



EU COMMUNITY
INTELLIGENT ENERGY EUROPE
Promotion & Dissemination Projects

Electric City Transport – Ele.C.Tra

**D.2.1. Report on Current mobility
and network of AVMap GIS S.A.**

Project Co-funded by the Intelligent Energy Europe Programme of the European Union

01 July 2013 – 31 December 2015

Work Package 2

ANTE-OPERAM ANALYSIS

Task:

Demand mobility flows; Infrastructural and service network

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Genoa

WP Coordinator:

MIEMA

Electric City Transport – Ele.C.Tra.

Deliverable Title: Report on Current mobility and network of Eastern Attica

Partner Responsible: AVMap GIS S.A.

Work Package 2: ANTE-OPERAM ANALYSIS

Submission Due Date:30/11/2013

Actual Submission Date: 30/11/2013

Dissemination level: CO

Abstract:

This document contents a summary about current demand flows, surveys results, infrastructural and transport services network for the Area of Eastern Attica, in consistence with the survey model and in order to highlight sustainable mobility issues and benefits. Finally, the Report will pay attention to the predisposition for electric vehicles use, in particular e-scooters.

Document Information Summary

Deliverable Number:	2.2
Deliverable Title:	Report on Current mobility and network
Editor:	<i>Coordinator:</i> prof. Andreas Vassilopoulos, <i>AVMap research team:</i> Konstantia Chartidou, Stamatia Rontogianni, Theodoti Tzimouli
Work package no:	2
Work package leader:	MIEMA
Work package participants:	All
Main Target Audiences:	Partners, Commission/EACI services, Public bodies and media and multipliers networks
Version/Revision:	1
Draft/Final:	Final
Keywords:	Mobility, needs, demand, transport offer, predisposition for e-vehicles

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Grant Agreement Number: IEE/12/041/SI2.644730 – Ele.C.Tra

Start Date: 01 July 2013

Duration: 30 months



Document Approval

Approved by	Date
Steering Committee:



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1. Introduction

According to the Ele.C.Tra. Project proposal and the 2.1 and 2.2 subtasks objectives, the deliverable D.2.1 named “Report on Current mobility and network” represents the main result of the whole WP2 “Ante-operam analysis”. This deliverable is referred to the area of Eastern Attica.

In this light, D.2.1 would like to highlight:

- demand mobility flows:
 - to identify attractor places (parking, schools, commercial districts...) and the main elements about day trips number, trip hours, transport means and mobility reason, in order to acquire a specific and technical starting point for the model, contextualization and experimentations and not for having a complete framework of all day trips, that it's not a real focus of the Ele.C.Tra project;
 - to systematize the actions already ongoing or planned in every city about mobility networks and local attractors, in consistence with what done in the best practices task and analysing the main local planning documents ;
 - to point out the main elements about the current scooters mobility, thanks to ex-ante surveys done in each project city, without to extend the activities to target group individuation and stakeholders involvement, that are activities planned in the next WPs;
 - to point out the predisposition for the e-scooters use by the current traditional scooters users and for those not using scooters (mainly car users) and then aptitudes, issues perceived or identified by citizens and advice in terms of electric and sustainable mobility;
- infrastructural and service network:
 - to identify the main infrastructural bottlenecks in the road network in every city, paying attention to the parking and interchange nodes situation in the urban area that are more suitable for scooters;
 - To systematize the main characteristics of the local public transport service in the main interchange nodes.

This survey has been implemented aiming to point out the transportation habits of the residents and visitors of Eastern Attica.

The questionnaires were realized via email survey, with the help of Google Drive, and through face to face survey. AVMap used one questionnaire, same for both residents and tourists. Due to lack of responses the total number of questionnaires was 284.

Total	284
Residents	200
Tourists	84

The port of Rafina attracts a big amount of tourists throughout the year, thus the questionnaires answered by tourists are a larger number than it was expected.

2. History of Transportation in *Eastern Attica*

The Prefecture of Eastern Attica is an administrative division of the Attica Region of Greece. It comprises of 13 new Municipalities under the Kallikrates Law. The population of the prefecture was 502,090 inhabitants during the 2011 census. Based on the 2001 and 2011 census results, the Prefecture of Eastern Attica presents an increase of inhabitants of approximately 23,7%. Its area is 1.459 km² and had a population density of 344 inhabitants per km² in 2001.

For the past 20 years and due to the hosting of the 2004 Athens Olympic Games, the Prefecture of Eastern Attica which gathered significant activities and events during the games, has met an outburst of development in regards to major infrastructure projects connecting the Prefecture to principal axes of the country's transport, as well as traffic, environmental, cultural and aesthetic improvements occurring in the wider surrounding area.

2.1. *Characteristic Observed in Mobility Trends*

The international airport of "El. Venizelos" in Spata, and the ports of Rafina and Lavrion are key competitive advantages for the tourism development and promotion of Eastern Attica.



Figure 1: International airport "El.Venizelos"

Modern roads in conjunction with the development of the cruise industry, mainly in the port of Lavrion (next to the International Airport and Sounion), provide an economic breath to the local communities of Messogeia and Lavrion, allowing tourists to visit the area sites, and learn about their history, as a region break destination, before visiting the Cyclades.



Figure 2: Rafina's port

Beaches in Eastern Attica, such as Astir Palace in Anavissos, Voula, Black Lithari, Avlaki in Porto Rafti, beaches in Keratea, Cape Sounion, Rafina, Nea Makri and Schinias, are considered amongst the cleanest and best beaches of Attica; awarded with the blue flag, they are considered a destination for foreign tourists, before they embark to a holiday island.

It is also important to note that the Prefecture hosts the 2nd largest seaport in Attica, that of Rafina, serving millions of travellers every year.

Both the touristic and infrastructure nature of the area pose significant challenges in the field of transportation within Eastern Attica.

3. Demand mobility flows

The most important flows in the Eastern Attica area are from and towards the port and airport. As mentioned above, access to the airport is much easier than reaching Rafina's port.

3.1. Sites of Attraction

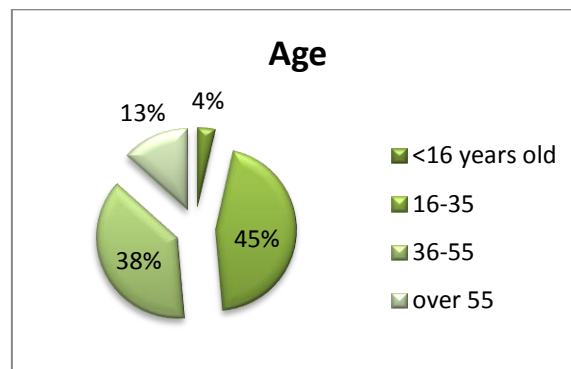
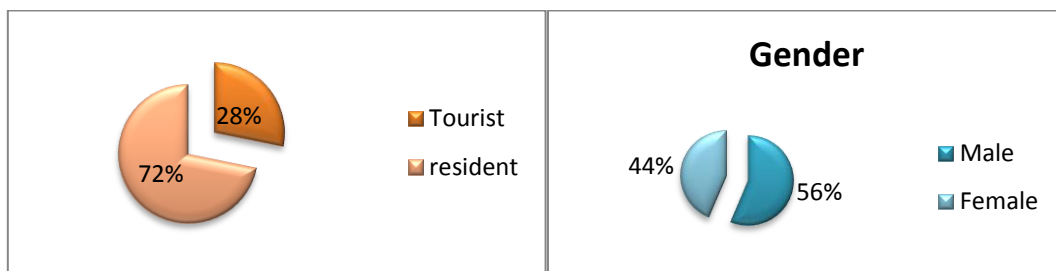
The comparative advantages of Eastern Attica, through a specific marketing plan of tourism product initiate from the area history. The Prefecture hosts world famous monuments, including the Temple of Poseidon at Sounion Lavreotiki, the Marathon Tomb and Battle site, the Temple of Artemis Athena, the Museum in Artemida, the Lion of Kantza, and the Lavrion old mines, which are considered key historic features of the area and have the capacity to become an attraction for both foreign and domestic tourists. The paths of history continue

through the oldest continuing theater, that of Thorikos in Laureotiki, the ancient Temple in Vouliagmeni, the paleontological finds in Pikermi and that of the classic Marathon route.

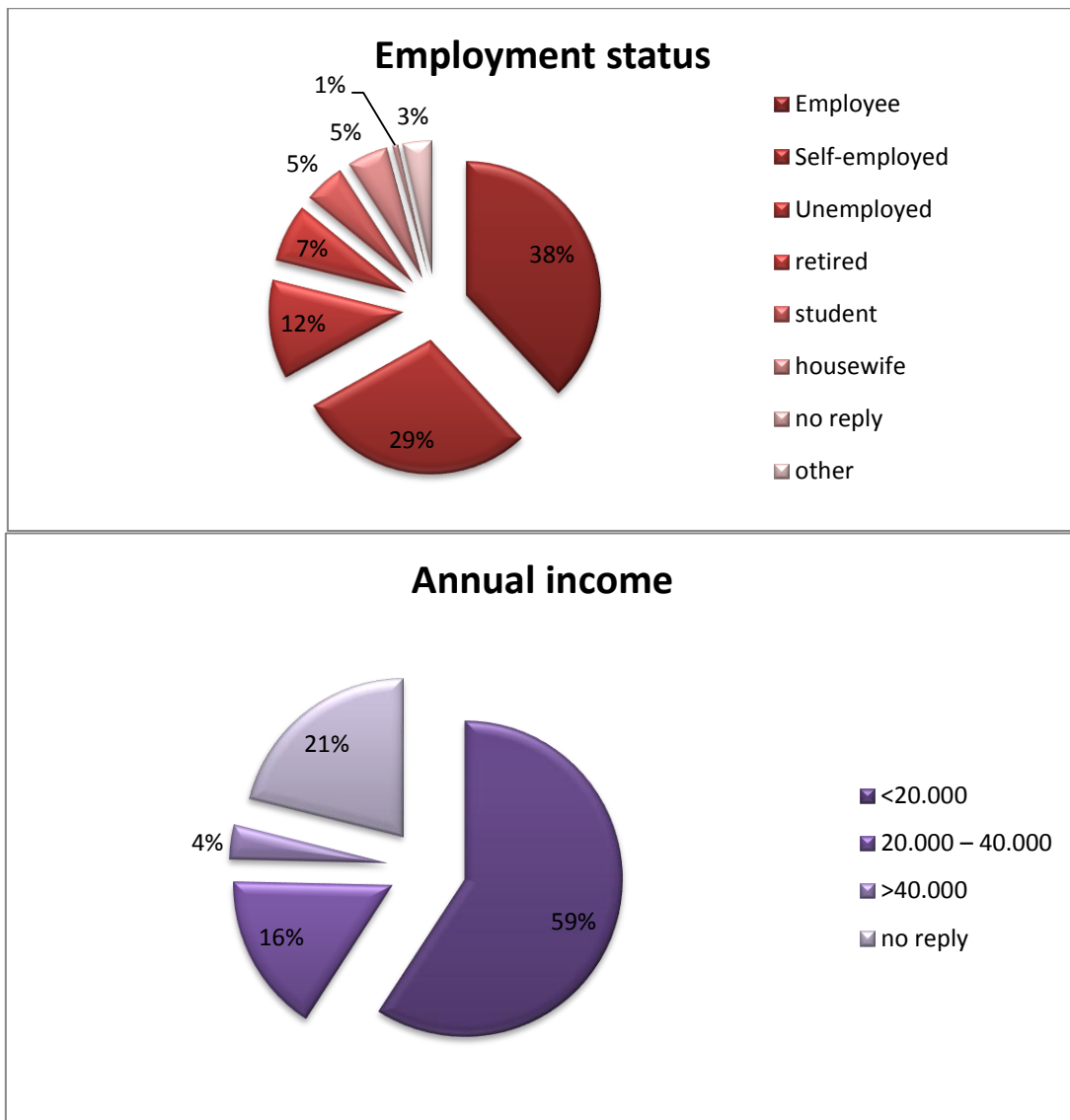
3.2. Survey

3.2.1. General data

The survey for the transport habits in the area of Eastern Attica was implemented with a target group of residents and tourists. Out of the total of questionnaires answered, 72% were residents and 28% tourists. Most of the people who answered were men and the average age was 16-35 years (45%).

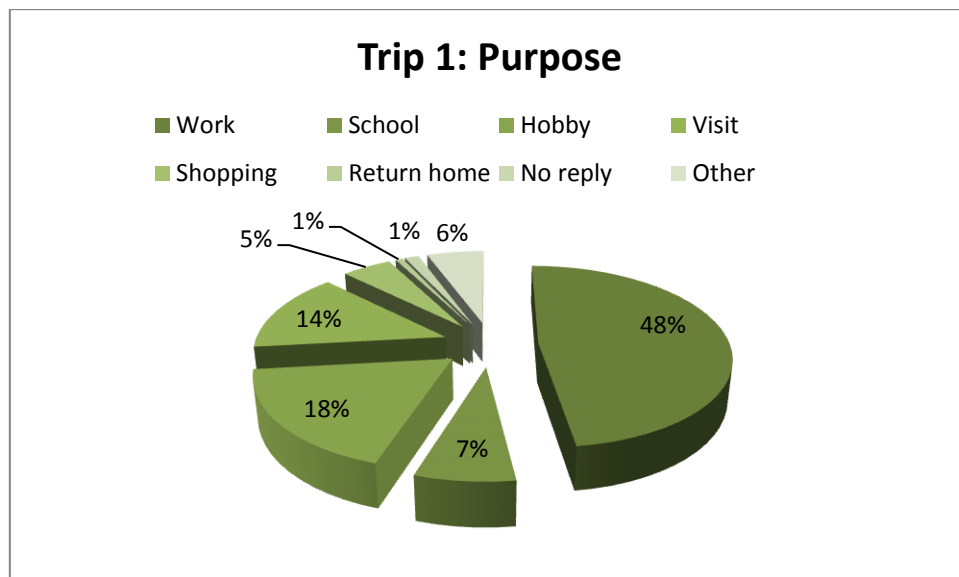
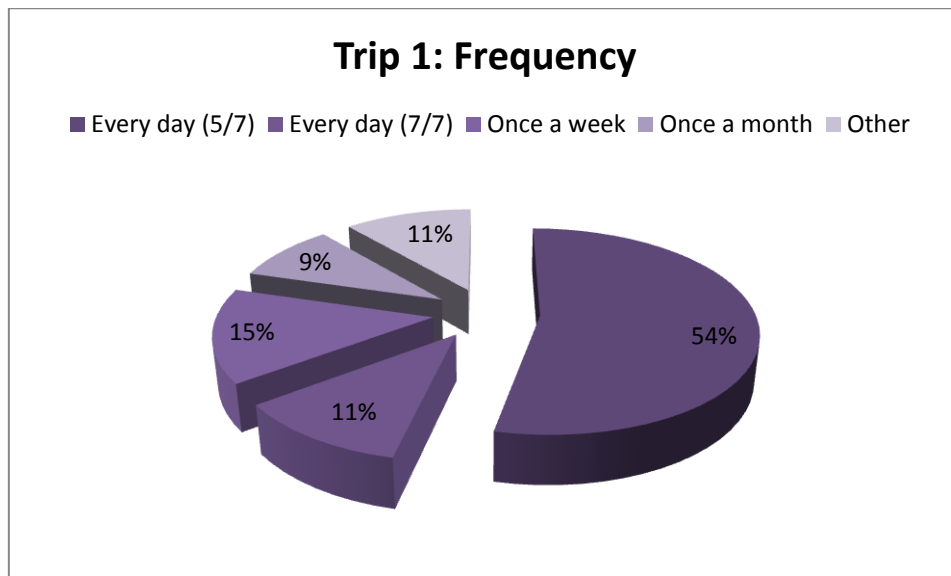


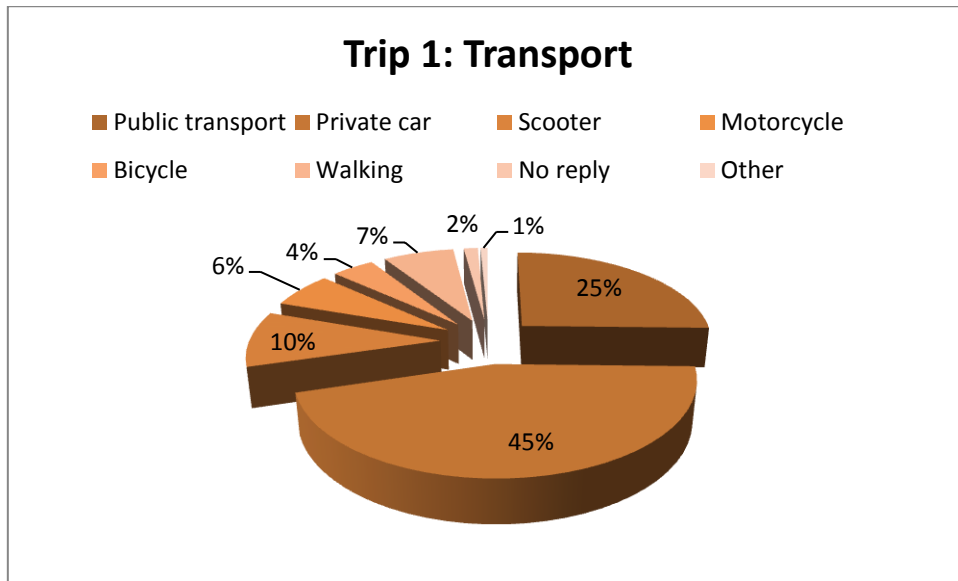
Most of the responders are employees (38%) or self-employed (29%). The annual income of the 38% of the sample is >20.000€ while 21% have not replied to this question, with the main reason of not replying being unemployment, thus not having any income to declare.



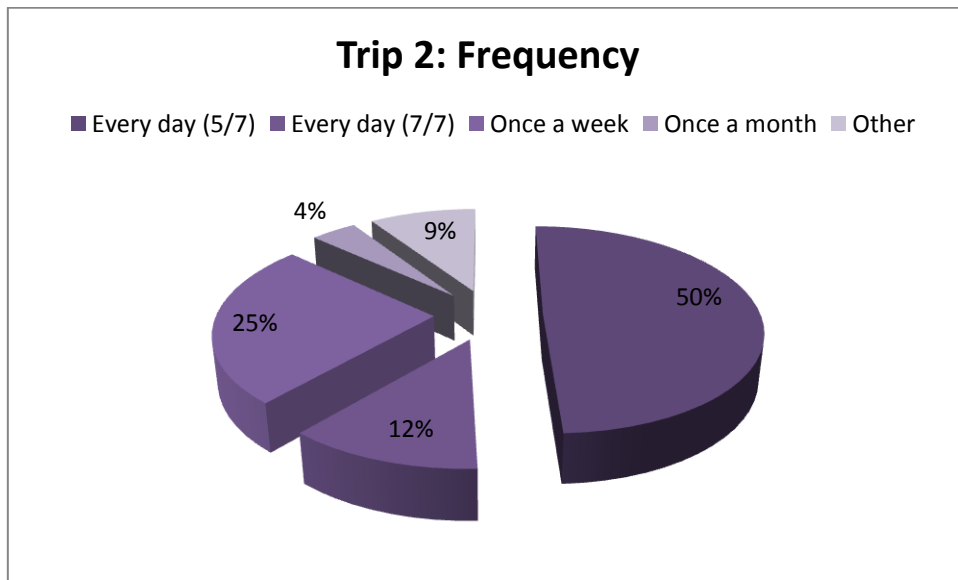
3.2.2. Trips

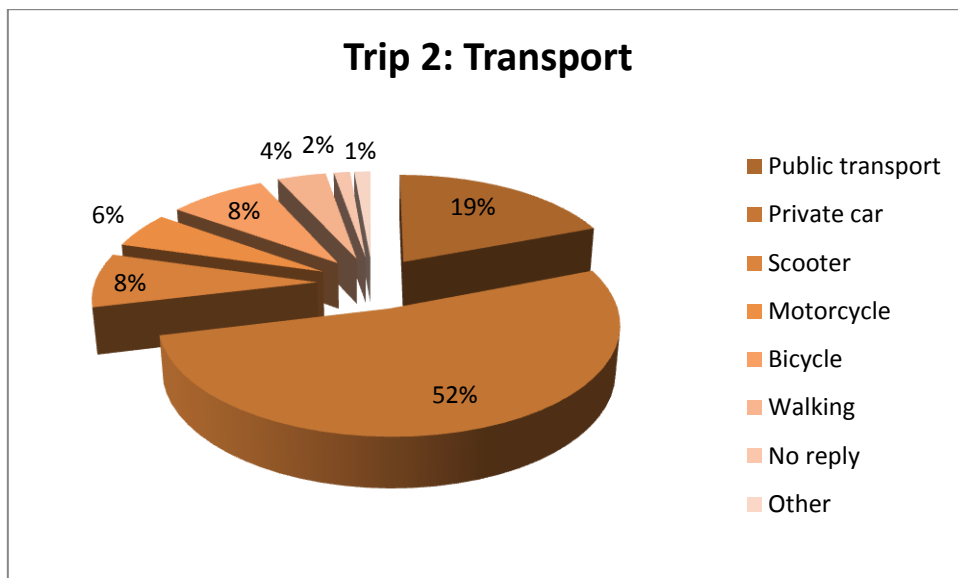
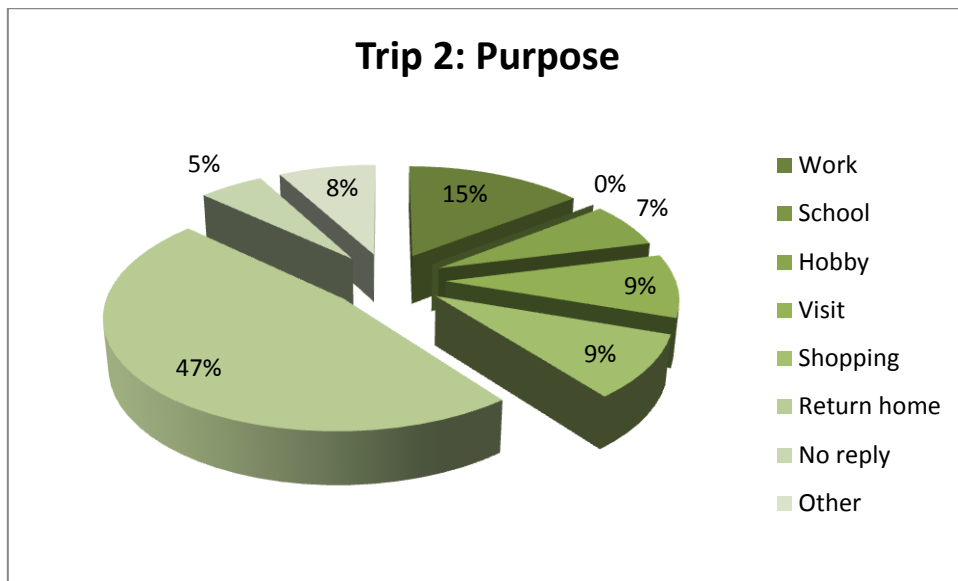
The first trip that was most described is occurring five days a week and the main purpose is work. 45% of the sample use their own car and only 25% use the public transport. The origin of the trips usually are places in the Eastern Attica such as Pikermi or Rafina. The destinations usually are Athens' downtown center or areas around the city center. The average time of each trip is 45 minutes.



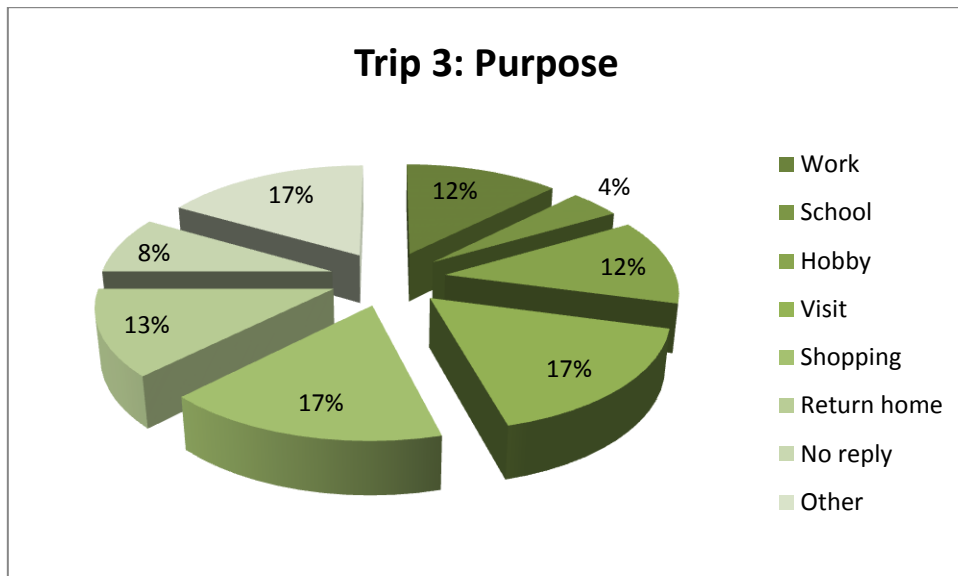
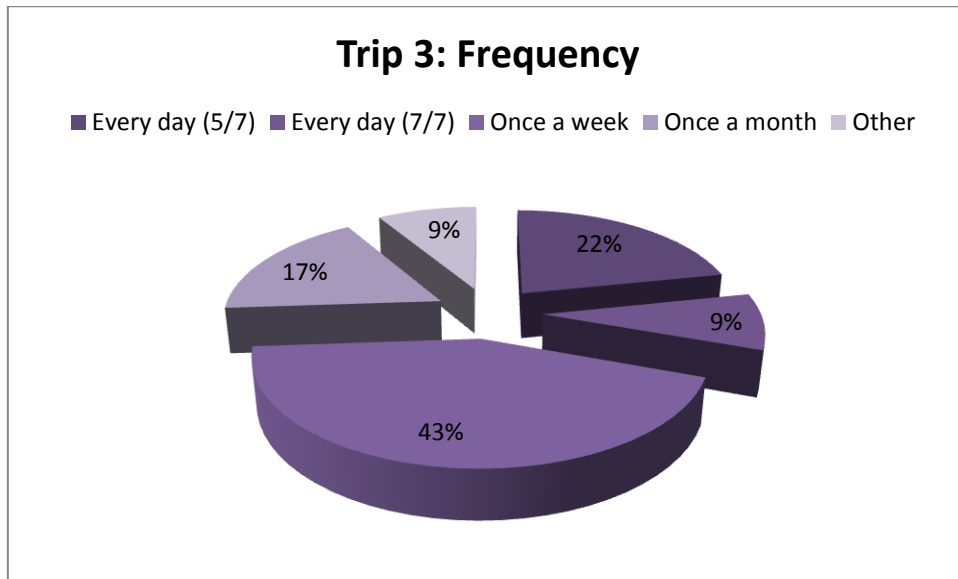


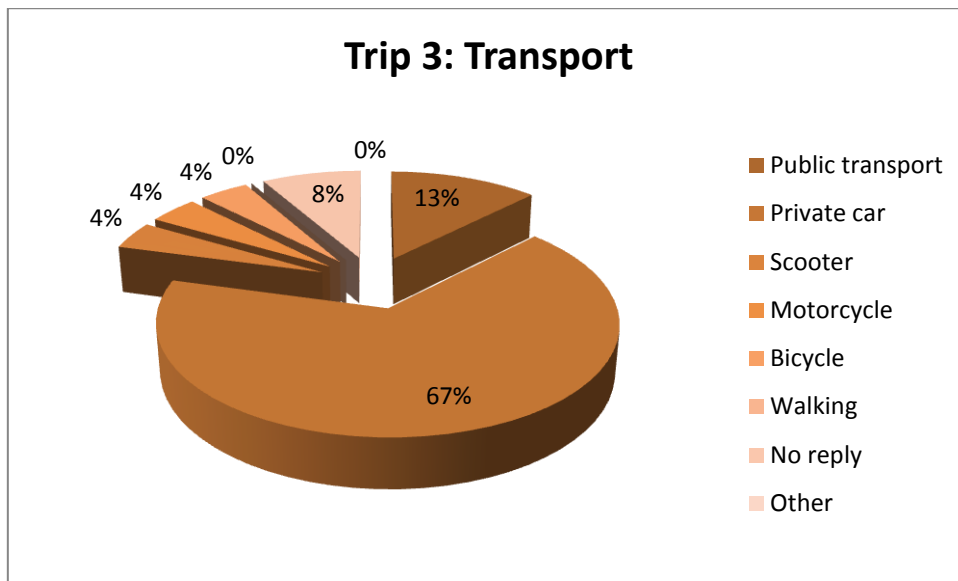
The second most frequented trip has almost the same characteristics with the first, because most people who replied to the questionnaire described their trip back home from work. 52% is using their car to return home and only 19% use the public transports. The origin is the opposite. They start from various places in Athens (center, Chaidari, Thiseio etc.) with their destination being areas in Eastern Attica such us Pikermi, Koropi and Rafina. The average time of each trip is also described as 45 minutes.



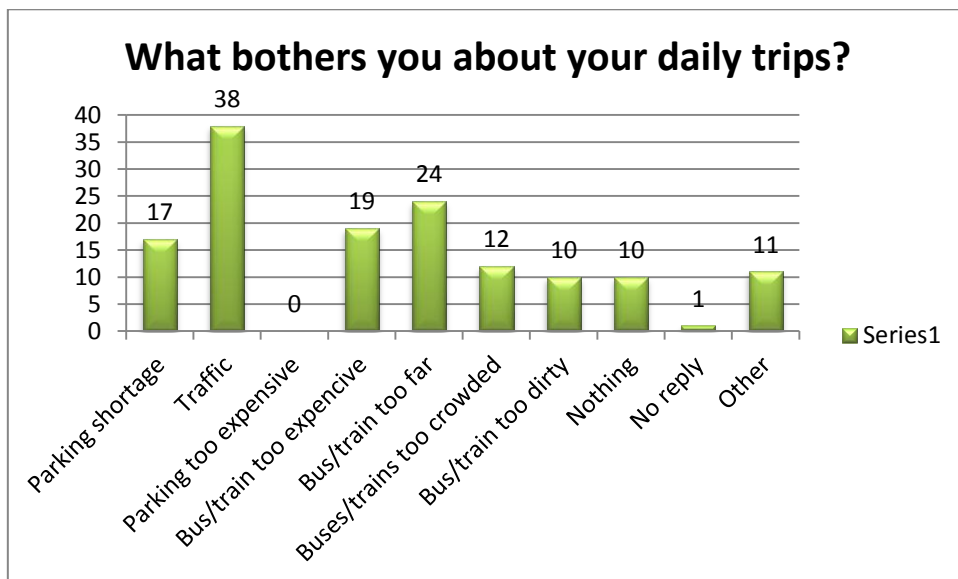


The third most frequented trip gave different answers. This trip refers to people taking trips to Eastern area once a week mostly with their cars, with the main purposes being hobbies (17%), visits (17%) and shopping (17%). 67% of people use their cars for trips in the areas within the Eastern Attica due to the lack of appropriate public means of transport. The places that are most visited are the Athens downtown center and the big urban areas of Eastern Attica such as Rafina, Pallini, Pikermi and Koropi.





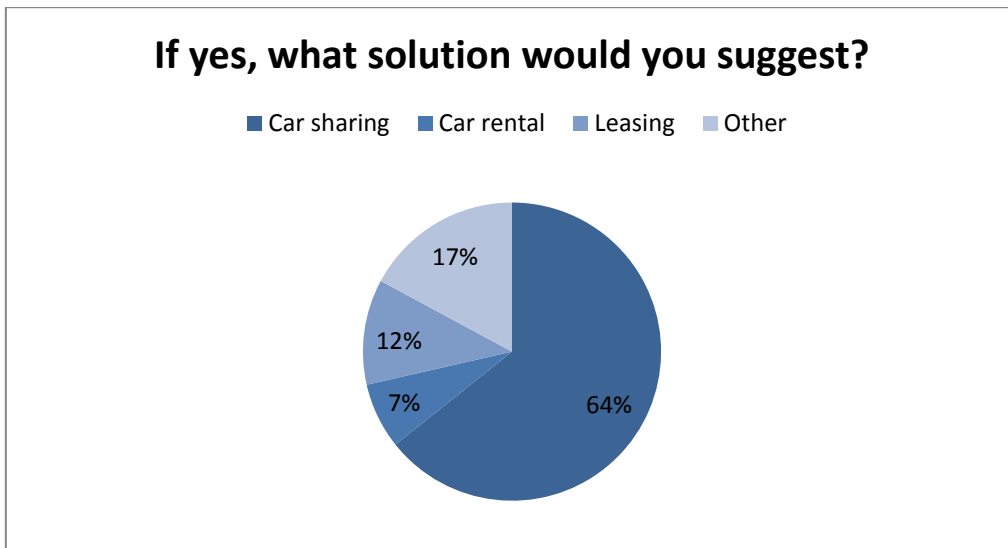
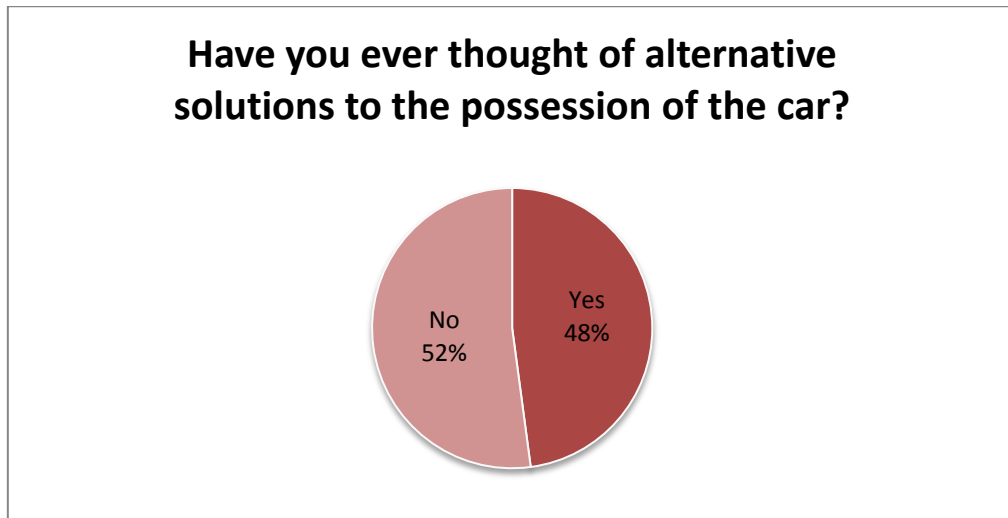
When questioned about what bothers people the most on their daily trips, 27% answered the traffic, 17% said that the busses/trains stop too far from their destination and 13% said that the buses/trains are too expensive.



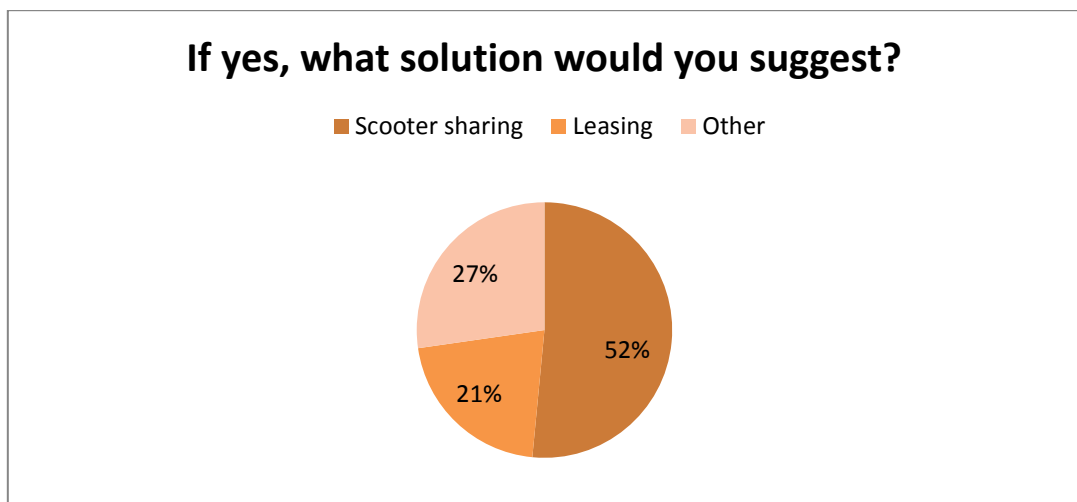
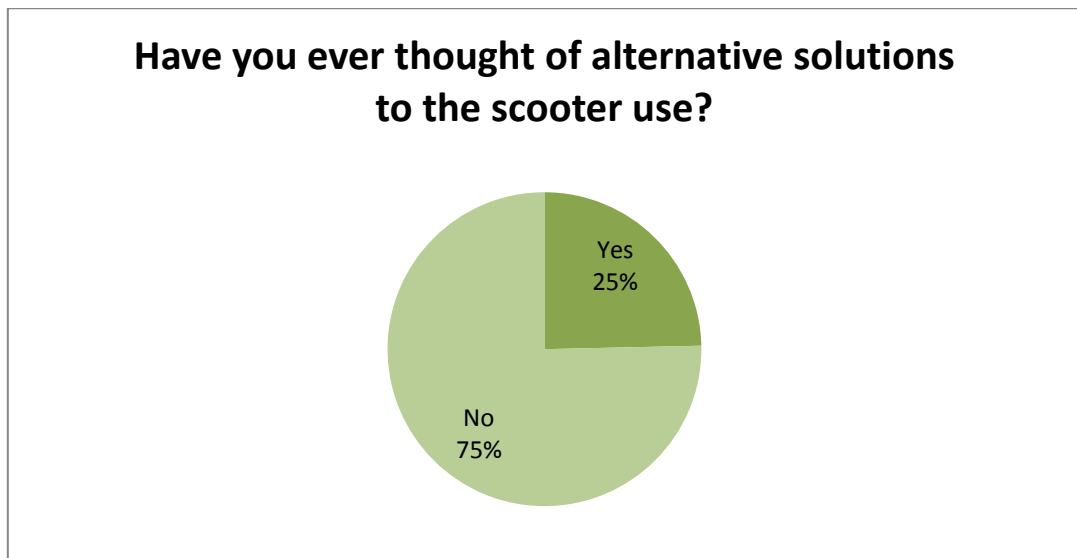
3.2.3. Transports

3.2.3.1. Private Vehicles

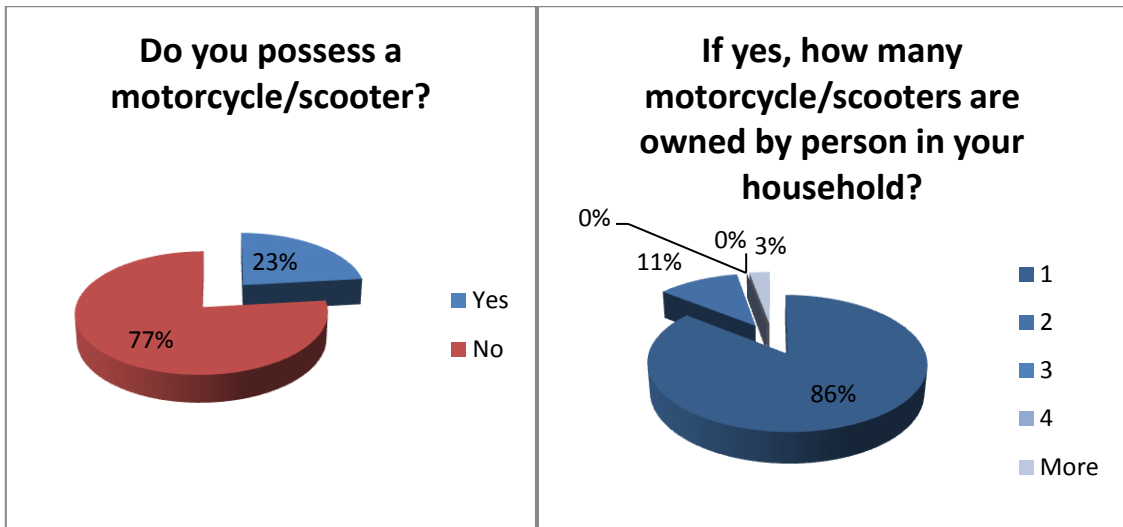
When questioned whether they have ever thought of alternative solutions to car ownership, almost half of the residents and tourists had that thought and 64% said that the solution would be car sharing.



When asked the same question for scooters, the percentage is obviously smaller. Only 25% have ever thought of alternative solutions for scooters use. The solution the most suggest (52%) is the scooter sharing.

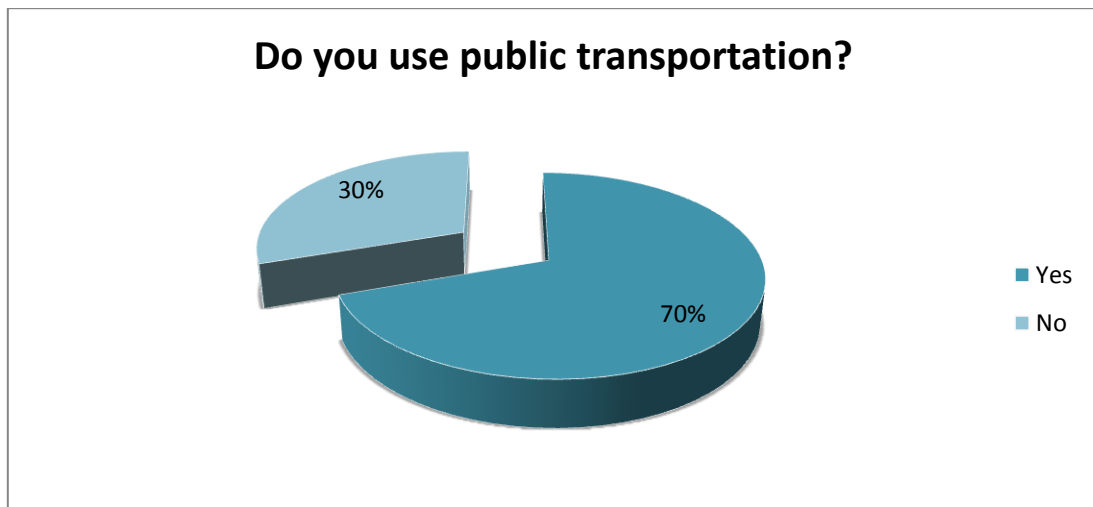


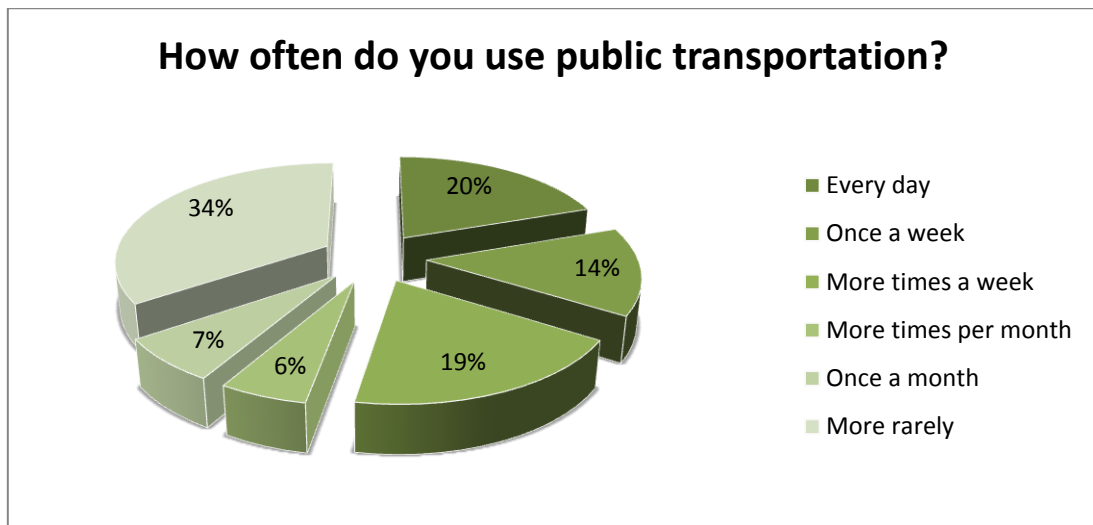
When asking the target groups about whether they possess a scooter or a motorcycle, only 23% answered yes, 86% of whom have only one motorcycle per household.



3.2.3.2. Public Transports

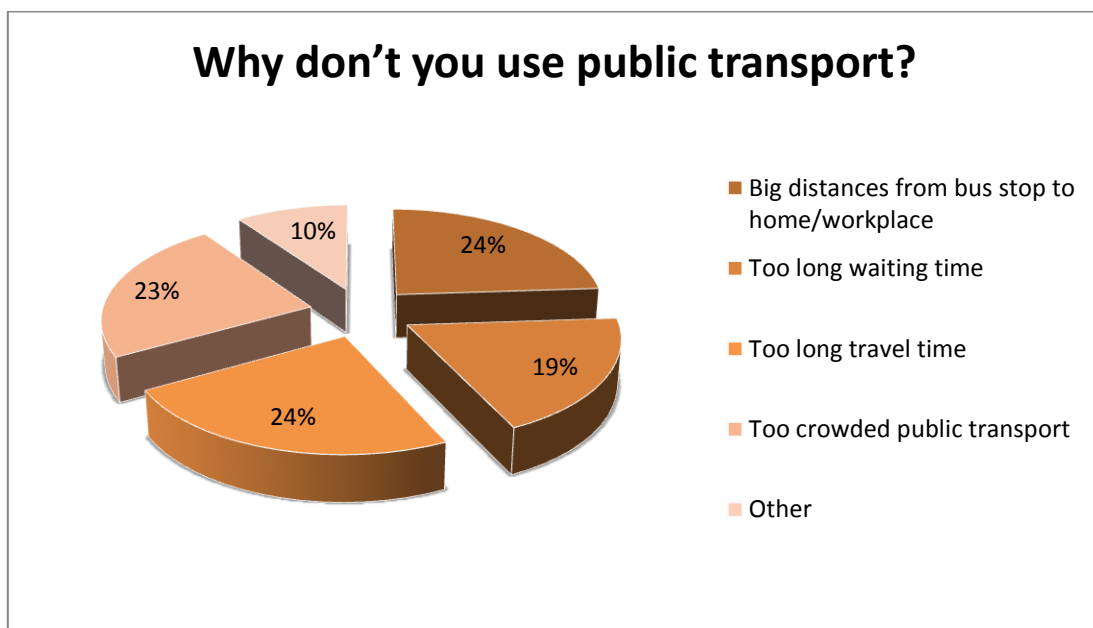
70% of the responders use the public transportation but rarely (34%). Only 20% uses every public transportation on a daily basis.





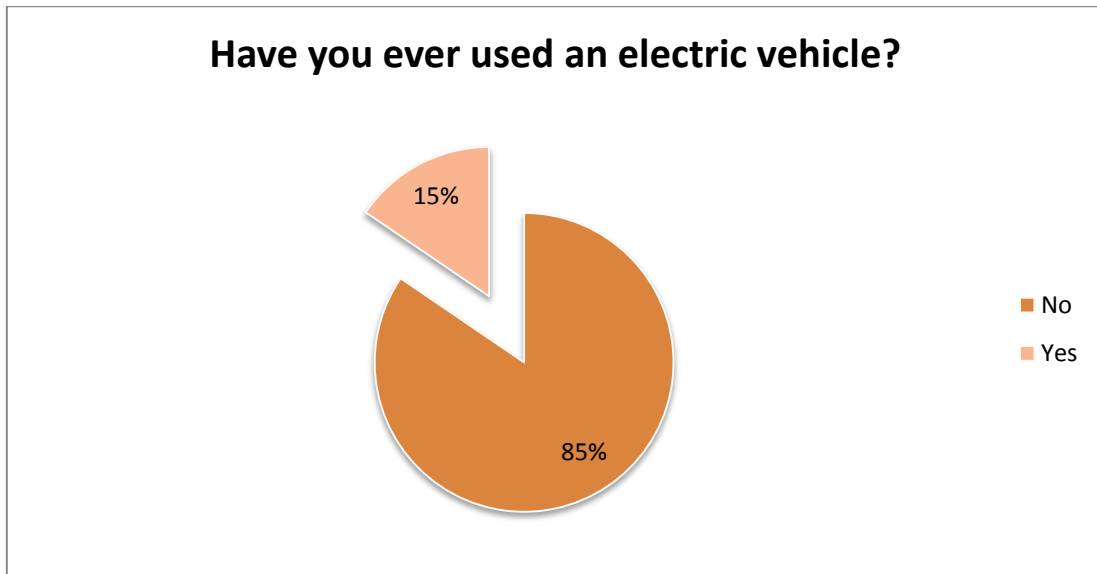
The reasons which force them not to use public transportation are:

- 24%: big distances from bus stops to home/work destinations,
- 24%: too long travel time,
- 23%: buses/trains are too crowded,
- 19% do not use public transportation due to too long waiting time.

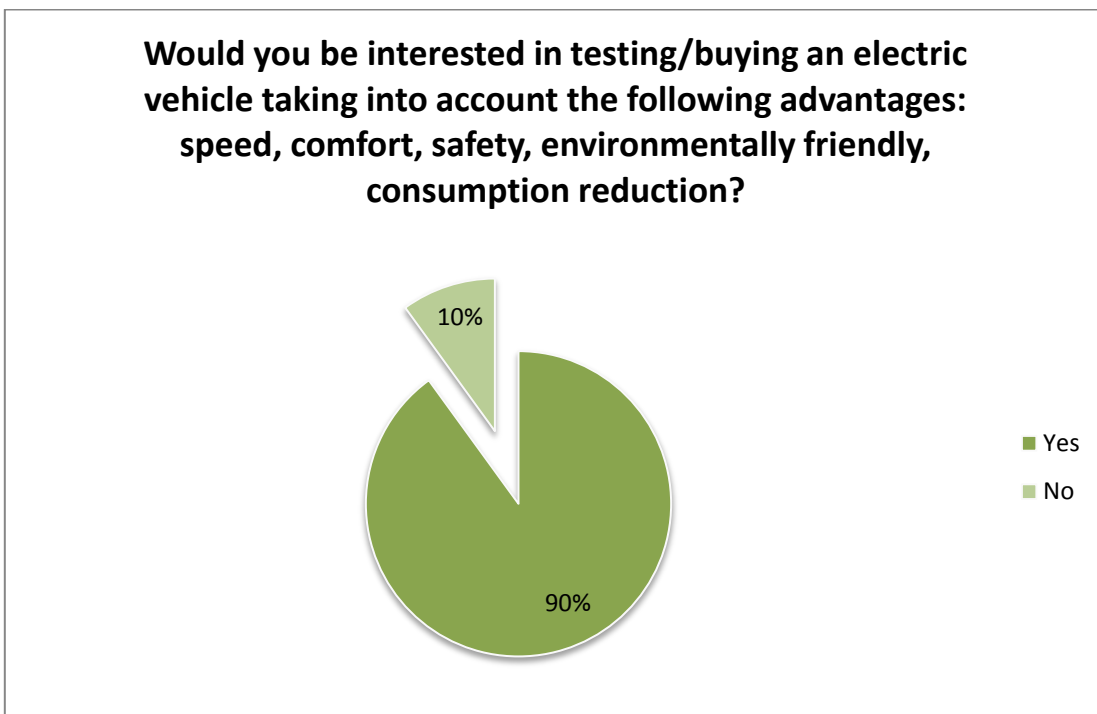


3.2.3.3. Electric vehicles

According to the survey, 85% of responders have never used an electric vehicle but 90% have positive thoughts to testing or buying one.

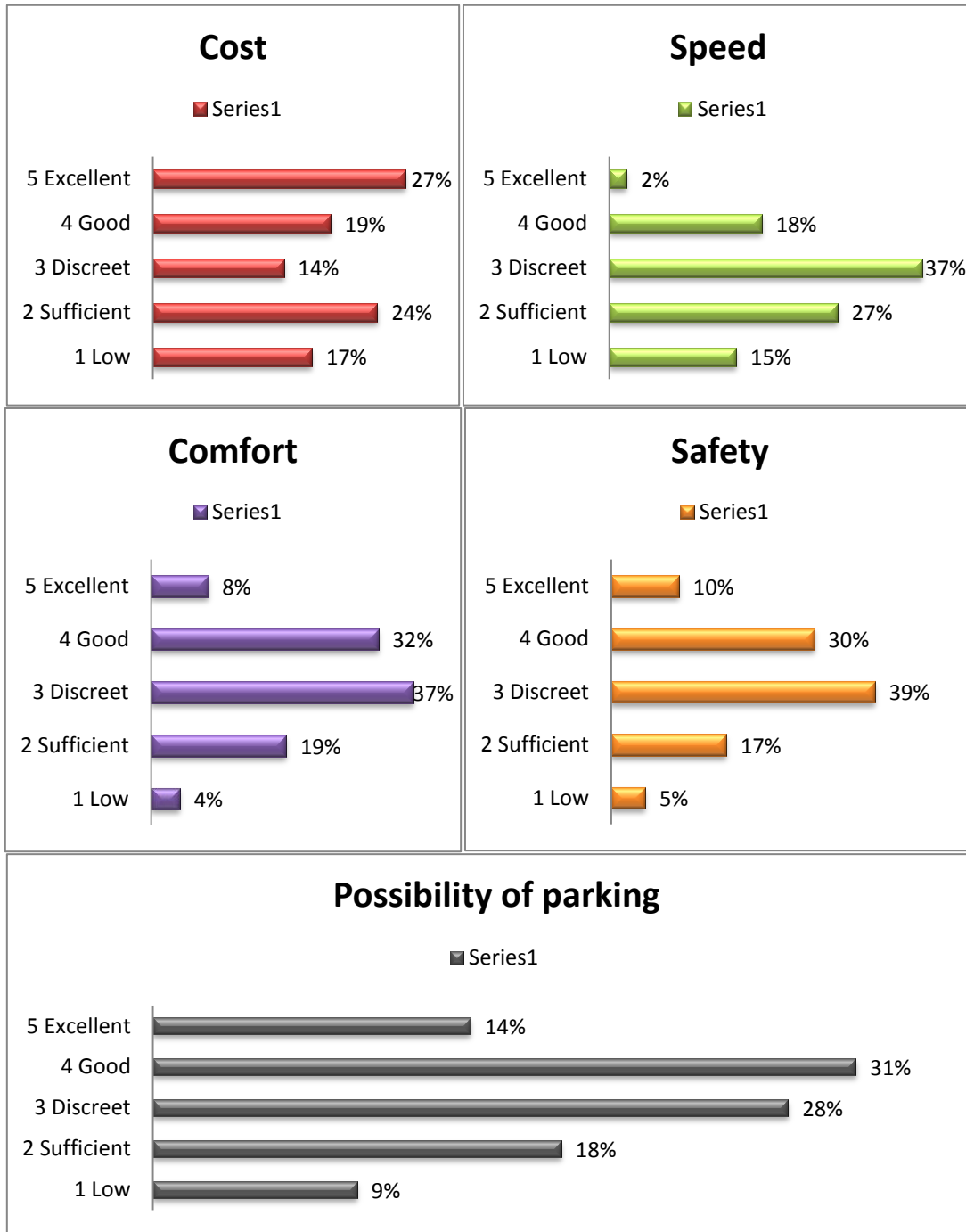


Out of 15% that had at least once tried an electric vehicle, 26% have used electric scooters while the remaining percentage is equally distributed to car, bicycle and no reply.

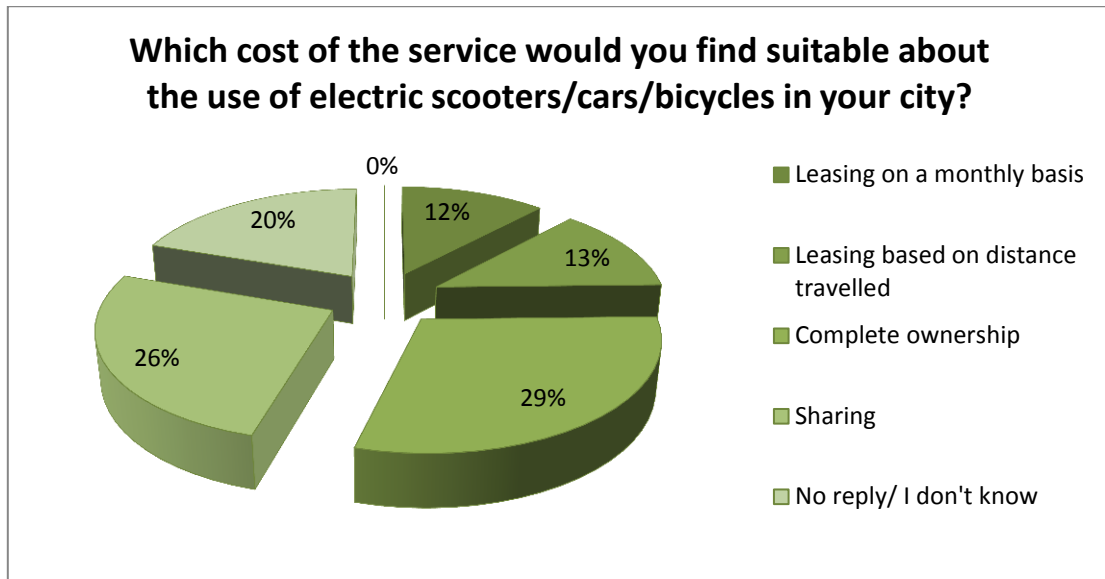


When asked how they would rate the following aspects of electric vehicles, 27% answered that the cost is too high, while 37% valued speed, 37% valued comfort and 39% of the responders valued safety as important aspect. It should be mentioned that 30% believes that electric vehicles are pretty safe. Finally, 31% believes that it is possible to park with an electric vehicle.

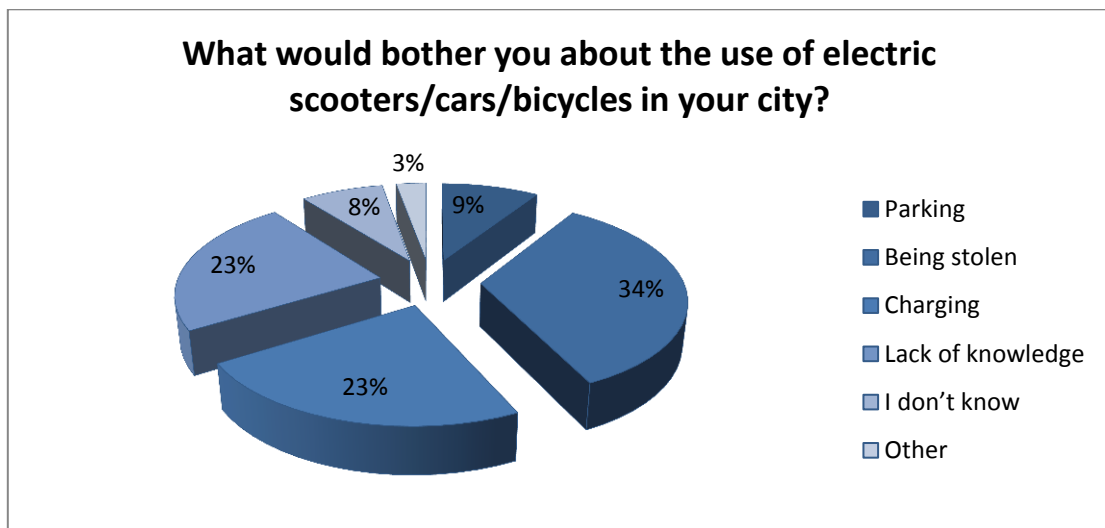
How would you rate an electric vehicle on the following aspects?



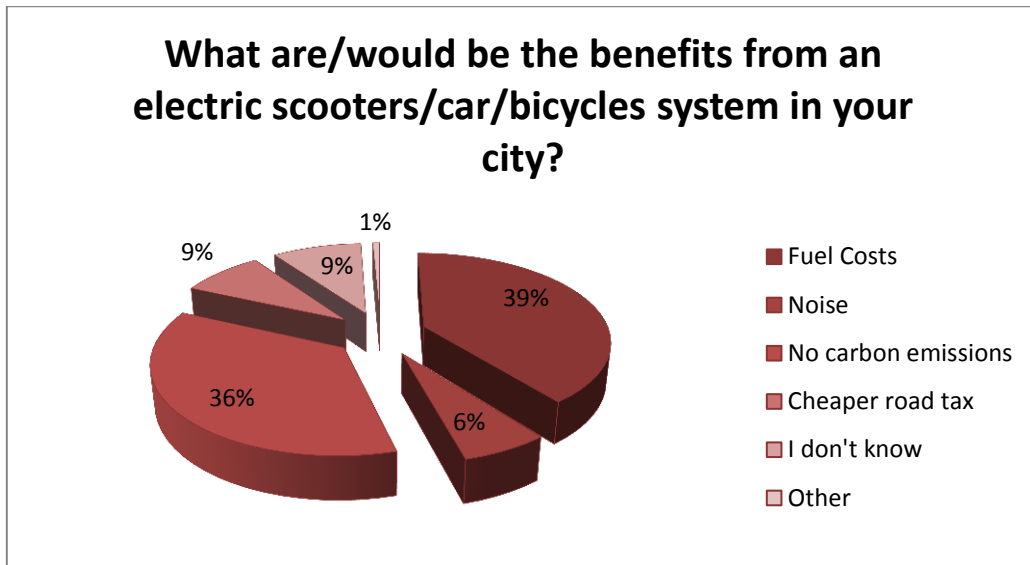
29% think that the more suitable service about the use of electric vehicles is complete ownership and 26% believe that sharing would be better.



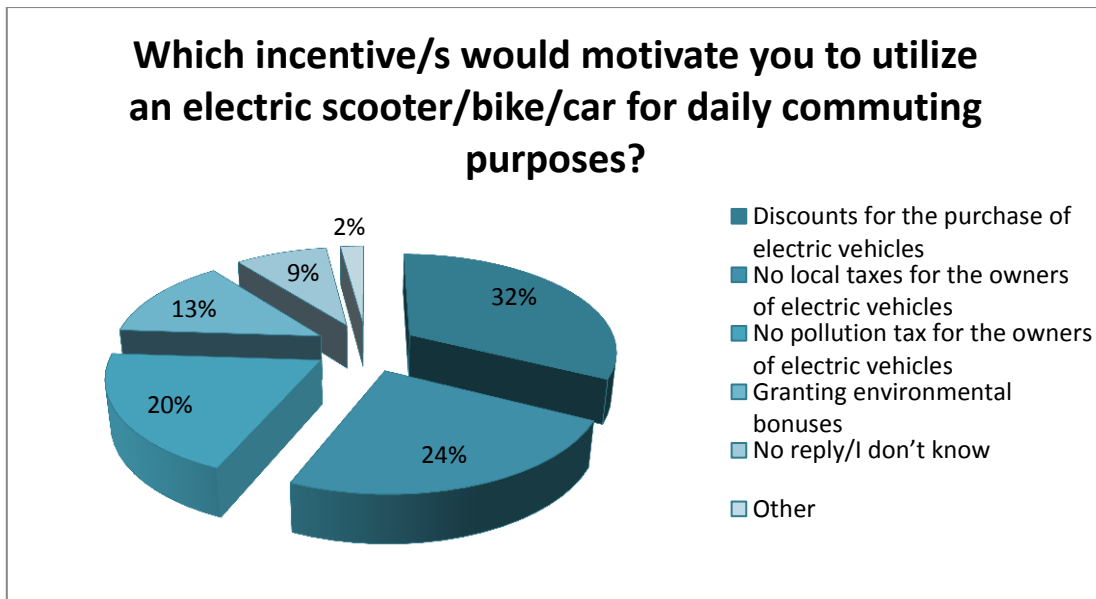
The first thing that the users are afraid of is the case that the vehicle will be stolen (34%) and the second one is the case of charging the vehicle batteries (23%) and lack of knowledge (23%).



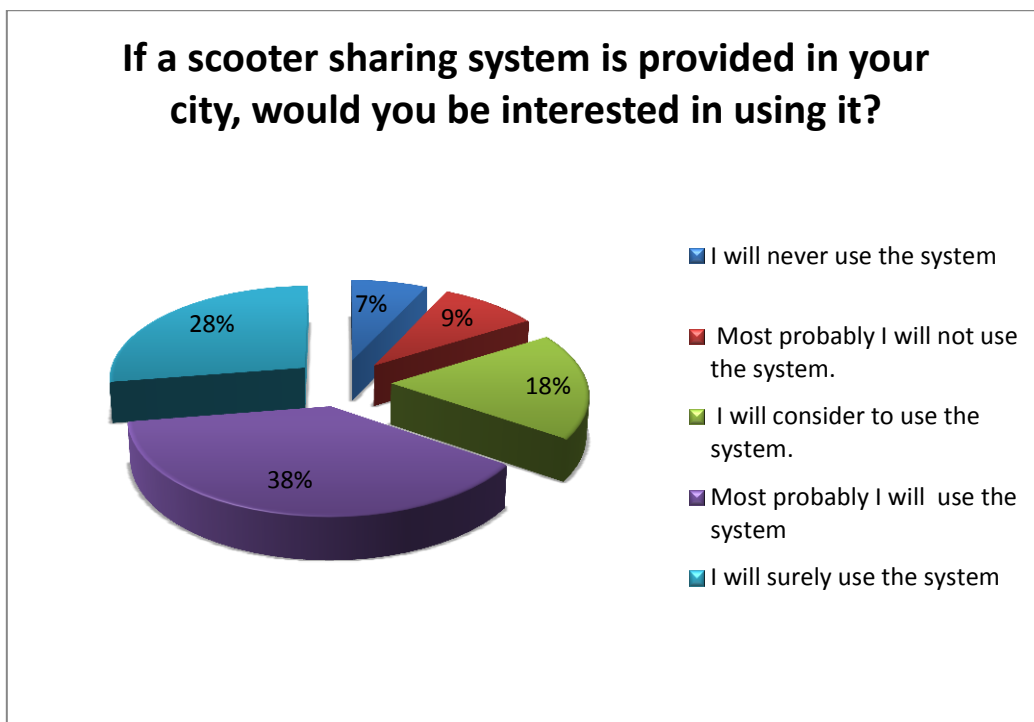
The benefits that respondents highlighted are: reduction of the fuel costs (39%), reduction of the carbon emissions (36%), reduction of noise (9%) and some of them they did not know a reason (9%).



The incentives that will probably motivate the residents and tourists to utilize an electric vehicle are firstly the discount of purchase of electric vehicles (32%) and secondly the exemption from taxes, local taxes for the electric vehicle owners (24%) and pollution taxes (20%).



Finally, in the question of whether they would be interested in using a scooter sharing system in their city, 28% will surely use it and 38% would probably use it.



3.2.4. Sustainability in transport

Sustainable mobility means "Satisfying the transportation needs of generations without damaging the environment in order to respect the right for a healthy environment of future generations". Sustainable mobility is therefore the mobility model that enables movement with minimal environmental and territorial impact. This definition was given to the responders and afterwards they were asked to put in order, according to their opinion, from the most important to less important the following sentences. The table below indicates the final result of the survey.

1	f. Collective passenger transport: Bus services, Rail transport, Intermodal transfers, Integrated ticketing, Park & Ride, Accessible transport systems, Bus rapid transit, Quality of service.
2	c. Sustainable (green) transport infrastructure: greenways, bikeways, busways, railways
3	d. Access restrictions: Access management / Enforcement, Car Restricted Zones /Living Streets, Parking Management, Pedestrian zone, Traffic calming / Speed reduction
4	b. Other alternative fuels and other technologies (natural gas, Liquefied Petroleum Gas (LPG), Bioethanol (alcohol), biodiesel) that allow a different motorization

	(electric and hybrid vehicles)
5	a. A model of sustainable mobility would be one in whose means of transport consume the least energy and produce less pollution per km travelled and passengers have greater recognition (travel on foot, by bicycle, collective transport and shared car)
6	e. Integrated pricing strategies: Congestion pricing, Integrated ticketing, Parking Management