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**MANAGEMENT OF TRANSPORT ACCESSIBILITY TO
TOURIST SITES IN THE CENTRAL PART OF SOFIA**

AUTHORS’S SUMMARY

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INTRODUCTION

In recent years, Sofia has established itself as one of the leading tourist destinations for both Bulgarian and foreign tourists. A significant reason for the increased number of foreigners is the fact that Sofia was included as a destination by several budget-oriented airlines. Many e-operators and online agents also offer great weekend packages and discounts when booking a flight ticket, hotel accommodation and car rental at the same time. These packages significantly increase the possibility that most often individual tourists see most of the sights of the city within 1-2 days, as evidenced by data of MP "Tourism" for the length of stay - 1, 7 days for Bulgarians and 1.8 - for foreigners (Sofia - tourism in numbers, 2017). The situation is similar when offering and organizing business trips, in which a car is often included as a means of transportation. Of the greatest importance for tourism in the capital, however, is the issue of organized, group visits of tourists and the problem of reaching tourist sites and the related - stopping, staying and parking of buses near them. This applies to a large extent to the so-called "55+" group, whose members must be taken close to the tourist site itself. The opportunities for access of disadvantaged people, which require specialized infrastructure both at the sites and to reach them, should not be ignored.

The rapid expansion of Sofia, combined with the significant increase of motor vehicles (MV) in recent years, has led to significant difficulties in moving in the central part where the main part of anthropogenic tourist resources are located. In addition, this increase has led to significant negative changes in the urban environment, namely - increased levels of dust and noise, a significant amount of harmful emissions from the operation of vehicles in the urban atmosphere, as well as an increase in traffic accidents incl. such involving pedestrians and cyclists, increased travel costs and time, etc. The deterioration of the conditions of the urban environment is detrimental to the development of the city - both for its residents and its guests. On the other hand, transport accessibility is a necessary prerequisite for travel in the destination, as well as part of the infrastructure that forms the attractiveness and appearance of the city, not only as a tourist destination. The level of its development determines to a large extent the absorption of various types of resources and services, which affects the location and development of most industries and economic activities. Its analysis is important to clarify the opportunities for residents and guests of the city to use social, administrative, cultural and other services, as well as to visit the tourist sites themselves, which are most often unevenly distributed in the geographical area. In this way it becomes one of the factors for the regional and local development of tourism, which must be carefully studied, systematically monitored and evaluated, both for the needs of the process of regional tourism planning and for its management and maintaining on a satisfactory level.

Characteristics of the study

The present dissertation offers a concept for development and proper management of transport accessibility in accordance with the growing need for mobility of the population on the one hand and on the other - increased attendance of the capital city and the need to ensure sustainable development of the destination Sofia. The concept is based on an in-depth analysis of all elements of the transport infrastructure that are relevant to accessibility and its provision and development.

In this context, the **object** of this study is the historically defined central part of Sofia and all infrastructure elements falling inside it, which determine the opportunities for moving to anthropogenic tourist sites for the particular target groups of tourists on foot, by bicycle, as well as with the use of motor vehicles.

The **Subject** of the study is transport accessibility in terms of opportunities for reaching these objects, stopping, staying and parking different types of vehicles in close proximity to them, as well as related infrastructure. This determines the **aim** of this dissertation which is, based on a thorough analysis of the current situation and problems, to

propose a concept for better management of transport accessibility to tourist sites in the central part of Sofia. In order to achieve this goal, the following main **tasks** are set:

1. To make an analysis and assessment of the place of transport accessibility in the structure of tourism and in particular in the destination and in the tourist product, in general;
2. To study and analyze the strategic, planned and regulatory documents of Sofia Municipality for the development of transport and tourism in the studied area;
3. To study and analyze the access to the anthropogenic tourist sites in the central part of the city with the separate types of transport and on foot for the separate target groups and to analyze separately the existing problems and the reasons for their occurrence and manifestation;
4. To define specific solutions to restricting the problems identified in the context of the concept for sustainable development of tourism, according to the challenges and prospects of tourism development of the destination, so to meet the needs of all target groups - living (residents) and tourists - guests of the city. The solutions should be in line with the already implemented good practices in terms of accessibility in other European capitals developed in terms of tourism.

The results of the study and the analysis are presented as a complex of solutions, shaped in the form of a concept for the development and management of transport accessibility and related infrastructure in the central part of Sofia. The concept also includes relevant and feasible solutions which do not contradict the main strategic documents for the development of the Municipality, but at the same time focus on tourists and thus complement the solutions in this direction by restricting the negative manifestation of the limiting factors on the development of tourism and transport infrastructure in relation to its individual elements and which hinder the establishment of the city of Sofia as a sustainable, international, year-round tourist destination. Scientifically the concept as an approach for analysis, assessment of the problems and definition of solutions can be shaped as a model and after adaption - to be used and applied to other destinations in the Republic of Bulgaria.

Structure of the dissertation

The dissertation consists of 299 pages, including: 18 tables, 82 figures, bibliography of 100 titles in Cyrillic and 101 titles in Latin. There are also 41 appendices presented.

The study consists of an introduction, 4 chapters, a conclusion, a bibliography and appendices. The structure of the dissertation is determined by the subject, object and research goals and reflects the approach adopted by the author to the topic for the implementation of the research tasks.

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I. Chapter One: Connection of the basic concepts of tourism in terms of transport accessibility

In this chapter the theoretical - methodological bases of the study are considered, as the used conceptual - terminological apparatus is clarified, as well as the place of the transport and the transport accessibility in the system of tourism.

1. Essence and features of transport accessibility

The essence of transport accessibility has been clarified through a review of research on it in works since antiquity. The individual types of accessibility and characteristic for each of them features are identified. For example, the geographical accessibility, enshrined in the research works of many authors - Reilly (1929), Zipf (1949), Stewart (1947), Warntz (1967), Wilson (1967), Hägerstrand (1970), is defined as movement in geographic space, which is affected by existing barriers posed by distance, time, cost and human inconvenience in terms of potential accessibility to jobs, goods, services and other spatially distributed activities (Couclelis and Getis, 1999). Time geography uses spatial, temporal and transport factor in determining the accessibility of geographic space. More recently, accessibility has been defined by researchers as "the average opportunity that residents of an area have in order to participate in a particular activity or set of activities" (Wachs and Kumagai, 1972) or as "accessibility of a point in the system is a function of its location in space with relation to all other points in the system" and "suggests a minimum cost of travel or time" (Hack, 1976) and de Lannoy, 1978). The review of various definitions of transport accessibility (Deo, Pang, 1984; Hanson, 1989; Lupien, Moreland, Dangermond, 1987; Tomlin, 1990; Tobler, 1993; Douglas, 1994; Chabini, 1998; Forteringham, 2000; Wegener, 2002 and etc.) shows that in almost all definitions it is about the possibility to make a connection, i.e. to reach certain spatial objects through the available transport infrastructure, taking into account factors that influence the movement in the geographical space. According to Hull (2011), accessibility can be categorized into two broad meanings - the first focuses on mobility or the ability to travel and originates from the classical theory of location and direct interconnection with the transport system (transport costs), and the second - on travel duration (Banister, 2002; Ney, 2001; Geurs and van Wee, 2006). This concept is of interest to geographers and transport engineers who are interested in the distribution of flows and traffic patterns between the main location (usually the place of residence) and other destinations, noting average speeds and predicting direct travel costs.

For the purposes of the present study, the concept of transport accessibility is linked to the concept of "easy movement" to different destinations for normal daily activities. It focuses on the ability of social groups to reach destinations where they perform certain activities, as well as on the transport network (Bhat et al, 2000; SEU, 2003). It is most simply described by Gutierrez (2009), according to whom accessibility is a "key factor in transport geography" and can be defined as "easy access to the desired destination using a specific transport system".

Cascetta (2012) also considers it as a concept of accessibility, "expressing the connection between the system of activity located in a given region and the transport system that serves it". Conceptualizing how effectively the spatial distribution of services and facilities is linked to transport infrastructure is a new challenge for developers and city managers. This definition is supplemented by that given in the Encyclopedia of Human Geography (Pitzl, GR, 2004), according to which accessibility is the concept that determines the efficiency of possible roads (highways, air corridors, sea routes, information technology for data transmission, etc.) that allow interaction between remote points. To a large extent, it overlaps with the definition of geography itself, which states that it is "a spatial discipline focused not only on the location of the population

and objects, but more importantly - on the way they interact" (according to Kotsev, 2008). Rodrigue (2017) also identifies accessibility as a key element of transport geography and geography in general, as it is directly related to the mobility of people, freight and information.

At the same time, mobility and accessibility do not cover only the technical aspects, the infrastructure and the transport system. It includes a number of organizational issues such as meeting the demand for transport services in its full volume and dealing with seasonal and daily busy hours, spatial planning, lifestyle, innovation and more. This defines the nature of the present study as predominantly geographical, despite its proximity to scientific fields such as architecture, urban planning and engineering sciences for transport modeling and information technology.

2. General and transport infrastructure. Superstructure

The term infrastructure is clarified, which refers to "all forms of structures on or below the earth's surface, necessary for each inhabited area when communicating with the surrounding world and being the basis for intensive contacts between people" (Medik, 1973, according to Stankova, 2003). The infrastructure includes the road network, public transport terminals, energy, sewerage, heating, communications and other systems, as well as additional services on the territory of the destination. In a broad sense, it is a set of all means of production and activities that are a necessary attribute for the normal course of the reproduction process, and in a narrow sense - a set of facilities whose activities serve material production and is directly related to providing the necessary installations and communications in the territorial organization of production, and in tourism - of tourist services (Hadjinikolov, 1988 on Vodenska and Assenova, 2004). The general infrastructure, considered in material aspect and for the specific case, includes the set of highways and lines, as well as all facilities, necessary for their operation.

The tourist infrastructure, in turn, covers the aggregate of these facilities, located on the territory of the tourist sites and enterprises and is intended to serve primarily the tourists. It includes the street network and lighting, vehicles and elements of the general infrastructure - the facilities that support the functioning of the entire economy (Vodenska, Assenova, 2004). The functional structure of the tourism base according to Peev (2003) is:

- Tourist infrastructure, including several varieties due to the complexity of the tourist product, namely:
 - Technical, which includes the road transport system, the energy, water supply and sewerage systems, the reservation system as part of the information system and communications;
 - Production, including various industrial units and workshops;
 - Social - a base for health, security, etc.;
 - Ecological - a base for environmental protection, in which tourist trips are made.
- Tourist superstructure - which directly participates in the reproduction of the tourist product. It includes the means of accommodation and shelter, restaurants and entertainment, tourist transport and more.

According Stankova (2003) the failure to meet the needs and character of the area infrastructure is the cause of delayed development and growth of potential destinations. The same statement is confirmed by other authors. For example, according to Vodenska and Assenova (2011), tourism development is impossible without a good general infrastructure, especially in terms of transport and communications. In addition to the same authors, it is very much dependent on the general infrastructure and the level of the economy in the destination. The more economically developed the destination, the faster and painless the tourist development in it is.

The consideration of the transport accessibility and the related infrastructure is mainly due to the fact that in the main part the landmarks are immovable, which imposes the need for transporting tourists to them. Along with transport, this is the second main direction, together with labor, without which it is impossible to carry out the entire service activity in the field of tourism (Vodenska, Assenova, 2006). In addition, as an integral part of the main elements of the tourist market, tourist demand is characterized by territorial dispersion and mobility, which minimizes the possibility of organizing it. In this regard, the tendency for the development of individual, unorganized trips and the need for well-arranged and maintained infrastructure is becoming more and more noticeable.

The main elements of the infrastructure included in the object of the present study are:

- Road (street) network and related additional devices, according to the features and requirements of traffic itself (Neshkov, 2000);
- Travel by public or specialized (tourist) transport;
- The ways and possibilities for parking in the studied territory;
- The ways and possibilities for movement on foot, by bicycle and for the disadvantaged or with reduced mobility;
- Telecommunications or information services as part of transport links and in favor of movement and easy access to sites.

The consideration of telecommunications, in turn and for the purposes of the present study, is dictated by the following two aspects. According to the first - they are an integral part of global and local technical infrastructure. Their main purpose is to ensure the exchange of information of all kinds, in all volumes and in all directions, which makes them a prerequisite not only for the development of the economy nationally, regionally and globally, but also for the development of destinations locally. According to the second, modern information technology not only helps to more easily direct tourists to their desired sites, the purpose of their visit, but also helps to collect and analyze a significant amount of information about tourists' perceptions of the destination, which is the basis of marketing development and service of the destination. According to Rafailova (2010), the process of "collecting, processing, analyzing and interpreting data serves to identify opportunities and solve problems in order to make decisions leading to more efficient activities and better results".

3. Tourism system and the place of transport and transport accessibility in it

From the review and analysis of all examined models of the tourism system is derived the essential for this study statement that the territorial system for recreation and tourism (TSRT) cannot be seen separately from the local environment, but only in combination with other elements of the tourist destination (Marinov, 2003). As very important qualities of TSRT in terms of infrastructure and availability are derived:

- capacity - the ability of the system to absorb a certain amount of stress - physical and social, for a period of time without compromising its integrity and qualities, and without compromising the quality of the product, service and experience of tourists;
- comfort - providing conditions and amenities to tourists to fully and satisfactorily meet their recreational needs; degree of satisfaction of the specific requirements of tourists;
- sustainability - the ability of TSRT to resist external and internal impact;
- reliability - flawless and faultless operation of the system;
- efficiency – achieving the set social and economic goals at a certain cost of resources;
- dynamism - changes and develops in time and space;
- spatial discretion – it is linked to defined territory .

4. Destination, tourism product and resources in the context of infrastructure and transport accessibility

"Tourist destination - this is the geographical area (place, village, region), which is chosen by the visitor (or visitors) as the purpose of the tourist trip, and has the necessary facilities for accommodation, catering, entertainment and other tourist activities." (Vodenska, 2011)

According to Vodenska and Assenova (2006), tourism is a multifaceted phenomenon that involves movement to and from the destination outside the place of residence and is a complex phenomenon that includes a variety of variables and connections. According to Mathieson and Wall (1982), it consists of three main elements, namely - a dynamic element, which is a trip to a chosen destination, a static element - a stay in the destination and a third element, which derives from the previous two and deals with the impact of the economic, physical and social subsystems with which tourism is in direct or indirect contact.

It is acknowledged that the interest in the destination (Medik, 1996) is defined by the degree of satisfaction of visitors and the favorable impact of economic, social and physical influences, as well as by the aggregate of natural, cultural - historical and anthropogenic resources, on the basis of which a complex product is offered, the consumption of which is directly related to the territorial definition of the process of providing services that satisfy the interest of tourists during their travel or stay. The same applies to the tourist product, which is a set of tangible and intangible goods, representing an indivisible whole, intended to meet the expectations and desires of tourists (Vodenska and Assenova, 2011). Due to the natural connection that many authors make between the tourist supply and demand and the tourist product in the destination, the clarification of the nature of the product should be made, which "represents a set of goods and services resulting from the production activities of tourism and other enterprises, but also from various goods that are not the result of human labor and are seemingly free - sun, water, beautiful landscapes, cultural and historical sites, which are also important in determining the final price of the product. At the same time, it should not be understood as a mechanical sum of its components" (Vodenska, 2011).

The composition of the tourist product according to Marinov (1997) is formed by the primary supply (natural factors, anthropogenic factors and general infrastructure) and the secondary supply (accommodation, food and tourist infrastructure), which illustrates very well the relationship between the tourist product and infrastructure (**Figure 1**).

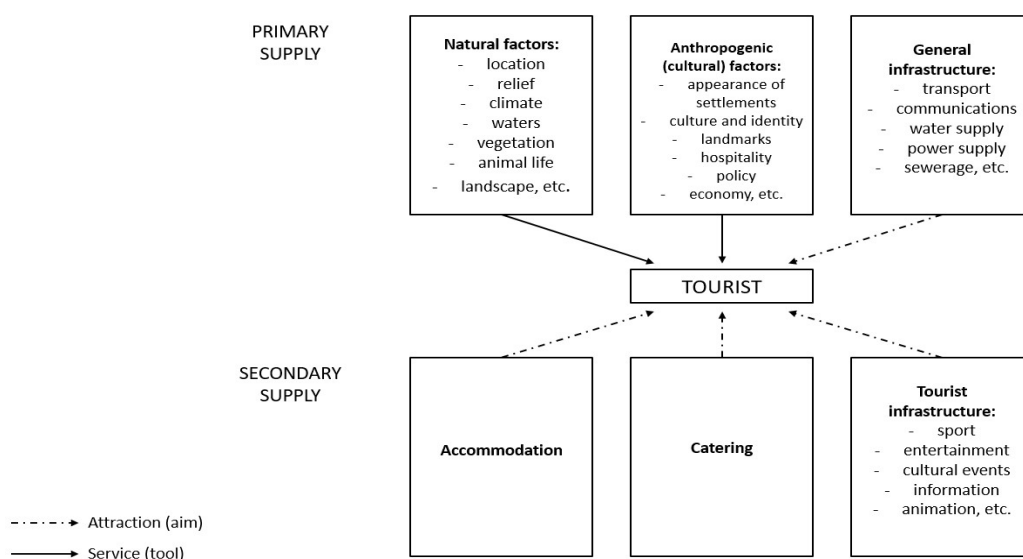


Figure 1 - Composition of the tourist product (Marinov, 1997)

The primary supply is represented by the recreational and tourist resources and the infrastructural provision, and the secondary supply includes the activities for accommodation and catering, as well as the supply of additional services through the respective tourist infrastructure.

The connection between the tourist product and the infrastructure is also considered, presented through the factors for creation of the tourist product (Nikolaeva, 2012) in a given tourist destination. A study of tourist information systems has also been added, in accordance to the definition by Slaveykov (2009) of the destination.

Last but not least, the opinion of Vachkova (2010) is reflected, according to which the success or failure of the tourist destination also depends on the ability to provide a safe and secure environment for those who visit a place and "more and more tourists will avoid visiting destinations that are considered dangerous". Therefore, safety and security are crucial to the development and construction of a tourist destination. In this regard Dallnen (2004) ascertains that in the time of global development worldwide, companies, organizations and institutions involved in the tourism industry must develop a strategy, guided by different safety factors in the tourist destination. This is confirmed by a study by Stankova (2006), according to which the requirements of tourists for the quality, specificity, attractiveness and diversity of tourist services are increasing and in addition – it is looked for destinations and countries that guarantee security and tranquility.

The connection between tourism and tourist resources in the destination and transport and transport accessibility is described extremely well by Vodenska and Assenova (2006):

"In tourism, there is a movement of tourists to the sites, the purpose of their visit. These are primarily recreational and tourist resources that are spatially immobile. As a result of this movement, service facilities are also directed and established near or alongside the places visited by tourists. The main part of the supply in tourism is fixed or poorly mobile, because it is highly dependent on the characteristic spatial conservatism of resources. As a result, only in tourism does the customer or consumer move to the good or service they want to consume and return to their place of residence after the consumption process. The above-mentioned feature is the reason for the extremely strong dependence of tourism and its development on transport, and in particular on passenger transport".

In this regard are considered the different types of visitors, their modes of travel, as well as their traditionally used method of transportation in the destination. Attention is paid to the modern visitor, a new type of consumer according to Poon (1994, according to Assenova and Vodenska, 2006), who is significantly more mobile, independent and flexible in their tourist behavior, prefers more frequent and shorter vacations, has a rich accumulated experience in tourist travel, higher level of education, sophistication, etc.

The importance of the recreational-tourism resources as locational factors of tourism is considered, as well as a number of other factors that affect accessibility like seasonality for example. Seasonality is considered in two aspects - as a factor for sustainable development of the destination and as a quality and condition of the transport infrastructure, which affects the way of movement during the different seasons. In the first case, according to Vasileva (2012), the most important problem for destinations is seasonality, because it reduces their profitability and makes them inefficient in terms of using their fixed assets. Seasonality in Bulgarian tourism, according to her, is manifested through a very uneven distribution throughout the year. This unevenness has a negative impact on the functioning of the tourism industry, which leads to reduction of profits, efficiency and profitability of tourist sites. Therefore, seasonality is considered to be one of the most significant problems for the tourist offering. According to Rakadzhiyska (2010), a year-round tourist market is one in which the demand and supply of services and goods is constant during the year, and the process of buying and selling is permanent. In the second case, seasonality affects the state of the infrastructure, expressed in terms of its quality and maintenance, and hence the way of movement and accessibility to tourist sites in the studied area.

The importance of transport accessibility to and in the destination is taken into account when forming and calculating the tourist product, such as:

- Tourist attractiveness of the destination, region, place or site and related to it - presence of quality (ecologically clean, authentic, etc.) natural and anthropogenic resources, special events, modern achievements in the economy, social sphere and culture;
- Transport accessibility - quantitative and qualitative characteristics of vehicles, road network, stationary-technical transport facilities;
- Tourist super- and infrastructure - quantitative and qualitative characteristics of: establishments for residence, meals and entertainment; sports facilities, attractions and fun games, specialized facilities for specific types of tourism; domestic tourist transport, etc.

Attention is paid to the interests of all stakeholder groups - locals, supplying the network of shops and visitors - tourists and one-day visitors, as well as a sharp increase of visitors in the active season and the associated with that transport system overload, traffic congestions, crowds of people in the central part of the city, where the tourist sites are predominantly located.

It is also taken into account that the studied area, as part of the historical center of the capital, requires the clarification of another type of tourism, whose importance is constantly growing and becoming one of the main functions of cities, namely urban tourism.

5. Methodological bases of the study

5.1. Territorial range of the study

In territorial terms, the object of the present study is the historically separate central part of Sofia, which includes the territory surrounded by the boulevards “Slivnitsa” to the north, “Gen. Danail Nikolaev” to the northeast, “Evlogi and Hristo Georgievi” to the east and to the south, “Gen. Skobelev” to the southwest and “Opalchenska Street” to the west and the tourist sites located in it. The detailed range of the entire territory of the central part of the city is thoroughly described in Article 9 of the Law on the Structure and Construction of the Sofia Municipality (LSCSM) in effect since January 28, 2007. The term tourist sites includes anthropogenic tourist resources, which include cultural-historical landmarks represented by archeological and architectural remains and monuments, historical landmarks and religious sites, and the present study applies equally to museums and museum complexes located in the central part of the city, which number 77 cultural monuments in the central part of the city out of total 148 located on the territory of the capital, according to the Register of the National Institute for Immovable Cultural Heritage¹. The selection of tourist sites for research on access to them is based on those listed by the most visited website for tourist offering "TripAdvisor", as well as the Top 5 ranking of major anthropogenic religious sites, which are included in the programs of tour operators and agencies for Sofia - St. Alexander Nevski Cathedral, Boyana Church, the National History Museum (NHM), The Rotunda Church of St. George and Saint Sofia Church. With the exception of the Boyana Church and the NHM, the other three fall in the central part of the city. For this reason, the focus of the present study is the access to the sites in the central part of the city, as other emblematic for the capital and located in this part of the city religious and cultural sites have been added.

5.2. Methods used in the study

Studying the primary and secondary sources of information is the first of the used methods and includes a review of the planning and strategic documents for the development of tourism,

¹ <http://ninkn.bg/documents/download/60>

transport and parking in Bulgaria, as well as locally - in the municipality. The main official sources of information used are:

- Data of the National Statistical Institute for the studied territory:
 - number, movement and structure of the population;
 - information for residents and disadvantaged people
- Legal and strategic documents of the Republic of Bulgaria with regard to regulations and policies, related to transport and tourism;
- Normative and strategic documents of Sofia Municipality related to the regulations regarding public transport, infrastructure and parking, as well as the policies related to the development of transport and tourism in the municipality;
- Scientific publications in English and Bulgarian to clarify the theoretical formulations in the study of tourism, incl. results of various foreign studies, which examined trends in demand, supply and coordinated product development in terms of transport accessibility;
- Publications on the Internet - official sites, media publications, maps;
- Other publications - project reports, presentations, manuals, textbooks;
- Public GIS data and data from Urban Mobility Center SOJSC.

Previous studies on the state and management of tourism in Sofia

A significant part of the information, mainly as source data, but also in order to monitor the process of transformation of the urban environment and the quality of tourist services, is taken from previous studies for the city of Sofia, namely:

- “Survey of key participants in the development of Sofia as a tourist destination” assigned by Sofia Municipality to MP “Tourist Services” - 2011;
- “Accommodation sector in Sofia: assessments, attitudes and expectations” assigned by Sofia Municipality to MP “Tourist Services” - 2012;
- “Tourist agencies and the tourist development of Sofia: assessments, attitudes and expectations” assigned by Sofia Municipality to MP “Tourist Services” - 2013;
- "Pilot testing of the European Tourism Indicators System (ETIS) in Sofia Municipality" - 2015
- Specialized survey for the needs of the Sustainable Urban Mobility Plan - 2017.

5.2.1. Field study of the condition of the street network around the sites in the central part of the city

The field study was conducted during the period May - October 2017, so as to cover the peak of the tourist flow in Sofia. Its main purpose was to get acquainted with the transport and tourist infrastructure, including all elements of the street network, incl. places for stopping, staying and parking of tourist buses and cars, parking lots, pockets and extensions, sidewalks, underpasses, street lighting, traffic lights, signposts and inscriptions, incl. those on and in tourist sites. Basically, the elements were grouped according to the following opportunities for movement of tourists:

- On the sidewalk - the main focus was its characteristics and especially width, flatness and covering, as well as the additional elements available on it - street lighting poles, traffic lights or other elements with sign marking, urban landscaping, trash cans, anti-parking pegs, as well as other, additional equipment and / or obstacles that affect the movement - pockets of garbage cans, tables of restaurants, shafts, parked cars, etc.;
- Along the alley - mostly in parks and gardens of the central part of the city, connecting the individual tourist sites. The studied characteristics are similar to those of the pavement element, taking into account additional characteristics such as the presence of rest benches, fountains, outdoor toilets, etc.;

- On the roadway - mostly the possibilities for stopping, staying and parking vehicles, as well as the possibilities for cycling. In addition to the regulated zones for hourly paid parking, in terms of parking itself, in this part of the city are studied the available municipal or private parking lots, underground and aboveground, as well as located in the periphery or outside the "Park and travel" system. In this regard, the main types of crossings are reflected, which are mostly related to the safety and interaction of tourists with other road users - vehicles, public transport cars, cyclists and ways of crossing - pedestrian path with or without traffic lights, underpass, crossings through alleys and streets that are not regulated, but convenient to cross, mostly because of the shortest distance.

All these elements have been studied in terms of the possibility of movement of persons with disabilities or reduced mobility and the presence of the facilities laid down in the regulations for them, such as sloping curbs at the end of sidewalks at the intersections of individual streets or roads lanes or raised footpaths, leveled with the sidewalk, the presence of relief (tactile) plates or sound signalization at the individual traffic light regulated intersections. In the vicinity of pedestrian underpasses or public transport stops, the presence of elevators, platforms or ramps was inspected, and in the tourist sites themselves - the facilities provided and the ways to visit them by these tourists.

During the field patrols, the previously collected official and unofficial information was verified. It should be noted that given the significant diversity of variations in the characteristics of the individual elements in the studied area, as well as their detailed consideration found in the analysis of information sources and strategic documents of Sofia Municipality and especially in the report of Gehl Architects from 2017 - "Sofia - public spaces and public life", which focuses on the central part of Sofia and which details the reasons for the difficult accessibility of pedestrians, incl. those with reduced mobility, in the present study a general expert assessment of the possibilities for mobility was made on the basis of the criteria for accessibility, security and comfort, reflecting the main problems and challenges in the relevant sections by elements.

Alongside the field trips and the inspection of the elements of the transport infrastructure, all tourist information centers and tourist sites, object of the study, were visited, the existing transport and information accessibility and the necessary infrastructure were analyzed to meet the requirements of the tourists in the view of accessibility to tourist sites, incl. for the disadvantaged or people with reduced mobility. The on-site observations were recorded in a work diary and the results are placed in the relevant sections.

To achieve maximum objective analysis regarding the different elements of transport accessibility and access to transport information through new technologies, for the study were specially prepared and conducted a private poll in order to raise primary data and semi-structured interviews with representatives of the municipal government and non-governmental organizations relevant to the subject and object of research. The emphasis in them is placed on the study of tourism demand and behavior of visitors in the destination, and the attitude of the various stakeholders in the development of transport infrastructure and accessibility in the studied area. A special questionnaire was prepared for each study. This private poll was mainly aimed at foreign visitors, but in the course of its conduct were also interviewed a sufficient number of Bulgarian visitors. In essence, the study was quantitative, but with an added element for qualitative assessment, including open and closed questions, simple and multiple, evaluative and behavioral. The aim of the study was to obtain primary information in three main areas:

- general profile and behavior of tourists from abroad and Bulgaria;
- attitudes, expectations and requirements of tourists for transport accessibility in the studied area ;

- assessments of the respondents who have already visited some of the tourist sites in the central part of the city and have gained an idea of the transport accessibility in general.

The analysis of the data obtained from this study aimed to examine the views of tourists, their needs, problems and recommendations, to identify key problems of transport infrastructure and the availability of sufficient and quality information for movement, on which largely depends the attendance of the destination and tourist satisfaction. The analysis of the causal relations, in addition to the other methods, served as a basis for defining a concept for infrastructure development so that it favors the development of tourism and its management in the Municipality and in the studied area in particular and in a way that is not detrimental to the residents of the city, and which guarantees sustainability in the development of the territory and the destination in a way that does not disturb the urban environment.

A secondary goal of the implementation was to quantify all elements of the supply of information - online and printed materials, as well as all elements of the transport tourist infrastructure. The purpose of the analysis of the collected information was to serve both for the needs of the present research, but also for subsequent research in the given territory by various educational and municipal institutions, as well as for the municipal authorities and companies responsible for the development of tourism, transport and the related to them infrastructure, which will allow them to reasonably take appropriate measures to improve the awareness and conditions of movement of all target groups in the studied area.

There is also a review of the good practices in terms of accessibility used in other developed European capitals in terms of tourism. The initial idea of this approach was to choose a city - a benchmark that is a developed in terms of tourism European capital and which city to serve as an object for comparison and review of good practices that are not or could be implemented in Sofia. In the course of the research another approach was chosen, namely - to present the good practices of all other, developed in terms of tourism, European capitals, in order to avoid idealization and comparison with one object (benchmark), and to show the possible solutions for all elements of accessibility in other European capital cities, incl. the better ones. For this reason, for each individual element (in Chapter II) related to accessibility, good practices are presented not only from Rome, but also from Paris, Brussels, London, Vienna, Berlin, Copenhagen, Stockholm and Helsinki.

5.2.2. Methods used regarding the movement on the street network - to the tourist sites and to the public transport stops

For this purpose were mainly used GIS methods and technologies and mainly for entering in a digital map the initial data for the studied area - street network with its length and width, total number of parking spaces, parking spaces for disadvantaged people, "Business subscription" places, routes and stops of public transport, etc. Considerable attention was paid to the processing of the initial data of the issued parking permits at the place of residence, as this became one of the main factors for the parking problem. At the same time, it is assumed that the cars of these owners should not be in the studied area during the day, respectively they should not take up parking spaces. GIS technologies were also used to determine a buffer zone of 200 m around the tourist sites, mainly to report the parking spaces in them with different purposes, to determine a buffer zone of 400 and 800 m to account for access to aboveground and underground transport and its stops, as well as a common one (with a buffer zone of 500 m) for generating maps and sketch-maps in order to examine and illustrate the current situation.

A licensed version of the specialized statistical software SPSS was used to analyze the results of the poll of the visitors to the city of Sofia. The results of the other polls are processed with an Excel spreadsheet editor and are presented in the form of tables and figures in the main text. This method was also used to present the other statistics that are part of the study.

5.2.3. General and private scientific methods and approaches

In the course of the research a complex of universal methods was applied, which is caused by the specifics of the studied object. On the one hand, general scientific methods such as the method of analysis and synthesis, modeling, mathematical and statistical methods are used, and others are borrowed from other sciences - survey method, geographical methods, economic indicators and others.

In the collection, processing and summarization of information are applied various general and private scientific methods, both quantitative and qualitative and including: monitoring, comparison, analysis, synthesis, inventory, systematization, classification, evaluation, critical analysis of regulatory, planning and departmental documents, mathematical and statistical methods (incl. SPSS); sociological methods; spatial analysis and visualization in GIS. For the creation of the concept was also used SWOT analysis, in the core of which through determining the strengths, weaknesses, threats and opportunities were examined conceptual issues with an emphasis on the influence on the environment; safety and security; opportunities for funding and implementation of the proposed solutions. Methods described in the scientific literature are used, but also such adapted by the author for the needs of the research. An attempt has been made to apply an interdisciplinary approach. The individual methodologies are presented in detail below.

Several approaches have been used in the present study. The most common approach in tourism research is systematic (Vodenska, Assenova, 2004). In most cases, tourism is seen as a complete system composed of interconnected parts and as such it can be analyzed, planned and managed in an integrated way. The system approach is a set of principles and methods for complex study of the object as a whole and its elements separately, taking into account the specific and logical connections of interaction that exist between them (Vodenska, Assenova, 2004). Studying the individual elements and structures of the system helps to form conclusions about the overall system. This is exactly what is enshrined in this study which aims to determine the impact and relation of the individual elements that affect the transport accessibility to tourist sites, as well as ways to minimize their negative impact. For this purpose are clarified the causes of problems in terms of individual elements and then are presented particular solutions (incl. good practices) to the specific problems of every element. In this regard, the study refers to the basic principle of the systematic approach, which states that any change in one of the elements of the system leads to partial or complete change of its other elements and / or the system as a whole (Vodenska, Assenova, 2004).

This is proved by the facts in the study of the movement to the tourist sites. It has been established that tourist movements are highly differentiated by local tourist conditions (Vodenska, Assenova, 2004). They are highly dependent on the location and territorial range of natural recreational resources, which are characterized by spatial conservatism. The same applies to anthropogenic tourist resources located in the studied area, which requires the movement of tourists to them. These circumstances are the reason for the significant participation of the family of geographical sciences in the study of the tourist process in two main directions - evaluation (evaluation of recreational - tourist resources) and spatial (geographical orientation and territorial distribution of the elements of tourism).

The overall aim of the study on communication and transport infrastructure is based on an integrated approach regarding the transport sector as a whole and in the interconnectedness of the different modes of transport that compete and interact with each other. An integrated approach has also been used to study and implement practices and policies between sectors and different levels of government, as well as a pledge of sustainability, balancing the different interests of achieving acceptable social justice, environmental quality and economic development. Collective approach involving citizens and interested bodies in the process of decision-making, implementation and evaluation, opening possibilities for locally dealing with the complex problems of planning and ensuring equality of all parties is also present in this paper. The conventional one is used to

prioritize projects in the transport sector which usually focus on the quantitative assessment of the financial and economic aspects of the investments.

In a particularly close relation to the subject of this study, as well as the geographic sciences, is territorial and structural planning. Its participation is related to the design of the material and technical base (MTB), which is also used by tourism and includes the specialized tourist infrastructure for movement, transport provision and the related sites and facilities. In addition, it is necessary that these objects are properly disposed, their capacities are defined, and opportunities are created for reconciliation of their functions (Vodenska, 2011), which is why architecture is involved in the present study. The latter is essential for determining such a character and identity of the territory that bring satisfaction to visitors on the one hand and on the other - to generate and store specific characters and features in the minds of visitors which distinguish the territory, object of their visit, from any other such destination. In this regard, it is necessary to use the engineering and technical sciences, which are responsible for the proper planning, construction, management, maintenance and repair of this infrastructure and the MTB in general. This is in accordance with some well-founded views (Mill, Morrison, 1985), under which sometimes tourism should be seen not just as an economic sector, but rather as a system of interrelated elements (in Vodenska, 2010) .

Numerous theoretical models of the recreational system have been developed in the scientific literature, which form the basis for research and planning in the field of tourism and outline the content of the analyzes and planning documents. Some of them were considered in the theoretical part.

5.2.4. SWOT - analysis as a tool for defining the concept

For the presentation of the summarized results of the entire analysis is used the SWOT – analysis method which allows to achievement of an observable picture through generalization and contributes to the formulation of objectives and strategies (Marinov, 2003) for the development of transport accessibility in the studied area.

Based on the SWOT-analysis, the problems facing the development of transport accessibility and the related - infrastructure and information security are summarized and grouped. Based on the problems, the strategic decisions are derived, the implementation of which will significantly improve the conditions for the movement of tourists in the studied area and will help to establish Sofia as a sustainable tourist destination.

5.2.5. Defining a concept and solutions to the development of transport infrastructure and accessibility

The end result of the performed analyzes, in their totality, “represent plans and projections, offering alternative directions for development in the planning of the future state of the destination” (Stankova, 2003). In view of the present study, this includes infrastructural provision, type and size of the tourist flow passing through the destination, technical facilities and services intended to serve the tourists in the destination.

Regarding the definition of the concept, the 10 principles of sustainable urban transport formulated by Daniel Bongardt (**Figure 2**) using the "Avoid - Shift - Improve” approach were mainly used, namely:

Avoid:

- 1 – Planning of densely populated cities
- 2 – Development of transit-oriented cities
- 3 – Optimization of the road network and its use

Shift by:

- 4 – Implementing transit improvements
 - 5 – Encouraging walking and cycling
 - 6 – Controlling vehicle-use
 - 7 – Managing parking
- Improve by:
- 8 – Promoting clean vehicles
 - 9 – Communicating solutions
 - 10 – Approaching the challenges comprehensively

Graphically, the principles are presented in the figure below:

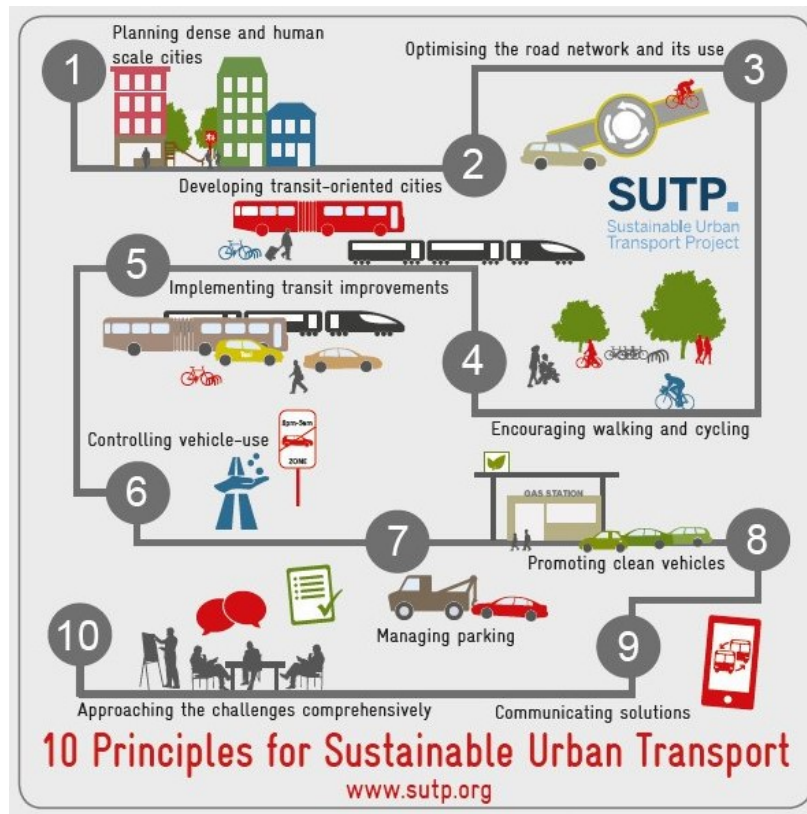


Figure 2 - 10 Principles for Sustainable Urban Transport (www.sutp.org)

Given the fact that the city is a living ecosystem, the principles of "Order and Rules" have been used, seeking a balance between economic development, living conditions, work and mobility in the city. On the one hand, intensive tourism is a favorable phenomenon for the city, associated with the activation of the local economy in the city, the restoration of the urban environment and improving the quality of life of residents, but on the other hand it often conflicts with other functions of cities, such as residential, industrial and medical. A large volume of tourist traffic can contribute to the degradation of tourist values, which are often the purpose of the visit, thus reducing the tourist attractiveness of the place. It is therefore necessary to develop such solutions for transport accessibility, which will allow tourists to reach tourist attractions and other service facilities without reducing quality of life or at the expense of city residents or by increasing the level of environmental pollution. The latter is in accordance to the concept of sustainable development of tourism, which should move towards improving conditions in the future by satisfying the needs of not only tourists, but also the residents of the visited places and by preserving the urban environment (Perez de las Heras, 2004).

5.3. Content scope of the study

The variety of elements of transport infrastructure that affect the movement and in general - the satisfaction of tourists and the attractiveness of the destination, require the creation of a streamlined and orderly content that will allow both clear dissociation and differentiated examination of the individual elements, but also assessment of their overall significance and manifestation (respectively lack) in the given territory. For this reason, the following approach and structure of the present study by chapters were chosen:

- First, an analysis of the current situation (situational analysis) of tourism in the studied area and on every element of transport infrastructure included in the composition of the study was made. This includes an additional research of an element in case of the absence of sufficient information or in order to identify the source or sources of occurrence of the problems in it. Respectively, for each element the ones identified in the course of the research are described. A review was also made of the strategic framework of Sofia Municipality regarding the development of tourism and transport;
- The next chapter reviews the previous studies for Sofia, which include a large part of the studied elements. The review is supplemented with the results of own research, and one of the purposes of the selected sequence is to track the change in the state of the studied element over the years. Another objective of the own research was to determine the challenges to the further development of each element with eliminated or strongly limited problems. Finally, the results of SWOT - analysis are presented which form the framework of the concept of development of transport accessibility in the studied area. As an auxiliary tool a review of the good practices from other European capitals and cities is used in terms of coping with the identified problems;
- As a final result and separated in a single chapter, the specific solutions to the development of accessibility in Sofia are formulated, in accordance with the needs of all target groups, incl. tourists.

The limitations caused by the specifics of the dissertation are identified, such as the exclusion of the consideration of the transport accessibility and the infrastructure necessary to reach the destination, the compliance of the parameters of the individual elements with the requirements set in the normative documents, etc.

II. Chapter Two: State and analysis of transport accessibility in the central part of Sofia

Drawing up a picture of the state of transport accessibility in the central part of Sofia required the collection and examination of a huge amount of information, as well as its systematization due to the lack of established methodologies for conducting such studies.

The essence of the city was reviewed as a capital city, the center of the municipality and district center, as well as the most significant administrative, transport, economic and cultural center and the country with its demographic structure. In terms of tourism, Sofia was considered as a destination, as well as the state of tourism at the time of the study. An important place in the study of destination were the key input transport streams toward it for determining the movement of tourists after their entry to the city center, the main objects of visit, identified on the basis of information provided on the Internet (www.tripadvisor.com) and by the main tourist operators, and the reasons for the visit. In summary - in the capital city the foreign demand is much higher than the national one both in terms of tourists and overnight stays. In general, the locals are satisfied with the development of tourism in the municipality. The majority of the citizens of Sofia are of

the opinion that the local community benefits from the development of tourism and from the tourists who visit the municipality.

Secondly, the macro-structure of present-day Sofia was reviewed, defined as a compact city with a radial-circular structure, in whose spatial structure several concentric zones are clearly distinguished, depending on the historical stage of urbanization and the nature of construction. Within the scope of this study falls the central core restricted by the first city ring, which coincides with the historic city center and the central part, restricted by the second city ring, which concentrates administrative and managerial and representative functions of citywide and national significance, as well as a significant percentage of housing functions. Within the range of this area, the elements of the transport infrastructure are examined, such as street network with its characteristics (spatial structure, width, types of pavement, etc.) and the possibilities for ensuring good transport accessibility. There is a summary of the accumulated over time problems caused by the rapid expansion of the city, labor migration and the increased level of motorization of population and the related excessive air pollution with harmful emissions and noise, lower efficiency of the communication infrastructure (insufficient number of parking lots, poor quality of roads, urban logistics, narrow streets, etc.), and the increased number of road accidents. The challenges to the transport infrastructure and traffic are identified, as well as the intentions of Sofia Municipality to develop this element of the transport service. A brief overview of good practices in other European capitals with regard to this element has also been made.

On third place are considered all kinds of mass urban public transport in Sofia as the main mode of transport used for the movement of tourists, especially the individual ones or those with reduced mobility, in the central part of Sofia, and a scheme of its lines, which pass through the studied area, is summarized, as well as the location of the separate stops. The types of transport documents used are considered, incl. those for visitors to the capital city. The main problems and challenges for the development of transport in the city are summarized, taking into account the key factors for the development and use of public transport, based on the research of Lumsdon et al. (2006), and the associated with it - the need for service of tourist routes. Again, good practices from the developed European capitals in terms of tourism are presented. The most important of them relates to the implementation of a single package service for multimodal transport in the city through the so-called "Mobility as a Service" (MaaS), which should be equally convenient, attractive, effective and inexpensive for all users. As part of public transport, the problems and challenges of taxi services are also considered, which are a preferred way of movement by older tourists or those with reduced mobility or by disadvantaged people.

Significant attention in the study is paid to parking due to the fact that its management is responsible for reducing the flow of cars in the central part of the city, the associated emissions, noise and dust from cars, traffic accidents, etc. which determine the quality of life and the attractiveness of the destination, as well as the access of tourists to this part of the city by car. Stopping, staying and parking of tourist buses, as well as the presence of public, buffer, and private parking lots in the central part of the city are also considered in the study. The existing problems and future challenges for the management of parking are reflected by making an analysis of their origin according to the types of users (users of the "Office subscription" service, residents, visitors in the destination, tourist buses, as well as in terms of the use of underground, aboveground, buffer and private parking lots).

Next thing considered is cycling in the studied area as a convenient way of movement for younger tourists and the possibility of exploring more sites, often in very short time. According to Lumsdon and Tolley (2004), "after walking, cycling is the most important form of mobility. Probably the bicycle is the most sustainable form of tourism transport... it is a non-motorized vehicle, does not require fuel and has minimal impact on the physical environment". The existing and planned bike lanes and the elements accompanying the bicycle infrastructure (parking lots, repair shops, fountains, etc.) were inspected. A brief overview was

made regarding the offered bicycle tours for sightseeing in the central part of the city. Again, the main problems and prerequisites for the development of this way of movement in the destination are identified, and good practices are presented.

Considerable attention is paid to pedestrian movement as it is one of the most preferred and convenient ways to move in the studied area. The width of the streets is examined in terms of the obstructions on the sidewalks (parked cars, tables of restaurants, huge bins, flowerpots, planters etc.). The layout of the streets, the topography of the area, its pavement and the lack of clearly defined and marked tourist routes, similar to those in other European capitals developed in terms of tourism, are also examined. Walking tours offered by MP "Tourism" - "Know Sofia city" and other non-governmental organizations, as well as by volunteer guides are taken into account. The main problems are reported, incl. in terms of reaching bus and tram stops and the presence of many obstacles such as underpasses, crossings at intersections, traffic islands, lack of amenities at the stops, but also the great development potential of this mode of transport in Sofia, caused by the compact urban area with high density and the lively center with active urban culture. The main challenges to ensuring transport accessibility according to this mode of transport are outlined.

Information provision is an integral part of accessibility and the ways of movement in the destination. It is reviewed not only as a communication network, part of the primary infrastructure of integral communications services, but also as a powerful tool for promoting the destination. Invariably, "a number of factors contribute to the success or failure of a destination. When no effort is made to ensure and maintain its infrastructure or to increase the level of quality by increasing the purity, accessibility, security and information services the attractiveness and attraction of tourists are considerably reduced, despite the presence of significant tourist sites" (Stankova, 2003). In this regard, the main sources of information about the accessibility of the destination in terms of information services to tourists are considered, as well as the main types of tourists and the specifics of the electronic and information systems used by them. A review of the signposts was made, which were not identified at the time of the field study. In the process of analyzing the strategic documents for the development of the Municipality a presentation was found of the results of a study on the coverage of Sofia in social networks and international media, the campaign for visual communication of the city during the European presidency and an orientation system for tourists and citizens in the city and the public transport. The virtual parking boards for visitors of the destination traveling by vehicle were also taken into account.

Most attention was paid to public websites in the area that have a direct relation to the visitors – the tourist website of Sofia Municipality www.visitsofia.bg and the website of "Urban Mobility Center" SOJSC (www.sofiatraffic.bg) and to a lesser extent on other websites, incl. foreign, which provide information on reaching and moving in Sofia. No less attention was paid to the mobile applications displayed on the tourist website of Sofia (Farrol City Guides and Pocket guide), and other, free or paid ones from Google (Play) store or AppStore - from Apple, especially in terms of public transport and parking. In addition to the identified problems regarding the information service for tourists, the innovative for the city applications and services such as I Love Buglaria and that for purchasing an electronic card for travel by public transport in Sofia were presented. Again, good practices from the developed European tourist destinations are presented, mobile applications and platforms developed, most often integrated with the transport and tourist websites themselves, as well as the specialized ones, mainly for renting or sharing a bicycle, car, etc. Modern applications (such as Pokémon Go) and technologies (QR, for virtual and extended or augmented reality) used to present objects or to promote the destinations themselves are taken into account. The detailed examination of the individual ways of providing information to tourists in the destination aims to present a new approach, which in a homogeneous way connects all offline and online ways and channels to guide tourists not only in this part of the city. Visitors interact with both general and specialized infrastructure (hotels, airports, places for tourist information, signposts and

didactic boards, etc.), but also with all online channels for distribution of information about the destination. Their synergistic use aims not only to aid the orientation of tourists, but also to stimulate their attention and curiosity.

Last but not least, a detailed study is made on the opportunities for movement of disadvantaged people both in the studied area and in the main tourist sites located in it. In addition, research was done on the access of these persons to electronic content in relation to the aforesaid main websites and applications for the destination. Again, the most significant problems and challenges for providing convenient access for movement of these people in the city of Sofia are highlighted.

In the final part of the second chapter were reviewed the regulatory framework and all strategic documents that are related to tourism and transport accessibility and their management in Sofia Municipality. It is reported that the studied area, part of destination Sofia, is an autonomous administrative unit - a municipality that in territorial aspect completely coincides with the administrative unit of higher rank – Sofia City Province. The main governing bodies in terms of tourism and accessibility are identified, respectively the regulatory framework at local and national. In institutional terms, there is a display of the activities of the mayor and the municipal enterprise “Tourism” for the organization of tourism, transport and accessibility in the destination, as well as the activities of the relevant directorates and municipal companies responsible for the development and maintenance of transport and infrastructure in the city.

Final of this chapter, but very important step in the study was an examination of major strategic documents in the field of transport and tourism in Sofia Municipality, while taking into account the presence of a functioning Strategy for development of Sofia as a tourist destination 2017-2030, which is aimed at increasing the contribution of tourism in the economic and social development of Sofia Municipality, as well as the specific objectives for increasing the quality and diversity of tourism products (strategic, priority, and potential), the development (expansion and quality improvement) of general and specialized (public and private) infrastructure, incl. improvement of the management of public property attractions and introduction of environmental practices and models, formation of a hospitable, accessible and tourist-oriented environment (material and non-material - virtual) and diversification of the applied marketing communications and increase of their efficiency. The Strategy also envisages a Monitoring and Evaluation System, which is as simple and practical as possible, in order to make it possible to monitor the development of tourism in Sofia Municipality in all aspects of sustainability - economic, social and environmental. Action Plan to the "Strategy for development of Sofia as a tourist destination - 2017-2030" and Program for development of tourism on the territory of Sofia Municipality for 2018 were developed in accordance to the Strategy and were presented in the next 2018. Both of them, in the context of the present study, are examined in detail in terms of transport and information accessibility.

The analysis of the other strategic documents of Sofia Municipality shows that the development of the general and specialized infrastructure, which is related to the provision of tourism in terms of transport accessibility is directly or indirectly enshrined in all strategic documents of Sofia Municipality.

III. Chapter Three: Analysis of the results of previous surveys, the private survey and summarization of the problems with transport accessibility and challenges for their solution

The third chapter includes an analysis of the results of previous surveys, the private survey and subsequent summarization of transport accessibility problems and challenges for their

solution. A significant part of the information, mainly in the form of initial data, but also for the purpose of monitoring the process of transformation of the urban environment and the quality of tourist services, was obtained from previous studies for the city of Sofia. Regarding the subject of the present study, the results of the business expectations from Sofia Municipality, related to the general infrastructure, security and transport and the marketing of the destination, incl. tourist information and advertising were very well identified and displayed. Improving the overall infrastructure, security and transport are the fields of activity of the local authorities where the expectations of the sector are most concentrated. Destination marketing, tourist information and advertising are as important as infrastructure development. Particularly strong emphasis is placed on expanding and improving the information about Sofia on the Internet, more and more effective advertising of Sofia as a tourist destination. Next in importance is the development of specialized tourist infrastructure, especially information boards and walking routes. In the process of investigating the reasons why Sofia is not offered as a destination by tourist agencies were outlined the following problems for the city, summarized in the context of this study, namely:

- Poor organization of traffic and difficult access to tourist sites;
- Insufficient information about the main tourist services;
- Poor condition of the infrastructure, unwelcoming view of the city;
- Insufficient information about tourist attractions and additional services in Sofia;

These problems were also ascertained in the analysis of the results of the private survey. For the correct reading of the results, as well as for illustrating the satisfaction, the following graph was created (**Figure 3**), on which the average score for each of the elements is applied. The graph itself is designed in a way which facilitates the comparison with previous surveys and the tracking of results over the last 5 years.



Figure 3 - Satisfaction assessment of infrastructure and information elements

The results do not show a significant change for this period, of almost 5 years, or improvement of the infrastructure in terms of tourists in the capital city. The summarized results lead to the following conclusions:

- Given the compact territory of the city, tourists are forced to move on foot. On the one hand, this is positive, as it is healthy and leads to a better acquaintance with the atmosphere of the city. On the other hand - the poor condition of the pavements, the quality of the atmospheric air and the possible frequent conflicts with the other participants in the traffic do not favor this way of movement;
- This part of the city does not provide other conditions for sightseeing - by bicycle, by tourist bus, with opportunities for getting off and boarding at certain places and stops;
- The conditions and payment documents, as well as the relatively small area and radial connections of public transport (except for the underground), despite the new cars, do not make it a convenient and preferred way of movement in the destination;
- The severely limited possibilities for stopping, staying and parking a personal or rented car encourage tourists to use taxis, where they encounter a significant percentage of incorrect companies and drivers;
- The only possible alternative remains walking. However, this requires an extremely good level of infrastructure and not only of its main elements such as streets, sidewalks, street lighting, underpasses and overpasses, etc., but also the auxiliary ones - benches for rest and relaxation, fountains and toilets, trash cans, designation signs.

Regarding the latter, the answers show surprisingly high satisfaction with the directional signposts to the tourist sites, as it is 77% for the group from 51 to 65 years, followed by the younger ones - 35-50 years with 68%, those from 19 to 34 years with 54% and least - over 65 years - 50% (**Figure 4**).

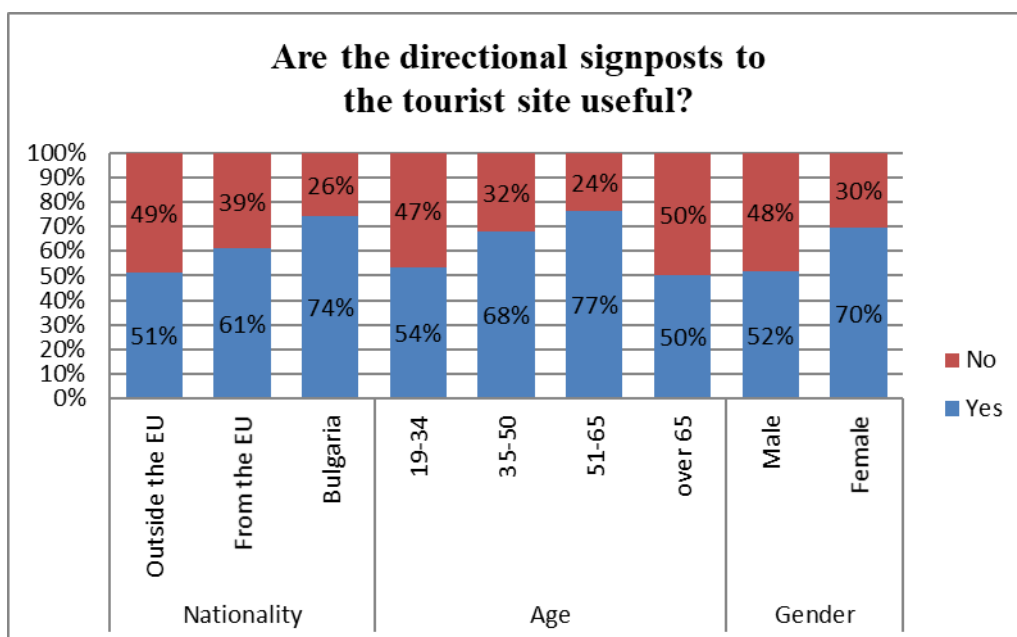


Figure 4 - Are the directional signpost to the tourist site useful?

To some extent, we can assume that the latter group has most experience in traveling and their results are not encouraging, given the fact that only half of them are satisfied with the designation in the city. Of men, only 52% are satisfied, which explains the fact that they use mostly GPS navigation services in the city. Women are significantly more satisfied (70%), but

they, as shown above, rely on other ways of orientation, incl. men. The negative answers in over 95% of the cases are based on poor designation with indication boards.

The percentage of the satisfied from and outside the EU, respectively 61% and 51%, is not encouraging compared to the satisfaction of the Bulgarian population - 74%. It can be confidently concluded that Sofia Municipality should make significant efforts in this direction in order to increase the overall satisfaction through a useful navigation system in the city, which does not require examples of good world practices and significant investments. This need also stems from the fact that the main and most preferred way of movement in the studied area is on foot (Figure 5).

There are no significant differences in the responses of tourists from and outside the EU, with the highest percentage of access to these sites on foot (85-86%), by public transport - respectively 7% and 5%, and by taxi - respectively 2% and 3%. However, 5% of tourists from outside the EU would rent a car, while tourists from the EU have not chosen this option. Of the latter, however, 1% would use their own car and 5% - a tour by a tourist bus, while tourist from outside the EU do not consider these opportunities. This suggests that in EU countries this is a normal and usual way of movement in European destinations and it is a wanted service in the city of Sofia.

Significant differences are not observed in the different age groups, as it is logical and natural for older tourists (51-65 years) to travel the least on foot - 71%, more 35-50 years - 83% and the most, respectively the youngest (19-34 years) - 86%. Quite interesting are the results of the people over 65 years old who are on both ends – the mobile and those in good health would move on foot - 83%, while everyone else would use a taxi. No other way of movement is observed in this age group.

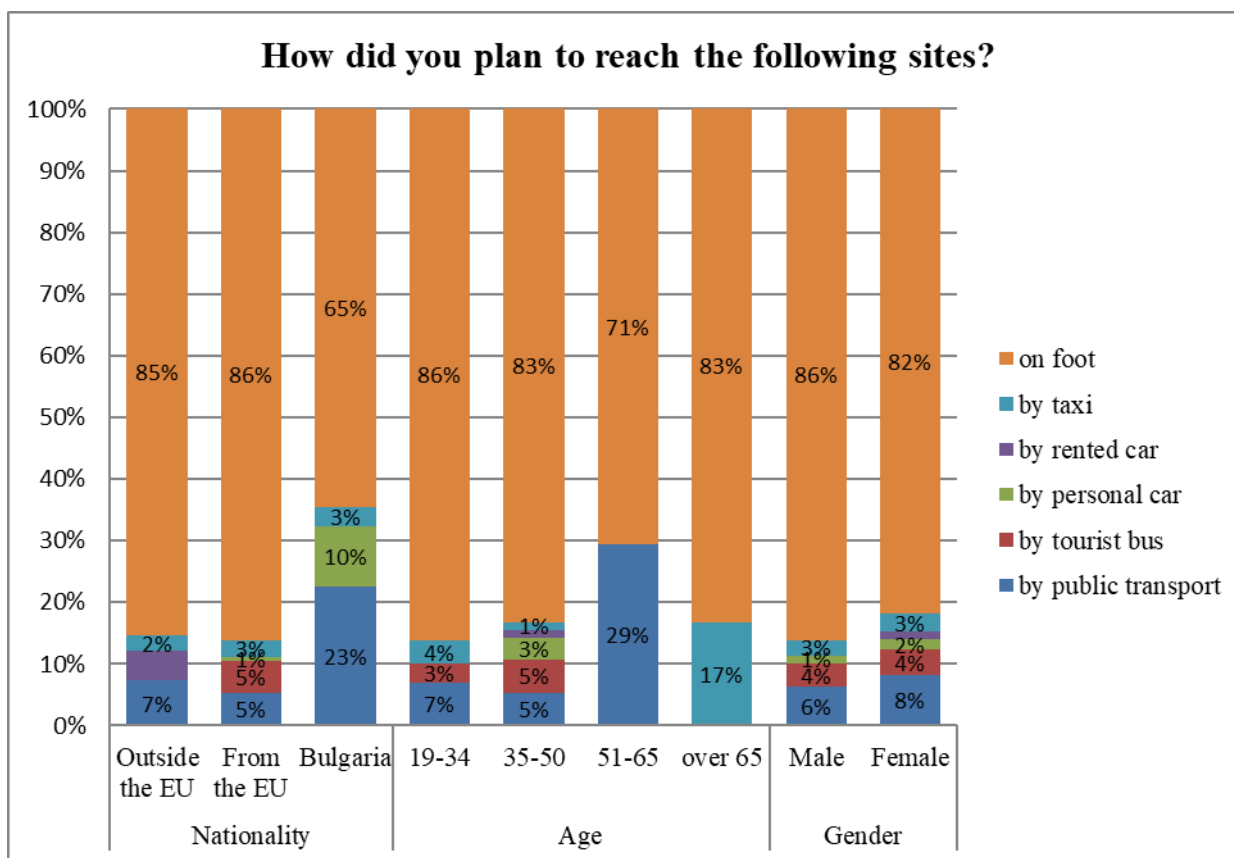


Figure 5 - How did you plan to reach the following sites?

This is not the case with the other age groups, which show significant differences, namely:

- Those between 51-65 years old would walk (71%) or use public transport (29%);
- 83% of those between 35-50 years old would walk, only 5% would use public transport, 5% have planned to use a tourist bus for touring and moving, 3% - a car, 3% would use a taxi, and 1% would rent a car.
- Logically, most the youngest would walk (86%) and to a lesser extent prefer public transport (7%), a taxi - 4% or bus - 3%.

There are insignificant differences between the genders, and women's preferences seem more logical for men, than for them, as can be seen from the questions and results discussed above. The data however show otherwise:

- 86% of men prefer to walk compared to 82% of women;
- 6% of men would use public transport compared to 8% of women;

They have the same values for the use of a tourist bus and a taxi, but 2% of women prefer to rent a car, while men do not choose this option.

It is important to note that in the previous research for Sofia (2013), for the first time there is a study of the electronic presentation of destination Sofia through the tourist website of the city. In this regard, the private study has defined several questions regarding the information provision of the destination and the related information service for the residents and guests of the city. The results of **Table 1** show whether or not tourists have informed themselves in advance about the destination, incl. the location and access to tourist sites. If yes, they were asked to identify their sources.

Table 1

| | | Number of answers | |
|---|--|--------------------------|-----|
| Nationality | Outside the EU | 12% | 41 |
| | From the EU | 78% | 259 |
| | Bulgaria | 9% | 31 |
| Gender | Male | 48% | 160 |
| | Female | 52% | 171 |
| Age | 19-34 years | 48% | 159 |
| | 35-50 years | 45% | 149 |
| | 51-65 years | 5% | 17 |
| | over 65 years | 2% | 6 |
| Prior information about the destination | Yes | 80% | 264 |
| | No | 19% | 63 |
| Information sources | tourist website - www.visitsofia.bg | 2% | 7 |
| | Google Maps | 37% | 122 |
| | Mobile app | 5% | 17 |
| | Printed materials and maps | 26% | 86 |
| | Information from TIC | 1% | 4 |
| | Information from the tour operator / agent | 10% | 33 |
| | Other | 16% | 52 |

The results of the analysis show that:

- 80% of the respondents have informed themselves in advance about the destination they will visit. The rest have already been in it or are relying on the local operator to take care of their awareness;
- The main provider of data on movement in the destination are Google Maps with 37%, followed by printed materials and maps - 26%. The latter was ascertained during the field research, as well as during the conduction of the survey. The review of most of the tourist materials reported that relatively old and outdated information is supplied, and the maps themselves were in most cases small in size and many tourist sites were missing. In addition - the lack of designation signs leads to the impossibility of a large number of unorganized tourists to get acquainted with all sights of the city;
- 10% of tourists rely on the information from the tour operator, and 16% indicated "Other", stating below both general answers such as "the Internet", but also more specific websites listed in order of the degree of their use - Google, Trip Advisor, Wikipedia.
- 5% use a mobile application, which is not specified in most of the answers, as iPhone Maps being most often indicated in the rest of the answers. It is interesting to note that 2 of the answers include the TaxiMe application.
- Another logical, ascertained regularity was that representatives of the age groups from 19 to 50 years of age search for information on the Internet and through mobile applications, while those from 51 to 65 and over 65 years of age rely mainly on printed sources.

The finding that only 2% of all respondents managed to find the tourist portal for Sofia - www.visitsofia.bg and only 1% use the services of TIC has an extremely negative connotation. This is an important indicator that in terms of information, Sofia Municipality should pay serious attention to its presentation on the Internet, as well as "on the spot" - for better servicing the visitors to the city and meeting their needs for information and services. This is confirmed by the answers to the question whether tourists would use a mobile application for guidance to tourist sites? Excluding the fact about the prices of roaming services and the Internet, according to which tourists from outside the EU (71%) would not use such, compared to those who would - 29%, the ratio for those from the EU is of course the opposite - 58% who would to 43% who would not use a mobile application. The percentage of Bulgarians willing to use a mobile applications is surprisingly high - 74%, compared to 26% unwilling (**Figure 6**).

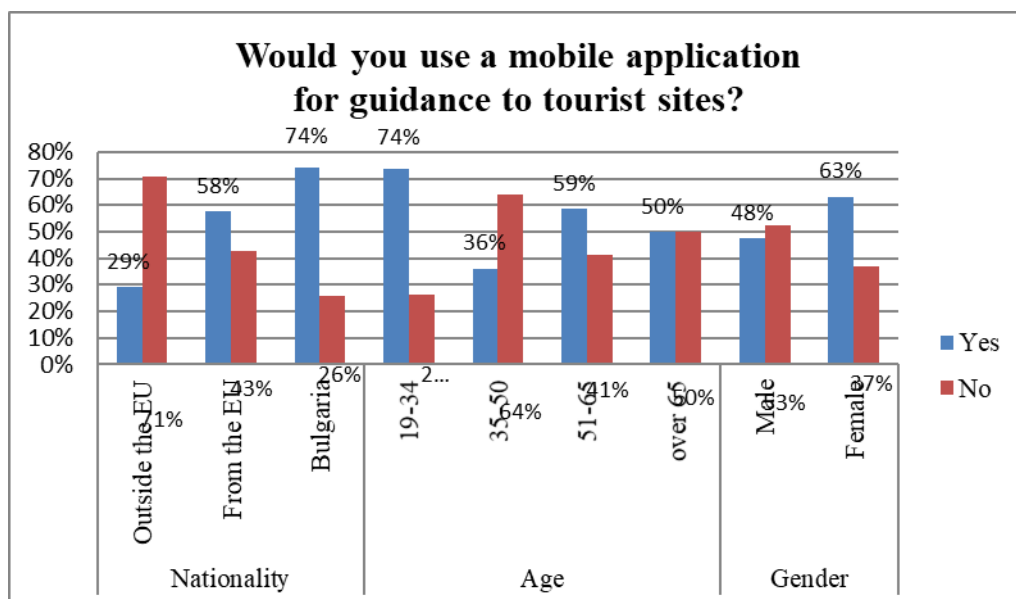


Figure 6 - Would you use a mobile application for guidance to tourist sites?

Naturally, the younger ones (19-34 years old) would use one - 74% compared to 26% of those who would not. The result in the next age group is surprising, as it shows opposite results - 36% willing and 64% unwilling. The result is unexpected in the next two age groups: in those between 51 and 65 years old the percentage of those who would is higher (59%) than those who would not (41%), and in the group over 65 years of age the result is equal. Significant differences are also observed between the genders, as 48% of men would use a mobile application, while the percentage of women is 63%. Resp. the distribution of the unwilling in both genders is 52% for men and 37% for women.

The results of all these studies have helped to define the scope of this private survey, which had the aim of verifying and confirming the presence of the problems summarized above, in order for a suitable set of measures for the management of transport accessibility in the destination to be presented in the next chapter. It is also complemented by the results of the semi-structured interview with representatives of the main institutions and stakeholders for transport and traffic management in Sofia, as well as with a SWOT analysis of destination Sofia in the context of transport accessibility. The role of SWOT analysis is crucial to the whole study, as it can identify the state and potential of the analyzed object and on the basis of this it can aid the choice of the most appropriate strategy for its development (Marinov, 2003). The SWOT analysis presents in a synthesized form the results of the detailed analysis through the so-called matrix of the strengths and weaknesses - the factors of the internal environment, and the opportunities and threats - the factors of the external environment (Marinov, 2005). By assessing the state of the individual components in the matrix, different strategies can be formulated - aggressive (predominance of strengths and opportunities), diversification (predominance of weaknesses and opportunities), strengthening (predominance of strengths and threats) and protective (predominance of weaknesses and threats) (Marinov, 2003).

Table 2

| Strengths | Weaknesses |
|--|---|
| <ul style="list-style-type: none"> • Accessibility and proximity to target markets • High level of transport infrastructure leading to the destination • Modern and diverse hotel base • Diverse and qualitative resource potential • Presence of a municipal enterprise "Tourism" for destination management and a tourist website of Sofia Municipality • The status of the capital as a transport, administrative and cultural center of the country • High commitment of Sofia Municipality to policies and strategic documents directly and indirectly supporting tourism - for improving urban infrastructure and increasing the security of citizens and guests of the | <ul style="list-style-type: none"> • Insufficient use of resources for development of priority types of tourism • Low efficiency of the actions for development of the destination and the transport accessibility, due to the large number of program and normative documents, regarding certain aspects of tourism • Low level of partnership, coordination and cooperation between stakeholders, incl. lack of effective public-private partnerships in parking • Slight interest on the part of tourist enterprises to participate in joint initiatives with Sofia Municipality • Low level of information provision of unorganized (independent) tourist trips • Low share of organized visitors • Dissatisfaction of all groups of |

capital, etc.

- Compact territory of the central part of the city
- Public transport coverage of this area, as well as proximity to and between stops
- Rapid development of the underground in the city, which allows faster movement and transportation of a larger number of passengers, reduction of road traffic, noise and pollution, travel time
- Existing regulation of parking by zoning, differentiated by duration and price
- Wide sidewalks and boulevards in most of the central part of the city
- High degree of satisfaction of the visitors from the stay in the destination and a high share of repeated visitors
- Tourists can travel without worrying about their personal safety
- Presence of a policy for reducing the noise and environmental pollution
- Presence of a municipal policy for adaptation (mitigation) to climate change

visitors with the cleanliness of the city

- Dissatisfaction of visitors with the general infrastructure in the city – pedestrian opportunities, designation signs, public toilets, etc.
- Lack of favorable conditions for movement of people with disabilities or reduced mobility both in this part of the city, but also in the tourist sites themselves
- Lack of favorable conditions for renting a bicycle and traveling with it in the city
- Lack of sufficient information about the tourist sites, transport services and ways of movement in the destination
- Lack of information about travel agencies and operators and the services they offer on the official tourist website of the destination. Resp. lack of opportunity to purchase services, incl. online
- Lack of mobile applications for guidance to tourist, culture and other sites of Sofia
- Lack of a full calendar of events, as well as a link to the one on the website of Sofia Municipality - www.sofia.bg
- Insufficient use of other communication channels for promoting the destination and the access to and in it
- Non-functional public transport due to the lack of overlapping schedules, low frequency of movement of some lines, lack of direct lines, especially to sites outside the central part of the city, unlike personal or rented car
- Unattractiveness of some of the vehicles (buses, trams, trolleybuses and some motor coaches), as well as of some of the passengers

| | |
|--|--|
| | <ul style="list-style-type: none"> • Relatively low level of equipment and adaptation of infrastructure (including public transport stops) for the movement of people with disabilities • Lack of parking lots for personal cars near metro stations, as well as in the central part of the city • Relatively low level of use of sustainable forms of transport to travel to the destination, especially by bicycle • Low degree of satisfaction of the local population from the involvement in the processes of planning and management of tourism • Limited opportunities of MP "Tourism" for the development of Sofia as a tourist destination, incl. for transport and information accessibility, as well as insufficient funding for the implementation of the strategy and action plan • Low-quality language and professional training of those employed in public services in parking and public transport • Lack of a clearly designated area for tourist traffic, as there are no convenient and spacious pedestrian areas around the attractive sites in Sofia and the places where mass events are held |
| Opportunities | Threats |
| <ul style="list-style-type: none"> • Investments to improve the urban and cultural environment • Improving public infrastructure and offering quality services • Strong institutional support for public-private partnership • Formation of organized cluster structures, which will help to utilize the existing opportunities for sustainable development of all forms of tourism • Improving the management of public property attractions | <ul style="list-style-type: none"> • The geopolitical situation on the Balkan Peninsula, in Europe and in the world • Terrorist threats and a sense of insecurity, a wave of migrants and a refugee crisis • BREXIT and the related changes in the European Union • Deteriorating climate change and global warming • Violation of the principles of sustainable development (pollution, irresponsible exploitation of natural and |

| | |
|--|---|
| <ul style="list-style-type: none"> • Activation of institutional and organizational coordination and partnership • Stimulating year-round tourism. • Purchase of new vehicles - air-conditioned, with provided free wireless internet connection • Export of car traffic to ring roads • Construction of parking lots near key metro stations or near the central part of the city • Use of European programs for improvement of urban transport and overall infrastructure of Sofia Municipality • Increasing the level of suitability of the destination for people with disabilities | <p>anthropogenic resources, overbuilding at the expense of green areas, etc.)</p> <ul style="list-style-type: none"> • High level of competition with other tourist destinations (on both national and international level) • Lack of stable legal and regulatory framework of the tourist sector • Lack of funding for the promotion of alternative modes of transport (walking, cycling, charging stations for electric - vehicles) • A significant proportion of visitors with a limited budget who visit the destination for 24/48 hours • The main foreign flow relies solely on air transport with a predominance of budget-oriented airlines and the flights they offer. Resp. there is no development of other modes of transport for reaching the destination |
|--|---|

IV. Chapter Four: Concept for the Development of Transport Accessibility

On this basis, after a thorough review of the good practices of developed European capitals in terms of tourism regarding planning and accessibility, the concept for development and management of transport accessibility, which is aimed primarily at promoting sustainable modes of transport and restricting the use of cars in the destination, is compiled and presented in this chapter. The main activities enshrined in the concept for development of Sofia as a destination are:

1. Restricting car access to the central part of the city
2. Increasing the prices of parking services incl. the number of payment methods
3. Development of the Park & Ride service
4. Improving and promoting public transport
5. Integration of public transport services (smart and overlapping schedules, QR codes to service links, etc.)
6. Creation of a system for management of tourist buses and taxis
7. Reorganization and improvement of the road network for cycling and creation of convenient footpaths and marked routes
8. Introduction of intelligent transport systems
9. Creation of tourist information systems
10. Creation of electronic reservation and payment systems

Specific measures to each element are defined, the most important of which are:

- Connecting the existing and new pedestrian zones and spaces in the central part of the city in a single system;

- Improving the pedestrian connectivity in the central part of the city and the adjacent city parks and gardens;
- Separation and marking of tourist routes with different thematic orientation, business and in accordance to the preferences and opportunities of the individual target groups;
- Improving the quality of public spaces and the urban environment;
- Restriction of car traffic in the central part of the city at the expense of pedestrian and bicycle traffic;
- Elimination of parking from key public spaces and regulating and strengthening its control in the periphery of the central part of the city;
- Development of a complete and connected bicycle network, by connecting the existing and creating new transit, leading and recreational bike lanes and routes while ensuring security and safety in the movement of visitors;
- Construction of new buffer parking lots for cars and bicycles around metro stations and public transport hubs;
- Construction of new buffer parking lots in the central part of the city where residents and visitors can leave their cars and move around the city using the sustainable modes of transport;
- Improving the overall mobility infrastructure incl. for disadvantaged people, as well as the signpost for movement, and the additional elements of the infrastructure, such as street lighting, benches, fountains, public toilets, etc.;
- Development and implementation of modern intelligent technical solutions for the use of shared cars (for example Spark), for bicycle rental, as well as those for guiding to tourist sites with the opportunity to provide additional information (e.g. with QR codes), and for the ways of movement in the city (fastest, cheapest, with fewer transfers, with minimal walking, etc.);
- Introduction of an integrated charging system with different types of public transport, with combined charging by time and / or distance, which will increase its usability and the number of transfers;
- Application of a systematic approach for optimization of the route network of public transport
- Optimization of the operating modes of the traffic lights and improvement of the control and management of automobile traffic
- Supporting the routing of transport flows
- Optimization of urban logistics
- Introduction of systems for shared bicycles and personal electric vehicles (electric bicycles, scooters, etc.) and stimulation of their use;
- Stimulation and promotion of pedestrian and bicycle traffic as individual mobility, independent of conventional energy sources;
- Stimulating the development and use of ecological public transport (underground, trams, trolleybuses, electric buses);
- Stimulating the purchase and use of electric vehicles, rapid construction of charging infrastructure;
- Reducing the use of private cars, stimulation of shared mobility;
- Introduction of a low-emission zone, free from polluting vehicles or with an introduced fee for them.

Although the research project focuses mainly on transport solutions, accessibility and mobility policies are only some of the tools that can be applied to manage the flow of visitors. For a city of the status of Sofia, it is necessary to develop a comprehensive action plan, complying with the individual strategies for the development of transport, tourism and spatial development of the city as a whole.

CONCLUSION

The present study is an attempt to make an interdisciplinary study which outlines the major importance of transport accessibility in the management of the destination and the service of tourists in terms of transport services and the movement itself. From a non-essential element, accessibility should become a key priority in order to overcome the consequences of the deterioration of the attractiveness of the destination, on which its sustainable establishment and development depend.

The identified problems are mainly related to the lack of coordinated planning, financing and implementation. As mobility and accessibility require large investments, it is important to plan everything in such a way that these investments are used to their full potential. For the full use of all city resources for development in a way that balances the interests of residents and visitors, and the impact on the urban environment, an attempt to clarify these complex relationships is made by proposing solutions and measures, meeting the requirements of all target groups, in order to achieve balance and sustainability of these solutions in time.

The proposed concept has a practical application. The imposition of sustainable forms of transport and movement in the destination is associated with the effective management of a number of challenges, the cooperation between government officials, NGOs and other organizations in order to overcome the accumulated problems of transport service to residents and guests of the city. Tourism and transport are the two sides of the same management process, especially in tourist destinations, characterized by a consistent or increasing volume of visitor flows. The organization of accessibility and the improvement of public transport by implementing innovative solutions, promoting alternative routes for visitors, are just some of the most important measures to manage demand, reduce congestion and pollution and meet the requirements of tourists and residents. The brief overview of the problems with the transport accessibility to the anthropogenic tourist resources in the central part of the city shows the urgent need for adequate management of the increased urban mobility of the population, not only for the needs of the tourist industry. This will take Sofia Municipality out of the extremely unfavorable situation of being a desired destination, where tourists cannot easily visit its sights.

In order to meet the challenges of the time, Sofia Municipality has to build a new model of urban mobility based on sustainable forms of transport and open to technological innovations. In order for the new plan to be effective it needs an integrated approach that combines tourism, transport and urban planning and involves not only local public and private operators, but also all other organizations and mediators that contribute to the development of the destination and the growth of tourist mobility. The study shows that the implementation of the proposed solutions is possible, namely:

- Improvement of the pedestrian and bicycle infrastructure and gradual imposition of sustainable modes of transport;
- Gradual reorganization of transport, both public and tourist, so that it is developed as a basic and structural determinant for the transportation of people with high operational speed and efficiency, and with reduced energy consumption and significantly improved environmental parameters;
- Achievement of customer satisfaction - more and more people to be convinced to use sustainable forms of movement and urban transport, based on continuous improvement of quality and service;
- Construction of modern, well-lit and accessible alleys, stops and parking lots for bicycles, elements of the general infrastructure, incl. for persons with disabilities or reduced mobility;
- Flexible parking management in order to meet to the maximum extent the requirements of all target groups - especially residents and visitors to the city;

- Expansion of the information systems, which will give correct and timely information at the stops, and in the vehicles, about the available and current services and attractions in the destination, and the ways of online booking and purchase through modern mobile communication systems;
- Active involvement in the decision-making process of individual participants, which will lead to effective results by reflecting the attitudes and expectations of citizens and visitors to the development of the destination.

The current concept does not aim to solve the urban planning and social problems of the modern capital city in terms of transport accessibility and mobility of residents and guests of the city. The detailed problems of the factors and conditions for its development can aid the municipal officials in taking adequate and purposeful measures for their limitation and gradual elimination. In this regard, the development is relevant at the time of the study, but given the significant investment and constant, targeted policy in terms of transport, infrastructure and accessibility, its relevance may remain in the next 5 years. In addition, the proposed concept as a model for improving the service of the population and visitors, can be used by other destinations in Bulgaria, after taking into account the specific problems in them.

The practical application of this work is wide due to the interdisciplinary approach applied in it. It can be useful for both specialists in the field of destination management and for all in the field of technical sciences, whose main focus is related to the development of transport, transport infrastructure and communications in relation to tourism.

The applied concept can be easily adapted and applied to other destinations in Bulgaria, sharing similar problems with those of the capital city and in particular - its central part. Application portability can be recognized by a number of indicators such as the size of cities, the number of tourists, major market segments, etc., and the solutions themselves are adjustable and can be applied to both large and smaller cities. It should be taken into account that the transfer process mainly concerns general solutions, while specific measures must be chosen for each destination separately in order to achieve common policies and solutions. In addition, as shown, the concept is expressed through a set of solutions, but each of them may or may not be applied in another destination depending on the presence or absence of a problem in it.

Academic and applied contributions

The contributions of the present dissertation are expressed in:

- Created and tested methodology for analysis of the accessibility of the transport infrastructure by elements for the studied territory;
- Collected, processed and analyzed empirical information on the state of transport accessibility to tourist sites in the central part of the city of Sofia;
- Definition of a target concept for the development of transport accessibility in the central part of Sofia, so that it is suitable for all target groups, as well as adapted for the movement of disadvantaged people;
- Applicability of the concept, after its adoption, to other destinations similar in structure, demography and problems to Sofia.

List of publications in relation to the topic of the dissertation

1. Petrov, E. 2017. Review of regulatory and planning framework of transport access to tourist sites in the central part of the city of Sofia. In: Contemporary Tourism - Traditions and Innovations: International Scientific Conference, 19-21 Oct. 2017, Sofia: celebrating the 50th anniversary of the establishment of tourism program and the 45th anniversary of Geography of Tourism Department : proceedings. – Sofia: "St. Kliment Ohridski University Press", 2017, pp. 144-156. ISBN: 978-954-07-4327-1 (print)
2. Petrov, E. 2017. Transport accessibility to the anthropogenic tourist sites in the central part of Sofia. Yearbook of Sofia University, FGG, book 2, volume 110, p. 295-312. ISSN 0324-2579 (print); ISSN 2535-0579 (online).
3. Petrov, E. 2019. Essence and condition of the systems for planning and management of public transport in Sofia. Research Papers of UNWE , Volume 2/2019 , Sofia, p. 209-238. ISSN (print): 0861-9344; ISSN (online): 2534-8957