Reshaping Urban Mobility:
The Confluence of Citizen Participation and Governmental Policies in Post-Pandemic Athens, Greece

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Bachelor Project

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Abstract

This research examines the impact of the confluence of pandemic-related mobility shifts led by individual action and governmental urban policies attempting to reduce car dependency in post-pandemic Athens, Greece. It examines how these two bottom-up and top-down approaches are interacting, and investigates how local experts in the field are perceiving the changes taking place in their city. By analyzing academic literature and conducting interviews with six planning experts in Athens, this study evaluates the efficacy of urban policies and their outcomes on residents.

This paper argues for a higher degree of mutual support and collaboration between citizenries and governments, explaining how and why this circular planning paradigm is successful in line with Crawford's (1999) theory of Everyday Urbanism. The combined analysis concludes that while the city of Athens has displayed good intentions in leading mobility policy away from automobility and towards active mobility in response to citizens' behavior changes in response to the COVID-19 pandemic, shortcomings in ongoing citizen participation in the policymaking process and insufficient planning and preparations for infrastructure implementation have hindered the possibility of maximizing outcomes for a healthier and environmentally resilient city.

Keywords: citizen participation, mobility, mobility transitions, post-pandemic urbanism, environment, green space, active travel

Contents

1. Introduction

1.1 Background

The COVID-19 pandemic was a rare opportunity of pause in the decades-long dominant paradigm of automobility (Alshammari, 2022; Urry, 2004). In the wake of the COVID-19 pandemic, which upended societal norms and gave citizenries the space to rethink many basic facets of daily life (Darvas, 2021). This, in conjunction with the increasing threat of the climate crisis, we are in a unique position to rethink how our cities function and how we interact with our built environments. The pandemic, for better or for worse, opened our eyes to the benefits of fresh air, social cohesion, and has restructured the ways in which we physically move about our daily lives (Kyriakidis, 2023; Waitt, 2023). The pause in automobility during the peak of the pandemic, when many were working from home and traffic disappeared in many cities (Abduljabbar et al., 2022) led to many people exploring new mobility options for health benefits and to maintain social distance (Francke, 2022).

Between the social and health lessons learned from the pandemic, as well as the increasingly urgent need for climate adaptation, cities worldwide find themselves in periods of upheaval and transition as they reevaluate existing mobility paradigms and look to the future for multidimensional solutions (Banister, 2008; Gallo, 2020). Walking and cycling became more widely adopted during the pandemic by residents of cities around the world due to concerns of being in close proximity with strangers on public transit (Kyriakidis, 2023) and recognition of the health benefits of exercise and fresh air (Hazelhurst et al., 2022). It is important that cities capitalize on this momentum built in the wake of the pandemic to ensure that we do not fall back into the dominating paradigm of automobility.

Athens, Greece is a city which took the pandemic's opportunity to rethink its local mobility paradigm seriously. During the period of pandemic lockdown and recovery, citizens began shifting their mobility habits in favor of walking and cycling (Nikiforiadis et al*.,* 2022). Concurrently, the city government took advantage of diminished car traffic to undertake the Great Walk of Athens project, which significantly increased the city center's pedestrian and cycling infrastructure (Kyriakidis et al*.,* 2023). This research examines the history of urbanization in Athens that has led to the reigning paradigm of automobility and evaluates the success of the city's transformation projects.

The study of Athens can be applied to other cities whose populations have the desire to change their mobility paradigm to inform how citizens and governments can best support each other in times of urban transition. The applications of this research can be useful to other car-dependent cities in Europe and elsewhere as they embark on mobility transitions with citizen support.

1.2 Research Questions

This research explores the link between urban policy and post-pandemic urbanism, defined by the ways planning, design, and mobility practices have shifted since the onset of the COVID-19 pandemic (Maturana et al., 2021; Neuman et al., 2021) in Athens, Greece. More specifically, it will evaluate how the government and citizens of Athens have responded to factors highlighted by the pandemic and the threat of climate change to inform urban policies. While there is some research into sustainable mobility strategies as a tool for fighting climate change, there is a gap in research surrounding the intersection of post-pandemic urbanism (Maturana et al., 2021; Neuman et al., 2021) and its relationship to climate-responsible and sustainable design. By researching the Athenian context, this research seeks to identify the institutional and social dynamics at play that contribute to successful transitional mobility plans.

The pandemic upended life across the globe, and necessitated rethinking how we travel, work, and interact with our communities. By looking at how our lives have been upended since 2020, and how these shifts took place in Athens, this project seeks to understand what shifts have occurred in individuals' mobility patterns and how the city has responded to these changes. This project will inform further research into developing international best practices regarding mobility shifts.

1.2.1 Primary Research Question

To what extent do the confluence of post-pandemic, citizen-led mobility shifts and top-down policy shifts affect urban planning outcomes in Athens, Greece?

1.2.2 Secondary Questions

1) How does the history of Athens inform the current mobility paradigm of automobility?

2) How is Athens trying to decrease automobility in its mobility policies?

3) What are the factors of citizen engagement and government policy which contribute to successful outcomes?

2. Theoretical Framework

2.1 Top-Down Shifts

Urban policy is an umbrella term which includes a range of policies and outcomes that affect urban residents (Cochrane, 2020). City authorities are able to utilize urban policies to steer the city in a given direction. For the scope of this analysis, the research is narrowed to two subcategories of urban policy: environmental policy and mobility policy, which will be explored in the following sections.

2.1.1 Environmental Policy

In the latter half of the 20th century the environmentalist movement is born, leading to discussions around the ways in which cars are harmful to the environment (Hays, 1981). In 1987 the Brundtland Commission, a sub-organization of the United Nations, published "Our Common Future" (also known as the Brundtland Report), a report on the future of the environment and sustainability. Chapter 9 of the Brundtland Report outlines the challenges faced by urban communities in adapting themselves to sustain ever-growing populations, citing the need for multi-dimensional change. They write: "motor vehicles greatly influence environmental conditions in the cities of the industrial world. A recent slowdown in the growth rate of vehicle numbers, stricter emission standards for new vehicles, the distribution of lead-free gasoline, improvements in fuel efficiency, improved traffic management policies, and landscaping have all helped reduce the impacts of urban traffic" (Brundtland, 1987). Since the report, governments worldwide have taken strides to reduce emissions and attempt to lessen their carbon footprints.

As humanity continues to hasten and exacerbate the climate crisis, environmental policy reform is crucial in order to lessen our collective dependence on fossil fuels, and use policy to shape sustainable behavior. There is a global understanding that carbon emissions are detrimental to the environment and the health of urban residents (Camagni, 2002; Nieuwenhuijsen, 2016 & 2020), and cities are responding accordingly, adding better cycling and pedestrian infrastructure to their mobility models (Waitt, 2023).

2.1.2 Mobility Policy

Working in tandem with environmental policy, mobility policies work to shift how residents navigate their cities. As previously mentioned, this includes shifting cities away from a paradigm of automobility and towards active travel modes such as walking and cycling. In *Critical Mass* (1997), John Whitelegg asserts that the system of automobility subordinates all other modes of travel and places constraints upon work, family, and leisure. By shifting mobility policies away from automobility, governments can better support alternative modes of transportation that have long been pushed aside by policymakers (Cohen, 2019).

According to Anastasiadou and Gavanas (2023), mobility policy is deeply intertwined with issues of land use. Through a paradigm of automobility and subjugating other modes of travel, transportation land use is dominated by car infrastructure. By moving away from automobility, mobility policies supporting active travel modes can help reshape urban land use to reflect the desired mobility paradigm. By shifting mobility policy towards sustainable modes, policymakers can support car alternatives and aide the social and cultural transition away from automobility both as a culture and as a mobility paradigm.

2.2 Bottom-Up Shifts

For the scope of this research, bottom-up shifts refers to citizens' individual mobility preferences and habits (Kyriakidis et al., 2023), and the ways citizens can transform urban environments with little government support. This can include the soft power of citizens through protest, lobbying, and individual action. It can also include guerrilla urbanism (also known as tactical urbanism) in which citizens enact informal urban interventions on their own accord (Hou, 2020).

Citizen-led informal urban interventions occur in cities around the world for a variety of purposes and meet a variety of outcomes. In cities like Riga, Latvia and San Francisco, California, citizens have taken the local governments' disinterest in improving cycling infrastructure into their own hands by illegally painting bike lanes into streets, bypassing government support to enact desired changes overnight (O'Sullivan, 2017).

In San Francisco, guerrilla bike lanes were installed by the urbanist protest group called the San Francisco Transformation Authority. In 2016, the group installed several tactical interventions aimed at making cycling in the city safer and more accessible. Several months later, the city government made their guerrilla bike lanes permanent (Metcalfe, 2016), showing the power that citizen engagement can have on the city. This mutual support between citizens and governments will be explored in the following section.

2.3 Confluence

The confluence of urban top-down and bottom-up shifts explores how governments can capitalize upon and support citizen willingness to transform the mobility paradigm to meet climate and mobility goals. This is where the central research question lies, examining the relationship between top-down policies and citizen-led mobility shifts, focusing on multi-dimensional urban designs and policies, with public health and environmental concerns given equal weight. This highlights community engagement, greater public interest in urbanism and automobility alternatives, and institution-led change with the support of the community.

There has much much scholarship regarding the importance of citizen engagement and the role of government support. In her 1958 piece titled "Downtown is for People" in *Vital Little Plans* (2016), Jane Jacobs argues that cities can be improved through public participation, writing "there is no logic that can be superimposed on the city; people make it, and it is to them, not buildings, that

we must fit our plans" (pg. 115). Jacobs recognized the need for the confluence of planning supporting citizens throughout her career, continuously influencing urban theory for decades after her death. One of these theories stemming from Jacobs' work is that of "everyday urbanism" coined by Margaret Crawford in 1999. In the homonymous work *Everyday Urbanism,* Crawford writes, "everyday urbanism demands a radical repositioning of the designer, a shifting of power from the professional expert to the ordinary person" (pg. 12). While calling for greater power for non-planners, she encourages planners and designers to support the people in their plans.

It is clear the COVID-19 pandemic spurred changes in cities worldwide. These changes, in tandem with climate change, are leading governments to shift their urban policy and citizens to shift their mobility practices to reflect humanity's new reality, reflecting the existential concern for our collective future.

2.3.1 The Lasting Power of the Confluence

One particularly illustrative example of the power of this confluence took place in the Dutch capital of Amsterdam in the late 1960s. During this time, citizens and government supported each other in mobility transitions prompted by widespread protests against the environmental effects of capitalism. These protests took aim at the amount of space dedicated to the private car in the city, resulting in air pollution and pedestrian deaths (Bruno et al., 2021). The number of traffic casualties peaked at 3,300 in 1971, with over 400 of these being children. These staggering numbers led to the *Stop de kindermoord* ("Stop the child murder") movement's rapid growth (van der Zee, 2015).

Over the course of the following decade, Dutch politicians took notice of the benefits of cycling and slowly began incorporating cycling into Amsterdam's mobility policies, starting with the requirement of adding bicycle lanes during regularly scheduled street resurfacing (Bruno et al., 2021). This example shows that the combination of citizen activity in urban policy, paired with governmental responses to policy, has the power to create mutually-beneficial outcomes. By responding to the *Stop de kindermoord* movement in this way, Amsterdam achieved a safer and more environmentally conscious transportation system.

The individual mobility transitions that have occurred due to the pandemic are building into a larger urbanist movement, similar to the history of Amsterdam's protest movements in the 20th century. The world is now in a similar point of societal transition which calls for multidimensional change (Goldman, 2006).

2.3.1 Pandemic-related Confluence

A recent example of this confluence is the pedestrianization of streets in cities worldwide as a result of pandemic-related traffic decreases. For many individuals, the pandemic and the resulting widespread shift to working remotely was the catalyst to rethink mobility habits.

The disruption in travel demand caused by the pandemic created a unique moment in which cities can reevaluate their mobility models (Heydari, 2023; Kim, 2023). Many urban areas around the world are experiencing shifts in how people get around due to societal and health adaptations to the pandemic (Gladwin and Duncan, 2022). People began walking and cycling more now that driving to work was no longer necessary (Rérat et al., 2022); previously car-dominated streets returned to human-scale use in the form of pedestrianization and businesses spilling outside into the public sphere in the form of outdoor dining and others (Honey-Rosés et al., 2020). These changes, albeit mostly temporary, could not have happened without citizen engagement, and as more people became aware of the urban issues highlighted by the pandemic (Falanga, 2020).

While the long-term outcomes of many pandemic-related confluence changes remain to be seen, it is important to understand how cities can optimize their own confluences of citizen engagement and policy shifts in ways that last. The example of Amsterdam shows how the power of combining the dynamism of the citizenry with the power of the government can create lasting and impactful policies and mobility paradigms that have multi-sectoral beneficial outcomes.

2.4 Conceptual Model

This conceptual model (Fig. 1) is a visual representation of the literature and theory used in this research.

Bottom-Up Shifts refer to tactical urbanism enacted by citizens without government oversight, as well as individual shifts in mobility practices and habits. Top-Down Shifts refers to policy-led mobility shifts in which there is a lack of citizen participation. Here, a distinction is drawn between tactical urbanism, referring to purely bottom-up shifts with no government engagement, and Everyday Urbanism which refers to government support of bottom-up shifts.

The confluence of bottom-up and top-down shifts merge to create the conditions under which successful mobility transitions can occur, aligned with Crawford's (1999) theory of Everyday Urbanism.

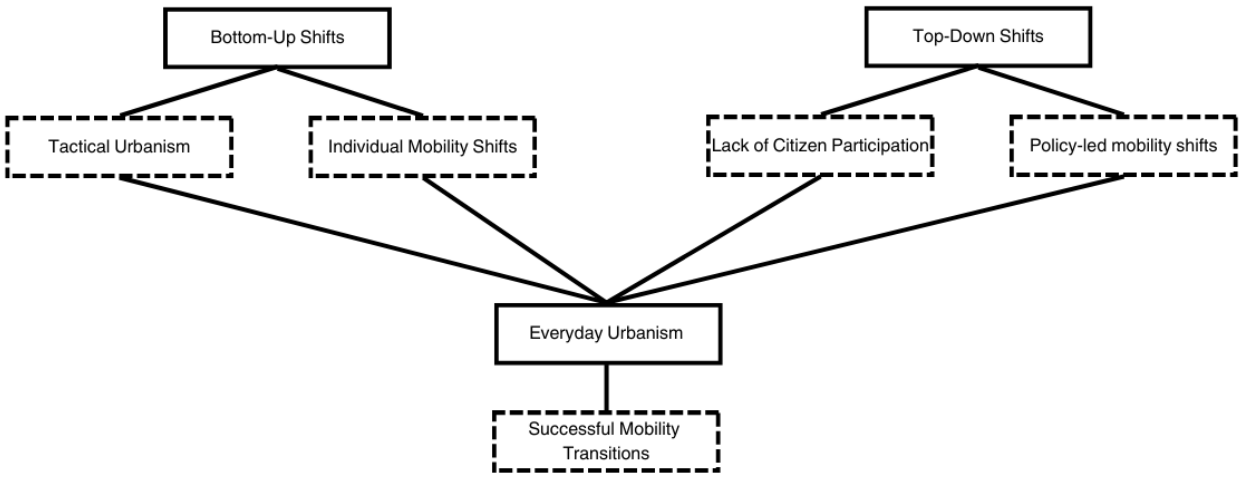

Fig. 1. Conceptual Model

3. Methodology

3.1 Case Selection

For this research, Athens, Greece is selected as a study city for its recent attempts to change its mobility paradigm and its citizens' willingness to transition away from being a car-dependent city, stemming from pandemic-related mobility shifts. Athens' mobility paradigm is full of contradictions. Its mild and pleasant climate is hospitable to walking and cycling, yet there is a lack of infrastructure to support active travel. Due to the lack of infrastructure, mode share among active travel modes remains low, yet residents desire change (Milakis et al., 2012).

By researching how Athens has changed in the wake of the pandemic, and comparing this to how the city of Athens is shifting its mobility strategy in response, this research will help to better understand how and why cities change to become more accessible and environmentally friendly.

3.2 Operationalization

This is a qualitative research project based on social constructivist perspectives through understanding to specific culture and context of Athens to inform its conclusions. This approach is best suited to answer the research questions since it is based upon human interaction and facilitates analysis of Athens through the lens of its culture, context, and history. In doing so, this allows the research to gain insight into Athenian urban changes and outcomes in response to changes in urban life from the COVID-19 pandemic, and how the city is responding to climate change in its policies and plans.

For a project of this nature, a mixed-methods approach is most appropriate. Interviews with experts provide context into Athenian urban planning not yet covered in academic literature, and synthesizes this with historical literature to holistically understand the past and present of Athenian urbanization.

This is a mixed-methods study using secondary sources in the form of academic and historical literature to answer sub-questions one and two, and primary sources in the form of expert interviews to answer sub-question three. Below is a table outlining the data collection method uses for each sub-question.

#	Sub-question	Data collection method
1	How does the history of Athens inform the current mobility paradigm of automobility?	Case study, literature and historical review
2	How is Athens trying to decrease automobility in its mobility policies?	Literature and policy review. Interviews with local planners.
3	What are the factors of citizen engagement and government policy which contribute to successful outcomes?	Interviews with local planners.

Table 1. Overview of data collection methods

3.3 Data Collection Methods

3.3.1 Primary Data Collection

Interviewees were recruited from the author's personal academic and professional network, who in turn provided more contacts to interview in a snowballing effect. Interviewees were selected based on the combination of their knowledge of urban planning, as well as their personal experience living in Athens. For a project of this nature, which focuses on topics not widely known in the greater planning community and have not yet been widely studied, such as the Great Walk of Athens and Athens' pocket park program, selecting planners familiar with the Athenian context was crucial.

For a project of this nature, interviewing experts is the most suitable method of data collection according to Bogner et al. (2009). Interviewees were selected based on their urban planning expertise and first-hand experience as Athens residents. This enabled interviewees' ability to speak both from personal experience and based on their knowledge as urban planning professionals. Expert interviews fit the social constructivist approach used in this research since they facilitate insight into the specific context of Athens, helping to answer the third sub-question.

Interviews were held online, and lasted between 30 and 60 minutes. Interviewees were asked questions (Appendix 8.1) designed to understand how they perceive urban changes in Athens, as well as where they believe there is room for future improvement, using both their personal and professional experiences to inform their answers.

To analyze the data, interviews were transcribed using transcription software and manually adjusted to account for software inaccuracy. Using Atlas TI, an inductive code tree (Fig. 2) was created based on keywords most frequently mentioned by interviewees which aligned with the theoretical framework.

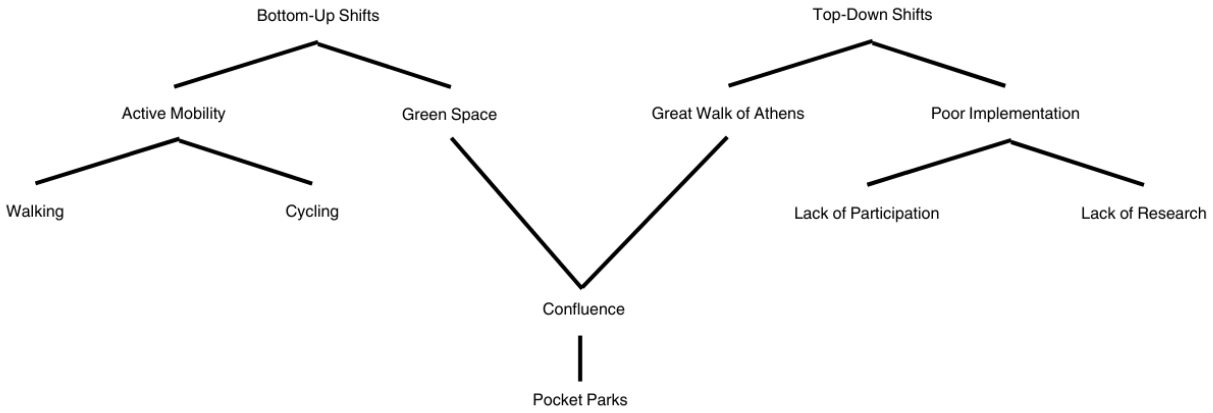

Fig. 2. Inductive Code Tree

3.3.2 Secondary Data Collection

The analysis begins with a chronological review of historical literature of Athens to provide an understanding of how Athens' history informs its present to answer the first and second sub-questions. The review of academic literature, policy documents, and historical documents supports the exploration of these sub-questions and helps inform the primary research question.

3.4 Data Quality

This research consulted Athenian planners with different specializations within planning to inform a holistic understanding of the city's situation. These experts are highly qualified to inform this research through a combination of their education, professional experience, and personal experience as Athens residents. However, it is important to note the possibility of selection bias, since interviewees were recruited from the author's personal network and therefore more likely to respond to an interview request than a stranger. Also important to note is that these interviews were held in English, the non-native language of the interviewees, which could potentially differ from an interview held in Greek, their native language.

4. Historical Development

This research is informed by the history of Athenian urban planning and history. Through studying and understanding the past events that have led up to the present moment, we can begin to form a holistic understanding of where Athens is heading. The following chapter explores the history and social context of Athens to understand how events in the city's history have defined its present urban form and mobility paradigm.

4.1 Athenian Expansion and Topographic Constraints

Much of the modern history of urbanization of Athens is predominately defined by waves of migration and the efforts to keep up with the ever-growing population, the first of which being the Greek-Turkish Population Exchange of 1923 (Iğsız, 2018). According to the 1928 Census, 1,222,800 ethnic Greeks were expelled from Turkey and resettled in Greece over the course of one year. Amongst these, about 245,000 settled in Athens (Ministry of National Economy, 1928). This population expansion is visualized in Table 2.

Year	Population
1830	20,000
1900	200,000
1923	800,000

Table 2. Population of Athens (Kaika, 2012)

The lack of housing in the face of rapid growth created the need for both density and urban expansion (Gavra, 2017), creating an environment of overcrowding, poor living conditions, and the rapid development of informal settlements as the city began sprawling outward into the Attica region (Leontidou, 2017; Røe, 1979).

The challenging topography of Athens has played a significant role in shaping its development and expansion, in turn further shaping the city's mobility paradigm (Fig. 4) . The expansion of Athens has faced geographic limitations due to the Hymettus Mountains to the East, the Aigaleo and Parnitha Mountains to the West and Northwest, and Mount Pentelicus to the Northeast, separating Athens from the rest of the Attica region (Røe, 1979). There are also a variety of smaller mountains and hills within the Athens Basin, such as Filopappou Hill and Mount Lycabettus which help shape the inner city of Athens. The topography of the Attica region has limited sprawl to a degree, and necessitated the building of taller buildings to accommodate the ever-growing population. As a result of the limited space for expansion, Athens has become one of the most

densely populated metropolitan regions in Europe, with a population density of 17,040 people / km^2 (Eurostat, 2022). Because of its topographic constraints, historic development of the city is rather limited to the center of the Athens Basin. The historic center has more flat areas than other neighborhoods and suburbs of Athens, giving it the potential to become the most walkable and bikeable area in the city.

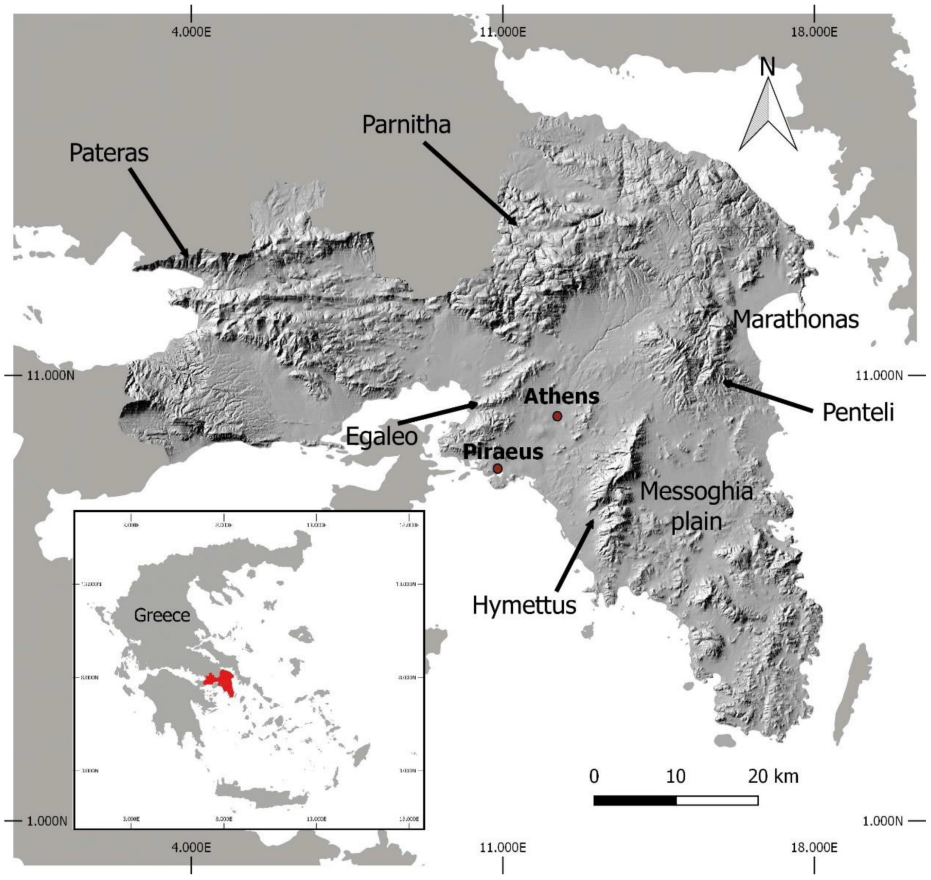

Fig. 4. Topographic map of the Attica Region (Gounaridis et al., 2018)

4.2 Athens and the Proliferation of the Automobile

The Greek-Turkish Population Exchange not only necessitated the rapid expansion of infrastructure to support the rapidly growing populace. As the city continued to expand outwards into the mid-20 century, a new period of expansion coincided with the proliferation of the automobile, leading to a significant overhaul of the city's infrastructure and mobility paradigm (Leontidou, 2007).

In response to global ideals of car ownership as a marker of economic development (Medlock and Soligo, 2002) and in spite of a dense urban form, car dominance arrived in Athens and train and tram lines were removed in the mid-20th century. By 1960, all 21 tram lines were removed and replaced with trolleybuses and motor-buses in response to the proliferation of the private car (ΣΤΑΣΥ: Athens Urban Rail Transport). Despite the removal of trams, the Metro remained intact and has seen high degrees of development in recent decades, though private forms of motorized transport remain the primary mobility method in the city (Table 3) (European Platform on Mobility Management, 2016).

4.3 Contemporary Mobility Paradigms and Accessibility

4.3.1 Strides in Public Transportation

For nearly a century prior to the city's current paradigm of automobility, Athens was a largely transit-oriented city. The steam-powered Kifissia-Piraeus train line began operations in 1869. Gradual expansions in the early decades of the 20th century extended the system to 21 train and tram lines at its peak (ΣΤΑΣΥ: Athens Urban Rail Transport).

Despite its density and developments in public transportation prior to the 2004 Olympics, Athens remains a largely car dependent city (Vatavali and Zervas, 2020). Its building and population density leave little space for roads and parking, creating traffic congestion (Petraki, 2022; Athens Resilience Strategy for 2030).

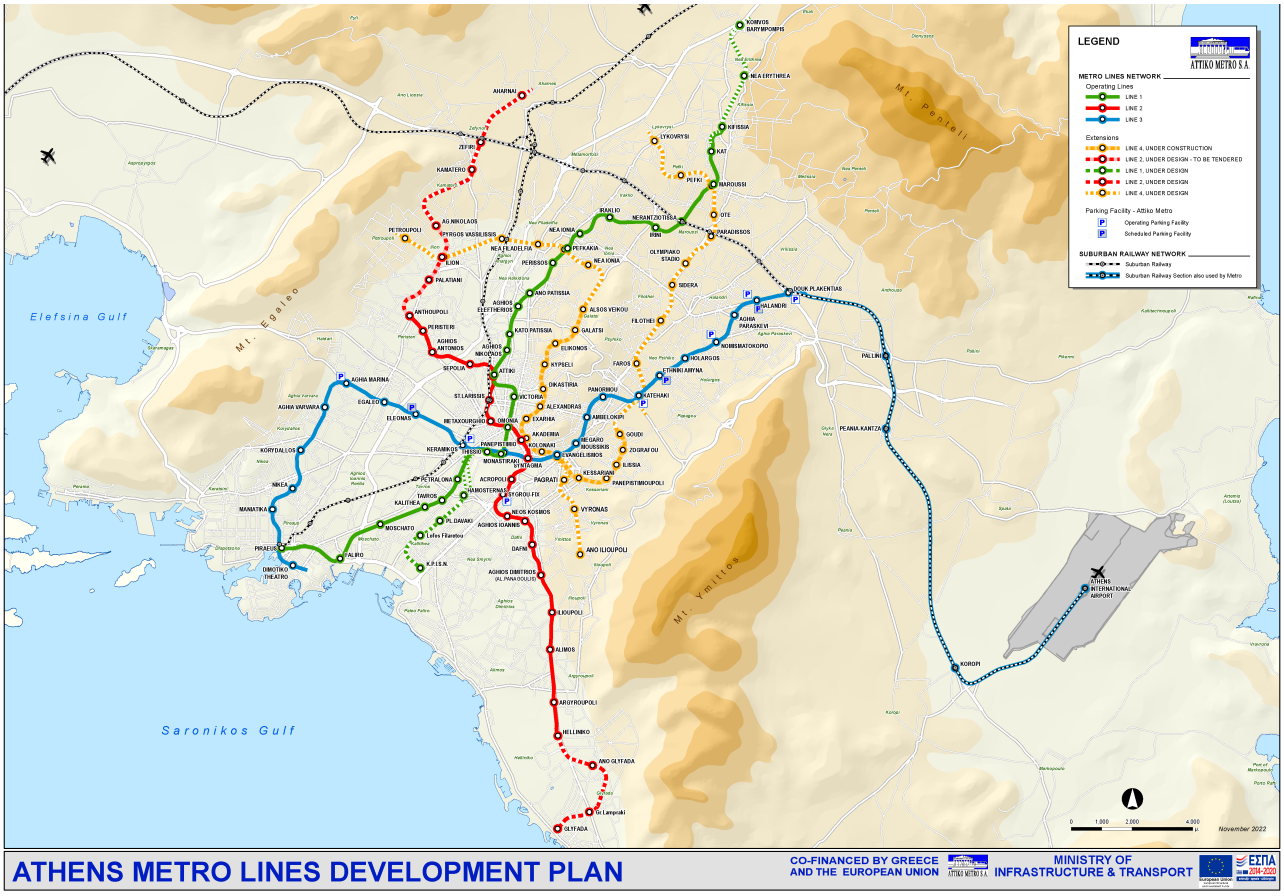

Fig. 5. Map of current and future Athens Metro lines (Source: Αττικι Μετρο)

Recognizing the need for efficient and accessible transportation in the region, the city has invested in a network of metro and tram lines to undo the damage caused by the removal of public transportation in the mid-20th century (Karlaftis, 2001). In preparation for the 2004 Summer Olympic Games, two new tram lines were opened (Αθηναϊκό ΤΡΑΜ, 2004).

Further expansions of the Metro will connect more parts of the city; Line 3's extension was completed in 2022, and the new Line 4 began construction in 2021, set for completion by 2030 (Fig. 5). Line 4 will improve connectivity in Central Athens, intersecting with all three existing lines (Attiki Metro).

4.3.2 The Active Mobility Paradox

Cycling in the city continues to be seen as a leisure activity and not a serious mode of transportation. Insufficient dedicated cycling infrastructure in Athens forces cyclists to ride amongst car traffic on narrow streets. The intention to use the bicycle is high while the modal share remains low (Table 3) due to the hostile infrastructure (Milakis et al., 2012).

Mode	% of Mode Share, Athens Region (2016)
Motorized Transport (Car, Motorbike)	53%
Public Transportation	37%
Walking	8%
Cycling	>2%

Table 3. Modal Split in 2016, Athens Region (European Platform on Mobility Management, 2016)

The geographic position of Athens makes it a prime candidate to become a city with a mobility paradigm dominated by active mobility, due to its favorable weather and climate. With an average annual temperature of 17.5°C and over 2,700 hours of sun per year (Hellenic National Meteorological Service), Athens is enjoys a climate friendly to pedestrians and cyclists. This is likely a large factor explaining the high demand for active mobility, and is a motivating factor for improving infrastructure to better support walking and cycling.

4.4 Contemporary Planning Framework and Governance Paradigm

The modern history of Athens, including its history of dramatic increases in population, its topography and expansion, and the proliferation of the car create the foundation for its present day planning practices. This environment of constant change and adaptation has created a culture of paradoxes—one of top-down planning without citizen engagement, and on the contrary, a culture of informal planning and illegal development (Bakogiannis et al., 2019). As explained in Peter Newman and Andy Thornley's 1996 book *Urban Planning in Europe,* Greece is a Napoleonic planning state, meaning that there is a hierarchical national planning code, with national frameworks taking precedent over local regulations (Newman and Thornley, 1996; Vassi, 2022). Newman and Thornley write in *Urban Planning in Europe* "there is…a problem of enforcement, and the reality of development does not necessarily relate to the legal framework. The importance of land and property to individuals and the prevailing cultural values militate against planning intervention" (pg. 57). The result of this paradigm is a city lacking a central vision, instead it has become an urban agglomeration of distinct neighborhoods and spatial scales with little cohesion. Athens is a dense yet sprawling metropolis with a history of car dependency, but both its citizens and government have the desire and motivation to change its mobility paradigm.

4.5 The Impact of Athens' Historical Development

In summary, the post-1834 history of urbanization in Athens, Greece was marked by significant developments and challenges. The lack of planning and coordination in the city's growth has created significant challenges for the city and its residents. This lack of planning is felt in the urban typology of Athens today; without a well-implemented centralized vision, the city has continued to sprawl outwards and encroach into the surrounding Attica region, becoming a self-fulfilling cycle of automobility in which sprawl induces car usage and vice-versa.

5. Findings

The in-depth interviews with experts provided key insights into changes to Athens' urban fabric and provided judgments on these changes in relation to top-down and bottom-up mobility transitions, as well as the confluence of the two approaches.

5.1 Top-Down Shifts

Top-down mobility shifts constitute governmental response to alter Athens' mobility paradigm away from car dependency, without taking into account citizen participation (Hommel and Murphy, 2013). With local elections upcoming in October 2023, officials are undertaking construction projects to demonstrate their commitment to the city. Interviewees highlight the corruption of these vanity projects aimed at improving politicians' images ahead of elections (Interviewees 3, 4). They criticize the hasty implementation of these projects without proper research and development. Additionally, they argue that the lack of citizen engagement in the planning process leads to poor outcomes (Interviewees 1, 3, 4, 6).

5.1.1 The Great Walk of Athens

One example of a top-down policy shift that forwent citizen engagement and proper design, leading to an unsuccessful outcome is the Great Walk of Athens (Fig. 6). Conceived in 2019 and launched as a 6-month pilot program in 2020, this plan responded to the desires of residents with the aim to transition the city away from its current paradigm of automobility. It was designed in a way in which no "hard" infrastructure was installed. Rather, only paint on roads and temporary barriers were installed to protect people from car traffic (Fig. 7). In the pilot program, lanes were taken away from car traffic and parking and painted for use by pedestrians and cyclists (Papadimitriou, 2020).

The Great Walk of Athens sought to take advantage of the center's welcoming topography to pedestrianize large sections of existing roadways through the removal of car lanes, widening and improving sidewalk quality, as well as implementing new bus routes to improve network connectivity in the area. The original project included a total of 6.8km of combined pedestrian and bike paths, with an additional 1.9km of designated bike paths (Bakogiannis et al., 2021). Amidst widespread public outcry, the government re-opened some lanes to cars only several months after its initial implementation as a pilot program. The hasty

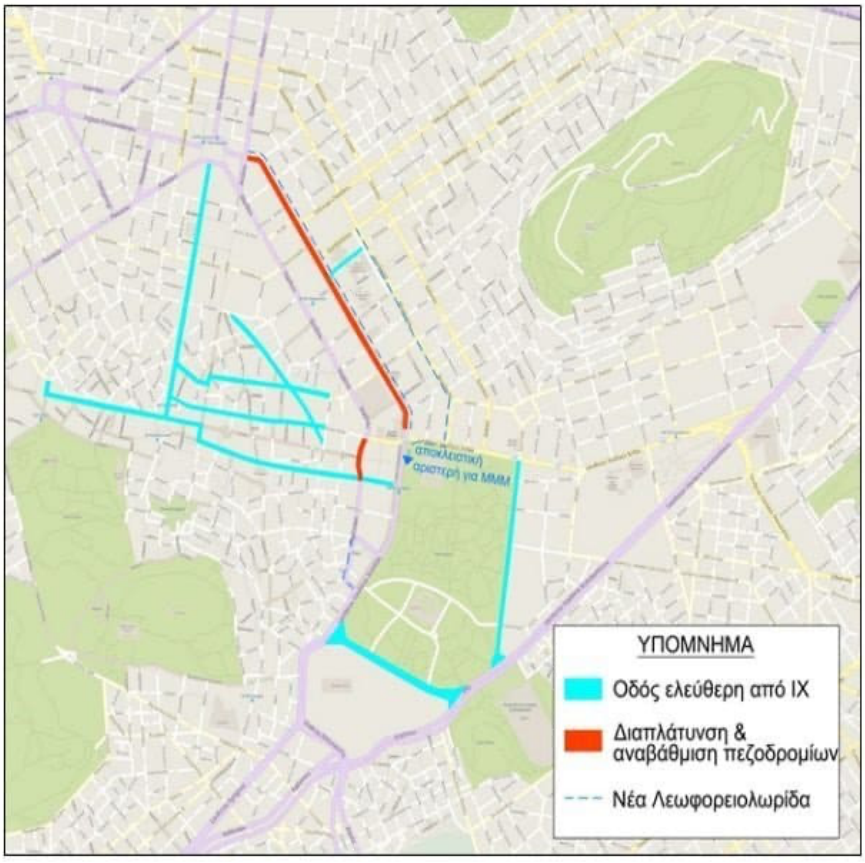

Fig. 6 Map of the Great Walk of Athens Infrastructure project *(Source: Kalias, 2022)*
Blue: Vehicle-free streets
Red: Widening and upgrading of sidewalks
Dotted lines: New bus lanes

implementation of this project and absence of proper research and development led to it being poorly received by the general public. Although some of the pedestrian and cycling infrastructure was removed, parts of the project remain intact and are undergoing further research to inform potential permanent implementation (Kyriakidis et al., 2023; Papadimitriou, 2020).

In the paper “Evaluating the public acceptance of sustainable mobility interventions responding to Covid-19” (Kyriakidis et al., 2023), the authors compare the change in modal share before and after the implementation of the first phases of the Great Walk of Athens. They found a marginal increase in biking and walking in the area around the Great Walk, but note that the increase being low is likely due to pandemic movement restrictions, including not being allowed to leave a 1km radius around one’s home. If the project had been properly researched and kept fully intact for a period after pandemic movement restrictions had been lifted, perhaps the pilot program could have been more successful. The lack of usage can also be explained by the lack of proper traffic protection, leaving those outside automobiles exposed to risk (Koorey, 2015).

The experts interviewed affirmed these beliefs, calling the planning and preparation for the Great Walk of Athens insufficient in catering to the population’s desire for active mobility to be accommodated. These implementations are hastily implemented and leave pedestrians and cyclists vulnerable, leading to low usage rates (Wardlaw, 2014).

Fig. 7. Lack of protection from vehicles in the Great Walk of Athens (Papadimitrou, 2020)

5.1.2 Poor Implementation

In a radio interview with News247, Athens mayor Kostas Bakoyannis had a more nuanced evaluation of the program, saying that the pilot program of the Great Walk “both did and did not work out” (news247.gr, 2020). The mayoral administration is working on salvaging and reviving what is left of the plan, but little is known to the public at this stage. Interviewees confirm the lack

of planning and research undertaken by the government and offered their critiques, including how removing traffic lanes without implementing traffic restrictions led to an increase in traffic, and the planting of non-native trees which quickly died (Papadimitriou, 2020). Interviewee 4 noted:

> “There are very many failed plans for renovating the center. We just had another one who failed. The whole of Athens, if you walk right now, it's in construction because elections are coming up. And so, I mean, millions were spent for these in the center for these trees, which didn't survive— because they're not local trees… So now they're removing them and they're gonna use some other trees”.

Interviewees consistently criticized the lack of human comfort and safety in projects such as the Great Walk of Athens. Interviewees say that though the desire to walk and bike is high, people are not using these spaces due to their hostile design, forcing people to walk in the strong Mediterranean sun and without sufficient protection from vehicle traffic. This plan is also criticized for not giving pedestrians and cyclists adequate protection from vehicle traffic, and forcing them into an uncomfortable space without shade. Interviewee 3 says:

> "This is a place again with no trees. So, during the day in Greece, it's not easy to use it. I mean, if you go from morning to early afternoon, most of the time it's empty because nobody wants to walk under the sun… We don't want to be under the sun in a Mediterranean city. So I’ve observed that from morning to early afternoon, nobody is using that. It's natural. We are walking on the side because there is more shadow. So I think it's used more from afternoon, late, afternoon, and evening time, and then, I have question if there is it enough of lighting so as to feel comfortable without the presence of shops, traffic, on the side”.

This reflects themes of governmental negligence in the planning process, forgoing proper research in favor of hasty interventions. While the government has good intentions, the implementations fall short of their potential due to a rushed design process and a lack of citizen participation (Sakellariou, 2020). Interviewee 3 notes,

> “But in Greece, as far as I know, I hope I'm wrong, [participatory planning] doesn't happen. It's very important. And it's a very long research and still that there is not awareness of the interdisciplinary need of urban planning. Urban planning, it involves so many. It can involve so many different sciences for doing all these long research, and I understand that they may need too much work, too much time for all these. For me, it is necessary to stay for a long time in a place, a work with the locals, work with the users, the future users, the possible users of the place and then implement. To work together with the citizens”.

It is clear that there is a substantial disconnect between the government and residents, resulting in urban development that does not properly support the mobility trends and desires of residents (McCrea et al., 2014). While the government aims to address challenges faced by pedestrians and cyclists, their implementations lack research, citizen engagement, so their efficacy remains low (Rudd et al., 2017). Interviewees also highlight corruption within local and federal governments, including nepotism and clientelism, which compounds and exacerbates the problems created by insufficient research and citizen participation (Interviewee 4; Bullock and Jenkins, 2020).

The design flaws of the Great Walk of Athens caused by a lack of research and participatory planning reflect a planning paradigm which prioritizes top-down implementations with little citizen engagement (Bahdanovich et al., 2020).

5.2 Bottom-Up Shifts

The COVID-19 pandemic profoundly impacted urban environments worldwide, prompting rapid urban adaptation and innovation. In cities worldwide, streets became devoid of traffic, prompting communities to reclaim these now-empty spaces (Shafiri, 2020). In Athens, the pandemic resulted in changes in citizens' behaviors, such as increased walking and cycling, and a shift in the use of public space (Bakogiannis et al., 2021). This section will analyze these changes, explore underlying factors, and assess the long-term feasibility of these bottom-up initiatives.

5.2.1 Active Mobility

The increase of walking and cycling, along with the expansion of restaurants and bars into public spaces, demonstrate the adaptability of residents in the face of social upheaval (Apostolopoulou, 2021). However, interviewees expressed concerns about the state of pedestrian infrastructure, such as small, poorly maintained, and slippery sidewalks which make navigation as a pedestrian challenging. The expansion of businesses into public areas is seen by several interviewees as good for community cohesion but argued by other interviewees that this further compounds issues faced by pedestrians and makes navigation even more challenging.

Interviewees consistently note that residents' desire to walk and cycle is high but doing so is difficult, if not dangerous, due to poor infrastructure. Despite this, interviewees say that people, especially younger generations, have been walking and cycling more due to a combination of a pandemic-related increase in health consciousness and an awareness of the climate crisis (Hofmeister and Stibe, 2017). Interviewee 4 linked the higher rates of active mobility to an awareness of environmental issues and desire to be a part of the change:

> "Much more than the older generations, people walk. They use bicycles and scooters and they're much more determined to have a different way of life… I very strongly believe that there is a generational [factor] when it comes to environmental issues".

Interviewees consistently highlighted higher rates of people walking in the city in the years since the onset of the pandemic, though they were displeased with the state of sidewalks and walkways, expressing that the pavements "[are] small, they're ruined, and the material they used to create them is very slippery" (Interviewee 4). Despite the state of pedestrian infrastructure, interviewees nonetheless noticed an increase in pedestrian traffic in their neighborhoods.

Interviewees observe that cycling is on the rise in Athens. Interviewee 4 said that the younger generations are more aware of environmental issues and are more willing to take risks, which they must do due to the dangerous nature of cycling in the city. Interviewees note that there is little cycling infrastructure in the city, forcing cyclists to compete with cars for road space, exposing them to dangerous circumstances and contributing to a low cycling modal split (Table 3) (DiGioia et al., 2017; Márquez and Soto, 2021).

5.2.2 Green and Public Space

Green space in the Municipality of Athens covers less than 0.5 km^2, which translates to about 3% of the municipality's total area. In terms of green space per capita, this means that each resident

of the Municipality of Athens has access to less than 2.5m^2 of green space (Papageorgiou, 2018). Even if all open spaces such as greenfield and brownfield sites, and abandoned buildings were converted to green space, this would only increase to 3.84m^2 of green space per person (Belavilas et al.. 2012). For comparison, Rome, a city of similar size and history, has 166m^2 of green space per capita (Statistica, 2022). Understanding green space per capita is crucial to understanding the future of active and sustainable mobility in the city, as it illustrates the challenges presented in creating space for people rather than for cars (Gadziński, 2015).

Interviewees affirmed this understanding in their own analyses, arguing that the lack of green space in Athens remains a critical issue. Interviewees noted that many people began walking more during the pandemic, and some noted that the increase in pedestrian traffic led to an increase in the use of green spaces in neighborhoods with sufficient space. Interviewees described how historically, parks have been gender-segregated spaces primarily used by older men to congregate; they described how during the pandemic, parks became more widely used by people of different ages and genders. Now, it has become more commonplace to visit a park with your family or friends (Mouratidis, 2022).

Residents are longing for more green space, even when it is not locally accessible. Interviewee 1 described that many residents of Athens must drive to the nearest park, as they are often too scarce and distant to walk to (Schindler et al., 2022). This counteracts the positive effect of higher raters of local pedestrian traffic as people walk more around their neighborhoods. In this sense, green space becomes an issue of mobility when these spaces are not easily accessible by foot or by bike, and reaching green space demands conforming to the system of automobility. Interviewees described a mismatch between high desire for active mobility amongst residents, and the low modal split of active mobility due to hostile infrastructure (Milakis and Athanasopolous, 2014).

5.3 Confluence of Top-Down and Bottom-Up Shifts

Bringing together the history and context of Athens, expert interviews, and additional literature, we may better understand the confluence of emerging mobility practices and policy shifts in the context of two present-day Athenian examples: attempted increases in active mobility facilitated by the Great Walk of Athens and the addition of more green space in the form of pocket parks.

5.3.1 Successes and Pitfalls of the Great Walk of Athens Project

The desires of Athenian residents are reflected in the mobility practices emerging out of the pandemic, showcasing the necessity of post-pandemic urbanism. These initiatives driven by community needs and adaptability along with the desire to change the existing mobility paradigm in the city are indicative of a population that desires urban change (Fleisher et al., 2020; Watson, 2016). The interviews have revealed that the government is lacking community participation, as officials are embroiled in corruption to complete their large-scale vanity projects ahead of elections. These ambitious infrastructure undertakings reflect a government that is listening to citizen desires to a limited degree, but is failing to consider and adapt to all of the needs of citizens. While the intention to change Athens' mobility paradigm exists among government officials, they are not *fully* listening to the wishes of the people. The lack of research, citizen engagement, and corruption within the decision-making process undermines the efficacy of initiatives such as the Great Walk of Athens.

According to interviewees, in order to find success in future infrastructure and policy implementations, the government must implement a more integrated approach to policy and

infrastructure. This should involve active citizen engagement in the research, design, and planning processes. In the words of Interviewee 1:

> "[Local authorities] have not found a way to include citizen perspective on planning and design because of a variety of reasons. Let's start with the economic crisis of 2008. Less funding for urban planning and design… So the ministry in charge, the Ministry of Public Works, occupies itself with such kind of issues, how to regulate urban sprawl, focusing more on physical aspects of planning and design, overlooking social and cultural aspects that are also equally significant. And participation of citizens falls within this category that the social aspect of design."

Despite its shortcomings, the Great Walk of Athens is an example of the potential that policy shifts have to quickly alter the built environment to better serve the local population. While the project's lack of research and hasty implementation left it vulnerable to design and policy errors, it demonstrates the city's commitment to improving the built environment, though city officials did not manage to do so successfully in this project. The premature dismantling of the Great Walk's infrastructure leaves Athens back where it started, without the facilitation of active travel modes residents desire.

5.3.2 The Success of Athens' Pocket Parks

While the Great Walk of Athens was not particularly successful in its implementation, the city of Athens is beginning to find success in the confluence of top-down and bottom-up shifts in the form of pocket parks. In response to the lack of green space, the City of Athens is implementing pocket parks in a variety of neighborhoods around the city (Fig. 8) through citizen engagement and participatory planning, as well as public-private partnerships (City of Athens, 2021).

From the interviews, we have already seen that the pandemic illuminated a high desire to spend time in green space, but the lack of internal green space meant that people had to drive to their nearest park (Interviewees 1, 2, 4, 5). The current administration is taking citizens' desire for accessible green space into account by transforming brownfield sites into small neighborhood parks. These pocket parks can positively contribute to a neighborhood's sense of place, benefit residents' well-being, and positively contribute to the area's microclimate (Sinou, 2013).

Fig. 8. Before and After of a pocket park in the Kolonos neighborhood of Athens *(City of Athens)*

The City of Athens in collaboration with Athens Partnership, an NGO focused on facilitating public-private partnerships, has created a program called “Adopt Your City” in which residents can sponsor a bench, tree, street, neighborhood, or park with the goal of making them “more luminous, greener, and friendlier for citizens and visitors” (City of Athens, 2021). So far, the city has created 13 pocket parks across a variety of neighborhoods, and plans to continue transforming more disused sites into green space for the community. These pocket parks range in size from 160-750m^2 , each positively influencing the neighborhood microclimate (Bowler et al., 2010).

By recognizing the residents’ desire for green space and using government resources to transform underutilized sites, the government of Athens has successfully implemented a confluence of top-down and bottom-up shifts to increase green space per capita and make green space more accessible to the average Athenian.

6. Conclusion

According to Heydari et al. (2023), the COVID-19 pandemic shifted people’s mobility habits, and Gladwin and Duncan (2022) show that this led to an increase in active travel. The Great Walk of Athens attempted to capitalize on this bottom-up mobility shift by solidifying it in a top-down infrastructure shift to support citizens’ mobility patterns (Kyriakidis et al., 2023). The Great Walk of Athens was a heavily top-down implementation with little citizen outreach, contributing to its demise. In line with the theories on citizen engagement from Crawford, Falanga, and Jacobs, the level of public participation directly affected the success of this project (Crawford, 1999; Falanga, 2020; Jacobs, 2016). While some may view the Great Walk’s dismantling as a failure, its existence allowed Athenians to experience a new use of public space which facilitated sustainable mobility (Anastasiadou and Gavanas, 2023) and has the potential to be a catalyst for change when residents realize what has been lost (Cohen, 2019; Crawford, 1999; Jacobs, 2016).

While the Great Walk of Athens is no longer fully in effect, the confluence of top-down and bottom-up shifts is being successfully implemented in the form of Athens’ pocket parks. In this case, the government of Athens is responding to residents’ desires by increasing accessible green space, helping the local microclimate and decreasing the need to drive to distant green space, therefore supporting mobility transitions through policy and design (Cohen, 2019). According to Crawford (1999), Falanga (2020), and Jacobs (2016), the varying degrees of success between the Great Walk of Athens and the pocket park program can be traced to the level of citizen participation.

The difference between the successful outcomes of the nascent pocket park program and that of unsuccessful ones such as demonstrated in the Great Walk of Athens comes down to the level of two-way participatory communication between the implementation of top-down and bottom-up mobility shifts when conditions are right for policy and cultural change (Falanga, 2020). According to theories by Crawford (1999) and Jacobs (2016), it is the confluence of citizen engagement and top-down support that help create successful mobility shifts. As seen in the case of Athens’ pocket parks, this is how mobility transitions can be lasting and successful (Anastasiadou and Gavanas, 2023).

Going forward, the city of Athens can learn from this experience that plans like the Great Walk of Athens cannot be hastily implemented, and must consult the community in order to create a lasting policy and design implementation (Crawford, 1999). In listening to the needs and desires of residents, the city of Athens can better adapt infrastructure to support active mobility, create

accessible green space, and foster a responsive and catering relationship with the general population (Gladwin and Duncan, 2022). According to theory by Crawford (1999) and Jacobs (2016), by incorporating the adaptability and resilience demonstrated by citizen initiatives with the resources and power of the government, Athens can begin to move in the direction of creating a more livable and sustainable urban environment.

6.1 Future Research and Reflection

As previously explored, Athens is significantly improving its green space through the development of pocket parks. Future research could focus on the phenomenon of people driving to green space, and the impact that adding more green space throughout the city has on traffic congestion and emissions, as well as its impact on active mobility.

Additionally, it would be beneficial to move away from expert interviews to gain a supplementary understanding of how non-experts understand urban development in their city. This can be achieved through non-expert interviews and participant observation could give insight into how public space is used, and how active travel modes operate in the city, allowing for deeper analysis of perceptions regarding public space and mobility.

The author's experience living and studying in Athens informed a fascination with the Athenian context and a desire to better understand the city's many contradictions. Conducting this research while residing outside of Greece presented issues with data collection, such as technical difficulties conducting virtual interviews and contacting people electronically. Many experts were sent research invitations but either did not respond or were not comfortable conversing in English. Despite these challenges, the interviews provided thorough insight when combined with secondary sources; the mixed-methods design used in this project proved successful by giving a broad understanding of the context.

Through interviews and literature review, this research contributes to the field of participatory planning, linking historical successes in citizen engagement to current planning shifts in Athens. This research applies theory developed by Crawford (1999) and Jacobs (2016) to understand its practical applications in Athens. Thus, this research can be generalized to other cities embarking on shifts in mobility strategy by providing an understanding of the necessity of mutual support between bottom-up and top-down approaches. However, it is important to note the effect that Athens' unique history and political climate has on its mobility transitions and outcomes. This should be taken into account when applying this research to cities of other backgrounds.

7. Bibliography

Abduljabbar, R.L., Liyanage, S. and Dia, H. (2022) 'A systematic review of the impacts of the coronavirus crisis on urban transport: Key lessons learned and prospects for future cities', *Cities*, 127, p. 103770. Available at: https://doi.org/10.1016/j.cities.2022.103770.

Alonso, A., Monzón, A. and Cascajo, R. (2015) 'Comparative analysis of passenger transport sustainability in European cities', *Ecological Indicators*, 48, pp. 578–592. Available at: https://doi.org/10.1016/j.ecolind.2014.09.022.

Alshammari, T.O. *et al.* (2022) 'The Compactness of Non-Compacted Urban Developments: A Critical Review on Sustainable Approaches to Automobility and Urban Sprawl', *Sustainability (Switzerland)*, 14(18). Available at: https://doi.org/10.3390/su141811121.

Anastasiadou, K. and Gavanas, N. (2023) 'Enhancing urban public space through appropriate sustainable mobility policies. A multi-criteria analysis approach', *Land Use Policy*, 132, p. 106765. Available at: https://doi.org/10.1016/j.landusepol.2023.106765.

Apostolopoulou, E. and Liodaki, D. (2021) 'The right to public space during the COVID-19 pandemic', *City*, 25(5–6), pp. 764–784. Available at: https://doi.org/10.1080/13604813.2021.1989157.

'Athens Metro Map – ATTIKO METPO A.E' (no date). Available at: https://www.ametro.gr/?page_id=4449&lang=en (Accessed: 19 May 2023).

Axaopoulou, A. and Pertigkiozoglou, E. (2015) 'Imprints of an Urban Myth: Representations of the Athenian Polykatoikia', *Archisearch*, 2 September. Available at: https://www.archisearch.gr/student-works/imprints-of-an-urban-myth-representations-of-the-athenian-polykatoikia-dissertation-at-ntua-2015-a-axaopoulou-e-pertigkiozoglou/ (Accessed: 19 May 2023).

Bahdanovich, M., Foster, K. and Bakoyannis, K. (2020) 'On the Past, Present, and Future of Athens: Interview with Kostas Bakoyannis', *Harvard International Review*, 41(2), pp. 75–78.

Bakogiannis, D.E. (2016) 'ATHENS IN CRISIS, SUSTAINABLE MOBILITY AND CLIMATE CHANGE'.

Bakogiannis, E. *et al.* (2019) 'Reconsidering Sustainable Mobility Patterns in Cultural Route Planning: Andreas Syngrou Avenue, Greece', *Heritage*, 2. Available at: https://doi.org/10.3390/heritage2020104.

Bakogiannis, E., Kyriakidis, C. and Potsiou, C. (2021) 'What's the Future of Greek Cities in the Post-COVID-19 Period? New Perspectives on Urban Resilience and Sustainable Mobility', in *COVID-19 Pandemic, Geospatial Information, and Community Resilience*. 1st edn, pp. 443–454.

Banister, D. (2008) 'The sustainable mobility paradigm', *Transport Policy*, 15(2), pp. 73–80. Available at: https://doi.org/10.1016/j.tranpol.2007.10.005.

Barnes Hofmeister, T. and Stibe, A. (2017) 'Living mobility transitions towards bicycling. Designing practices through co-creation and socially influencing systems', *The Design Journal*, 20(sup1), pp. S3305–S3316. Available at: https://doi.org/10.1080/14606925.2017.1352834.

Bogner, A., Littig, B. and Menz, W. (2009) *Interviewing Experts*.

Borrachero Mendibil, A. *et al.* (2019) 'Athens, Greece Smarter Cities Challenge Report'. IBM. Available at: https://www.google.com/search?q=ibm+smarter+cities+challenge+report+athens+citation&client=safari&rls=en&ei=SmuKZN3tLIGDwbkP-O6_2Aw&ved=0ahUKEwjdupTdkcT_AhWBQTABHXj3D8sQ4dUDCA8&uact=5&oq=ibm+smarter+cities+challenge+report+athens+citation&gs_lcp=Cgxnd3Mtd2l6LXNlcnAQAzIFCCEQoAEyBQghEKABOgoIABBHENYEELADOgUIIRCrAkoECEEYAFCkBFjlD2CBEmgBcAF4AIABpAKIAYEKkgEFMi42LjGYAQCgAQHAAQHIAQg&sclient=gws-wiz-serp (Accessed: 15 June 2023).

Bowler, D.E. *et al.* (2010) 'Urban greening to cool towns and cities: A systematic review of the empirical evidence', *Landscape and Urban Planning*, 97(3), pp. 147–155. Available at: https://doi.org/10.1016/j.landurbplan.2010.05.006.

Brundtland, G.H. (1987) 'Our Common Future: Report of the World Commission on Environment and Development'. United Nations.

Bruno, M., Dekker, H.-J. and Lemos, L.L. (2021) 'Mobility protests in the Netherlands of the 1970s: Activism, innovation, and transitions', *Environmental Innovation and Societal Transitions*, 40, pp. 521–535. Available at: https://doi.org/10.1016/j.eist.2021.10.001.

Bullock, J. and Jenkins, M. (2020) *Corruption and marginalisation*. Transparency International. Available at: https://www.jstor.org/stable/resrep26767 (Accessed: 6 July 2023).

Camagni, R., Gibelli, M.C. and Rigamonti, P. (2002) 'Urban mobility and urban form: The social and environmental costs of different patterns of urban expansion', *Ecological Economics*, 40(2), pp. 199–216. Available at: https://doi.org/10.1016/S0921-8009(01)00254-3.

City of Athens (2021) *Adopt Your City*. Available at: https://adoptathens.gr/en/ (Accessed: 3 July 2023).

City of Athens (no date) 'Athens Resilience Strategy for 2030'. Resilient Cities Network.

Climatic Atlas of Greece (no date) *Hellenic National Meteorological Service*. Available at: http://climatlas.hnms.gr/sdi/?lang=EN (Accessed: 3 July 2023).

Cochrane, A. (2020) 'Urban Policy', in A. Kobayashi (ed.) *International Encyclopedia of Human Geography (Second Edition)*. Oxford: Elsevier, pp. 93–96. Available at: https://doi.org/10.1016/B978-0-08-102295-5.10229-X.

Cohen, K. (2019) *Human Behavior and New Mobility Trends in the United States, Europe, and China*. Fondazione Eni Enrico Mattei (FEEM). Available at: https://www.jstor.org/stable/resrep21774 (Accessed: 30 July 2023).

Crawford, M. (1999) *Everyday Urbanism*. The Monacelli Press.

Darvas, Z. (2021) *The Unequal Inequality Impact of the Covid-19 Pandemic*. Bruegel. Available at: https://www.jstor.org/stable/resrep32250 (Accessed: 6 July 2023).

Dekker, H.-J. (2022) *Cycling Pathways: The Politics and Governance of Dutch Cycling Infrastructure, 1920-2020*. Amsterdam University Press. Available at: https://doi.org/10.2307/j.ctv24q4zk7.

DiGioia, J. *et al.* (2017) 'Safety impacts of bicycle infrastructure: A critical review', *Journal of Safety Research*, 61, pp. 105–119. Available at: https://doi.org/10.1016/j.jsr.2017.02.015.

Falanga, R. (2020) 'Citizen Participation During the COVID-19 Pandemic: Insights from local practices in European cities'. Friedrich Ebert Stiftung. Available at: https://repositorio.ul.pt/bitstream/10451/45726/1/ICS_RFalanga_Ctizen.pdf.

Ferrara, C. *et al.* (2018) 'The 2007 crisis and Greek wildfires: a multivariate analysis of suppression times', *Environmental Monitoring and Assessment*, 190, p. 714. Available at: https://doi.org/10.1007/s10661-018-7086-4.

Fleisher, A. *et al.* (2020) *A Bold New Course for Urban Mobility*. SPUR (San Francisco Bay Area Planning and Urban Research Association), pp. 4–8. Available at: https://www.jstor.org/stable/resrep26075.3 (Accessed: 6 July 2023).

Francke, A. (2022) 'Cycling during and after the COVID-19 pandemic', *Advances in Transport Policy and Planning*, 10, pp. 265–290. Available at: https://doi.org/10.1016/bs.atpp.2022.04.011.

Gadziński, J. (2015) 'The Impact of Local Transport Systems on Green Infrastructure – Policy Versus Reality: The Case of Poznan, Poland', *Urbani Izziv*, 26, pp. S65–S83.

Gallo, M. and Marinelli, M. (2020) 'Sustainable mobility: A review of possible actions and policies', *Sustainability (Switzerland)*, 12(18). Available at: https://doi.org/10.3390/su12187499.

Gaventa, J. and Barrett, G. (2010) 'So What Difference Does it Make? Mapping the Outcomes of Citizen Engagement', *IDS Working Papers*, 2010(347), pp. 01–72. Available at: https://doi.org/10.1111/j.2040-0209.2010.00347_2.x.

Gavra, E.G. (2017) 'The Refugee Establishment in Greece of Modern Times: Institutional and Urban Tools for the Spatial Management', *Theoretical and Empirical Researches in Urban Management*, 12(3), pp. 5–15.

Gladwin, K. and Duncan, M. (2022) 'COVID-19's impact on older adults' cycling behaviors in a small, auto-centric urban area', *Transportation Research Interdisciplinary Perspectives*, 16. Available at: https://doi.org/10.1016/j.trip.2022.100675.

Goldman, T. and Gorham, R. (2006) 'Sustainable urban transport: Four innovative directions', *Technology in Society*, 28(1–2), pp. 261–273. Available at: https://doi.org/10.1016/j.techsoc.2005.10.007.

Gounaridis, D. *et al.* (2018) 'Incorporating Density in Spatiotemporal Land Use/Cover Change Patterns: The Case of Attica, Greece', *Remote Sensing*, 10(7), p. 1034. Available at: https://doi.org/10.3390/rs10071034.

Greece's recovery and resilience plan (no date). Available at: https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility/greeces-recovery-and-resilience-plan_en (Accessed: 19 May 2023).

Hays, S.P. (1981) 'The Environmental Movement', *Journal of Forest History*, 25(4), pp. 219–221. Available at: https://doi.org/10.2307/4004614.

Hazlehurst, M.F. *et al.* (2022) 'Park access and mental health among parents and children during the COVID-19 pandemic', *BMC Public Health*, 22(1), p. 800. Available at: https://doi.org/10.1186/s12889-022-13148-2.

Heydari, S. *et al.* (2023) 'Estimating inter-regional mobility during disruption: Comparing and combining different data sources', *Travel Behaviour and Society*, 31, pp. 93–105. Available at: https://doi.org/10.1016/j.tbs.2022.11.005.

History of track - based modes of transport | ΣΤΑΣΥ (2022). Available at: https://stasy.gr/en/company/history-of-track-based-modes-of-transport/ (Accessed: 15 June 2023).

Hommel, D. and Murphy, A.B. (2013) 'Rethinking geopolitics in an era of climate change', *GeoJournal*, 78(3), pp. 507–524.

Honey-Rosés, J. *et al.* (2020) 'The impact of COVID-19 on public space: an early review of the emerging questions – design, perceptions and inequities', *Cities & Health*, 5, pp. 1–17. Available at: https://doi.org/10.1080/23748834.2020.1780074.

Hou, J. (2020) 'Guerrilla urbanism: urban design and the practices of resistance', *URBAN DESIGN International*, 25(2), pp. 117–125. Available at: https://doi.org/10.1057/s41289-020-00118-6.

Iğsız, A. (2018) *Humanism in Ruins: Entangled Legacies of the Greek-Turkish Population Exchange*. Stanford: Stanford University Press.

Italy: green areas per inhabitant in Rome 2018 (2018) *Statista*. Available at: https://www.statista.com/statistics/858453/green-areas-per-inhabitant-in-rome-in-italy/ (Accessed: 29 June 2023).

Jacobs, J. (2016) 'Downtown is for People', in *Vital Little Plans*. Penguin Random House.

Kaika, M. (2012) 'City of Flows: Modernity, Nature, and the City', *City of Flows: Modernity, Nature, and the City*, pp. 1–257. Available at: https://doi.org/10.4324/9780203826928.

Kalabokas, P. and Bartzis, J.G. (1998) 'Photochemical air pollution characteristics at the station of the NCSR-Demokritos, during the MEDCAPHOT-TRACE campaign in Athens, Greece (20 August–20 September 1994)', *Atmospheric Environment*, 32, pp. 2123–2139. Available at: https://doi.org/10.1016/S1352-2310(97)00423-8.

Kalias, A. (2020) 'The Great Walk Of Athens', 12 May. Available at: https://greekcitytimes.com/2020/05/12/the-great-walk-of-athens/ (Accessed: 17 March 2023).

Kanellopoulou, D. (no date) 'Pedestrianization in Athens', *Athens Social Atlas*. Available at: https://www.athenssocialatlas.gr/en/article/pedestrianization-in-athens/ (Accessed: 17 March 2023).

Karlaftis, M.G. and Matzoros, A. (2001) 'Impacts on Travel Behavior from the Introduction of a new Metro System: a Case Study from Athens', in. *PROCEEDINGS OF THE AET EUROPEAN TRANSPORT CONFERENCE, HELD 10-12 SEPTEMBER, 2001, HOMERTON COLLEGE, CAMBRIDGE, UK - CD-ROM*. Available at: https://trid.trb.org/view/728947 (Accessed: 19 May 2023).

Kassens-Noor, E. (no date) 'The legacy of the 2004 Olympics for Athens' transport system.' Available at: https://www.academia.edu/13775187/The_legacy_of_the_2004_Olympics_for_Athens_transport_system (Accessed: 18 May 2023).

Kim, J. and Lee, S. (2023) 'Determining factors affecting public bike ridership and its spatial change before and after COVID-19', *Travel Behaviour and Society*, 31, pp. 24–36. Available at: https://doi.org/10.1016/j.tbs.2022.11.002.

Köllinger, C. (2020) *Athens is to create a 7 km-long pedestrian zone in its central area*, *Eltis: The Urban Mobility Observatory*. Available at: https://www.eltis.org/in-brief/news/athens-create-7-km-long-pedestrian-zone-its-central-area (Accessed: 17 March 2023).

Koorey, G. (2015) 'Spaces for cycling', in J. Bonham and M. Johnson (eds) *Cycling Futures*. University of Adelaide Press, pp. 251–282. Available at: https://www.jstor.org/stable/10.20851/j.ctt1sq5x1g.17 (Accessed: 6 July 2023).

Kyriakidis, C. *et al.* (2023) 'Evaluating the public acceptance of sustainable mobility interventions responding to Covid-19: The case of the Great Walk of Athens and the importance of citizen engagement', *Cities*, 132. Available at: https://doi.org/10.1016/j.cities.2022.103966.

Leontidou, L. (1993) 'Informal strategies of unemployment relief in Greek cities: The relevance of family, locality and housing', *European Planning Studies*, 1(1), pp. 43–68. Available at: https://doi.org/10.1080/09654319308720194.

Leontidou, L. (2017) 'Slums of Hope', *Athens Social Atlas*, April. Available at: https://www.athenssocialatlas.gr/en/article/slums-of-hope/ (Accessed: 20 April 2023).

Mandhan, S. and Gregg, K. (2023) 'Managing the curb – Public space and use of curbside cafes during the Coronavirus pandemic', *Cities*, 132, p. 104070. Available at: https://doi.org/10.1016/j.cities.2022.104070.

Marchi, L.Z. (2016) 'CIAM 8. The Heart of the City as the symbolical resilience of the city', *International Planning History Society Proceedings*, 17(2). Available at: https://doi.org/10.7480/iphs.2016.2.1227.

Márquez, L. and Soto, J.J. (2021) 'Integrating perceptions of safety and bicycle theft risk in the analysis of cycling infrastructure preferences', *Transportation Research Part A: Policy and Practice*, 150, pp. 285–301. Available at: https://doi.org/10.1016/j.tra.2021.06.017.

Maturana, B., Salama, A.M. and McInneny, A. (2021) 'Architecture, urbanism and health in a post-pandemic virtual world', *Archnet-IJAR: International Journal of Architectural Research*, 15(1), pp. 1–9. Available at: https://doi.org/10.1108/ARCH-02-2021-0024.

McCrea, R., Shyy, T.-K. and Stimson, R.J. (2014) 'Satisfied Residents in Different Types of Local Areas: Measuring What's Most Important', *Social Indicators Research*, 118(1), pp. 87–101.

Medlock, K.B. and Soligo, R. (2002) 'Car Ownership and Economic Development with Forecasts to the Year 2015', *Journal of Transport Economics and Policy*, 36(2), pp. 163–188.

Metcalfe, J. (2016) 'San Francisco Makes a Guerrilla Bike Lane Permanent', *Bloomberg.com*, 12 October. Available at: https://www.bloomberg.com/news/articles/2016-10-12/san-francisco-lets-a-guerrilla-bike-lane-stay-put (Accessed: 31 July 2023).

Milakis, D. *et al.* (2012) 'Planning of the Athens Metropolitan Cycle Network using Participative Multicriteria Gis Analysis', *Procedia - Social and Behavioral Sciences*, 48, pp. 816–826. Available at: https://doi.org/10.1016/j.sbspro.2012.06.1059.

Milakis, D. and Athanasopoulos, K. (2014) 'What about people in cycle network planning? applying participative multicriteria GIS analysis in the case of the Athens metropolitan cycle network', *Journal of Transport Geography*, 35, pp. 120–129. Available at: https://doi.org/10.1016/j.jtrangeo.2014.01.009.

Mouratidis, K. and Yiannakou, A. (2022) 'COVID-19 and urban planning: Built environment, health, and well-being in Greek cities before and during the pandemic', *Cities*, 121, p. 103491. Available at: https://doi.org/10.1016/j.cities.2021.103491.

Neuman, M., Chelleri, L. and Schuetze, T. (2021) 'Post-Pandemic Urbanism: Criteria for a New Normal', *Sustainability*, 13(19), p. 10600. Available at: https://doi.org/10.3390/su131910600.

Newman, P. and Thornley, A. (1996) *Urban Planning in Europe: International Competition, National Systems, and Planning Projects*. Psychology Press.

Nieuwenhuijsen, M.J. (2016) 'Urban and transport planning, environmental exposures and health-new concepts, methods and tools to improve health in cities', *Environmental Health: A Global Access Science Source*, 15. Available at: https://doi.org/10.1186/s12940-016-0108-1.

Nieuwenhuijsen, M.J. (2020) 'Urban and transport planning pathways to carbon neutral, liveable and healthy cities; A review of the current evidence', *Environment International*, 140. Available at: https://doi.org/10.1016/j.envint.2020.105661.

Nikiforiadis, A. *et al.* (2022) 'Exploring mobility pattern changes between before, during and after COVID-19 lockdown periods for young adults', *Cities (London, England)*, 125, p. 103662. Available at: https://doi.org/10.1016/j.cities.2022.103662.

O'Sullivan, F. (2017) 'No Room for Cyclists? "Guerrilla Bike Lanes" Show What's Possible', *Bloomberg.com*, 24 May. Available at: https://www.bloomberg.com/news/articles/2017-05-24/latvian-bike-activists-create-guerrilla-bike-lanes (Accessed: 31 July 2023).

OECD (2010) *OECD Environmental Performance Reviews: Greece 2009*. OECD (OECD Environmental Performance Reviews). Available at: https://doi.org/10.1787/9789264061330-en.

Papadimitiou, Y.O. (2020) 'Did Athens' "Great Walk" Stumble?', *Bloomberg*, 14 October. Available at: https://www.bloomberg.com/news/articles/2020-10-14/athens-tried-to-go-car-free-but-traffic-returned (Accessed: 6 July 2023).

Papageorgiou, M. and Gemenetzi, G. (2018a) 'Setting the grounds for the Green Infrastructure in the metropolitan areas of Athens and Thessaloniki: the role of green space', *EUROPEAN JOURNAL OF ENVIRONMENTAL SCIENCES*, 8(1), pp. 83–92. Available at: https://doi.org/10.14712/23361964.2018.12.

Papageorgiou, M. and Gemenetzi, G. (2018b) 'Setting the grounds for the Green Infrastructure in the metropolitan areas of Athens and Thessaloniki: the role of green space', *EUROPEAN JOURNAL OF ENVIRONMENTAL SCIENCES*, 8(1), pp. 83–92. Available at: https://doi.org/10.14712/23361964.2018.12.

Petraki, V. *et al.* (2022) 'Public Acceptability of Environmentally Linked Congestion and Parking Charging Policies in Greek Urban Centers', *Sustainability*, 14(15), p. 9208. Available at: https://doi.org/10.3390/su14159208.

Population Density by NUTS 3 Region (no date) *Eurostat*. Available at: https://ec.europa.eu/eurostat/databrowser/view/DEMO_R_D3DENS__custom_2790211/bookmark/table?lang=en&bookmarkId=d1a9a590-0543-45b0-ab08-805a3fea0b5e (Accessed: 18 May 2023).

'Population of Greece in the census of 15th-16th May 1928' (1928). Ministry of National Economy. General Statistical Service of Greece. Available at: http://dlib.statistics.gr/portal/page/portal/

ESYE/showdetails?p_id=10095552&p_derive=book&p_topic=10007862 (Accessed: 20 April 2023).

Public Participation City: Co-Creation in Athens (2020) *CoSIE*. Available at: https://cosie.turkuamk.fi/general/public-participation-city-co-creation-in-athens/ (Accessed: 6 July 2023).

RealGreekExperiences (2020) 'The new face of Athens in the early 2020s - Pedestrian-friendly Athens', *Real Greek Experiences*, 22 May. Available at: https://realgreekexperiences.com/pedestrian-friendly-athens (Accessed: 17 March 2023).

Rérat, P., Haldimann, L. and Widmer, H. (2022) 'Cycling in the era of Covid-19: The effects of the pandemic and pop-up cycle lanes on cycling practices', *Transportation Research Interdisciplinary Perspectives*, 15, p. 100677. Available at: https://doi.org/10.1016/j.trip.2022.100677.

Røe, B. (1979) 'Settlements without planning: Athens', *Ekistics*, 46(275), pp. 82–100.

Rougier, J. *et al.* (2018) *Poverty and Inequality*. Transparency International, pp. 24–27. Available at: https://www.jstor.org/stable/resrep24924.9 (Accessed: 30 July 2023).

Rudd, A., Malone, K. and Bartlett, M. (2017) 'Participatory Urban Planning', in A. Russ and M.E. Krasny (eds) *Urban Environmental Education Review*. 1st edn. Cornell University Press, pp. 279–287. Available at: https://www.jstor.org/stable/10.7591/j.ctt1qv5qhq.33 (Accessed: 6 July 2023).

Schindler, M., Le Texier, M. and Caruso, G. (2022) 'How far do people travel to use urban green space? A comparison of three European cities', *Applied Geography*, 141, p. 102673. Available at: https://doi.org/10.1016/j.apgeog.2022.102673.

Serraos, K., Gianniris, E. and Zifou, M. (2005) 'The Greek spatial and urban planning system in the European context', in.

Sharifi, A. and Khavarian-Garmsir, A.R. (2020) 'The COVID-19 pandemic: Impacts on cities and major lessons for urban planning, design, and management', *The Science of the Total Environment*, 749, p. 142391. Available at: https://doi.org/10.1016/j.scitotenv.2020.142391.

Sheller, M. and Urry, J. (2006) 'The New Mobilities Paradigm', *Environment and Planning A: Economy and Space*, 38(2), pp. 207–226. Available at: https://doi.org/10.1068/a37268.

Sim, D. and Gehl, J. (2019) *Soft City. Building Density for Everyday Life*. Island Press. Available at: https://www.naibooksellers.nl/soft-city-building-density-for-everyday-life-david-sim-jan-gehl.html (Accessed: 28 February 2023).

Sinou, M. (2013) 'Parameters contributing to the design of a successful urban pocket park', in.

Taylor, C. (2001) 'Bribery in Athenian Politics Part I: Accusations, Allegations, and Slander', *Greece & Rome*, 48(1), pp. 53–66.

Thombre, A. and Agarwal, A. (2021) 'A paradigm shift in urban mobility: Policy insights from travel before and after COVID-19 to seize the opportunity', *Transport Policy*, 110, pp. 335–353. Available at: https://doi.org/10.1016/j.tranpol.2021.06.010.

Transit in Athens – ATTIKO METPO A.E (no date). Available at: https://web.archive.org/web/20221107075314/https://www.ametro.gr/?page_id=3984&lang=en (Accessed: 19 May 2023).

Tzamourani, E. *et al.* (2022) 'Exploring the social acceptance of transforming urban arterials to multimodal corridors. The case of Panepistimiou Avenue in Athens', *International Journal of Sustainable Transportation*, 0(0), pp. 1–15. Available at: https://doi.org/10.1080/15568318.2022.2037793.

Urban Policies on Diversity in Athens, Greece | European Website on Integration (2023). Available at: https://ec.europa.eu/migrant-integration/library-document/urban-policies-diversity-athens-greece_en (Accessed: 17 March 2023).

Urry, J. (2004) 'The "System" of Automobility', *Theory, Culture & Society*, 21, pp. 25–39. Available at: https://doi.org/10.1177/0263276404046059.

Vassi, A. *et al.* (2022) 'The Greek Urban Policy Reform through the Local Urban Plans (LUPs) and the Special Urban Plans (SUPs), Funded by Recovery and Resilience Facility (RRF)', *Land*, 11(8), p. 1231. Available at: https://doi.org/10.3390/land11081231.

Vatavali, F. and Zervas, E. (2020) 'COVID-19 AND URBAN SPACE IN GREECE. ACTIVE POPULATION' REFLECTIONS ON IMPACTS ON EVERYDAY LIFE', *1st International Conference On Environmental Design* [Preprint]. Available at: https://www.academia.edu/44905456/COVID_19_AND_URBAN_SPACE_IN_GREECE_ACTIVE_POPULATION_REFLECTIONS_%CE%9F%CE%9D_IMPACTS_ON_EVERYDAY_LIFE (Accessed: 19 May 2023).

Waitt, G. and Buchanan, I. (2023) 'Velomobilities: Cycling geographies and well-being', *Geography Compass*, 17(1). Available at: https://doi.org/10.1111/gec3.12672.

Wardlaw, M.J. (2014) 'History, risk, infrastructure: perspectives on bicycling in the Netherlands and the UK', *Journal of Transport & Health*, 1(4), pp. 243–250. Available at: https://doi.org/10.1016/j.jth.2014.09.015.

Watson, V. (2016) 'Locating planning in the New Urban Agenda of the urban sustainable development goal', *Planning Theory*, 15(4), pp. 435–448.

Whitelegg, J. (1997) *Critical Mass: Transport, Environment and Society in the Twenty-first Century*. Pluto Press.

Zee, R. van der (2015) 'How Amsterdam became the bicycle capital of the world', *The Guardian*, 5 May. Available at: https://www.theguardian.com/cities/2015/may/05/amsterdam-bicycle-capital-world-transport-cycling-kindermoord (Accessed: 28 July 2023).

Αθηναϊκό TPAM (2004). Available at: https://web.archive.org/web/20060629000624/http://linuxweb.internet.gr/tramsa/html/en/grafeio_typou.php?id=12 (Accessed: 15 June 2023).

Μόνιμος Πληθυσμός - ELSTAT (no date). Available at: https://www.statistics.gr/2021-census-res-pop-results (Accessed: 15 June 2023).

Μπακογιάννης: 'Βγήκε και δεν βγήκε ο Μεγάλος Περίπατος' (2020) *News247.gr*. Available at: https://www.news247.gr/koinonia/mpakogiannis-vgike-kai-den-vgike-o-megalos-peripatos.8982861.html (Accessed: 6 July 2023).

8. Appendix

8.1 Interview Guide

- In your own experience, has the urban fabric of Athens changed in the wake of the pandemic? If so, how?
  - Public space? Car use? Walking/ cycling?
- How do you experience these changes?
- How have any changes impacted your experience as a resident?
- How do you think the municipal and federal governments are doing in regards to urban development?
  - Walking/ cycling/ driving
  - Do you think the government listens to its citizens? What is the level of participation?
- What do you see as potential room for improvement?

8.2 Interviewee Profiles

8.2.1 Interviewee 1

Interviewee 1 is a professor of architecture and urban design at a university in the Athens Region. She has lived in Athens her whole life. She lives in the northwestern suburbs of Athens in a single-family home. She is primarily a car user due to her suburb being poorly connected by public transit.

8.2.2 Interviewee 2

Interviewee 2 is a graduate student of urban planning at a university in Athens. She is in her mid-20s and lives alone in central Athens. She has lived in Athens for several years.

8.2.3 Interviewee 3

Interviewee 3 is an architect and part-time professor of architecture and urban design in Athens. She has lived in Athens for over 10 years. She is an occasional car user but prefers to walk and use public transportation.

8.2.4 Interviewee 4

Interviewee 4 is a professor of urban sociology living in central Athens. She has spent most of her life abroad but has lived in Athens for several years. She primarily walks around the city but owns a car to use for emergencies and trips outside the city.

8.2.5 Interviewee 5

Interviewee 5 is a planner in his early 30s, he has lived in Athens his whole life. He commutes primarily by car but walks short distances for errands around his neighborhood, and uses public transportation several times per week.

8.2.6 Interviewee 6

Interviewee 6 is a professor of urban design and has lived in Athens for over 10 years, moving around to different neighborhoods in central Athens. She is a new mother and thus primarily uses her car to transport herself and her child.

8.3 Atlas.ti Report

Report created by James Clark on 1 Jun 2023

Interviewees 1 & 2

Codes:
○ Crisis ○ Driving to Green Space ○ Green Space ○ Mobility: Car ○ Mobility: Public Transportation ○ Mobility: Walking ○ Participation ○ Pedestrianization ○ Top Down Planning

Interviewee 3

Codes:
○ Driving to Green Space ○ Green Space ○ Participation ○ Pedestrianization ○ Public Space ○ Top Down Planning

Interviewee 4

Codes:
○ Green Space ○ Mobility: Cycling ○ Mobility: Public Transportation ○ Mobility: Walking ○ Participation ○ Pedestrianization ○ Public Space ○ Top Down Planning

Interviewee 5

Codes:
○ Mobility: Cycling ○ Mobility: Public Transportation ○ Mobility: Walking ○ Participation ○ Top Down Planning

Interviewee 6

Codes:
○ Crisis ○ Exercise ○ Green Space ○ Mobility: Car ○ Mobility: Cycling ○ Mobility: Public Transportation ○ Mobility: Walking ○ Pandemic ○ Participation ○ Tourist