



**International Conference
of Tirana Planning Week**

by POLIS University

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ISBN (e): 978-9928-347-14-5

DOI: 10.37199/c41000707

Published by: Polis Press

Assessing Walkability in Tirana: A Comparison of Three Main Boulevards

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Abstract

This study aims to conduct a comprehensive analysis of walkability within a city and evaluate its potential impacts on the community. The research focuses on assessing the “walkability” level of several key streets, including “Rruga Kavajes”, “Rruga e Duresit”, and “Deshmorët e Kombit” Boulevard. The analysis is based on a set of indicators, (MCA), which have been assessed and weighted as outlined in the provided table. Field measurements were primarily conducted to estimate the performance of each indicator. The final evaluation reveals that “Deshmorët e Kombit” Boulevard scored highest across the criteria associated with a walkable street.

This assessment provides insights into the variation in walkability levels across key areas of the city and their potential impact on the local community. The study serves as a foundation for further discussions on necessary infrastructural enhancements and interventions aimed at improving walkability and aligning with sustainable development goals.

Keywords: Multi-Criteria Analysis (MCA), Tirana Metropolitan Area, Public Transport Evaluation.

Introduction

What is Walkability?

In the discipline of urban planning, “walkability” refers to the ease of access to facilities and all necessary things on foot. A road that isn’t walkable is just an urban space for vehicular transportation. Instead, they should be relatively full spaces that serve a variety of uses, users, and modes of transport and reduce the need for cars for travel. The term “walkability” was first mentioned by the urban studies revolutionary Jane Jacobs in the 1960s. In recent years, walkability has become known for its health, economic, and environmental benefits. It is a fundamental concept of sustainable urban design. Factors influencing walkability include the presence or absence and quality of pathways, sidewalks, or other pedestrian crossings, traffic conditions and roads, land use patterns, accessibility of buildings and safety, among others. Main Boulevards.

Rr. “Kavajes” is one of the main roads in Tirana. It is the most important road in western Tirana and extends westward from the central Skanderbeg Square for several kilometers, continuing further west to the Adriatic Sea. It is known for its prestigious properties and some of the most expensive residential apartments in Tirana. It intersects with Bajram Curri Boulevard.

Rr. “Duresit” is another major road in Tirana. It is one of the most important roads in western Tirana and stretches westward from the central Skanderbeg Square for several kilometers until it reaches the sea in the north of Durrës. Boulevard “Deshmoret e Kombit” is the main boulevard of the city of Tirana. Along this boulevard, there are many buildings, including the Presidential Palace, the Prime Minister’s Office, the Congress Palace, the Rogner Hotel, and the University of Tirana. The boulevard enters the city center from the south and intersects with Bajram Curri Boulevard near the Youth Park. It then

becomes part of Skanderbeg Square and continues north of the center until Zogu I Boulevard. Benefits of Walkability.

Indices of walkability have shown to be associated with Body Mass Index (BMI) and physical activity of local populations. Physical activity can prevent chronic diseases such as cardiovascular diseases, diabetes, hypertension, obesity, depression, and osteoporosis. For example, an increase in the walkability score in neighborhoods is linked to better cardio-metabolic risk profiles and reduced risk of heart attacks. The World Cancer Research Fund and the American Institute for Cancer Research published a report stating that new developments should be designed to encourage walking, arguing that walking contributes to cancer reduction. Walking has also shown to have numerous socio-economic benefits, including access, cost savings for both individuals and the public, increased land use efficiency, improved quality of life, economic benefits from enhanced public health and economic development, among others. The benefits of walkability are best ensured when the entire public corridor system is walkable - not limited to some specialized streets. More sidewalks and increased walking can promote tourism and increase property value. One of the benefits of improving walkability is the reduction of car traffic in the community. Carbon emissions can be reduced if more people choose to walk instead of driving or using public transportation, so proponents of walkable cities describe improving walkability as an important tool for cities to adapt to climate change. The benefits of fewer emissions include improving health conditions and quality of life, less smog, and less contribution to global climate change.

Objectives of Assessing Walkability in Tirana

Assessing pedestrian infrastructure: Evaluate the presence and quality of sidewalks, crosswalks, and other facilities designed for walking.

Examining street design: Analyze the layout of streets, including width, traffic flow, and presence of bike lanes or pedestrian-friendly features

Evaluating land use patterns: Assess the mix of land uses, density of development, and proximity of amenities such as shops, schools, parks, and workplaces to residential areas.

Considering accessibility: Evaluate how easily pedestrians can navigate the city, including access for individuals with disabilities and availability of public transportation connections.

Identifying areas for improvement: Pinpoint specific areas where infrastructure, design, or policies can be enhanced to make the city more walkable and pedestrian-friendly.

Promoting health and sustainability: Assess the potential health benefits, environmental impacts, and economic advantages of improving walkability in the city.

Literature Review

Tirana is the capital city of Albania and is now a highly walkable city, but its walkability is at risk, with a forecast predicting that the number of people walking could decrease by up to 50% in the next decade without proactive measures.

Walk21 proposed 4 quick actions to support the ambition to be a more walkable city, which include: establishing a multidisciplinary Walking Task Force; improving safety at road intersections; enhancing the quality of the 65 minutes that most people walk every day with a network featuring more trees, benches, and walking space; and designating school routes as part of the city's commitment to becoming the European Youth Capital.

Walk21's proposals draw from successful approaches in other cities facing similar challenges and are deemed enjoyable for citizens, scalable within the local vision and budget, and achievable within 2 years.

According to walkscore.com, Rr. Kavajes has a rating of 85/100 points, making it a very walkable

street where the majority of activities are performed on foot. Near this road, there are many different facilities, which prevent residents of this area from traveling far. Rr. Durrësit has been rated at 90/100 points, thus also being considered a paradise of walkability. All daily activities can be carried out without the need for a car or any other form of transportation besides walking. Furthermore, Boulevard “Deshmoret e Kombit” is also a paradise of walkability, with a rating of 95/100, the highest among all previous streets.

Methods

To study the walkability of the city of Tirana, we will use a combination of on-site field analysis and interaction with pedestrians, but also integrate desktop analysis method for gathering information, and use MCA (Multi-Criteria Analysis) as a methodology for assessing and scoring each boulevard.

The indicators we have chosen to measure walkability on these 3 streets are divided into 4 categories:

1. Roadside amenities
2. Road safety
3. Environment
4. Community impact

Each of these areas serves to improve walkability on the streets and to make the walking experience safe, healthy, and comfortable.

Roadside amenities

Regarding roadside amenities, we include all objects that facilitate pedestrian circulation, provide ease in their activities, and offer additional conveniences for everyone. In this category, we have decided to include bus stops, traffic lights at intersections, crosswalks, and bike lanes. There are specific rules for all these facilities on how they should be planned to make a road as walkable as possible.

Well-planned sidewalks provide continuous space for walking. They also support other activities such as street vending and waiting at bus stops without compromising pedestrian mobility. The success of a sidewalk depends on the integration of numerous elements into a coherent design.

Well-designed bus stops provide a comfortable and weather-protected waiting area for public transport passengers, leaving ample space for pedestrian movement behind the shelter. Bus stops should be placed adjacent to the bus route so that the bus does not need to deviate. Bus stops are only necessary where there is high-speed traffic and high volume.

As for pedestrian crossings and crosswalks, they should be placed wherever there is a concentrated need for people to cross the road (e.g., at a bus stop, at an entrance to a shopping center, or where a pathway crosses the road). In densely populated areas, crossings can be placed at regular intervals (e.g., every 50-100 meters). To make these crossings even safer for pedestrians, they should be signaled to vehicles using various warning signs or by raising the road level in that area to enforce speed reduction.

And last but not least, bicycle lanes are of paramount importance. For them to be efficient, they should be safe, continuous, and convenient for use. Bicycle lanes should be positioned between the sidewalk and the carriageway to minimize conflicts with other road users. They should be separated from the road and preferably with additional protective barriers that increase cyclist safety. The standard width of these lanes should be a minimum of 2 meters for one-directional movement and a minimum of 3 meters for both directions of movement.

Road safety

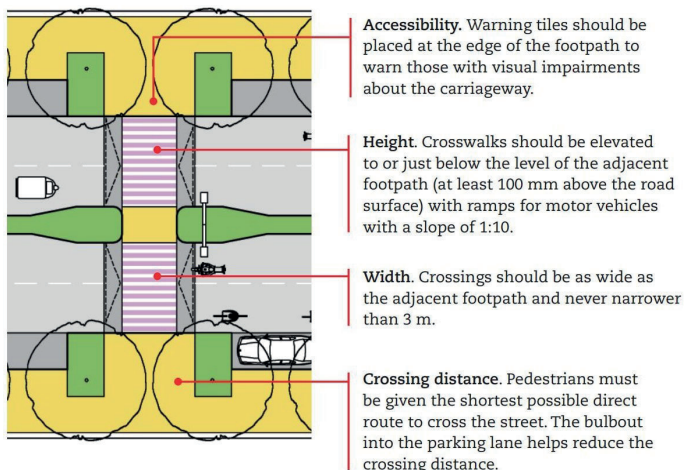


Fig.1/ Guidelines for pedestrian crossings
Source/ UN-Habitat

Road safety includes several elements such as traffic calming measures, sidewalk barriers, and their width. These elements are directly related to pedestrian safety while walking on sidewalks or engaging in other activities. Maintaining low vehicle speeds is a fundamental element of pedestrian safety. It is believed that by installing as many traffic calming and signaling barriers as possible in pedestrian areas, vehicle drivers will be more responsible in their driving.

The width of the sidewalk and roadside barriers are two other key elements that enhance safety in walking. A wider sidewalk provides more freedom in walking and also a greater distance from the vehicle lane. The width of the sidewalk varies depending on the nature of the road, whether commercial or residential, but the standard dictates that it should be at least 2 meters wide to allow the passage of two wheelchairs at the same time. The standard then varies on roads with high pedestrian intensity or on main roads. Barriers also provide additional protection in cases of loss of vehicle control and crossing onto the sidewalk. A well-designed sidewalk also includes the division or zoning of spaces with different functions within the sidewalk. In highly commercial areas with many businesses along the road, it is necessary to leave a 0.5m - 1m space at the business exit to place various objects or even as a buffer zone for their entrances and exits. Next comes the pedestrian zone, which is the most important, as it should be designed for pedestrian circulation and only pedestrian circulation without being obstructed by other objects. Lastly, there is the furnishing zone or otherwise the area where all additional street furniture objects such as trees, benches, lighting fixtures, or various trash bins are placed. A well-designed sidewalk also includes the division or zoning of spaces with different functions within the sidewalk.

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Environment

The presence of green spaces or decorative trees in pedestrian areas not only adds to the aesthetic



Fig.2/ The methodology of measuring the widths and lengths of the pavement
 Source/ Kelvi Peti using ASIG

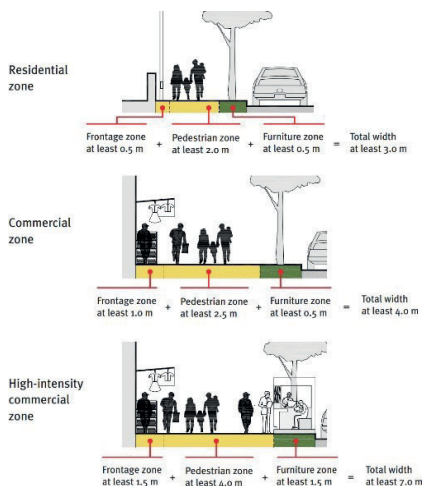


Fig.2/ Standards for the width of pedestrian space on roads with different natures
 Source/ UN-Habitat

aspect of a road but also contributes directly to the health and well-being of citizens by reducing the amount of carbon dioxide in the air. Trees in urban environments also have other essential functions, such as providing shade on hot summer days, mitigating urban heat, and creating environments and ecosystems for urban fauna.

Additionally, selecting the right type of tree for the urban environment is crucial. It should fulfill all the above-mentioned functions while not causing various problems for citizens, such as falling branches or fruits, seasonal allergies, etc.

Community impact

As we know, sidewalks are not just spaces dedicated to walking, but they are vital environments where many other forms of activities find a place and are even encouraged to create as vibrant

1.Facilitetet ndihmese te rruges	Stacionet e autobusave	Semafora ne kryqezim	Vija te bardha	Dimensionet e rruges se bicikletave		
				Gjeresia (m)	Gjatesia (m)	Siperfaqja(m2)
Rruga e Kavajes	5	22	32	3,2	920	2944
Rruga e Durrësit	2	15	23	3,2	950	3040
Bul. Dëshmoret e Kombit	3	26	20	3	1880	5640

Table.1 / Roadside amenities

2.Siguria rrugore	Tabela penguese	Koha pershkrimt (min)	Dimensionet e trotuarit			Barrierat penguese
			Gjeresia(m)	Gjatesia(m)	Siperfaqja(m2)	
Rruga e Kavajes	51	15	4	2140	8560	jo
Rruga e Durrësit	43	9	5	1900	9500	po
Bul. Dëshmoret e Kombit	35	16	7	1880	13160	jo

Table.2 / Road safety

communities as possible. Sidewalks are places where businesses conduct their activities, where people meet each other and exchange conversations, and also places where you can enjoy a coffee at your favorite bar. These, of course, must respect the rules of walking and zoning and not interfere with pedestrians' ability to pass.

Entrances and exits from private properties are often points of conflict between pedestrians and vehicles but are also unavoidable. A well-planned design of these entrances is a key factor in minimizing the effects these crossings have on pedestrian traffic. The sidewalk should not be interrupted directly but should have gradients and ramps to ensure continuity of movement for both vehicles and pedestrians.

Results and Discussion

Rr. Kavajes is also the corridor through which most of Tirana's bus lines pass, resulting in the highest number of stations. The stations are covered but somewhat small to accommodate the large flow of passengers at these stations. Additionally, in some cases, the stations hinder the movement of other citizens as they narrow the space dedicated to walking.

Crosswalks are placed at regular intervals since it is a long road with high pedestrian traffic from one side to the other. These crossings are often irregular with traffic lights but are signaled by other warning signs.

As for the bike lane, it is wide enough according to the standard and allows the passage of 2 cyclists simultaneously. Unlike other roads, this lane is located in the middle of the roadway and serves as a separation for the 2 directions of movement, but is well separated from the traffic lane with natural barriers such as trees. It is also elevated above the level of the roadway. The pavement material is soft carpet, specially designed for cyclists, allowing for easy cycling but also serving as a protective measure in the event of falls or accidents of this kind.

Rr. Durrësit has only 2 bus stations, which are below standard, lacking cabins for weather protection, covers, and are signaled only by a road sign. Since there is no structure to accommodate passengers, the stations do not cause any inconvenience or discomfort in the movement of other pedestrians.

Crosswalks are located at intersections and are mostly regulated by traffic lights, except for some serving only as a passage from one side of the road to the other.



Fig.4/ Map for the benefit of residents
Source/ Kelvi Peti

The dedicated bike lane consists of 1 lane with 2 directions of movement on one side of the road, which has the appropriate width for easy bicycle movement. The pavement material is also soft carpet, and this lane is protected by small barriers placed on the ground, not higher than 20 cm.

Boulevard “Dëshmorët e Kombit” has 3 bus stations, equipped with the respective structure, covered against the weather, except for one located respectively in front of the University of Arts, which lacks the appropriate station structure. White lines are only found at the major intersections of this road and are all regulated by traffic lights.

As for bicycles, there are 2 such lanes, one on each side of the road, where each serves for one direction of movement and has a width of 1.5 meters. The latter is not elevated but is delimited by the roadway from a barrier line with traffic restrictors attached to the ground with dimensions of 20x20x80. The paving material is the same as on other roads.

Rr. Kavajes has the highest number of traffic barrier signs, as it has many pedestrian crossings that are irregularly regulated by traffic lights, so they are signaled only through signs. Also, this road has the highest number of interruptions to the roadway with white lines as it is a road with heavy pedestrian traffic. The description time is quite optimal, but it should be noted that in this observation, the conditions are ideal and do not take into account obstacles or other factors that may arise during the journey.

The width of the sidewalk remains at the minimum limits, 2 meters on each side, 4 meters in total, considering that it is a road with heavy commercial traffic and one of the main roads in Tirana. Also, in some places, the road narrows due to various construction works or other objects occupying the road. The zoning of the sidewalk is followed to some extent, but there are moments where it is not applied as it should be, and the rule is broken. The barrier between the sidewalk and the roadway also lacks anything besides a 15-20 cm curb elevation.

On Rr. Durrësit, there is a considerable number of traffic barrier signs considering that only a few of the pedestrian crossings are regulated by traffic lights, while others are signaled by various signs. The description time is quite short.

The width of the sidewalk is optimal, ranging from 2.5 meters on each side, and the zoning of the sidewalk is quite good and continuous. A feature on this road is that the sidewalk is delimited by the roadway using protective metal barriers.

Every resident who lives or wishes to move near the three roads analyzed should examine this

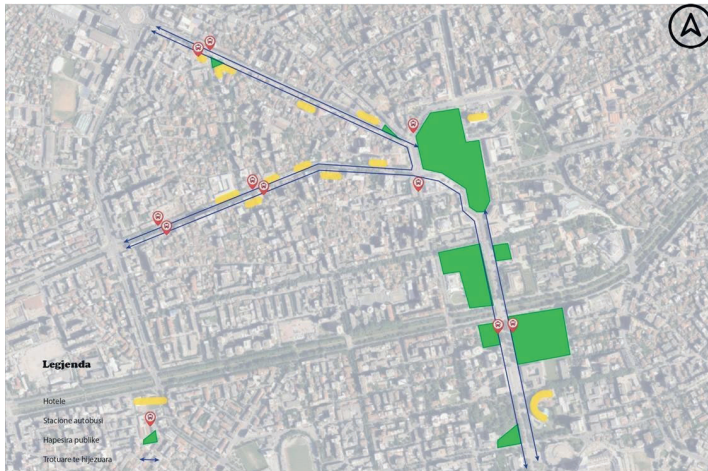


Fig.5/ Map for the benefits of tourists
 Source/ Kelvi Peti

map, which scores the assessment indicators of how convenient it is to walk each of them. The map includes designated bike lanes, sidewalks, but also transportation stations where road accessibility is measured. Green spaces have also been identified, as well as institutional and residential objects to distinguish which public spaces are closer to which objects. Tourists who choose to visit Tirana and do not have a private vehicle to move around must strategically choose the location of the hotel so that it is close to public transport stations to access other parts of the city. In addition to highlighting hotels and bus stations on the map, the location of public spaces is also included. As for mobility for the benefit of tourists, we have only distinguished sidewalks since the city lacks infrastructure for cycling, such means being available for rent or their resting places. The Municipality of Tirana needs this metabolic analysis to understand the areas where pedestrian friendliness is sought after and where the presence of cars is preferred. In the above map, a grid with dimensions of 30x30m has been overlaid on the 3 axes analyzed, with each 30m² carrying information about how pedestrian-friendly that area is. Our assessment has been based on 3 levels where: not very friendly areas include offices, institutions, and hotels. Somewhat friendly areas include businesses such as markets, supermarkets, and electronics stores. While friendly towards pedestrian friendliness, we have grouped service businesses such as cafes, restaurants, clothing stores, and others of this nature.

We note that primarily all three axes are friendly towards pedestrian friendliness except for areas near major intersections. The reason may be that the area near the center of Tirana has always had a dedicated function for various institutions or offices.

$$\text{Rruga e kavajes: } 9 \times 0.1 + 7 \times 0.05 + 7 \times 0.05 + 8 \times 0.1 + 6 \times 0.1 + 9 \times 0.05 + 7 \times 0.1 + 0 \times 0.05 + 10 \times 0.1 + 6 \times 0.1 + 10 \times 0.1 + 0 \times 0.1 = 6,75$$

$$\text{Rruga e Durrësit: } 5 \times 0.1 + 9 \times 0.05 + 8 \times 0.05 + 9 \times 0.1 + 7 \times 0.1 + 10 \times 0.05 + 9 \times 0.1 + 5 \times 0.05 + 8 \times 0.1 + 7 \times 0.1 + 10 \times 0.1 + 5 \times 0.1 = 7,6$$

$$\text{Bulevardi: } 7 \times 0.1 + 6 \times 0.05 + 9 \times 0.05 + 10 \times 0.1 + 9 \times 0.1 + 10 \times 0.05 + 10 \times 0.1 + 5 \times 0.05 + 6 \times 0.1 + 8 \times 0.1 + 10 \times 0.1 + 10 \times 0.1 = 8,5$$

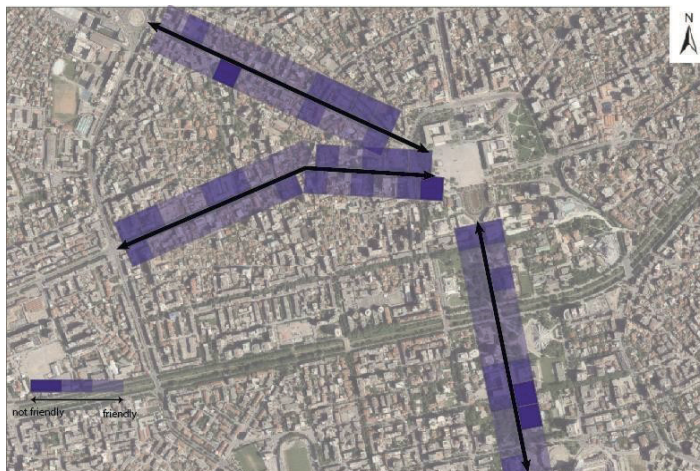


Fig.6/ Metabolic map of friendly Walkable
Source/ Kelvi Peti

1. Facilitetet ndihmese te rruges	Stacionet e autobusave	Semafora ne kryqezim	Vija te bardha	Dimensionet e rruges se bicikletave		
				Gjeresia (m)	Gjatesia (m)	Siperfaqja(m2)
Rruga e Kavajes	5	22	32	3,2	920	2944
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Bul. Dëshmoret e Kombit	3	26	20	3	1880	5640
2. Siguria rrugore	Tabela penguese	Koha pershkrimt (min)	Dimensionet e trotuarit		Barrierat penguese	
			Gjeresia(m)	Gjatesia(m)		Siperfaqja(m2)
Rruga e Kavajes	51	15	4	2140	8560	jo
Rruga e Durresit	43	9	5	1900	9500	pr
Bul. Dëshmoret e Kombit	35	16	7	1880	13160	jo
3. Mjedisi	Hijezimi (peme cope)	Pershkueshmeria e tokes (%)				
Rruga e Kavajes	308	5% e 8560				
Rruga e Durresit	167	5% e 9500				
Bul. Dëshmoret e Kombit	45	5% e 13160				
4. Ndikimi ne komunitet	Hyrjet/ daljet publike	Hapesirat publike <td></td> <td></td> <td></td> <td></td>				
Rruga e Kavajes	0	0				
Rruga e Durresit	0	2				
Bul. Dëshmoret e Kombit	0	6				

Table.3/ Weight

Aksesi e marra ne analize	Facilitetet ndihmese te rruges				Siguria rrugore			
	Stacionet e autobusave	Semafora ne kryqezime	Vija te bardha	Hapisire detikuat bicikletave	tabela penguese	Koha pershkrimt	Dimensionet e trotuarit	Barriera ndares
Rruga e Kavajes	9	7	7	8	6	9	7	0
Rruga e Durresit	5	9	8	9	7	10	9	5
Bulevardi Dëshmoret e Kombit	7	6	9	10	9	10	10	5
Shpërndarja e pikeve sipas rendesise	0.1	0.05	0.05	0.1	0.1	0.05	0.1	0.05
	0.3				0.3			
	Mjedisi Hijezimi	Pershkueshmeria e tokes	Ndikimi ne komunitet Hyrjet/ Daljet Publike	Hapisirat Publike				
Rruga e Kavajes	10	6	10	0				
Rruga e Durresit	8	7	10	5				
Bulevardi Dëshmoret e Kombit	6	8	10	10				
Shpërndarja e pikeve sipas rendesise	0.1	0.1	0.1	0.1				
	0.2		0.2					

Table.4/ Evaluation

Conclusions

Based on the measurements we conducted to assess how walkable Tirana is on these three main axes, we noticed that there is a need or space for improvement in each of them. Given Albania's expressed desire over the years to become part of the European Union, we address below some target points for sustainable development according to the United Nations. Achieving these goals not only improves walkability in Tirana but also makes it a more sustainable and EU-friendly city. Improving air quality can be achieved by increasing pedestrian and bicycle movement and reducing heavy traffic.

In order to offer people the opportunity to walk to a destination and not use private transport, you also need to provide public spaces where they can stop and rest if they feel the need.

Meanwhile, Tirana has expressed its priority in the general local plan regarding the multimobility of the city.

In the photo, we also see the standards for the bicycle lanes placed in the PPV, which were made on all three axes.

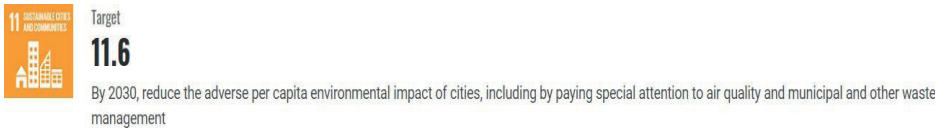


Fig.7/ Targets and indicators of sdg
Source/ United nation, Department of Economic and Social Affairs



Fig.8/ Targets and indicators of sdg
Source/ United nation, Department of Economic and Social Affairs

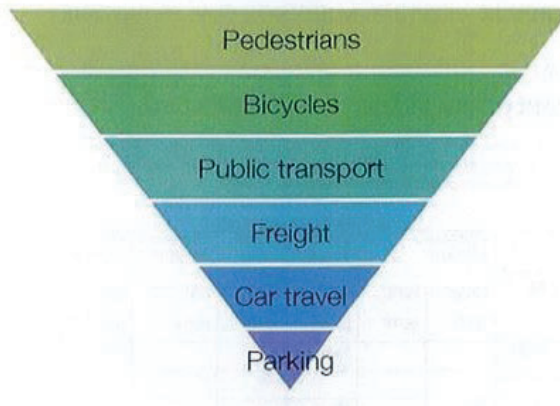


Fig.9/ Hierarchy of Mobility
Source/ Municipality of Tirana

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Acknowledgement

This research was supported and assisted by the lecturer of the Regional Planning subject, Phd. Artan Kacani. Also, our colleague Emi Kalluci has contributed to the collection and processing of data, since the subject in question was also the final submission for the subject.