ISPARTA BICYCLE ROUTE: THE CONFLICT BETWEEN PRIVATE AND PUBLIC INTERESTS

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ABSTRACT

Isparta, one of the most livable cities of Turkey, is a rapidly growing, medium-sized city in inner Anatolia with a large academic and student population. In 2016, with limited financial means, the Isparta Municipality sought to make the city more livable by constructing a network of bicycle lanes intersecting in the city center. The politicians and roadside businesses or shop owners opposed this scheme, as a survey has shown. In July 2018, the main, central section of the bicycle route was closed by the same municipal administration which introduced it following political pressure and in line with economic demands. The closed lanes were converted to on-road car parking spaces. Only a part of the network on the main transportation axis towards the perimeter of the city still exists today.

The decision to close the bicycle lanes contradicts the ideal of the smart settlement. It disturbed cyclists, drivers and the general public, created tensions among them, lowered urban livability standards and made the city more dangerous for its inhabitants. Despite the universal struggle to create smart transportation systems and smart settlements, rules and regulations for promoting the use of the bicycle and integrating it into urban life and spatial planning in Turkey appear to be insufficient. This paper reviews the interests at play and their prioritization while making an impact-based assessment of the decision of the municipality to close the bicycle route. It questions the impact of the closure of the route on the local economy of a city on the way to becoming a smart settlement.

The survey uses a quantitative research method based on a survey. Three (3) populations were sampled – namely, a local bicycle advocacy group, the general public and roadside businesses. Questionnaires were administered through a systematic random sampling technique. The findings are accompanied by interviews with decision makers, the public and cyclists and a descriptive analysis and a review of the literature on bicycles in cities,

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the economic returns of cycling in the city and bicycle routes as a smart means of transportation. The paper concludes with a critical evaluation of the legitimacy of the closure decision from the point of view of the public interest. It finds that private interests and political disputes, and the related tensions, are non-negligible obstacles which decision makers have to overcome in order to create smart settlements. It also warns that decisions of this kind taken without properly determining the economic impact are baseless.

Keywords: Smart Settlement, Sustainability, Bicycle, Public Interest, Private Interest.

1. INTRODUCTION

The call for smart settlements has received, and continues to receive, global attention across all disciplines. Like many other developing countries, Turkey still has impediments to address in this area. One of these is the state of urban transportation. Urban transportation issues continue to be among the foremost planning issues and a major concern to every player in the transportation sector, particularly those planners and other policy makers who long for smart transportation as an element for achieving smart (competitive) settlements (Oni,1999; Sınmaz, 2013; Rodrigue et al., 2017).

Among the solutions widely suggested for overcoming urbanization problems and reorganizing our towns and cities as smart, sustainable and livable settlements are means of transport which consume less energy, use entirely clean energy (human energy), are driven by renewable energy or can carry greater numbers of passengers. One means of transport which supports and satisfies this development is the city bike system. Most academic studies on city bike systems and networks have concentrated on the environment-friendliness of the bicycle and on urban design standards (Uz, 2004; Uz and Karaşahin, 2004; Forsyth and Krizek, 2011; Pasha et al., 2016).

Although smart transport systems have become more common, there are few studies which examine the relationship between these systems and the local (urban) economy. According to Pasha et al. (2016:472), numerous studies have explored the effects of socio-economic factors on choices of sustainable modes of transportation, and found that social factors clearly affect the decision to commute by bicycle. However, limited work has been done on the effects of the bicycle on economic growth or its impact on urban markets, or on the influence of economic means and concerns on decision-making about city bike systems.

In November 2016, the municipality of Isparta in Turkey, rightly concerned about problems related to transportation, embarked on a project to make the city a

smart, sustainable and livable settlement. In this context, the municipality constructed a bicycle route to various parts of the city by introducing bicycle lanes on some of the existing roads **(Figure 1).** The integration of a bicycle route into the street network was also a response to the growing use of bicycles and the demands of citizens, commuters and cyclists. The broader goal was to reduce the existing over-dependency on automobiles, encourage social integration, decongest the city center and give the city back to the people (i.e., pedestrians and cyclists).

Figure 1. Dismantling of Bicycle Lanes (Hürriyet, 2018).

The bicycle lanes were justified on the grounds of the city's dimensions, the large numbers of students and low-income groups, the large numbers of service enterprises serving student demand, and the practicality of motorbikes and bicycles. The bicycle route was extended as far as the university campus. The bicycle lanes in the city center received mixed reactions and created tensions among road users with different interests such as drivers, motorcyclists, cyclists and roadside businesses, all of whom are presumed here to look favorably on smart urban development. The debate also involved businessmen and politicians seeking to protect their own interests regardless of whether the city became livable, sustainable or not.

After the Bicycle Advocacy Group's visit to the Mayor of Isparta in March 2018 to thank for the bicycle network construction (Milliyet Haber, 24.03.2018), some lanes were closed in July 2018 by the Municipality. A way is given to the objections and compromised its plan for a smart transportation system, as a subset of a smart settlement. The municipality closed the bicycle lanes and converted them into roadside parking spaces **(Figures 2-3).** And, monetization has started. The municipality claims to have acted upon the request of commercial interests, especially businesses located on the affected roads. According to a newspaper report, 72% of these businesses asserted that the bicycle route made it more

difficult for motorists to reach their premises, resulting in lower sales of goods and services (Hürriyet, July. 2018). This report contrasted with an earlier report mentioned in the same newspaper (Erçakır, Feb. 2018) in which public interest groups spoke out strongly in favor of retaining the bicycle lanes and against their cancellation or conversion to other uses.

Figure 2. Bicycle Lanes Converted to Parking Spaces (by the Authors, 2018).

Figure 3. Monetization samples of-street parking (by the Authors, 2020).

Many developed and developing countries and their municipal authorities are plying the route of repositioning their cities as smart settlements by revising their transportation systems in favor of smart transportation. Infrastructure and facilities such as bicycle lanes, bike-friendly traffic lights and bicycle sharing facilities are being introduced to encourage cycling as a smart means of transportation. In spite of this, the Isparta Municipality decided to close the bicycle route, in accordance with the interests of the roadside shop owners, and to convert the bicycle lanes in the city center into on-road parking spaces so that drivers would have easy access to the shops (Haber32, 2018). The municipality neglected other interest groups and obliged cyclists to use the same roads as the motorists. This also created a risk of traffic deaths among cyclists and motorcyclists. An oppor-

tunity for smart transportation was ruined, and the tensions between public and private interests in the city were solidified.

This paper addresses the tensions between public and private interests and seeks to answer the question: **"**When actions or programs, policies and plans lead to a contest between livability and market interest, which one should be given priority?" The question can then be simplified as follows: "When divided interests exist in a city, in what order should these interests be satisfied for the livability and sustainability of the city?" To complement these major questions, the study also provides answers to questions like: What was the reason and motive behind closing the bike lanes? What means of transportation should be advocated for a smart settlement? Does the level of availability of protected bicycle lanes affect bicycle usage? And is there is any economic relationship between the existence of bicycle lanes and sales in the shops?

The paper therefore aims to provide the view of decision-makers, to develop a method for assessing the impact of a market-sided decision taken by a public authority and to make use of this method to critically evaluate the legitimacy of this decision with respect to the public interest. In support of these aims, the related literature on non-motorized and smart city transportation systems is reviewed, and primary sourced data is analyzed and integrated with the available secondary available data. Empirical surveys were conducted among samples of three (3) populations. As sales cannot be dependent on one single factor at any given time, the results are crosschecked with neighborhoods in other places that did not have bike lanes and discussed with the economic trends in the country or the city.

Following this introduction, which identifies the issue, the next section of the paper sets out the conceptual framework regarding the relationship of the bicycle and the road system to smart and sustainable urbanization. The paper then goes on to explain the methodology of the study. In the subsequent section, the city of Isparta and the events surrounding the construction and removal of the bicycle lanes in this particular city are described, together with the results of the field surveys and individual interviews that set out the points of view of the different sections of society. Views of bike users, citizens and shop owners have been combined with in-depth interviews. This section contains the findings from the field concerning the effects of the closure of the bicycle lanes on the public benefit and private benefits. The final section makes a critical evaluation of the private benefits and political perspectives that interfere with smart and sustainable urbanization, the bicycle routes and the systematic relationship between them.

2. SMART SETTLEMENT; SMART TRANSPORTATION

The requirements of livable, smart and sustainable settlements must be summarized to understand the relation between smart settlements and smart transportation. Firstly, there are five fundamental aspects of a livable city that is highlighted by the liveable City organization (livablecity.org, 2018) and Ling et al. (2006): Accessibility and sustainable mobility; vibrant public spaces; a diverse and resilient local economy; affordability, and complete neighborhoods. Parameters developed for use in livability rankings are deduced from these five aspects. Secondly, with respect to the ranking of smart settlements, smart transportation should be adopted as the determining parameter. Thirdly, the components of a sustainable settlement are economic, ecological and are merged with human factors.

Mohanty et al. (2016) define the smart (or sustainable) city as an innovative city that makes use of information and communication technologies and other means to improve the quality of life. This city improves competitiveness as well as the efficiency of operations and services in the urban area to meet the present needs of the people without jeopardizing future generations.

Among the approaches to smart settlements, the "smart growth", "ecological city/ecocity", "low carbon cities", "urban renaissance" and "livable cities" approaches, in particular, favor the integration of various transportation options headed by the bicycle. Bamwesigye and Hlavackova (2019) concluded that **"**If a city will be smart, smart solution needs to be accorded to all components making up the city". The smart environment can be designed to solve environmental related issues with the help of smart transportation. The main goal of smart transportation is to ensure an energy-efficient transportation system while reducing carbon emissions from motor vehicles (Bamwesigye and Hlavackova, 2019).

Successes have been achieved in these respects – notably, through the emergence of means of transportation that consume less energy, the use of fully clean energy (human energy), and the introduction of vehicles driven by renewable energy and vehicles capable of carrying larger numbers of people. The provision of protected bicycle routes and pedestrian walkways has topped the list of smart means of transportation for city centres (Mohanty et al., 2016). This has been the most common form of smart transportation adopted (Bamwesigye and Hlavackova, 2019).

2.1. Bicycle in The City

Dekoster and Schollaert (1999), Grava (2003) and Heinen et al. (2010), are some of the planners who have conducted research and advocated for sustainable cities

and the use of bicycles in the city. Grava (2003), for instance, affirmed that among all machines and animals that move, the bicycle remains the most efficient device for transporting weight over a distance for a fixed amount of energy consumption (about 0.15cal/g.km). Heinen et al. (2010) and Hook (1994) support this argument while also highlighting other beneficial aspects of bicycle usage such as limited space requirements, low noise pollution, environmental friendliness, and the contribution to public health. Dekoster and Schollaert (1999) note that cycling is discrete and accessible to all members of the family, and they add that, above all, a bike is faster than a car over short urban distances.

Alison (2008)'s question on what appropriate use of public space should be came with varieties of answers. A general response revealed that the use of public space should be one which benefit the community, fair and contribute to the economic and sustainable use of land. In accordance to this Alison's response, planners like Dekoster and Schollaert (1999) have advocated for comprehensive restrictions on the use of motor vehicles in city centers as the only way of maintaining mobility as city centers become more and more crowded and congested with traffic. Making the city smart, sustainable and livable or car-free does not connote a total ban on motorized transportation, since some people may be unable to walk long distances, have physical disabilities or be unable to cope with cycling conditions (Grava, 2003). The need for some forms of public transport persists.

Schutte (2015) blamed the misuse of space in the city on the enormous amount of car usage. Andrew et al. (2013) identified three alternatives to the use of a car: the bus (mass transportation), walking and cycling. Among these, cycling appeared as the best alternative since the use of buses comes with limitations in terms of poor network coverage at times, while there is a limit to how far people can be expected to work. Another planner, Abel (1950), referred to by Hass-Klau (2015), called for a strict separation of modes of transport as the only way to ensure the survival of our cities.

Widening existing city-center roads is proposed as an alternative. The idea of road-widening and massive road construction within cities was denounced by May (1963), who considered this a misguided investment and an erroneous operation on the city organism. It was not the city that should be changed to accommodate traffic, he argued, but traffic that should be changed to accommodate the city. This response is regarded in UNESCAP (2012) as a temporary fix, which is neither economically productive nor environmentally sustainable, because a few years after the capacities of the roads have been increased, they will become congested again. Moreover, road-widening and construction will lead developers to build more new commercial and residential

developments alongside the roads leading to a further increase in the use of vehicles.

Jaffe (2015) discussed the topic extensively while presenting the San Francisco Examiner's Report (2015) on challenges made to plans to add protected bicycle lanes to Polk Street in San Francisco. These plans endured some two-and-a-half years of rigorous debate stemming from the arguments of local businesses that the creation of the bicycle lane and consequent loss of 140 parking spaces in the area would cause them financial losses. The businesses also asserted that drivers were wealthier than other alternative transport users and pointed out that cars have boots to carry goods, unlike cyclists and pedestrians. The findings of Lee Alison (2008) in her study of Melbourne, Australia, challenge the assumption that car parking has been an integral component of the economic success of inner-city shopping strips.

With respect to the potential economic impacts of on-street parking, Dekoster and Schollaert (1999) reflected that motorists are not better customers than cyclists, pedestrians or the users of public transport and that in certain categories cyclists may even be the better customers, buying in smaller quantities each time they travel, but always on a regular basis as their frequent cycling exposes them to the temptation to shop. Similarly, Jaffe (2015) suggests that replacing on-street parking with bicycle lanes has little or no impact on local business, and in some cases might even increase business as a result of cyclists making more frequent shopping trips than motorists, albeit spending less per trip, as reflected in studies of Portland (Oregon), East Village (New York City), Dublin (Ireland), Toronto (Canada), Vancouver (Canada) and Los Angeles (California).

Jaffe (2015) recounts Alison's findings concerning the shopping behavior of cyclists and drivers in Melbourne and compares the areas of space needed to park cars and bicycles, showing that six bikes fit into a single automobile parking space. Car owners spent more money per hour in shops, with an average of $27, compared to $16.20 per cyclist, but if adjustment is made for the number of bikes that would fill the same space as one car, the six cyclists would spend much more ($97) than one driver. A validation of Smith (2004)'s assumption of the Port Phillip City that majority of the incomes by the local shops are generated from the locals who trade. Thereby justifying the need to remove car spaces and replaced with a footpath (the Acland Street).

Renate (2015) states that when Max Van den Berg first revealed his revolutionary policy of expelling cars from the city center of Groningen to create space for pedestrians and cyclists rather than destroying the old neighborhood to accommodate more vehicles, the fiercest opposition came from the shop owners

and entrepreneurs who deal directly or indirectly with commuters (the road multipliers) and derive earnings from them. They feared that closing the city center to traffic would destroy their businesses. An assertion described baseless by Alison (2008). The end, however, justified the means, according to Max Van den Berg as the pleasant urban environment attracted more people to the center and its shops and the center became more accessible for cyclists.

In the hierarchy of the city center transportation, pedestrians have first right of way followed by cyclists and then, finally, drivers. In other words, the automobile user must always defer to the cyclist and likewise, the cyclist or bike rider must always give way to the pedestrian both on footpaths and on shared lanes. Otherwise, the city will be insecure.

The presumed or proven advantages to be gained from cycling have been established by different authors. Dekoster and Schollaert (1999) summarized the benefits to communities, individuals, companies and commerce as follows: Economic benefits (such as the decline in the share of the household budget devoted to the car, the reduction in working hours lost in traffic jams, and the decline in health costs due to the effects of regular exercise); political advantages (such as a reduction in energy-dependence and saving of non-renewable resources); social progress (such as the democratization of mobility, greater autonomy and accessibility of all facilities to both young and elderly people), and ecological impacts, with a distinction between local, short-term effects (the notion of the environment) and non-localized long-term effects (the notion of ecological balance).

2.2. The Need for Bicycle Lanes

For a smart city and transportation there is a need for a transportation infrastructure, including cycling, constructed with required feasibility and standards and has detailed design. The generalization of the bicycle as a road vehicle is a fundamental issue because it puts the bicycle – a lighter machine which coexists uneasily with other vehicles as shown by the frictions between the cyclist and other road users – in the same category as automobiles. This agrees with the final report by Michigan Department of Transportation on Community and Economic benefits of Bicycling in Michigan (2014) and aside from weather condition, identified lack of cycling infrastructure and safety concerns due to unprotected bicycle route as major factor/ barriers to cycling.

In this paper, the concepts of cyclists and drivers are used separately. The need for well-defined routes for cyclist arises from their quest for safety on city streets. Bicycle lanes are tracks that provide barriers between bicycles on the one hand and cars and even the pedestrian on the other.

The choice for automobiles even for a short distance according to Stinson and Bhat (2002) was attributed to the convenience and availability of transportation infrastructure designed primarily to accommodate automobiles. In the same vein of thought if bicycle infrastructure is developed, convenient and safe bicycle routes will be created.

In agreement, Grava (2003) summarized the need for bicycle lanes as a factor that will inevitably encourage cycling, since a specific allocation of road space will be made and the level of stress associated with cycling will decrease. The cyclist will have an unobstructed path and drivers will be signaled that the cyclist has rights. Dekoster and Schollaert (1999), Parkin and Meyers (2010) and Souzaa et al. (2014) all made similar remarks and traced the decline in cycling to the absence of cycling facilities and unfavorable policy towards cycling. Puncher and Buehler (2017) recommended provision of infrastructures, programs and policies supporting cycling on the basis of the successes recorded in the Netherlands, Denmark and Germany where cycling preference over other transport means are placed.

Research shows that one of the factors behind the use of bicycles is the availability of protected or marked bicycle lanes which make the cyclist feel safer while cycling. Monsere et al. (2014) reveal that the cycling rate rose from +21% to +171% as a result of the provision of protected cycle lanes in US cities. The UK Department of Transport (DOT) (2013) reported that 48% of existing cyclists and 65% of non-cyclists think that it is dangerous to cycle on roads. Pucher and Buehler (2016) noted a drastic reduction in the level of road accidents due to the establishment of protected bicycle lanes. The closure of bicycle lanes, or their conversion to other uses, is therefore tantamount to returning the city to its former state characterized by congestion and pollution while also increasing the number of accidents.

The successes recorded by Dutch cities with respect to means of transportation and standards of infrastructure, as reported by Renate (2015), have been evaluated and studied repeatedly by transport planners. These cities remain bicycle capitals of the world today. They cleverly reject the dominance of cars in the city and give the roads back to the cyclist and the pedestrian.

Copenhagen has encouraged the use of cycling by installing cycling infrastructure to facilitate cyclist mobility and prioritizing them in the transportation hierarchy (Bamwesigye and Hlavackova, 2019). According to Bamwesigye and Hlavackova (2019), Copenhagen success story showed that attaining pedestranisation, bicycling and other sustainable transportation means is a progressive process. Renate (2015) notes the emergence of the initial steps: When they began to

promote cycling in the city in the 1970s, Dutch politicians already understood that the general emphasis on cars would eventually cause problems. The oil crisis of 1973 also contributed to the adoption of a new lifestyle and of energy-saving means of transport.

As a result, today's Dutch city is equipped with an elaborate network of cycle-paths and lanes that are safe and comfortable even for toddlers and elderly people. The provision of facilities for cycling, such as the construction of networks of cycle paths, has enabled the Netherlands to encourage more people to cycle. The Netherlands boasts 22,000 miles of cycle paths and lanes, compared with the 2% in the UK; this is 38% in Amsterdam and 59% in the university city of Groningen (Renate, 2015).

The Houten district in the Dutch city of Utrecht is a world-famous cycling suburb with an estimated 129 kilometers of cycle paths and lanes. At least one bike is owned by the 98% of the households. The average is 3.4 bikes per household. The design of the suburb puts pedestrians and cyclists before drivers, limiting the use of cars in the urban area. The area is connected by extensive networks of paths and cycle lanes of well-filtered permeability allowing the cyclist a thoroughfare to the city center.

3. METHODOLOGY

In this paper, the quantitative research method has been used, based on surveys. The analysis of the tension between public and private interests in public spaces and of the economic impact of the closure of the bicycle lanes are questioned based on two (2) major data sources – namely, a reviews of the related literature and the data set obtained via the survey conducted with samples taken from three (3) interest group populations: the Isparta bicycle advocacy group (Bisiklet Topluluğu), comprising professional and frequent cyclists; the general public and the roadside businesses/shop owners. The data used were primary and secondary sourced data, otherwise referred to as individual-level and aggregate-level data (Buehler et al., 2015), obtained from a reconnaissance survey, the processing of questionnaire results, satellite imagery and consultations with relevant bodies.

For the primary data, sourced through the use of a questionnaire with different structured questions for each sample group, a total number of 170 questionnaires were administered (42 questionnaires for the bicycle advocacy group, 82 questionnaires for the general public, and 46 for roadside shop owners (26 for areas with bicycle route and 20 for those without bicycle route) in 2018 and 2020. This is done in order to figure out the interests of the related actors and financial gains and losses. Each survey queried the level of bottom-up participation of all

the interest groups before and after the closure of the bicycle lane and the numbers of trips per day. The demographic and socio-economic characteristics of the respondents are limited to a variable on bicycle and/or car ownership and the difference in market returns before and after the closure of the lane.

For the general public, a simple random sampling technique was used to eliminate biased sampling and ensure that every member of the public has an equal chance of been selected. For the roadside businesses, a systematic random sampling technique was employed involving the selections of shops at every fourth interval on traffic routes bicycle routes were previously constructed or nonbuilt. An electronically designed questionnaire (Google forms) was used for the bicycle advocacy group.

Secondary data are sourced from interviews with various decision-makers, the public and cyclists; institutions, including the provincial police office traffic department and the Isparta Municipality Departments of Planning and Technical Works. Data were also sourced from relevant materials, from journals, text books, articles, and the internet. The majority of these peer-reviewed studies relate to bicycle-friendly cities like Utrecht, Amsterdam, Groningen, Copenhagen and Portland (Jaffe, 2015). A descriptive analysis and a review of the literature on bicycles in cities, the economic returns of cycling in the city and bicycle routes as a smart means of transportation were also conducted.

In determining the length of bicycle routes in the city, landsat images of the study area were sourced and processed using Geographical Information System (GIS) applications. Use was also made of the Isparta City Development Plan in NETCAD format.

The data collected through the surveys were analysed using relevant statistical methods through simple computation. Descriptive data were analysed using Statistical Packages for Social Sciences {SPSS} software to determine frequency distributions and correlations with the variables. Parameters were developed to make a comparison of interests.

4. THE ISPARTA CASE

The province of Isparta is located at the meeting point of Turkey's Aegean, Mediterranean and Central Anatolia regions **(Figure 4)**, with coordinates of 37°45'52'' N and 30°33'8'' E. The central city of the province, also called Isparta, has a population of approximately 258,375 (Nufusu.com, 2019), distributed among various neighborhoods. The city serves a wide geographical area. It has a rich flora and fauna, which positively affects the quality of life, and the temperate climate makes cycling possible most of the year round.

Due to its human proportions, the persistence of organic agriculture in the province, a reasonable quality of urbanization and good access to urban facilities, Isparta is one of the country's most livable cities (index value of 0.6745 based on 41 indicators) (Turkish Statistical Institute, 2017). The university, established in 1992, has contributed to the quality of living in Isparta. It has transformed it from a settlement largely dependent on agriculture with a rural character to a city having a regional development role strengthened by rapidly developing service and education sectors and an increasingly urban outlook.

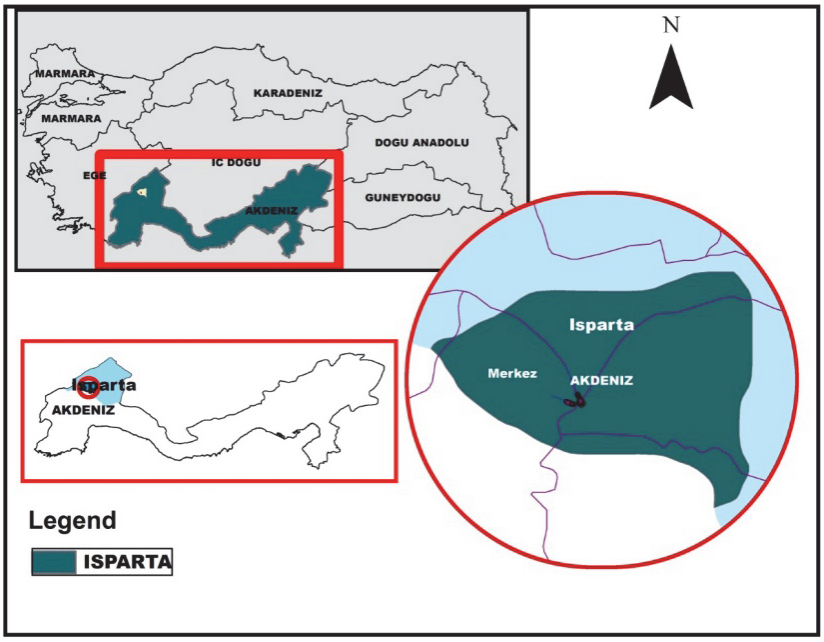

Figure 4. Geographical location of Isparta in Turkey (by the Authors, 2019).

The lay-out of the city has displayed a shift from the monocentric model towards the sectoral model described by Hoyt (1939) as the university, industrial enterprises, the airport and new housing areas have developed in different peripheral locations along the main axis **(Figure 5).** The city centre is a space of human proportions with historical roots used jointly by the inhabitants of the city, immigrants and people from the rural areas.

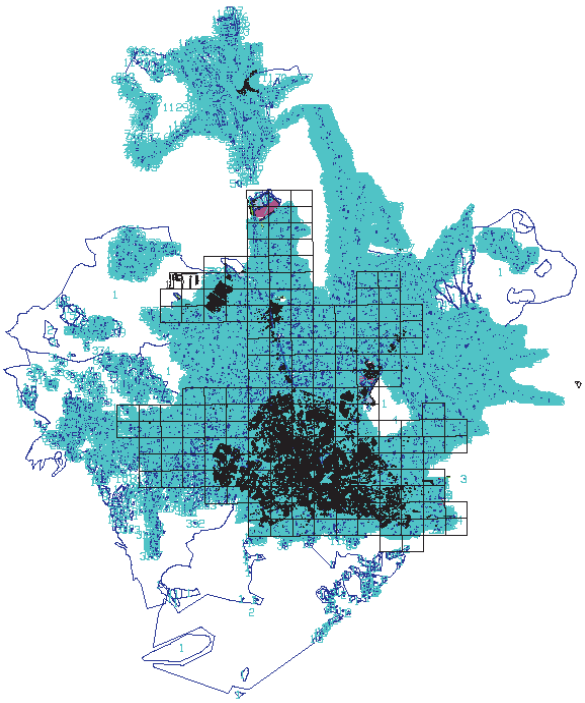

Figure 5. Isparta Development Master Plan (decreased from1/5000 scale) (Source: Isparta Municipality, 2019).

4.1. Findings of the Study

The transportation networks in the city of Isparta consist of three (3) elements: the pedestrian paths and sidewalks, the bicycle lanes and the roads for motor vehicles. The total length of the bicycle lanes was 9.9km when first constructed. The designated/protected bicycle routes which are now closed **(Figure 6)** have a total length of 7.4km, starting from Gölcük and continuing along Sinan Cami Caddesi, Cumhuriyet Caddesi and İstanbul Caddesi **(Table 1)**. The lane on the route towards Süleyman Demirel University and the Isparta Applied Sciences University is still functioning.

Traffic roads in Isparta are generally ranging from 15m to 50m wide **(Table 1)**. It is technically possible to create a bicycle lane (1.2m wide) in each direction. With a bicycle ownership percentage of 45.1% for individuals and 76.6% for households (see below), Isparta already has a strong cycling and motorcycling tradition (Akyokuş, Feb. 2018).

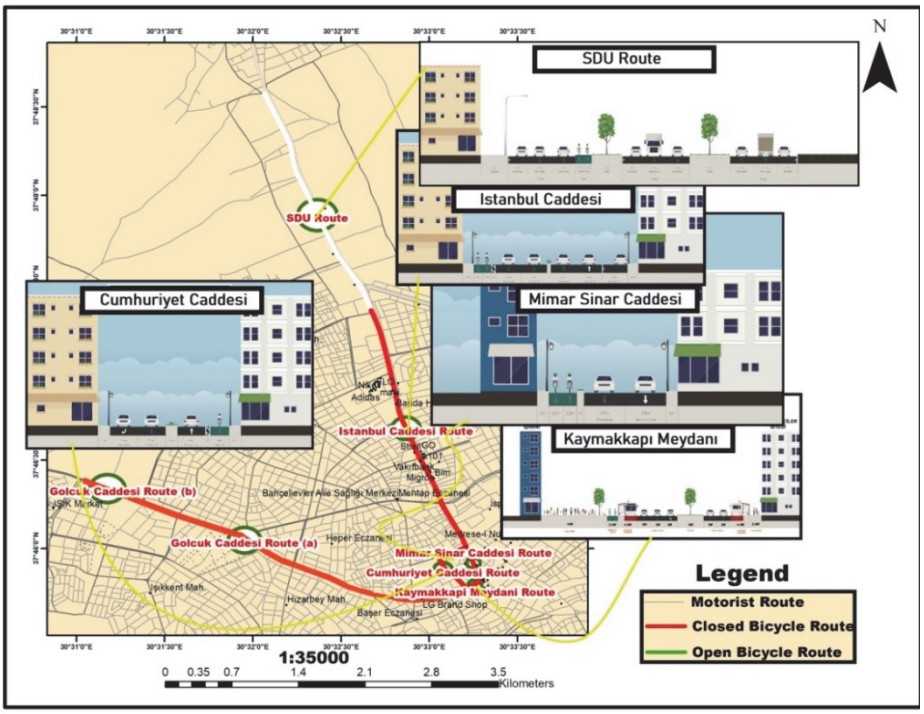

Figure 6. Isparta Cycling Routes, 2018 (Source: Field Survey, 2018).

Table 1. Isparta Cycle Route Lanes (Source: Field Survey, 2018).

ROUTES	DESCRIPTION	CURRENT STATUS	LENGTH (km)	WIDTH OF ROAD (m)
SDU Route	Two-way route	Open	2.5	50
Istanbul Caddesi Route	Two-way route	Closed	2.5	35
Mimar Sinan Caddesi Route	Two-way route	Closed	0.5	15
Kaymakkapı Meydanı Route	Two-way route	Closed	0.2	18
Cumhuriyet Caddesi Route	Two-way route	Closed	0.7	15
Gölcük Caddesi – Route (a)*	One-way (two sides)	Closed	2.7	15
Gölcük Caddesi - Route (b)*	One-way (one side)	Closed	0.8	15

* The Gölcük Caddesi route is in two (2) parts: (a) single lane starting from the city center to the fringe subsequently continues as (b) a two-directional lane from the fringe along Gölcük Tabiat road).

The study identified and questioned two major interests: public and private interests: The public interest calls for a smart and sustainable transportation system to make the city livable. The private interests include interests such as

those of shop owners and politicians. The political interest also focuses on winning support from affluent people in the city who do not only support the closure of the bicycle lanes but are also in favor of expanding the existing road network for motorized transport in the city – a policy which was later prioritized by the new mayor elected from the opposing party in 2019.

4.1.1. Bicycle ownership

Table 2 shows the levels of bicycle ownership among the general public. Among individuals, 45.1% own bicycles. Among the individuals' families, there was at least one bicycle in 76.8% to of families: 34.1% of families owned one bicycle, 28% two bicycles, 9.8%, three bicycles and 4.9% four or more bicycles.

Table 2. Bicycle Ownership among the General Public (Source: Field Survey, 2018).

INDIVIDUAL BICYCLE OWNERSHIP			NO. OF BICYCLES OWNED BY ALL FAMILY MEMBERS		
	No. of respondents	Percentage (%)		No. of respondents	Percentage (%)
YES	37	45.1	ONE	28	34.1
NO	45	54.9	TWO	23	28.0
TOTAL	82	100.0	THREE	8	9.8
			FOUR OR MORE	4	4.9
			NONE	19	23.2
			TOTAL	82	100.0

4.1.2. Trips made by the cyclists

The types of journeys made were classified as trips to work, recreational trips, shopping trips and trips for other purposes **(Table 3).** Out of 32.9% of the respondents of the survey conducted on the general public on the usage acceptability of cycling cycle for all kinds of journey. On the other side, 2.4%, 22.0% and 4.9% of respondents used bicycles solely for travelling to work, recreational activities and shopping trips respectively. The remaining 37.8% of respondents were those who did not own a bicycle.

4.1.3. Impact of the closure of bicycle lanes on cycling in the city

Prior to the closure, the availability of designated bicycle routes contributed to the use of bicycles in the city. Of the cyclists belonging to the bicycle advocacy group surveyed, 50% stated that they used the route both because it gave them a direct, unobstructed and rapid route to their varying destinations and because

it protected them from friction with motorists. Another 26.2% selected only the option related to protection from friction with motorists while 16.7% cited only the fast route factor. The rest cited other reasons (4.8%) or have no particular reason (2.4%) **(Table 4)**.

Table 3. Trips Made by Bicycle among the General Public (Source: Field Survey, 2018).

	No. of Respondents	Percentage (%)
JOURNEYS TO WORK	2	2.4
RECREATIONAL ACTIVITIES	18	22.0
SHOPPING TRIPS	4	4.9
ALL OF THE ABOVE	27	32.9
NONE	31	37.8
TOTAL	82	100.0

Table 4. Reasons stated by Bicycle Advocacy Group Members for using Bicycle Lanes (Source: Field Survey, 2018).

	No. of Respondents	Percentage (%)
DIRECT, FAST ROUTE	7	16.7
PROTECTION	11	26.2
BOTH OF THE ABOVE	21	50.0
NO REASON GIVEN	1	2.4
OTHER REASONS	2	4.8
TOTAL	42	100.0

Table 5. Frequency of Cycling among the General Public after the Closure of the Bicycle Route (Source: Field Survey, 2018).

	No. of respondents	Percentage (%)
NOT VERY OFTEN	31	37.8
OFTEN	14	17.1
AVERAGE	6	7.3
OFTEN	2	2.4
NOT AT ALL	29	35.4
TOTAL	82	100.0

The closure of the bicycle route was found to have caused a setback to cycling in the city, as 54.9% of the general public stated that they no longer went out on their bikes **(Table 5).** Separately, 73.8% of the bicycle advocacy group members and 46.3% of the general public stated that the closure of the bicycle lanes had affected the number of journeys they made by bike **(Table 6).** The percentage rates by which cycle journeys differentiated are shown in **Table 7**.

Table 6. Impact of the Bicycle Route Closure on the Frequency of Cycling (Source: Field Survey, 2018).

	GENERAL PUBLIC		**BICYCLE ADVOCACY GROUP**	
	No. of respondents	Percentage (%)	No. of respondents	Percentage (%)
YES	38	46.3	31	73.8
NO	15	18.3	11	26.2
NO REPLY	29	35.4	0	0
TOTAL	82	100.0	42	100.0

Table 7. Number of Journeys Made per Day before and after the Closure of the Bicycle Route (Source: Field Survey, 2018).

	GENERAL PUBLIC				BICYCLE ADVOCACY GROUP			
	BEFORE		AFTER		BEFORE		AFTER	
	No. of respondents	Percentage (%)	No. of respondents	Percentage (%)	No. of respondents	Percentage (%)	No. of respondents	Percentage (%)
1-2	21	25.6	38	46.3	22	52.4	20	47.7
3-4	21	25.6	10	12.2	12	28.6	10	23.8
5-6	6	7.3	3	3.7	3	7.1	4	9.5
7 OR MORE	4	4.9	1	1.2	3	7.1	1	2.4
NONE	30	36.6	30	36.6	4	9.5	7	19.1
TOTAL	82	100.0	82	100.0	42	100.0	42	100.0

4.2. Conflicting interests

The reason and motive behind the construction and closing of the bicycle routes in Isparta is a result of conflicting interests over space and time. The Isparta

bicycle route's story evolved over three phases within two different political dispensations: First is the pre-construction and construction phase when the municipality deem it to fit to give back the city to the pedestrians and cyclists (a thought towards sustainability). This is a decision attested to by the Isparta Municipality Department of Development and Urbanisation as part of the Municipality's commitment in directing her development towards sustainable urban growth and smart city. This saw to the construction of Isparta bicycle route along major shopping strips of the city in 2016. The second phase was when constructed bicycle lane clashed with private interests, received backlash from the road-side shop owners, evolved into a gulf dividing interests between road side shop owners, and dismantled. Opposing party politicians and several shop owners protested against the bicycle lanes on the notion that they affect their daily returns and a conflict have risen between them and the public who advocated for the route to be preserve.

The third phase is the closure period when the bicycle route facilities in the city were dismantled to pave way for on-street parking and monetizing. The post-closure period witnessed a misuse of the on-street parking as traffic volume increased. A representative from the Traffic Department added that motorists misused the on-street parking and parked cars side by side occupying two lanes. And, this has affected the traffic flow despite the availability of municipality's designated car parks in the close surrounding.

In the post-closure period, the political party that constructed and dismantled the lanes have lost the Municipal election in 2019. The second political thought continued from where its predecessor stopped and in the quest to proffer solution to the traffic problem resulting from over-occupation of the road, introduced the monetization of the on-street parking. This is costlier than using the Municipality's indoor car parks. This is also the force that organized and put pressure for the dismantling of bicycle lanes in the year 2018.

In this respect, the major stakeholders representing main interest groups were assessed. The actors involved are; (i) the roadside businesses/shop owners and partially the politicians, (ii) the public (representing general perceptions) and (iii) the bicycle advocacy group (advocating in the interests of frequent cyclists), (iv) Isparta Municipality Department of Development and Urbanization, and (v) Isparta Chamber of Commerce. The interests of these groups can be classified as shown in **Chart 1**.

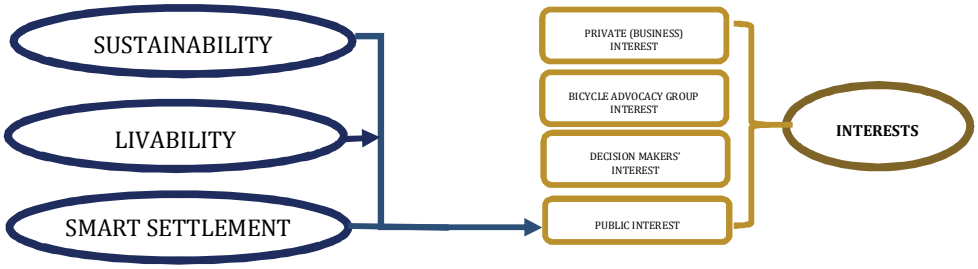

Chart 1. Interest Categorization (by the Authors, 2019).

Private interests are composed of interests of road-side shop owners who are disturbed with an uncertainty in the economic returns and of a change in the usual road structure will bring and the politicians, who mounted pressure for the closure of the bicycle route and the expansion of roads for motorized vehicles. They prioritized their economic needs above other things and the public interest. They also asserted that road-side car parks remain an integral part for an economically stable city and that the construction of the bicycle lane restrains customers/automobile owners from accessing their shops or offices. The claim is here; ''instead of their customers to easily access their shops, they left for other alternative commercial areas or places where they can easily park their vehicle and buy what they need'' (Interviews with Isparta Chamber of Commerce, 2020; Department of Development and Urbanization, Isparta Municipality, 2018).

High number of crashes of motorists with pedestrians is a claim raised by the head of the Municipality (Hürriyet, 06.07.2018). The head of the municipality states that the routes are constructed by the will of the public and can be closed as there is a request from some shop owners (Hürriyet, 22.02.2018). Two opposing provincial party directors and a congressman's pressure can be observed during the second phase.

According to an interview with the Isparta Municipality Department of Development and Urbanization representative, the municipality in her quest to find holistic solution to the above mentioned issue, conducted a survey showing 70-80% of the shop owners demanding for the closure of the bicycle route (This is against 53.8% found in the survey conducted by the authors in 2018 presented in **Table 12**). It is this report that the municipality acted upon and closed some parts of the bicycle routes. However, other stakeholders like the public and the Bicycle Advocacy Group weren't consulted while it is prepared (Isparta Development and Urbanization, 2018, 2019).

In tandem with this, and according to the results of the survey conducted with roadside businesses (shops), to examine and validate the impact of bicycle route

closure on daily earnings of their business, only 26.9% shop owners along the lanes dismantled reported an increase in their daily earning after the closure of the bicycle route. A decrease in daily earnings have been stated by 15.4% of the respondents and 57.4% reported no change **(Table 8).**

Table 8. Change in Daily Earnings of Roadside Businesses/Shop owners after the Closure of the Bicycle Route (Source: Field Survey, 2018).

	No. of respondents	Percentage (%)
INCREASED EARNINGS	7	26.9
NO/NEGLIBLE CHANGE	15	57.7
DECREASED EARNINGS	4	15.4
TOTAL	26	100.0

While the shop owners along the bicycle route complained and protested for bicycle route closure, 22% of shop owners along traffic routes with no bicycle lanes constructed ever before supported their colleagues in closure of the bicycle route. Majority of the shop owners existing on these routes without bicycle lanes opined that bicycle lanes had no to negligible impact on their economic returns, as there hasn't been loss in their economic returns across the years of construction, presence and closure of bicycle routes **(Tables 9-10)**.

Table 9. Change in Daily Earnings of Roadside Businesses (in areas without bicycle routes) after the Closure of the Bicycle Route (Source: Field Survey, 2020).

	No. of respondents	Percentage (%)
INCREASED EARNINGS	2	10
NO/NEGLIBLE CHANGE	17	85
DECREASED EARNINGS	1	5
TOTAL	20	100

Table 10 . Perception of Shop owners/Shopkeepers in areas without bicycle routes for the closure of bicycle routes (Source: Field Survey, 2020).

	No. of respondents	Percentage (%)
Yes / Approved	2	10
Not Necessary	2	10
No / Not Approved	16	80
	20	100

Though there exist no detailed data on the economic status of the Isparta shopping strips, a wider picture, reflecting the yearly economic returns of Isparta Municipality shown that there is steady growth in the economic returns with or without bicycle route in between 2016-2018 **(Table 11)**.

Table 11. Isparta regional statistics on industry and services and Gross Domestic Product (Source: TUIK, 2020).

Year	Industry (1000 TRY)	Services (1000 TRY)	GDP (1000 TRY)	Economic Growth Percentage (%)	
2018	2937777	8495564	15284266	18.49039099	from 2017 to 2018
2017	2486951	6924701	12848446	12.31193953	from 2016 to 2017
2016	2067137	6072136	11227125	0	0

Against the anti-bicycle lane advocators are the Bicycle Advocacy Group (Isparta Bicycle Federation) and the general public whose interests and advocacy are similar. They demand the preservation, opening or re-opening of the bicycle lanes. They supported the preference of pedestranization over the acceptance of automobiles in the city center citing it as civilization and a sign of development and a prerequisite of sustainability.

Table 12 shows that 100% of the respondent (Bicycle Advocacy group (Isparta Bisiklet Topluluğu)) disapproved the closure of the bicycle route in the city center. The Bicycle Advocacy group have registered their displeasure in a visit to the Municipality council and held a series of media campaigns (Interview with Aydin Akyokus, 2018). A common example of such media campaign is the "Arabadan in, Bisiklete bin'' in 2017 (www.bomba32.com). **Table 12** also presents a strong similarity between the interests of the bicycle advocacy group and the general public. As part of the survey all three groups were asked if they approve the closure of the bicycle lanes or not. None of the members of these groups approved the closure of the bicycle routes. On the other hand, 53.8% of the shop owners approved the closure of the routes.

Table 12. Opinions on the Closure of Bicycle Routes (Source: Field Survey, 2018).

	ROADSIDE BUSINESS/ SHOP OWNERS		PUBLIC		BICYCLE ADVOCACY GROUP	
	No. of respondents	Percentage (%)	No. of respondents	Percentage (%)	No. of respondents	Percentage (%)
APPROVAL OF CLOSURE	14	53.8	0	0	0	0
DISAPPROVAL OF CLOSURE	12	46.2	82	100.0	42	100.0
TOTAL	26	100.0	82	100.0	42	100.0

Below is a summary of how the results of the interest assessment are compared with the key elements of the concepts of livable cities, smart settlements, and sustainable settlements **(Table 13)**:

Table 13. Interest Assessment (by the Authors, 2019).

CONCEPT		PRIVATE (BUSINESS) INTEREST		POLITICAL INTEREST		PUBLIC INTEREST	
		Yes	No	Yes	No	Yes	No
LIVABILITY	Accessibility and sustainable mobility		★		★	★	
	Diverse and resilient local economy	★				★	
	Vibrant public space		★		★	★	
	Affordability					★	
SMART SETTLEMENT	Smart transportation		★		★	★	
SUSTAINABILITY	Economic	★			★	★	
	Ecological		★		★	★	
	Human	★		★		★	

5. CONCLUSION

Agenda 2030 has strengthened the momentum towards 'Sustainability' and 'Sustainable Development' – the concepts which have been initiated 33 years ago in the Brundtland Report (1987), "Our Common Future". The quest for sustainable and smart cities is a global call which has been gaining ground. Countries and governments have been orienting their activities towards this call. In order to make cities sustainable, their current situations must be ascertained, their development and planning visions, aims and objectives must be defined, and strategies and action plans must be developed.

In the case of Isparta, the creation of a bicycle route through the addition of a bicycle lane to some of the city roads sparked disputes and debates among cyclists, shop owners, drivers and ultimately decision makers (i.e., planners, politicians and municipality representatives). The route was seen by some interest groups as a cause of commercial loss and of a decline in the economic dimensions of the city. Dekoster and Schollaert (1999) have debunked this way of thinking and shown that the usual equation "vitality of commercial enterprises = access by car" was far from being borne out by the facts. Alison (2008)'s findings also challenged the assumption that placing car park as an integral component of economically successful in urban shopping strip. This research also showed that the bicycle lanes are not the cause of commercial losses, but are needed by the public and can achieve sustainability while saving lives.

The study also affirmed this, revealing that the act of closure made low to no serious contribution to the city economy as the closure only led to an increase in the daily earnings of 26.9% of the respondent in an economic environment where there are no sudden fluctuations or crises. A finding that can be linked to an early review by Rostow (1991) as recorded by Walter Hook (1960) that vast economic development experienced by cities in the United States in the era following World War II was a result of their use and preference for automobiles[1]. In this way, he implied that the use of non-motorized modes of transport such as bicycles would result in a lower level of economic development.

However, the fact that 15.4% of the shop owners placed on the routes dismantled in our survey reported decline in their daily earnings and a very low number of shop owners on roads where there was no lanes before had economic losses due to the bicycle route closure contradicts the views of the decision makers and

[1] Hook (1960) has given the example of the non-motorized post World-War II transport system in Japan, which in the long run appears to have had far more impressive achievements and contributed to a faster rate of economic growth than the system in the United States.

otherwise supported the position of Hook (1960) rather than that of Rostow (1991). Hook (1960) stated that associating economic backwardness with the use of non-motorized vehicles is a fallacy. The loss of earnings experienced by some of the roadside shop owners in the phase two constitutes insufficient proof of the proposition that closing a bicycle route improves the economic returns in general. City policy and decision makers are proposed to adopt an interest assessment policy including all actors and their thoughts before carrying out any action affecting progress towards a smart settlement.

The present study on the impact of the removal of the bicycle lanes in Isparta concludes that Isparta Municipality has forgone livability for market interests (returns) shaped by a certain section of private interests. This is in line with Schutte's (2015) submission that closure of the bicycle route reduces the bikeability or cyclability index of the city. The later introduction or monetization of the closed bicycle route as on-street parking space for automobiles further confirmed that the closure decision isn't just for an easy access of motorists to road-side shops as professed by the private interests (business owners and local authority). This also affirmed of Alison (2008)'s submission that local government's emphasis on the importance of short time parking against the academics emphasis on pedestrianisation and making the city sustainable and smart.

It shows that Isparta Municipality is currently unable to prioritize the requirements of livability, sustainability and a smart settlement when faced with external interests, or that it is incapable of putting interests in an order of preference that favors the development of a healthier livable city. Likewise, the study shows that the interests of all groups should receive adequate consideration in a bottom-up participatory planning approach.

Promoting cycling as a means of transportation is a step taken in the right direction in the quest for a smart city. The closure or removal of the related facilities is in conflict with the promotion of cycling and discourages the use of the bicycle. Efforts should be made to ensure that the decision maker's primary concern is to make the city livable regardless of other external factors. The interest assessment concerning the preference for smart, sustainable and livable settlements revealed that the public interest optimally satisfied the call for a smart sustainable and livable settlement while the other interests concerned are private. This tends to validate Rull's (2011) statement contradictory interests of sustainable development and capitalism. The call for a sustainable and livable city is beyond debate and should not be compromised for private interests. At least all interests must be carefully studied.

Ironically, the decision came at a time when the central authority responsible for urbanization in Turkey was publishing reports on sustainable and smart cities. In

addition, legal arrangements have been made in favor of the entry of the bicycle into urban life and space. The Regulation on the Design and Construction of Bicycle Lanes, Bicycle Stations and Bicycle Parking Places published by the Ministry of Environment and Urbanization spells out the physical specifications for bicycle lanes and makes it mandatory for development plans for networks to be made within five years, including for university campuses. An amendment made to the Development Act in 2018 makes it obligatory for all new settlement plans to be drawn up in the country from 1 January 2019 onwards to include bicycle lanes and parking stations for use as a means of transport. However, the regulation does not refer to the re-introduction of lanes that have been abolished or to penalties for local administrations which do not construct the networks within the envisaged time frame.

The Isparta Municipality has announced in the year 2020 the extension of the route coming from the center along the Ankara road towards the university. This is a route where there is no commercial concentration and no oppositions may raise.

Just as Amsterdam sticks to the long-term goal to achieving sustainability in transportation, which according to Schutte (2015) involves continual installation of bicycle friendly infrastructure, denying complacency or giving itself to interest-influenced rhetoric during its implementation's short run similar to what Isparta municipality now face, the Isparta Municipality should embrace cycling as the best alternative means of transportation and provide appropriate facilities. Instead of closing bicycle lanes or converting them to on-street parking space in the city center, the centers must be reachable for all.

Miller (2007)'s validation; that adding parking is not usually best solution to a growing trend of automobile commuters, a reaffirmation of Banfield's (1997) that availability of car space or widening of roads does increase the use of automobile should be understood. Policies encouraging increase in the use of alternative modes for commuting and seeking to make the city bicycle-friendly by encouraging the use of bicycles and giving them priority in the urban transport system should be considered. Instead of closing bicycle route, Isparta city should be given the time to patiently identify and inculcate bicycling as a social norm. In the same vein, car parking spaces should also be progressively removed and gradually should be replaced with cycling routes. Highlighting the health, socio-economic and environmental benefits of cycling and reopening the bicycle lanes would also re-emphasize the government's commitments to sustainability in the context of Agenda 2030.

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