



BOOK OF PROCEEDINGS

INTERNATIONAL CONFERENCE SUSTAINABLE MOBILITY

5-6 MARCH

2026

The INTEC International Conference brings together academics, researchers, policymakers and industry experts to discuss innovative approaches and collaborative solutions for a sustainable future in engineering and mobility. The conference will be hosted by POLIS University in Tirana, Albania, and co-organized by partners from across the EU as part of the Erasmus+ CBHE Project 101081873-ERASMUS-EDU-2022-CBHE-STRAND-2.



INTEC International Engineering Competence Centres to push sustainable mobility development in Albania and Montenegro
Project Reference: 101081873-ERASMUS-EDU-2022-CBHE-STRAND-2

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Project Partners:



INTEC International Conference
February 2026
POLIS University, Tirana, Albania

INTEC>>>



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INTEC International Conference
February 2026
POLIS University, Tirana, Albania

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Co-funded by the
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of the European Union

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University of Split (US), Croatia
POLIS University (POLIS), Albania
Polytechnic University of Tirana (PUT), Albania
University of Vlore "Ismail Qemali" (UV), Albania
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REIMAGINING THE CITY THROUGH GREEN MOBILITY STRATEGIES: THE CASE OF TIRANA

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Abstract

In the current context, where the climate emergency and the increasing density of urban centres are reaching critical points, green mobility has become an imperative. It is no longer perceived simply as a technical intervention in transport infrastructure but as a central paradigm that is radically reconfiguring the way European capitals are organised and experienced. Its importance goes beyond physical infrastructure, profoundly influencing the way public spaces are inhabited, navigated, and interpreted by society. While existing literature often focuses on consolidated models of the global north, such as Copenhagen, this paper takes a different direction. It shifts attention to “capitals in transition”, those urban environments that are undergoing rapid socio-spatial transformations and that still bear, in various forms, the traces of a complex post-socialist legacy. Focusing on Tirana as a case study, the research examines in depth how specific interventions, from the pedestrianisation of the centre to the expansion of the cycling network and the integration of public transport, can act as powerful catalysts for reimagining the post-socialist city. By utilizing a qualitative and comparative methodological framework, which draws on contemporary theories on urban imaginaries and mobility governance, this study places Tirana’s current initiatives against advanced Western standards. The analysis highlights that, although Tirana has integrated the technical elements of green mobility, long-term sustainability cannot be guaranteed through a mechanical replication of external models. Rather, the real potential stems from localised strategies. Considering the nature of informal development, the often-chaotic vibrancy of the streets, and the specificities of local governance, Tirana requires solutions ‘tailored’ to its size. The final objective is to design an urban vision where the citizen is the protagonist, but without compromising the unique character and authenticity of the city itself. Consequently, this paper articulates a critical perspective that is extremely useful for other urban contexts in transition.

It highlights that the construction of a sustainable identity depends closely on the harmonisation of solutions with local reality and not on the mechanical reproduction of Western paradigms.

Keywords: green mobility, urban identity, public space, comparative urbanism

I. INTRODUCTION

In the current era, defined by existential challenges such as climate change and urban densification, the emergence of a sustainable civilisation has led to green mobility no longer being seen as an isolated set of technical interventions but as a fundamental paradigm of urban redesign (Gehl, 2013). This paradigm does not simply re-examine transport networks, but profoundly transforms the way public spaces are collectively 'lived', perceived and understood, turning mobility into a critical lens for decoding social and political relations in the city (Sheller, 2006). However, the global discourse on this transition remains nourished and strongly influenced by normative models of the "Global North", often creating a linear narrative of modernization that ignores the complexity of specific historical and cultural contexts. This study focuses on precisely such a complex and understudied context: the post-socialist cities of Central and South-eastern Europe, which face the challenge of reconstructing urban space after a radical system change. As (Stanilov, 2007) notes, these cities are not simply "blank sheets" but landscapes filled with layered traces of a centrally planned past, now adapting to market forces and democratic aspirations. This category includes "capitals in transition", urban environments that are in a dynamic process of reinventing their identity, making this transition an inexhaustible laboratory for studying the interplay between mobility, memory and modernity.

Tirana serves as an extremely important case study within this context. Its accelerated and often chaotic development in the post-1990s decades, characterised by "extreme individualism" and widespread informality (Aliaj, 2003), has left it with a unique urban landscape. This landscape, despite its challenges, also contains an unusual energy and authenticity. Confronting this legacy, the city's recent mobility policies, from the dramatic restoration of public space through pedestrianisation to the expansion of cycling infrastructure, are not simply engineering projects. They are ambitious efforts to reshape the "image of the city" (Lynch, 1960), to change collective perception, and to create a more sustainable, accessible, and human-orientated mental map (Figure 1).



Figure 1. Tirana Before in 2012 and after in 2025. Source: by Author.

Consequently, this study fills an important gap in the existing literature. While most research on green mobility focuses mainly on technical implementation or ecological benefits, analyses that treat it as a transformative force for urban identity in post-socialist contexts are lacking. This transformation is not simply a matter of infrastructural modernization, but a complex socio-spatial negotiation. On one hand, there is a strong tendency to imitate the regular and consolidated models of Western Europe; on the other, we are faced with the fluid reality of a city shaped by informality and a specific history of development. This tension between imported models and local reality constitutes the essence of the urban dilemma that Tirana and similar cities face today. In this context, the city serves as a laboratory to test theories of policy transfer and local adaptation. The main risk lies in superficial imitation, creating a ‘facade’ of sustainability through bike lanes or pedestrian zones, without cultivating the civic culture, governance mechanisms and spatial practices that give meaning to these models in their countries of origin. The issue therefore goes beyond urban planning and becomes a challenge of ‘cultural translation’: How can universal principles of sustainability be integrated into local everyday life? The answer is crucial, as it will determine whether green mobility will be embraced as an authentic element of the city’s new identity, or rejected as a foreign ‘top-down’ intervention that does not resonate with the real needs of citizens.

Through a qualitative and comparative methodological framework, this research analyses how these specific green mobility interventions serve as catalysts for rethinking the post-socialist city. The study does not seek to assess Tirana according to a static foreign checklist but to understand the specific logics and consequences of its transition. The main question is: how can the general principles of “cities for people” (Gehl, 2013) be effectively applied in a context characterised by informality, chaotic street vitality, and a weak tradition of public space governance?

Ultimately, this paper argues that long-term sustainability and the construction of a sustainable urban identity are not achieved through the mechanical transplantation of foreign paradigms. The real potential lies in developing localised strategies, “tailored” to Tirana’s unique mass, while simultaneously maintaining universal design principles that advance the human experience. Thus, the study aims to contribute not only to the discussion on urban development in Albania but also to the broader literature on urban ecology by offering valuable perspectives for all cities in transition that struggle to harmonise global aspirations for sustainability with immobile local realities.

II. METHODS

Green mobility is increasingly recognized as a multifaceted term that directly impacts social life, urban development, transport and environmental sustainability. Sustainable Urban Mobility Plans (SUMP) are strategic planning tools adopted across Europe with a focus on accessibility, safety and environmental responsibility. They serve as examples of how mobility affects public areas and the urban environment. Kevin Lynch's concept of the city image (Lynch, 1960) highlights the significance of paths, nodes and edges in defining urban legibility. Streets, bike lanes, and pedestrian paths are examples of mobility infrastructure, but also important aspects of how people see and navigate cities, rather than neutral components. Similarly, Jan Gehl's study of human-scale cities (Gehl, 2013) emphasises how streets can be converted from traffic lanes into social spaces that support day-to-day activities. In European capitals, sustainable transport has progressively emerged as a mechanism for developing city branding and identity. Cities like Copenhagen are globally recognized for their transport efficiency and their lifestyle-focused approach to mobility, integrating cycling and walking into urban culture. (Figure 2)

For transitioning cities such as Tirana, this prompts significant enquiries on the transferability of models and the potential for superficial emulation.



Figure 2. Consolidated Green Mobility Model in Copenhagen. Source: by Author.

Using a comparative qualitative case study methodology, the research focuses at advanced green mobility practices in a European capital city context, using Copenhagen as a reference model and Tirana as the primary case study. The analytical approach combines a thorough analysis of important policy documents, like as the Tirana Sustainable Urban Mobility Plan, with an extensive review of the scholarly literature on green mobility in European cities. (Figure 3)



Figure 3. Pedestrian use of public space in Tirana. Source: by Author.

This is complemented by a comparative interpretation of spatial and strategic approaches to mobility, together with an urban design-oriented analysis that focuses on public space, everyday use and the interaction between mobility systems and the lived urban environment. This approach allows for a critical comparison that highlights both convergences and contextual differences between the two cities.

III. RESULTS AND DISCUSSION

Comparative analyses of green mobility policies in European capitals highlight a clear pattern shift towards sustainable and human-centred forms of urban mobility. The approaches followed are characterised by the promotion of non-motorised transport, the consolidation and integration of public transport networks and the continuous reduction of the dominance of private vehicles through the reconfiguration of road space. European studies consistently link these strategies to the development of pedestrian-friendly urban centres, the creation of continuous and functional cycling networks, and the implementation of low-emission or traffic-controlled zones. (Figure 4)



Figure 4. Key components of an integrated green mobility system contributing to sustainable urban transformation.

Source: by Author.

In this context, Copenhagen stands out as a consolidated reference example, where the bicycle constitutes an essential component of everyday mobility and not simply an optional alternative. This success is based on the continuity of long-term policies, developed institutional capacity, broad public involvement and close integration between mobility planning, urban design and public space management, guaranteeing high levels of safety, comfort and social acceptability.

These European experiences provide an important analytical framework for interpreting the transformative processes taking place in Tirana’s urban mobility. The development of the city has been accompanied by rapid demographic growth, informal construction and a car-oriented urban expansion, especially during the post-socialist period, bringing traffic congestion, environmental pressure and a persistent lack of quality public spaces. Local authorities, faced with these problems, have undertaken a series of interventions aimed at improving the quality of urban life and harmonizing local policies with European objectives of sustainable development. The pedestrian zone of Skanderbeg Square represents a deep meaning and serves a vital purpose, reshaping the city centre from a place overrun by cars into a lively heart for community gatherings, public events, and civic life. This shift is supported by other changes, like adding new bike paths and calming traffic, which reflect a growing awareness among city officials of the importance of moving beyond reliance on automobiles. At the same time, the Sustainable Urban Mobility Plan sets out goals that follow European priorities, focusing on improving access, protecting the environment, ensuring safety, and strengthening community connections.

Despite these efforts, implementation remains uneven in practice. The cycling infrastructure in Tirana remains fragmented and discontinuous, thus becoming a mode of movement for vehicle movement, while for foot movements caused by pressure on traffic movements. In contrast to Copenhagen, where green mobility is deeply integrated into everyday life and supported by a stable framework in Tirana, initiatives are still perceived as temporary, experimental and not consolidated. This reality reflects not only infrastructural limitations, but also the continuity of studies in policy implementation and their inclusion (Figure 5).



Figure 5. Use of Green Mobility in Tirana. Source: by Author.

The comparative analysis suggests that the relationship between Tirana and Copenhagen should be said in a hierarchical, but developmental way. Copenhagen represents the conclusion of a

finished outcome reached after decades of gradual transformation, while Tirana functions in a context of rapid urban change and a historical infrastructure to stand for proper mobility, the compact city structure, high density and strong internal culture of human-oriented mobility systems. In this context, Tirana can be seen as an urban laboratory, where green mobility strategies can be adapted and reinterpreted to the social, spatial and cultural conditions of the environment, rather than directly replicated.

Overall, the findings draw a crucial lesson from the experience of European capitals: green mobility should not be seen simply as an infrastructural or technical intervention, but as an integrated public space project, which reshapes the daily urban experience. For Tirana, the development of future mobility policies should focus on ensuring continuity, spatial integration and usability at the neighborhood and city level, ensuring that sustainable mobility builds a coherent urban identity and supports long-term social and environmental sustainability, rather than remaining a series of fragmented projects.

IV. CONCLUSION

This study highlights how sustainable mobility strategies are essential to rethinking modern capitals, having an impact on public space standards, urban identity development, and transportation organization. The study emphasizes that the development of mobility in Tirana should be seen as a process tailored to the local context rather than as a direct replication of European models through a comparison between Tirana and Copenhagen. Green mobility in Tirana represents a real opportunity to reshape the city's image as a capital city oriented towards people and sustainable development, as long as strategic approaches are closely intertwined with urban design, governance and social behaviour. In order to solidify Tirana as a developing European capital with a unique urban identity, the paper concludes by highlighting the need for future research and policies to concentrate on enhancing spatial coherence and raising the cultural acceptability of green mobility.

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International conference on sustainable mobility

Agenda

Project title: International Engineering Competence Centres to push Sustainable Mobility Development in Albania and Montenegro
Acronym: INTEC

Work package	
WP11	International conference
TASK	
11.4	Community Building Events

Dates	05.03.-06.03.2026
City	Tirana
Meeting venue	POLIS University Entrance Hall
Address	Rr. Bylis 12, Kodi Postar 1051, Kutia Postare 2995, Tirana, Albania

05.03.2026	
Entrance Hall, POLIS University	
8:30 - 9:00	Registration
9:00 - 9:30	Opening Performance
Welcome session - Auditorium A5 (Ground floor)	
9:30 - 10:00	Opening Remarks Dr. Elona Karafili (Vice Rector, POLIS University) Dr. Flora Krasniqi (Head of Office of Projects and Internationalization, POLIS University) DI Daniela Wenzl (INTEC Project Coordinator)
Auditorium A5 (Ground floor)	
10:00 - 11:00	Keynote speakers DI Horst Pflügl AVL Collaborative Research for sustainable Mobility DPSHTRR Representative - (General Directorate of Road Transport Services in Albania)
11:15 - 11:30	Coffee break (Moving into parallel sessions)

11:30	SESSION 1: POLITICAL AND REGULATORY FRAMEWORK AULA B1	SESSION 2: TECHNOLOGICAL INNOVATION AULA B4
11:30 - 11:45	Opening Session: Prof. Emeritus dr Nataša Gospić (FSKL)	Opening Session: Associate Prof. Ivan Tolj (US)
11:45 - 12:00	Integrating Event Data Recorder (EDR) Technology into Sustainable Road Safety Frameworks within the European Green Deal Eriselda Alimeti, Parid Milo, Mentor Çejku, Anis Sulejmani, Odhisea Koça	Empirical Comparative Study of Structural CFRP Sandwich Structure Inserts for Out-of-Plane loads Imre Kovács
12:00 - 12:15	Infrastructure Readiness for Sustainable Mobility: EU Frameworks and the Case of Albania Ervin Kalemaj, Parid Milo, Mentor Çejku, Anis Sulejmani, Odhisea Koça	The Role of Intermodal Transportation for the Sustainable Mobility Márton Kovács
12:15 - 12:30	Review of the Evolution of International Ship Energy Efficiency Regulations and the Albanian context Dr. Blenard Xhaferaj, Doklejda Hodaj	Impact of Heat Pump Systems on Winter Energy Use and Driving Range in Battery Electric Vehicles Luis Henrique Pereira Martins
12:30 - 12:45	Renewable Energy Procurement (CPPA) and Transport Electrification: European Perspectives and Albanian Challenge Antonio Ndoci, Anis Sulejmani, Odhisea Koça, Mentor Çejku, Parid Milo	Liquid Cooling Systems for Electric Vehicle Batteries: Improving Safety, Performance and Sustainability João Miguel de Almeida Ribeiro Silva
12:45 - 13:00	The Current Status of Autonomous Vehicle	Analysis of Battery Charging and Discharging Behavior for Electric Vehicle Applications Leona Markic, Luka Filipović

	Technology Adoption in the Balkan Region Darjana Lopičić, Oliver Popović, Miloš Ilić, Bojan Kocić	
13:00 - 14:00	Lunch	
14:00 - 14:15	Reviewing the European Green Deal in Energy, Mobility and Industry Veselinka Calasan, Ivana Ognjanović	Automotive Cooling Systems Sustainability: A Focus on the Expansion Tank Ana Inês Barbeiro Casimiro
14:15 - 14:30	The European Green Deal and its National Implementation: From Strategy to Practice Blerina Bektashi, Andi Bektashi	Design and Development of a Constant-Volume Combustion Chamber for Optical Investigation of Hydrogen and Water Injection Under Engine-like Conditions Julius Hollerith, Prof. Dr. Bhavin Kapadia
14:30 - 14:45	From Prediction to Regulation: Evidence Production Approaches in Autonomous Mobility Research and Their Policy Implications Sadmira Malaj	Emission Reduction of Marine Propulsion Systems in SECA Zones Through the Integration of Hydrogen Technologies Motaleb Miri, Ivan Radaš, Marija Mandić, Ivan Tolj
14:45 - 15:00	Questions and Discussion	A Comprehensive Analysis of Ventilation System for Enhanced Energy Efficiency in Marine Propulsion Applications Sara Blašković, Gojmir Radica, Jakov Šimunović

15:00 - 15:15		Design and Topology Optimization of a Lightweight Chain Sprocket for Electric Motorcycle Applications Teo Čolović, Ivo Marinić-Kragić
15:15 - 15:30	SESSION 3: ECONOMIC AND BUSINESS PRESPECTIVES + CASE STUDIES AND GOOD PRACTICES Aula B1	Questions and Discussion
	Opening Session: Dr. Anis Sulejmani (PUT)	
15:30 - 15:45	Managing Renewable Energy Resources as a Foundation for Sustainable Mobility Transitions Deivi Sinanaliaj, Martin Bektashi	
15:45 - 16:00	Feasibility of Electric Bus deployment in Montenegro: A Case Study of Budva (Erasmus+ INTEC / IECC Context) Anastasija Mrkajic, Vinko Nikic.	
16:00 -16:15	Children Paths as an Urban Regeneration Strategy: Naim Frasheri Study Case Dejvi Dauti	
16:15 - 16:45	Questions and Discussion	

International conference on sustainable mobility

Agenda

Project title: International Engineering Competence Centres to push Sustainable Mobility Development in Albania and Montenegro
Acronym: INTEC

Work package	
WP11	International conference
TASK	
11.4	Community Building Events

Dates	05.03.-06.03.2026
City	Tirana
Meeting venue	POLIS University Entrance Hall
Address	Rr. Bylis 12, Kodi Postar 1051, Kutia Postare 2995, Tirana, Albania

06.03.2026		
First Floor Hall, POLIS University		
8:30 – 9:00	Registration	
9:00– 9:15	SESSION 4: SOCIAL AND ENVIRONMENTAL IMPACT AULA B1	SESSION 5: FUTURE SCENARIOS AULA B4
9:00 – 9:15	Opening Session: Prof. Dr. Bhavin Kapadia (FHF)	Opening Session: MA Adrian Millward-Sadler (FHJ)
9:15 – 9:30	Comparison of Lifecycle Emissions of a SUV with Fuel Cell and Battery Electric Powertrains - Bhavin Kapadia, Alper Sayin, Sandra Eisenträger	GENAI Literacy as a Transversal Skill for Emerging Professionals: Implications for Sustainability- Critical Knowledge Work - Adrian Millward-Sadler
9:30 – 9:45	Smart Mobility Technologies and their Impact on Urban Sustainability: Insights from	Effects of Technical Traffic Calming Measures – Filip Perović

	European and Western Balkan Cities – Alma Gjonaj, Vjola Ziu	
9:45 – 10:00	The Disappearing Squares: Social and Environmental Impacts of Urban Mobility Planning in Durres – Arjola Sava	Cybersecurity Vulnerabilities in Electric Vehicle Operating Systems: A Global Awareness Analysis - Aleksa Radević
10:00 – 10:15	The City that Demands Continuous Movement: The Disappearance of the Right not to Move within the Framework of Sustainable Mobility – Avrili Meshi	Development of a risk assessment model for the transport of hazardous materials using ALOHA and GIS software tools – Marko Radetić
10:15 – 10:30	Between Rhetoric and Reality: Discursive Framings, Greenwashing and Outcomes in Sustainable Mobility – Kejsi Veselagu	Mapping Distance and Time Leveraging Isochrone Intelligence in Emerging Cities - Andia Vllamasi, Erjon Cobani
10:30 – 10:45	Reimagining the City Through Green Mobility Strategies: The Case of Tirana - Vjola Ziu, Alma Gjonaj	Can AI develop its Own “Taste” Automotive Design? - Gregor Andoni, Kristjana Meço
Coffee Break		
11:00 – 11:15	Linking Morphology, Perceived Safety, and Sustainable Mobility in Post-Socialist Urban Contexts- Sindi Doce	Optimizing Public Transport Corridors Using AI-Based Scenario Modelling: A case Study on Tirana’s Ring Road - Erjon Çobani, Julian Beqiri, Merita Guri
11:15 – 11:30	Towards Sustainable Transport: A Comparative Analysis of Electric Vehicle Adoption in Montenegro and Albania - Radmila Milić	Threat Landscape and Multi-Layered Protection Mechanisms for Autonomous and Electric Vehicle Systems - Marko Asanovic, Oliver Popović, Zoran Avramović, Nataša Gospić

11:30 - 11:45	Questions and Discussion	Cybersecurity Challenges in Modern Vehicular Communication Networks - Aleksandar Grgurević, Nataša Gospić, Oliver Popović
11:45 - 12:00		Green Transition in Albania: Challenges and Future Actions - Erik Kushta, Andi Hyka, Enea Nasto
12:00 - 12:15	SESSION 6: CONTROVERSIES AND CHALLENGES Aula B1	Use of AI in the Process of Green Transformation and Impact on Public Health - Esmeralda Hamiti, Federika Alliaj, Kristi Metushi
	Opening Session: Prof. Kristofor Lapa (UV)	
12:15-12:30	The Adoption of Electric Vehicles in Albania: A Comparative Study with Other Western Balkan Countries - Doklejšda Hodaj, Andrea Lapa	Development of an Automatic Traffic Sign Detection System Using YOLOv8 - Valentina Vojinović, Luka Filipović
12:30-12:45	Application of Quality Tools in the Analysis of Factors Influencing the Development of Electromobility in Montenegro - Jelena Šaković Jovanović, Draško Jovanović, Mirjana Grdinić Rakonjac, Marko Lučić, Miloš Perović, Aleksandar Vujović, Gordana Radulović	The Historical Development of Artificial Intelligence and Its Influence on the job market in Automotive Engineering - David Josef Pilgram
12:45 - 13:45	Questions and Discussion	Questions and Discussion
13:45	Lunch	