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Good Transport Practices in University of West Attica

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Abstract. University of West Attica operates in three Campuses, all within the metropolitan region of Attica, indicating that the mobility characteristics of these campuses are similar to urban models and in most cases, could be used as a test area for mobility policies related to public transport, multimodality or transport restrictions. Within the Covid-19 period, University of West Attica made important progress in transport related issues that are very critical for the smooth operation of the campuses and the University as a whole. The key transport related good practices refer to several thematic areas including parking management, soft modes infrastructure, public transport, car related issues, road infrastructure, environment, and energy. All these key interventions have a positive impact not only for the members of the academic society of University of West Attica but also to the mobility characteristics of West and Central Attica where university campuses are located and interact with Attica residents and tourists.

Keyword:

University of West Attica, Campus, Urban Mobility, Transport, Parking

1. Introduction

1.1. Transport policies in university campuses

Sustainable mobility for cities has been a key concept for more than two decades [1,2]. The advent of mobility management programs or sustainable urban mobility plans has increasingly penetrated the structure and operations of universities as a tool to battle commuting problems and integrate universities in cities' transport system and operations in a sustainable manner [3].

In this context, university campuses should be seen as spaces that require the use of sustainable transportation policies and, therefore, appropriate mobility management

strategies. In an ideal scenario these should also be fully integrated and in accordance with the city's global approach on this matter. On the other hand, these locations due to their variety of uses and most importantly their typical users can be extremely important as an example for promoting sustainable transport habits that can be maintained throughout the entire life. They can also act as good examples for students that in the future will have an active role in institutions responsible for urban mobility management [4]. Another advantage is that generally young people are less reluctant in changing habits and accepting new concepts and mobility strategies. It should be noticed that the mobility management strategies described in this text although applied in a University campus context can be easily adapted to other urban spaces naturally with some adjustments [5].

Finally, a key parameter that affects the entire mobility system of a campus is its location i.e. whether it is based in the city center, in the suburbs or outside the urban area. For example, most campuses located in the city center face mobility problems, due to the city's congestion, the lack of space for parking, active modes of transport, but also have advantages on the accessibility as they are easily accessed by public transport and soft modes (walking, cycling) [6].

1.2. University of West Attica

University of West Attica includes twenty-seven departments, organized into six Schools, covering a wide range of disciplines. The School of Public Health, the School of Management, Economics and Social Sciences, the School of Food Sciences, the School of Health and Welfare Sciences, the School of Applied Arts and Culture and the School of Engineering. The schools' fields of study cover a wide range of modern science, including social, administrative and economic sciences, engineering sciences, health and welfare sciences, food sciences and art studies.

The recently established university is the third largest in the country in terms of student numbers. It has approximately 52.000 undergraduate, 1.150 postgraduate and 210 doctoral students. University of West Attica has expanded to three Campuses within the metropolitan region of Attica.

- The Egaleo Park Campus lays in the administrative boundaries of the Municipality of Egaleo, surrounded by the streets Milou, Agiou Spyridonos, Dimitsanis, and Edessis (Figure 1a).
- The Ancient Olive Grove Campus is also located in the Municipality of Egaleo, on Petrou Ralli and Thivon Streets, on the border of the historic Athens Olive Grove, where Ancient Athenian Philosophers gave academic lectures (Figure 1b).
- The Athens Campus is located in the Municipality of Athens on Alexandras Avenue and is housed in the premises of the former National School of Public Health in a building of particular historical value that underwent restoration works a few years ago (Figure 1c).



Figure 1. Campus 1



Figure 2. Campus 2



Figure 3. Campus 3

It should be also noted that the University maintains permanent partnerships with other domestic and foreign educational and research institutions, with the aim of continually improving the level of study. In addition, it is highly involved in various European Union Programs aiming for international collaborations, development of innovation and dissemination of knowledge.

1.3. Objective and structure

The objective of the present research is to present and analyze the transport related good practices that have been implemented in the University of West Attica in the last couple of years despite the Covid-19 circumstances. The paper is structured as follows. In the beginning, the relationship between urban mobility and university campuses is analyzed while some important information regarding university of West Attica are provided. Then the methodological approach and the respective good practices are presented, and the overall conclusions and future challenges are set.

2. Methodology

Considering that sustainable urban mobility includes a wide range of areas that affects transport policies and measures, the key thematic areas can be summarized as follows:

- Parking management
- Walking
- Cycling
- Public transport
- Road Infrastructure
- Environmental and Energy
- Mobility management
- Freight management

Within the framework of the present research, the areas where University of West Attica has made several steps forward in the last couple of years and are analyzed in the next chapter include:

- parking management
- soft modes infrastructure (pedestrians, cycling)
- public transport
- car related issues (restrictions)
- environment and energy

3. Good practices

In the present chapter the selected transport related good practices are presented both in terms of their main characteristics as well as with respective photos.

3.1. Zero Emission Vehicles (ZEV) strategy

The first thematic area refers to environment and energy and more specifically to the Zero Emission strategy of University of West Attica. This strategy includes four different actions as follows:

- *an Electric bus*

University of West Attica has set up an electric bus connecting the two main campuses. It should be noted that under the National plan of the Greek Government for Electric Mobility, the UniWA has already preordered two electric vehicles for the optimum integration of electromobility in the academic society. In figure 2a the electric bus is presented while charging at university's charging station while in figure 2 its regular and charge free services among students and staff is shown,



Figure 4. Electric bus while charging



Figure 5. Electric bus while operating

- *a two-passenger Electric Vehicle*

This electric vehicle has been developed by research staff for scientific purposes (figure 3a)

- *Instrumented Electric Vehicle*

An electric vehicle equipped with an air quality and meteorological data measurement station has developed for research purposes as presented in figure 3b

- *Charging station*

The first standalone Solar Electric-Vehicle Charging Station in Greece has been developed named "CARPORT" which is a wall-mounted charging station. It's characteristics include a charge controller 5kWp and Batteries (12V) with nominal capacity of 16,8 kWh (figure 3c)



Figure 6. two-passenger Electric Vehicle



Figure 7. Equipped vehicle



Figure 8. Charging station

3.2. Traffic restrictions

In order to reduce passenger vehicle trips between the two University campuses, an electric bus, presented above, has been developed connecting, free of charge, the two campuses. The bus is operating 4 times per day allowing staff members, administrative members and students to use it in the following route.

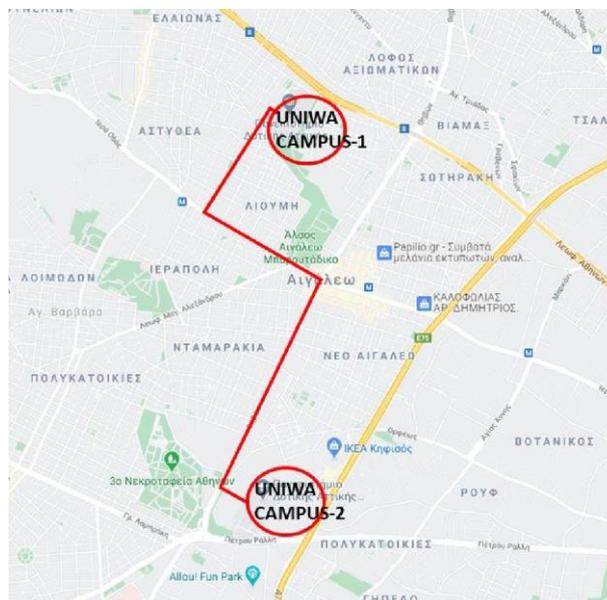


Figure 9. Electric bus route

3.3. Parking policy

A key parameter which affects the entire mobility system of a campus is its location i.e. whether it is based in the city center, in the suburbs or outside the urban area. More specifically, most campuses located in the city centers face mobility problems, due to the city's congestion and lack of space for parking. Considering that all campuses of University of West Attica are located inside the urban area of Attica special focus has been given in the parking strategy of the University.

Within this scope, in table 1 parking characteristics are presented per campus. Results indicate that the parking ratio is high in campuses 1 and 2 while campus 3 due to the position and the small campus area has a very low ratio.

Table 1. Parking Characteristics

	Campus 1	Campus 2	Campus 3
Total Campus area	62,544	88792	10.442
Total parking area	11300	11423	777
Ratio	0.18	0.13	0.07

In figure 5, the parking and building areas are highlighted.



Figure 10. Parking and building areas

3.4. Soft modes infrastructure

Regarding infrastructure issues, special concern has been given in order to achieve outdoor and indoor facilities accessible to disabled people. To this end, several parts along sidewalks are equipped with handrails, while entrance in all buildings is possible for pedestrians with physical disabilities. Furthermore, an elevator has been constructed especially for disabled students who want to reach higher floors.



4. Conclusions

Considering that all campuses of University of West Attica are located in the heart of Attica Region and in key Municipalities with high population density and urban related problems, the objective of the present research is to present good transport related practices that have been applied in the University in the last couple of years and have a direct impact into the whole mobility system.

To achieve sustainable mobility conditions near campuses, universities are constantly attempting to implement and evaluate novel mobility policies and tools. Nevertheless, reality shows that the mobility tools and policies implemented in campuses are not always efficient, nor consistent with the needs of the campus members and the surrounding environment. As presented above, University of West Attica has made significant efforts in several thematic areas including parking management, soft modes infrastructure (pedestrians, cycling, disabled people), public transport (shuttle bus), car related issues (restrictions), environment and energy.

All these key interventions have a positive impact not only for the members of the academic society of University of West Attica but also to the mobility characteristics of West and Central Attica where university campuses are located and interact with Attica residents and tourists. In the future, it is of high importance for the proper operation of the University and in order to achieve even better results in the transport and sustainable indicators, to implement a sustainable urban mobility plan in order to incorporate all the above good practices. Furthermore, considering that all Greek Municipalities are in progress of developing their own sustainable urban mobility plan as well as the strategy for charging electric vehicles in public spaces, it is a great opportunity for the university to technically contribute and incorporate strategic plans and policies in its own operation.

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