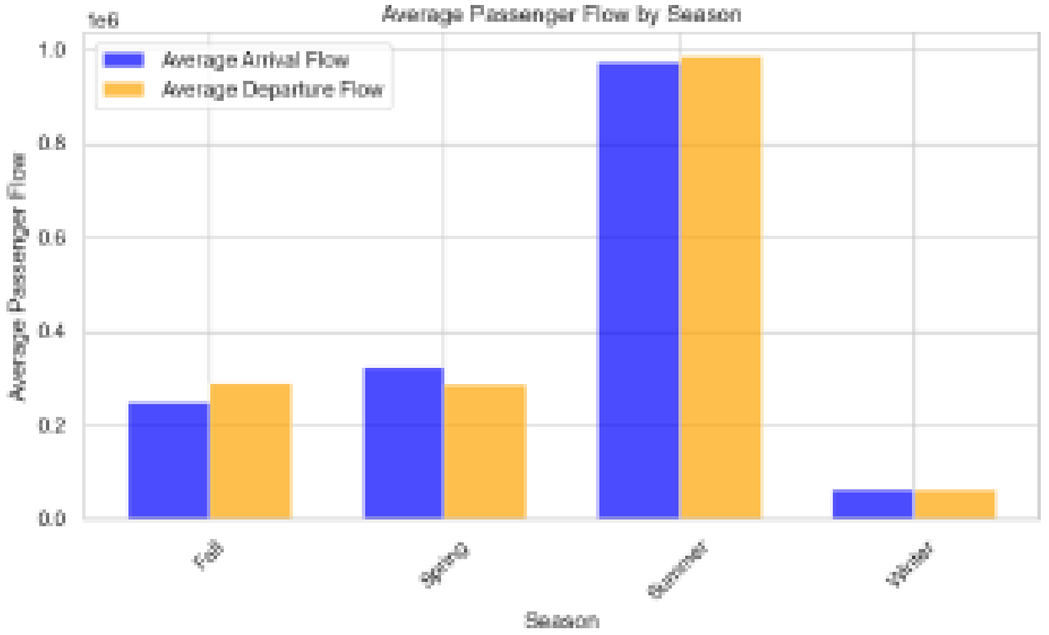
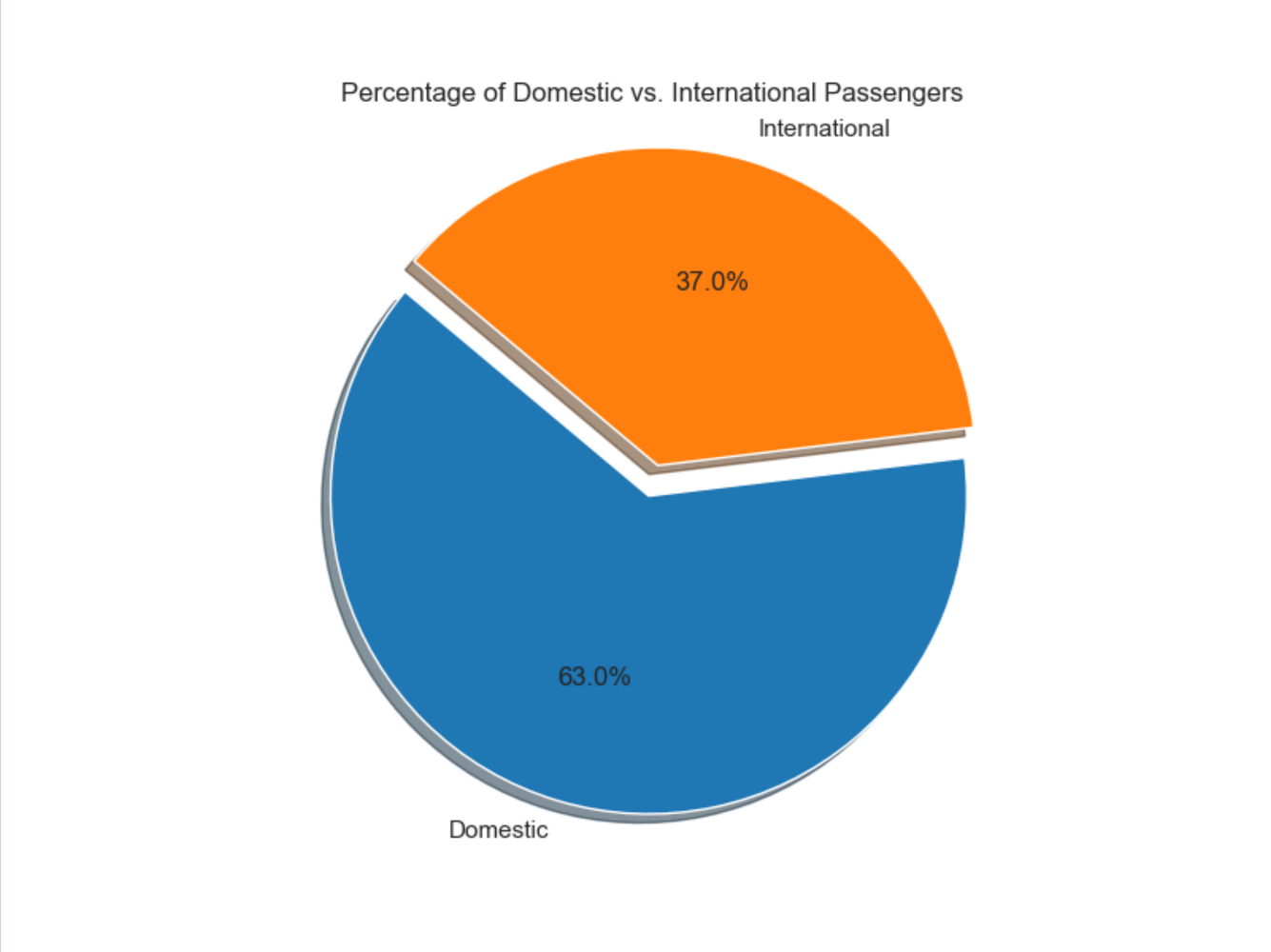
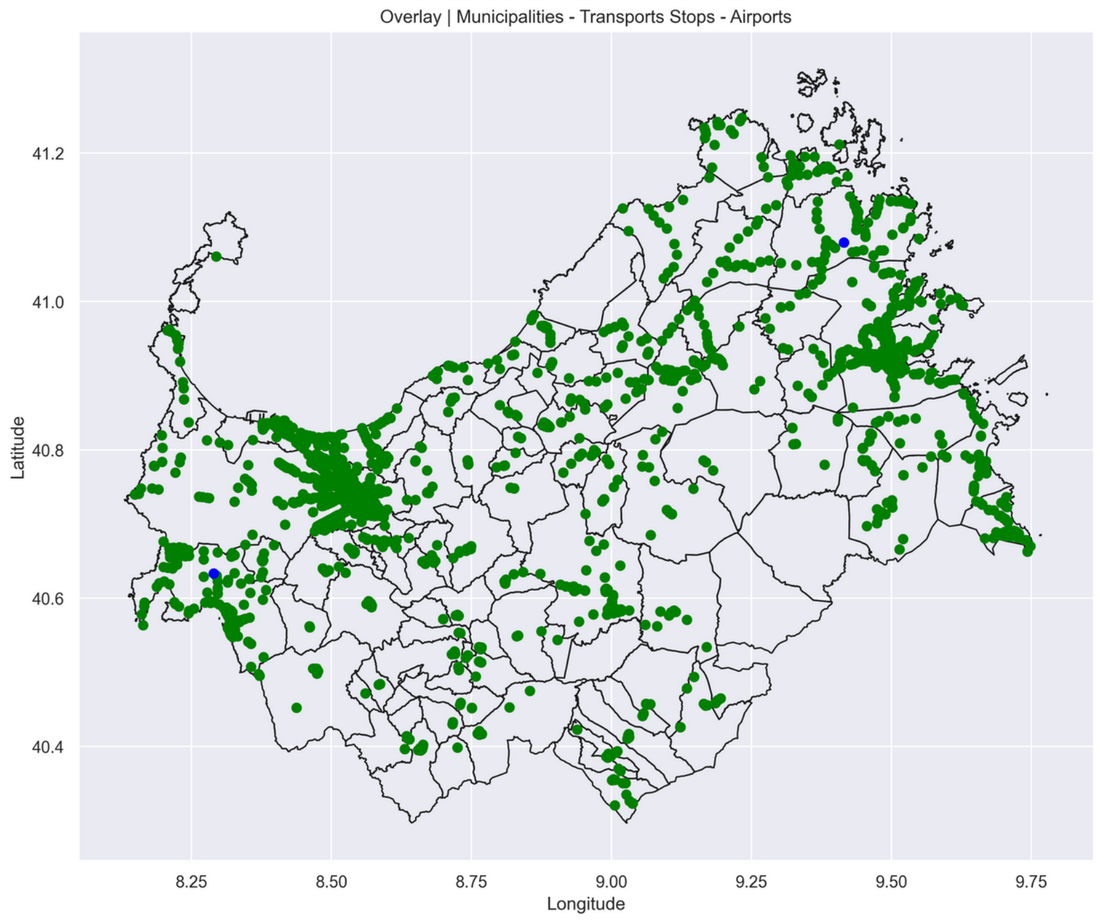


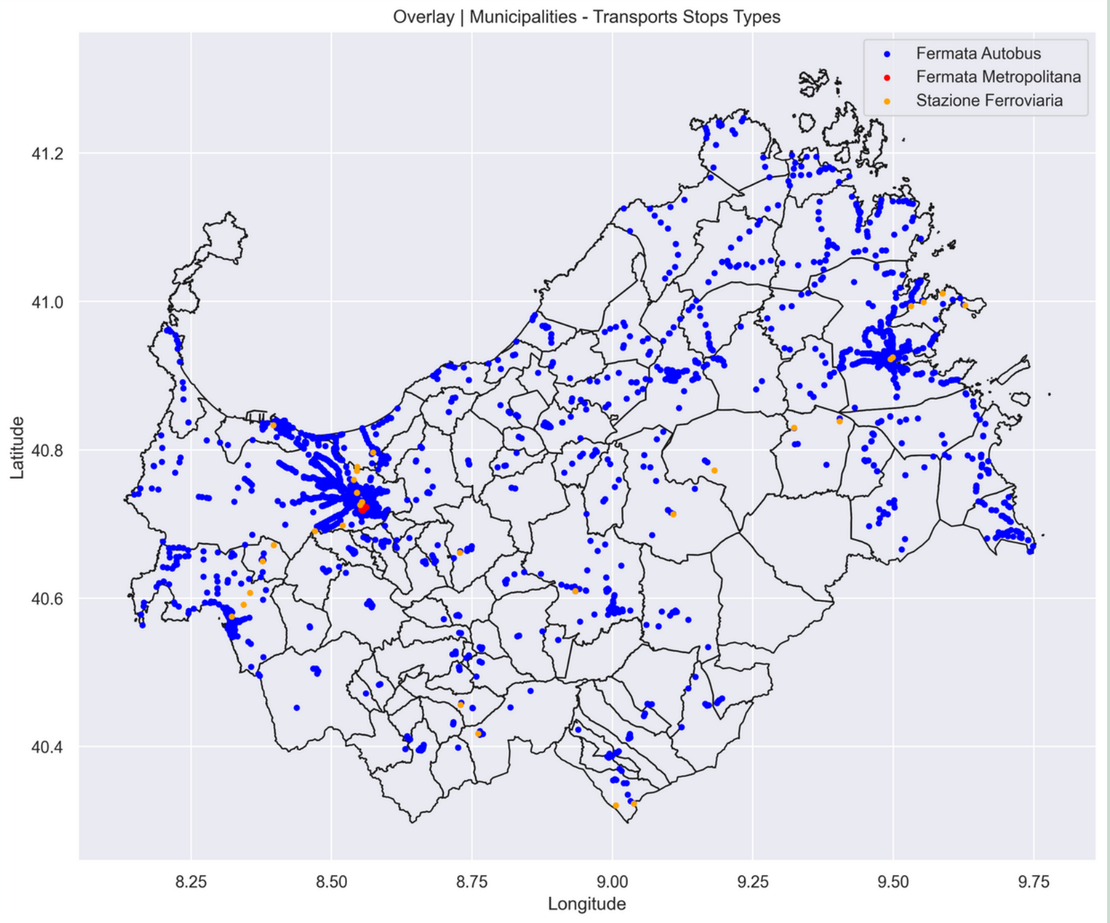
Figure 8: Average Passenger Flow by Season

DOMESTIC VS. INTERNATIONAL PASSENGERS



TRANSPORTATION INFRASTRUCTURE CONNECTIVITY





TRANSPORTATION INFRASTRUCTURE CONNECTIVITY

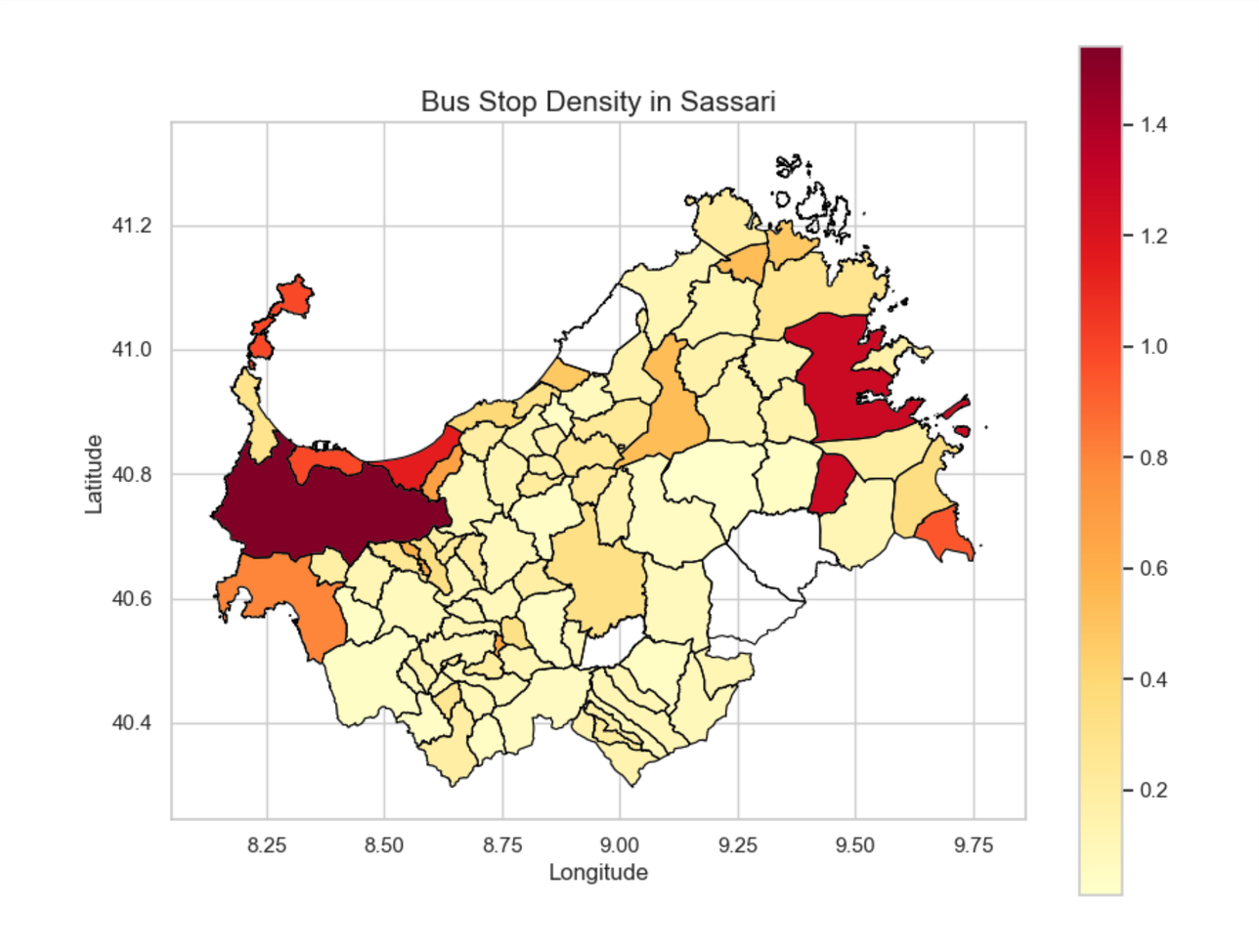
Location	Average Accessibility Score (kilometers)
Olbia	3.25
Alghero	3.19

Table 1: Average Accessibility Scores

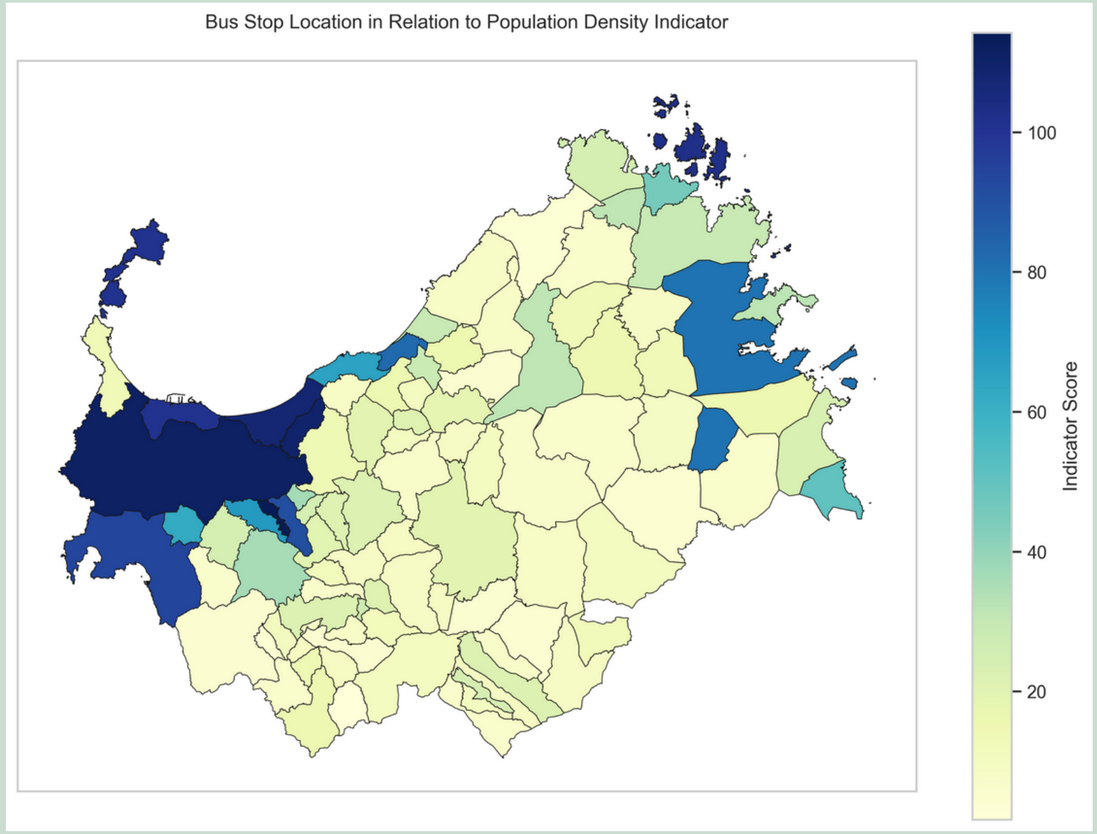
Location	Radius (km)	Number of Stops
Olbia	5.0	28
Alghero	5.0	30
Olbia	2.5	7
Alghero	2.5	10

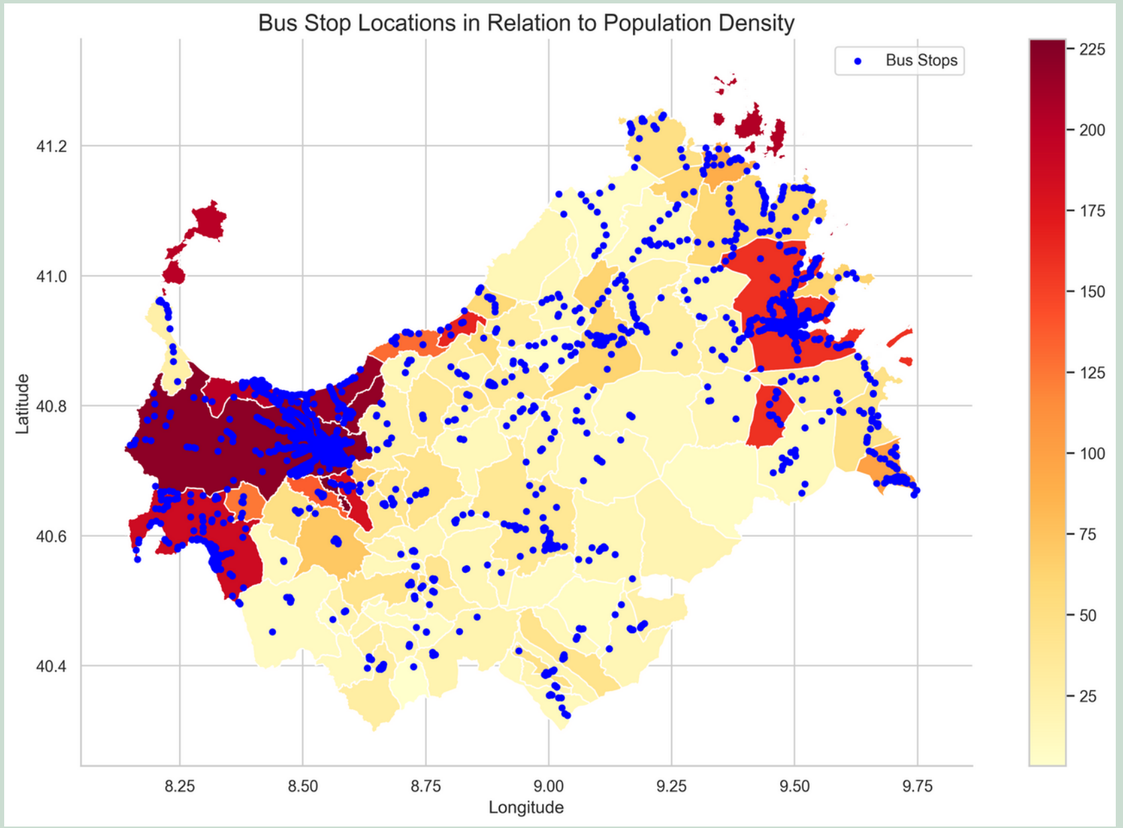
Table 2: Number of Stops within a Radius

TRANSPORT STOPS DENSITY

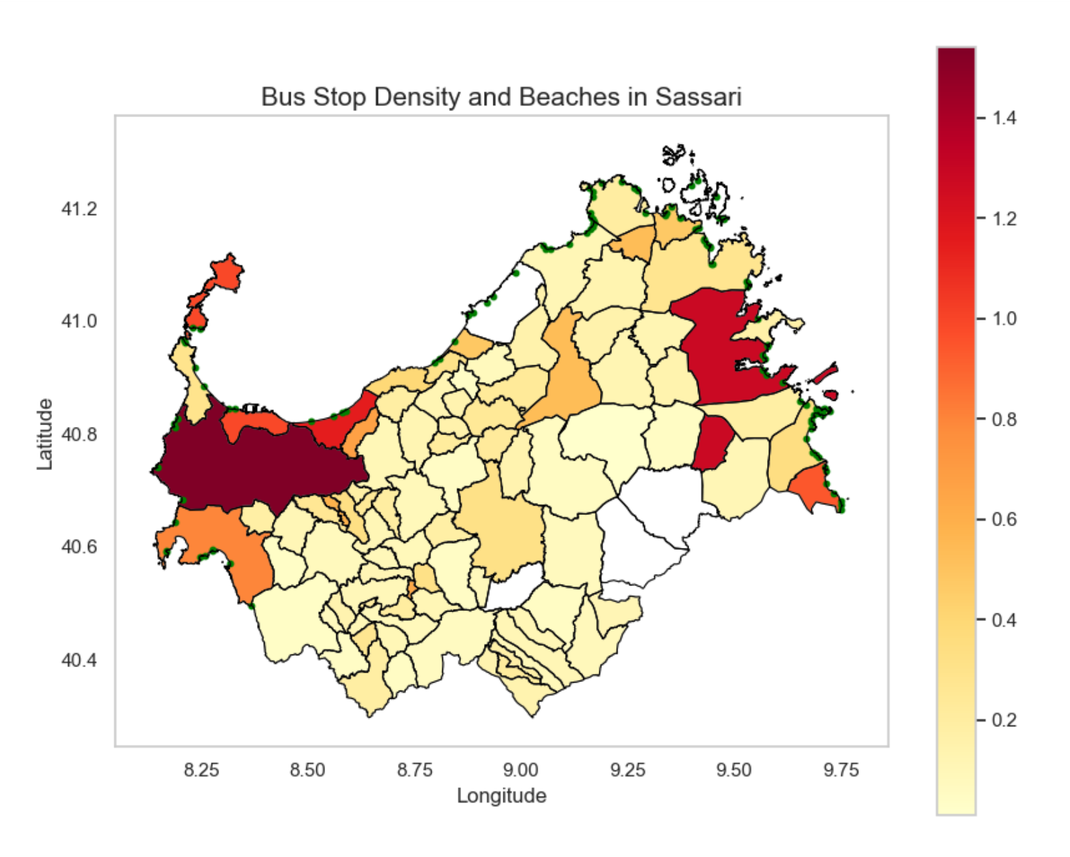


BUS STOP LOCATION AND POPULATION DENSITY





SEA ACCESSIBILITY

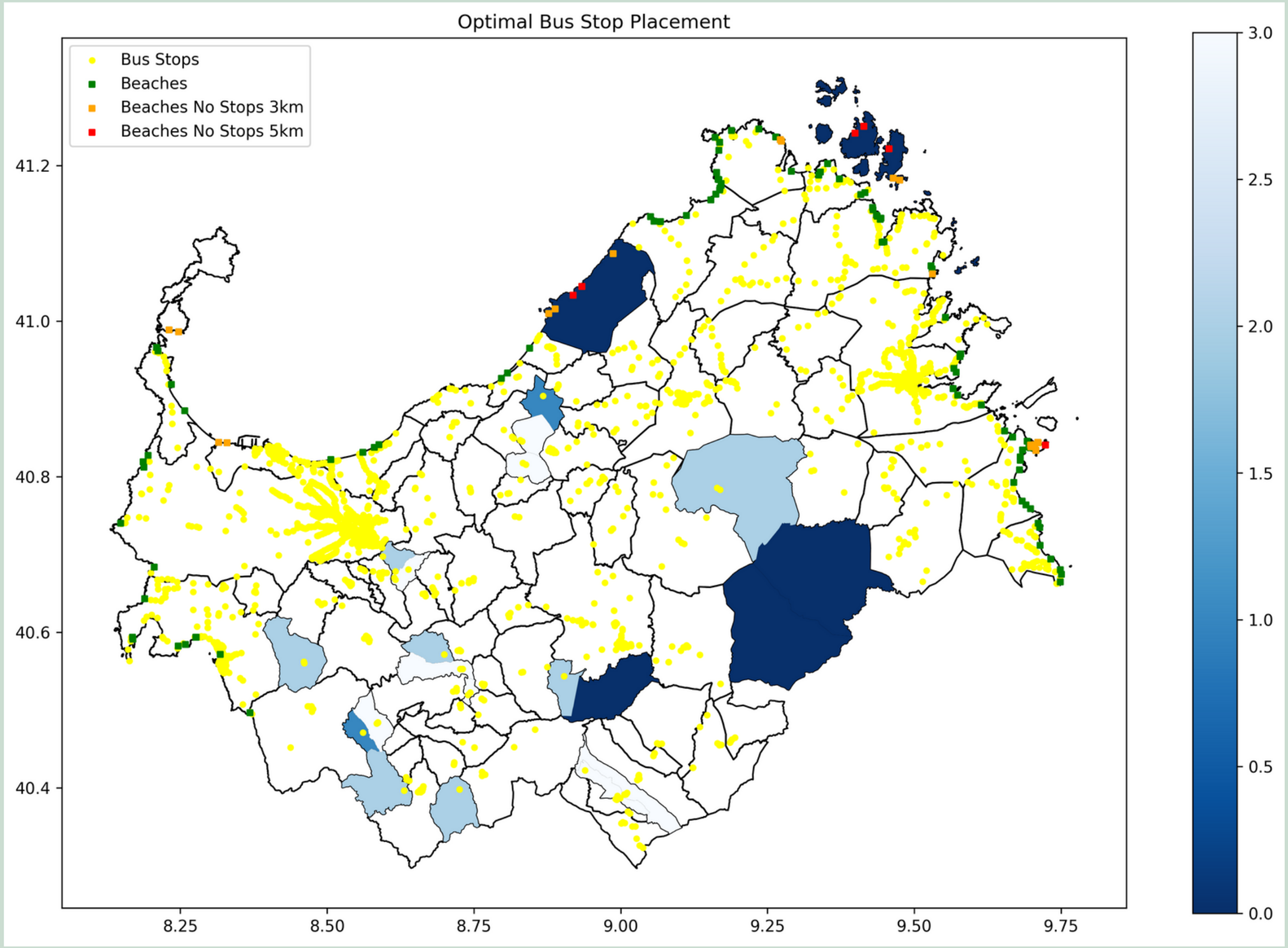


Sea Accessibility Index
0.803

Table 4: Sea Accessibility Index

Sea Accessibility Index (Weighted)
0.617

Table 5: Weighted Sea Accessibility Index


Optimal Bus Stop Placement
Bus Stops
Beaches
Beaches No Stops 3km
Beaches No Stops 5km
41.2
41.0
40.8
40.6
40.4
8.25
8.50
8.75
9.00
9.25
9.50
9.75
3.0
2.5
2.0
1.5
1.0
0.5
0.0

Fabrizio Cominetti

THANK YOU!

Data Science Lab for Smart Cities