

# Improving Mobility and Accessibility for Students at the University of Blida 1: Challenges and Strategies for Sustainable Urban Mobility

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## Abstract

*This paper examines the current state of mobility and accessibility for students at the University of Blida 1 in Algeria. Through a survey of student experiences and analysis of the existing transportation infrastructure, the study identifies several shortcomings in the current urban mobility offer, including poor connections between bus and train networks, spatial inequity in service routes, and a lack of reliable information on timetables and punctuality. To address these issues, the study proposes the development of an intermodal offer that ensures spatial and modal equity in mobility towards the university campus, as well as the implementation of intelligent mobility solutions (ITS) involving operating and information support systems, traffic and public transport management systems, public transport safety tools, and ticketing tools. The study concludes that such strategies are necessary to ensure sustainable urban mobility and meet the needs of students in the 21st century.*

**Keywords:** *mobility, accessibility, intermodal, sustainable urban mobility, student needs, Blida 1 university*

## 1. Introduction

Consolidating sustainable urban development of territories calls for the harmonization of urban planning strategies, based primarily on the adaptability of responses to user needs and territorial specificities (Chettah and Nait Amar, 2021). Various parameters need to be considered in formulating these strategies, and urban mobility is one of the most important of these, falling within the challenge of articulating urban planning, transport and their systemic links (Helluin & al, 2018; Lebreton and Beaucire, 2000; Lévy, 2000). This fact positions mobility as a major issue in the practice of urban and territorial planning, as an elementary form of daily life (Kaufmann, 2001; Orfeuill, 2006). Its development is linked as much to the geographical area it serves as to the territorial and

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functional exchanges it weaves and enables. Wenglenski (2006) emphasizes the key role of mobility in shaping the urban environment in which it is exercised, and its dependence on certain socio-economic variables. One of these is mobility potential, defined by Kaufmann et al, (2004, p 05) through the notion of motility, which refers to "the way in which an individual or group makes the field of mobility possibilities their own and uses it to develop projects". This motility is itself closely linked to accessibility (linked to the means of transport available and their efficiency), skills (usage and organizational capacities) and appropriation (strategies offered, perceptions and habits). Mobility is thus consolidated for the user as a singular combination that takes advantage of the conditions offered by the spatial dimension: mobility supply (Lévy, 2000), while being distinguished by the personal choices and preferences of each user or groups of users.

By referring to a particular geographical area and a specific category of users, it is the exchanges and practices generated there that play an active part in transforming the urban environment. The study of urban mobility therefore focuses on understanding mobility practices and the uses travelling people make of space (Orfeuil 2000). The latter takes place within the framework of daily life, distributed over time (constrained and free) and according to the nature of the activity (paid and unpaid), associated with specific and repetitive spatial mobilities (Kaufmann, 2001). There is therefore a strong correlation between the formulation of relevant public policies and knowledge of modal practices. For Kaufmann (2001, p34), "a false or partial understanding of people's mobility behaviour can lead to massive investments without achieving the desired objectives". Exploring modal practices is therefore an essential decision-making tool for formulating urban mobility policies.

In this research, we are interested in understanding the urban mobility practices of a specific category of users, namely university students. With education as their main objective, their mobility is characterized by similar, repetitive daily journeys from different origins, but always with the same destination (the university campus). Algeria's university network comprises 108 higher education establishments, including 54 universities spread across the country (<https://www.mesrs.dz/fr/universites>). By virtue of their size (some of them over 200 hectares) and positioning within the urban fabric (many of them integrated into dense urban fabrics), these universities represent major urban hubs, with a supra-regional catchment area. This is the case of Blida 1 University in the north-central region. Since the number of students enrolled at the University of Blida 1 has increased between 2013 and 2020 from 25682 to 37433 students (<http://www.univ-blida.dz/universite/statistiques>), the number of users heading for the university has soared. This fact is also related to the increase in urbanization at one kilometer around the university that lead to the construction of several collective housing programmes, notably the 1,652 housing units of Ouled Yaich and the 443 housing units Kahf El Hammam (<http://www.aadl.com.dz/>). Similarly, the accelerated development of peri-urban centers to the east, notably the new town of Bouinan, less than 11 km from the University of Blida 1, has generated significant bi-directional commuter flows, passing daily through the university via the national road RN 29, the only direct road link between this new town and the city of Blida. In fact, covering an area of 2175 ha and housing 50,000 dwellings

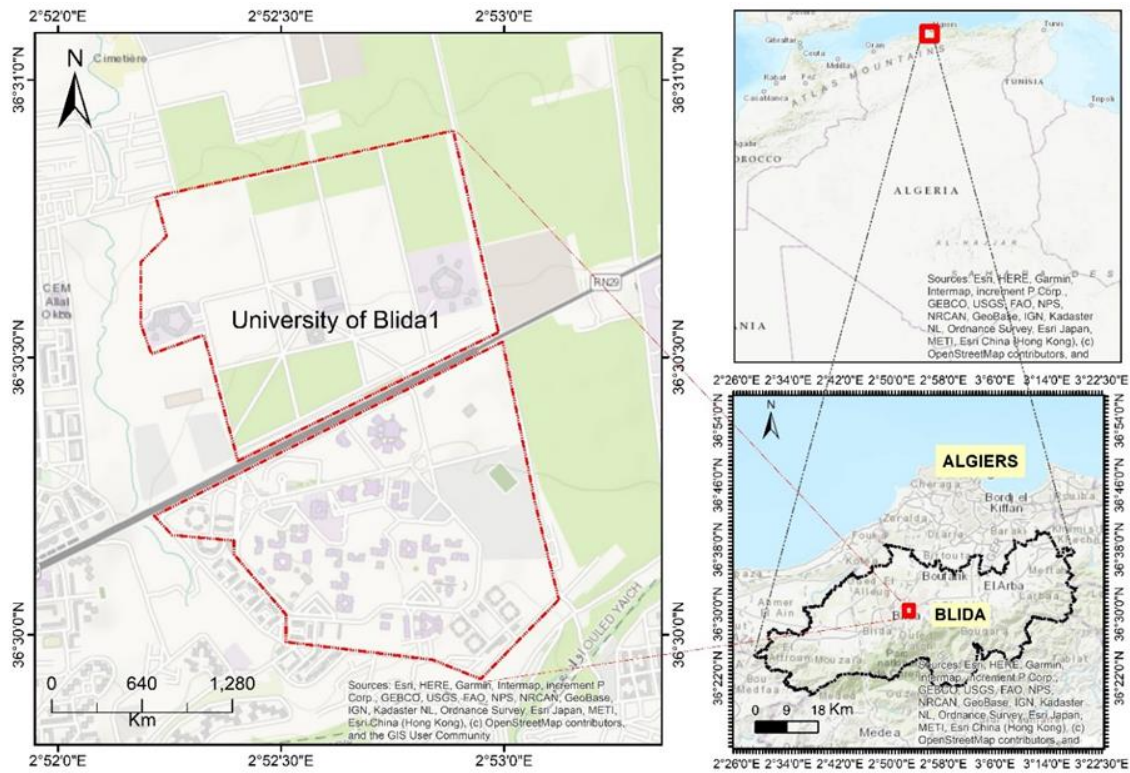
(<https://www.mhuv.gov.dz/fr/ville-nouvelle-de-bouinan>), almost all the residents of this new town work in Blida city and its nearby suburbs.

All these factors contribute to the amplification of a centrifugal daily mobility pattern, resulting in recurrent pressures on a highly stressed mobility system (Semroud, 1999). Actively generating significant travel needs along the university's feeder routes and daily traffic jams, these parameters have had direct impacts on student mobility and accessibility to Blida 1 University in particular. These can be perceived through the frequent delays observed by most of the university's teaching staff and reported by the students themselves. This fact implies the introduction of appropriate mobility solutions, after having raised the various questions linked to the actions to be taken on a strategic level. So what modal practices characterize the university student community in Blida? What are their mobility needs and expectations? Does the current urban mobility offer satisfy its users? If not, how can it be improved? To answer these questions effectively, we need to explore the modal practices of the students of Blida 1 University, in line with the mobility conditions currently on offer. This research sheds light on the daily mobility practices of the student community at Blida 1 University, as well as its accessibility to this institution. It therefore determines their expectations and needs in terms of daily mobility provision. It also enables us to assess the effectiveness of the proposed offer and the actions to be taken to improve it.

## **2. Material and Methods**

### **2.1. Study Area**

Our research focuses on the University of Blida 1, located in the commune of Soumaa, in the wilaya of Blida, 41 km from the capital Algiers (figure 1). More precisely, it lies to the east of the town of Blida (capital of the wilaya) on the Mitidja plain at the foot of the Chr ea mountain. Blida 1 University opened its doors in 1981 and currently occupies 1928542 m<sup>2</sup>, of which 15552 m<sup>2</sup> is built-up (Blida 1 University, 2021). It comprises 04 faculties: science, technology, medicine, natural and life sciences (grouping together 17 departments) and 04 institutes: aeronautics and space studies; architecture and urban planning; applied sciences and techniques; veterinary sciences (Blida 1 University, 2021). It is also home to 08 student residences, 03 of which are within walking distance, with a capacity of 13,000 beds (<http://dou-blida.dz>).



**Figure 1. Location of Blida 1 University in the Province (Wilaya) of Blida in Algeria (Source: Authors, 2023)**

**2.1. Investigation Method**

In this study, we proceeded in several ways to answer our questions. The first methodological component consists of a self-administered questionnaire survey carried out between September and November 2019. The first step was to draw up the survey questionnaire (Table 1), which has two basic parts. The first focuses on students' daily mobility practices: origin, destination, travel time, means of transport used and travel costs (Orfeuill, 2000). The second focuses on students' assessments in terms of satisfaction and desired improvements to the current urban mobility offer to Blida 1 University.

**Table 1. Components of the Survey Questionnaire (Authors)**

Factors surveyed	Indicators
Urban mobility practices	Travel origin
	Travel modes
	Travel time and costs
Appreciation of existing urban mobility offer	Level of satisfaction
	Deficiencies in the urban mobility offer

Secondly, we define the size and composition of our study sample. Assuming a confidence level of 95% and a margin of error of 5%, our sample size meets survey

standards (Krejcie and Morgan, 1970). Thus, according to equation (1), for a population of 35488, the required number of respondents is 381, requiring the distribution of at least 762 questionnaires. In our survey, 800 questionnaires were distributed to students, representing 2.25% of the whole population. The number of 100%-completed questionnaires was 561, giving an overall response rate of 70.12%, ensuring the reliability and representativeness of our survey.

$$n = 2.332^2 N / (2.332^2 + (2e)^2 (N - 1)) \dots\dots\dots(1)$$

Where:

- n: size of sample to be interviewed
- N: size of investigated universe (whole population)
- e: margin of error

The second methodological aspect of this research consists in modeling the spatiotemporal accessibility of Blida 1 University using the Travel time tool available in QGIS 3.2 (open source), for both motorized modes (mainly the car) and active modes (walking and cycling). More specifically, the model is based on arrival times at Blida 1 University at 08:30 (start of classes) on a working day (June 27, 2023). The aim of this modelling is to compare the accessibility potential of the three above-mentioned modes of transport to the university, and thus seize the opportunities offered to develop the use of soft modes that are more affordable and sustainable (Chettah, 2022; 2021).

### 3. Results and Discussion

#### 3.1. Urban Mobility Practices and Characteristics

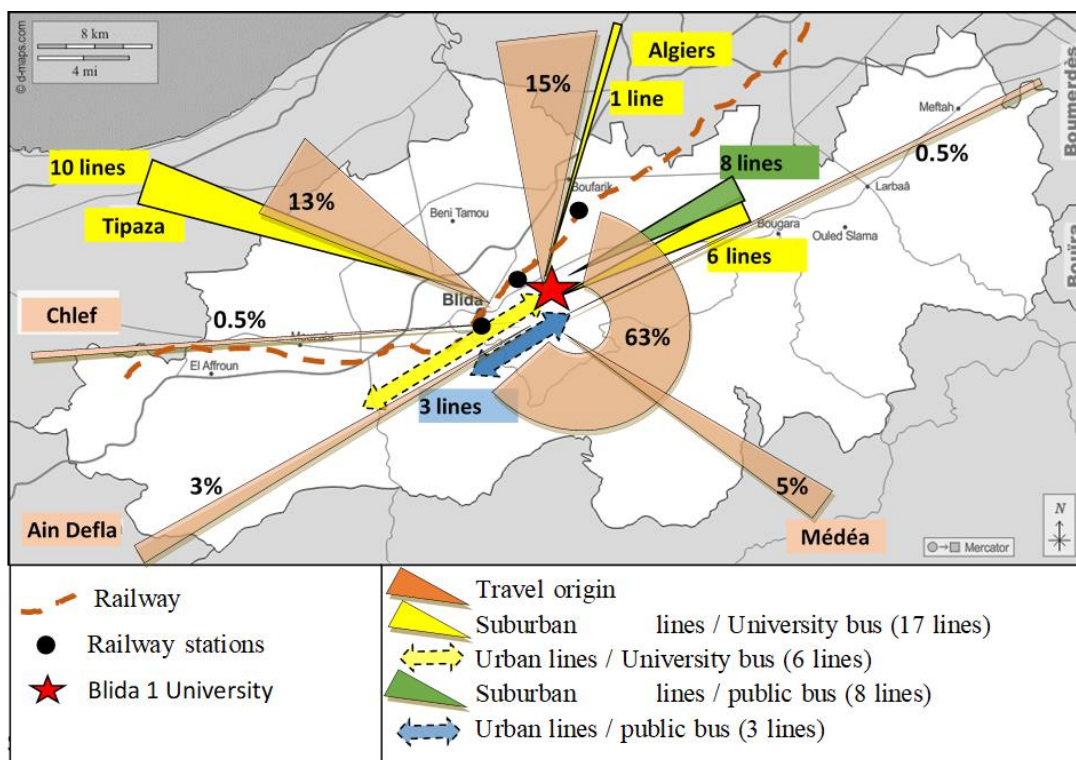
The first results of our survey concern the urban mobility practices and behaviours that characterize the student community at Blida 1 University. Firstly, we need to identify their travel origins in order to determine the university's radius of influence. Next, the modes and means of transport used, as well as the time-cost ratio and its potential influence on the chosen mode. These initial analyses provide a snapshot of the mobility practices of students at Blida 1 University.

**3.1.1. Trip Origins:** With regard to the origin of students' travel (Table 2 and Figure 2), 46% of them travel from the 25 communes of the wilaya of Blida, and 17% from the student residence. We also note that 63% of students travel from the wilaya of Blida (a maximum radius of 37 km). The wilaya of Algiers represents the second most important origin of travel, with 15%, while the wilaya of Tipaza (50 km away) comes third, with 13%. However, 5% and 3% of students respectively come from the wilayas of Médéa and Ain-Defla (33 and 105 km away), while the lowest proportions of trips (0.5%) are to the wilayas of Boumerdès and Chlef, 86 and 159 km from Blida respectively.

**Table 2. Student Travel Origins (Authors)**

Blida	Student residences	Algiers	Tipaza	Médéa	Ain-Defla	Boumerdès	Chlef	Total
46%	17%	15%	13%	5%	3%	0,50%	0,50%	100%
63%		37%						

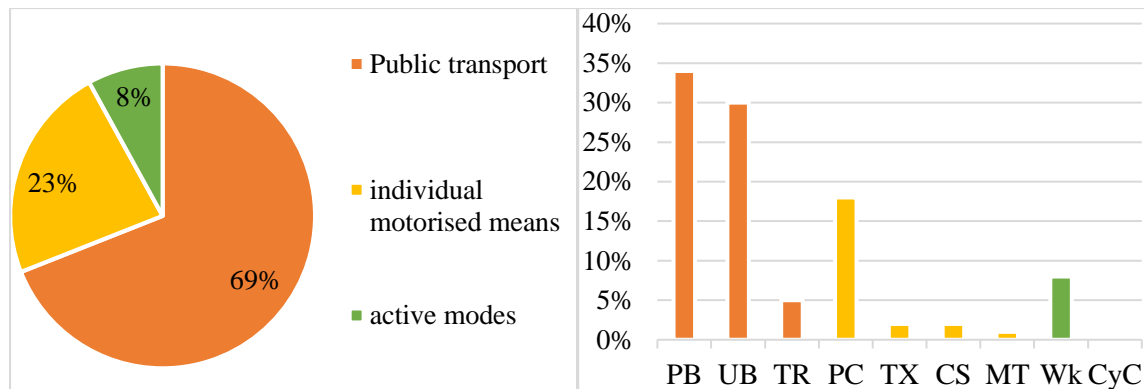
These results clearly reflect a predominance of local travel (within the wilaya itself). This predominance is accentuated by three factors: (i) the proximity of student residence to the university (the furthest from the university is 5 km), (ii) the importance of the Mitidja demographic basin (over 06 million inhabitants), which includes 04 major wilayas including Algiers, and (iii) the density of the wilaya's public transport network (11 public and private bus lines, 12 university bus lines, cabs, train and east-west freeway less than 04 km away).



**Figure 2. Spatial Distribution of Bus Lines to Blida 1 University by Trip Origin (Source: Authors, 2023).**

**3.1.2. Modal Choice:** The proportion of trips by public transport to Blida 1 University is 69%, with 34% of trips made by public bus (PB) and 30% by university bus (BU) (figure 3). This seems logical, given that the university is directly and mainly served by bus, with a fairly extensive offer. Public mass transit is dominant, operated by the public company ETUSB (entreprise de transport urbain de Blida) and by private operators who are in the

majority in terms of numbers and service intervals, which range from 02 to 10 minutes (DTB, 2020), as detailed in table 3.



**Figure 3: Modes of Transport Used Daily by the Students (Source: authors)**

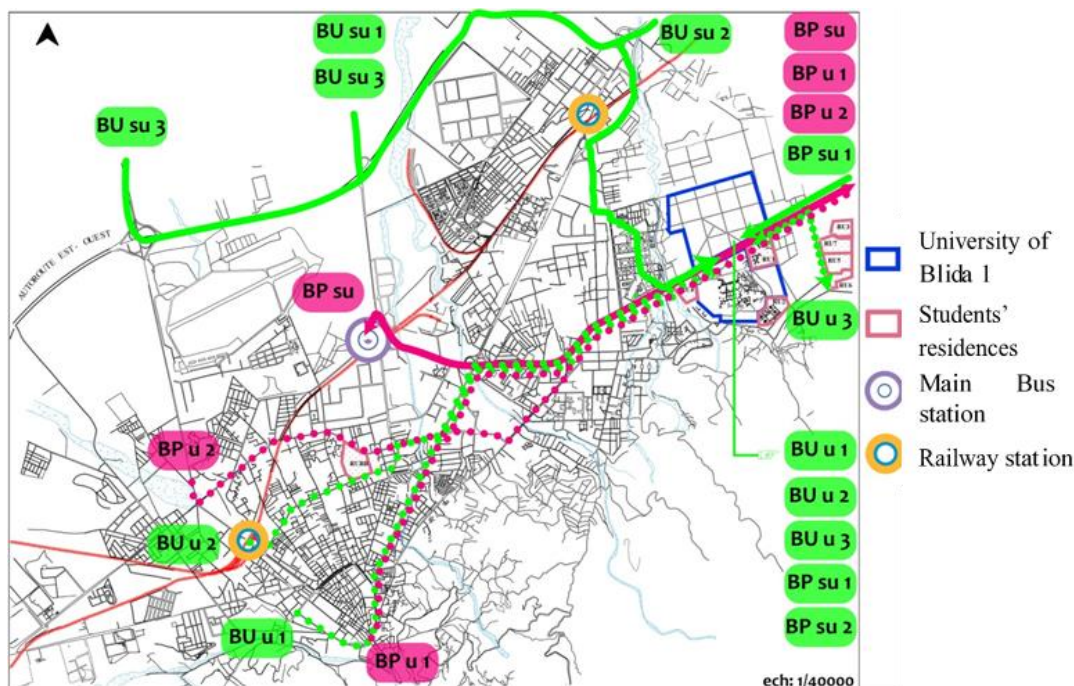
It should be noted that for university buses, students benefit from a symbolic annual subscription (attractive cost) and a large number of services (23 lines) (table 3 and figure 4). On a suburban scale (BU<sub>su</sub>), this offer makes it possible to serve areas lacking in multi-modality, i.e. the wilaya of Tipaza and the eastern suburbs of the wilaya of Blida. However, the 06 urban lines (BU<sub>u</sub>), which are no more than 2 km long, do not encourage the development of active modes of transport (cycling, walking, etc.), which are nonetheless better adapted.

**Table 3. Urban and Suburban Public, Private and University Bus Routes Serving Blida 1 University**

Service Type	Line Type	Starting Point	Arrival Point	Number of Buses	Number of Rotations
Public	Urban (3 lines)	Bâb El Rahba	Univ-Blida1	3	/
			Univ-Blida1	6	
			Soumaa	4	
		Zabana	Soumaa	61	
		Blida bus station	Guerouaou	14	
Total				88	
Private	Suburban (8 lines)	Blida bus station	Bougara	41	/
			Bouinan	7	
			Boufarik	55	
			Larabaa	69	
			Meftah	17	
			Hamam Melouane	10	
		Boufarik bus station	Univ-Blida 1	3	
Total				202	
University	Urban (6 lines)	R.U.S 03	Univ-Blida 1	62	3 to 8
		R.U.S 05			
		R.U.S 06			
		R.U.S 07			
		Blida railway station			
		R.U.BB			
	Suburban (17 lines)	Wilaya de Blida (6 lines): Meftah, Ouad Aleigue, Larbaa Bouinan, Bougara, Boufarik	Univ-Blida 1	141	2
		Wilaya d'Alger (1 line) : Douéra			
		Wilaya de Tipaza (10 lines): Hadjout, Hatatba, Chaaiba, Sidi Rached, Bousmail, Hameur Lain, Bourkika, Kolea, Fouka, Douaouda			
Total				203	

Source: synthesized by the authors based on data from the Blida Transport Department, 2020 + Blida University Works Department, 2021



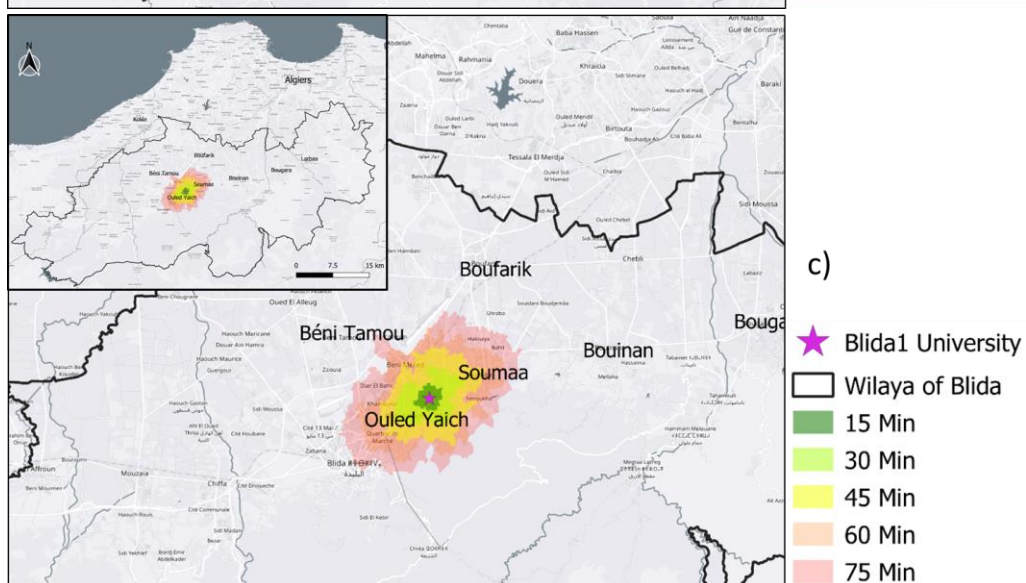
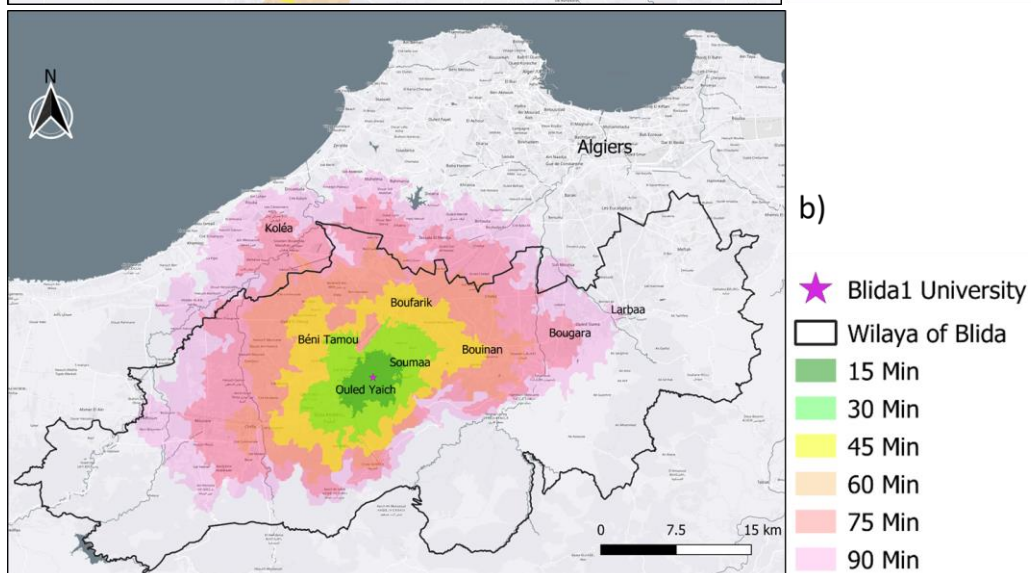
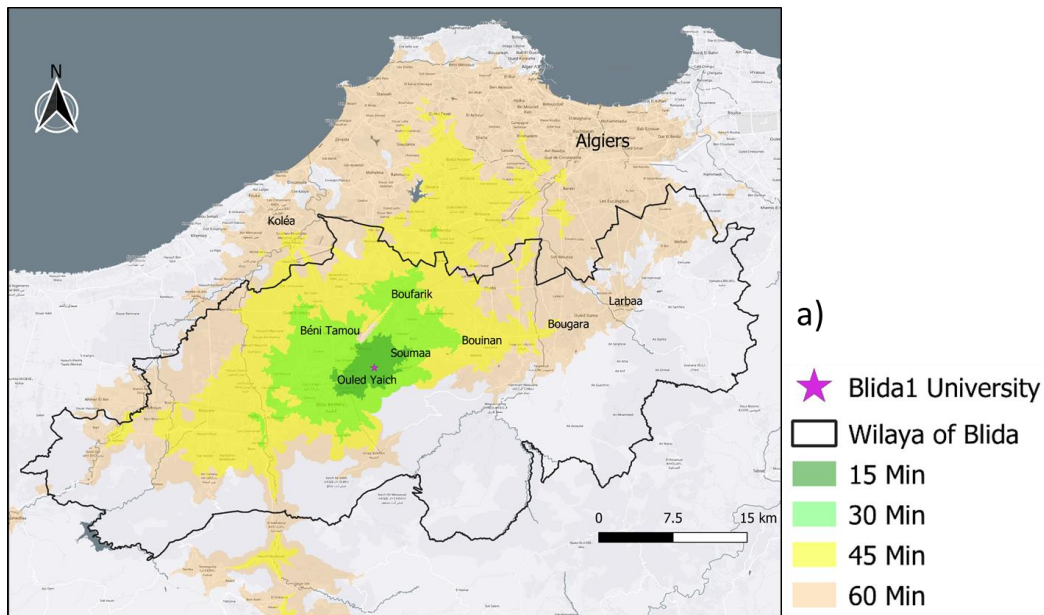


**Figure 4: different Bus services leading to Blida 1 University. Source: authors, 2022.**

Only 05% of students use the train to get to university. This very low rate is primarily due to the poor coverage of the central north-west region by rail lines, marked by the absence of a link with the wilaya of Tipaza and the discontinuation of the Blida-Médéa line in 1997 (deterioration in security conditions). At present, the only line carrying rail traffic in the region is the Algiers- Blida-Chlef line, with an average of 21 trains per day running on weekdays, with an average interval of 30 minutes (<http://www.sntf.dz>). The second reason for the low use of this mode is the remoteness of the stations. Blida center station is 7.3 km from the university, while Boufarik station is 9.6 km away. The lack of direct bus links between the university and the Béni Merad railway station, only 3.1 km away, also acts as a deterrent to using the train, which requires students to take a cab at an exorbitant cost (500 to 700 DA). In order to promote this sustainable mode of mobility, we need to strengthen the offer by diversifying lines and improving their spatial distribution, which will help to reduce the use of buses. But it also means consolidating rail station/university campus links, with regular connections to other modes of transport. In organizational terms, the performance of intermodality needs to be reviewed. Individual motorized vehicles represent the second most common mode of transportation used by students. The private car is used by 18% as a driver and 2% as a passenger, as the car-sharing culture is not yet well assimilated, despite the prevalence of numerous local mobile applications dedicated to this concept (MelyaGo, KAROS, nsogo). This high use of private motorized vehicles is mainly due to the weakness of the mobility offer towards Blida 1 University, in terms of intermodality and punctuality. This mode is clearly continuing to grow, not just locally but worldwide (Sajous & al, 2020, p 10), given its high potential for spatiotemporal accessibility (see section 3.1.3 below).

In terms of active modes of transport, walking accounts for just 8% of all trips to the university, and is mainly used by students living in halls of residence close to the campus (3 halls of residence are less than 500 m from the university). And although 03 other halls of residence are only 2 km from the university, students living in these halls of residence prefer to use the university bus for their journeys. This choice is explained by the lack of safe pedestrian and cycling facilities on the way to the university. Cycling is struggling to find its place among the usual modes of transport (0.1%), due to the absence of cycling facilities (paths, bike parks, bike shelters) both in the city and at the university. Active modes are only used when the distance between the place of residence and training is not significant, i.e. within a radius of 1 to 3 km around the university. To summarize, we can say that the choice of transport mode used by students is mainly influenced by their place of residence and the distance they travel each day. However, it is limited by the absence of multi-modality, intermodality and facilities adapted to soft mobility. The limited choice of mobility modes and the lack of intermodality are clear indications of the weakness of the local authorities' planning strategy, where nothing is done to improve the existing offer. In particular, there is a glaring territorial imbalance in terms of planning between metropolitan cities (such as Algiers), and those in its metropolitan area, including Blida. Algiers has an effective mobility strategy and a multimodal offer for students, in particular the connection of university campuses to the bus, metro, streetcar and train network, such as the Bâb Ezzouar university, which is directly accessible by these 4 modes.

**3.1.3. Spatio-temporal accessibility of the university and travel time:** Modeling the spatiotemporal accessibility of Blida 1 University (figure 5) according to three different modes of travel (car, bike and walking) largely explains the modal choice made by students in favor of the car (driver or passenger), which offers a large spatial expanse in a short time compared to other modes, notably buses. Figure 5a clearly shows the car's great potential for spatial and temporal accessibility from neighbouring wilayas, particularly Algiers, in just 60 minutes. Cycling is no less efficient than might be imagined, with a potential 45-minute journey time that easily covers the neighbouring communes surrounding the university. This suggests that cycling should be judiciously promoted not only for university journeys, but also for other purposes within Blida's communes.



**Figure 5: Spatio-temporal accessibility of the University of Blida 1 during rush hour (arrival time 08:30) on a working day (June 27, 2023): a) by car; b) by bicycle; c) walking (authors, 2023).**

In terms of average daily travel time from home to university and university to home, we note that 46% of students questioned took over an hour to get to university, and 25% took between 30 minutes and 01 hour. Only 29% of students take less than 30 minutes to get to their place of study. These are generally students living in university halls of residence and those living in neighboring towns, benefiting from a large public transport offer (bus). We note that one student in two spends more than an hour getting to the university, although this time is not always proportional to the distance travelled, given the frequent traffic jams on almost all the roads serving the university, particularly from the agglomerations of Larabaa, Meftah, Bougara and the new town of Bouinan (in the eastern part of the wilaya of Blida). For example, for a distance of 48 km between the university and the center of Algiers, it takes over an hour to make this journey by car or bus at peak times. This longer journey time is due to the lack of intermodal transport, marked by a weak suburban and regional rail network, limiting travel to motorized means on an already saturated road network. The implementation of an efficient and diversified intermodal mobility offer is the only alternative to this problem and a necessary condition for the sustainability of the transport system (Szyliowicz ,2003). For Baouni et al (2013, p 19), the implementation of an intermodal policy requires the satisfaction of two main objectives: on the one hand, the alternation between public transport and the private car, and on the other, between urban public transport (buses, cabs) and public transport on a larger scale (train, metro and tramway).

**3.1.4. Monetary costs of travel to and from university:** While travel time is closely linked to the modes of transport used, the choice of the latter is strongly conditioned by the cost of travel, particularly for low-income groups such as students. For 36% of respondents, the cost of daily transport varies between 0 and 50 DA (less than 30 euro cents). For 30% of them, it is between 50 and 100 DA (30 to 60 euro cents), and it is over 100 DA (over 60 euro cents) for 34% of respondents. These prices are highly dependent on the origin of the trip and the modes of transport used. However, the provision of symbolic fares for students' university bus and train passes is not enough to dethrone other modes of transport, notably the public bus and the car, which account for more than 50% of students' daily travel. These choices can be explained by the inadequacy or unsuitability of the spatial distribution of university bus routes, but also by the train's lack of connectivity to other modes.

The analysis of urban mobility practices among students at Blida 1 University based on the analysis of three parameters: (i) Travel time, (ii) Mobility mode and (iii) Travel cost, allows us to draw the following conclusions:

- Imposition of a single mobility mode (university bus and public bus), reflecting a lack of multi and intermodal services at urban and suburban level (the wilaya of Blida has no tramway, metro or exclusive right-of-way bus lines). This is also due

to the imbalance in territorial coverage by the various modes and their lack of connectivity.

- Lack of consideration for active modes of transport: Mobility planning strategies for Blida 1 University do not propose any concrete action to introduce active modes of transport (bike paths, pedestrian walkways, etc.) to reduce motorized trips from nearby student residence and neighboring districts and communes.
- Prevalence of cost over time and mode: when the student has a choice between several modes of transport (public bus, university bus, train, cab), it is the cost of the journey that is favored, often combining two modes of transport - one public (train or bus) and the other university (symbolic subscription) - when the journey is long.

### 3.2. Appreciation of existing urban mobility offer

The second objective of the survey was to assess the level of satisfaction with the existing mobility offer to Blida 1 University, and to identify the changes desired by users, with a view to defining actions to be taken to improve the mobility conditions available to the student community during their daily journeys to the university.

**3.2.1. Level of satisfaction:** Two parameters were explored in terms of satisfaction: (i) travel time, (ii) public and university bus services. Among students, only 38% of those questioned were satisfied with their daily home/university travel time, compared with 62% of those not satisfied. This dissatisfaction seems logical, given that 46% of them need more than an hour each day to get to their place of study. This time is conditioned in particular by the lack of urban mobility. Although students benefit from a state-subsidized annual season ticket (i.e. 0.94 euros/year) when using the university bus network, 80% of respondents were dissatisfied with the service. The same is true of the public bus service, with a level of dissatisfaction reaching 86%, given that this is the mode most used by students. These high levels of dissatisfaction are also reported in the case of Algiers by the survey on multi-modality in Algiers carried out in 2011, despite the existence of a multi-modal offer. This survey revealed a dissatisfaction rate that stood at 70% linked to the following reasons: the declining level of public transport service, the disorder of private operators, poor conditions of comfort, increasingly long waiting and journey times (Baouni et al, 2013). Almost similar rates were revealed by the survey conducted by Chettah (2021) in the town of El Khroub (Constantine). These rates clearly reveal the inadequacy of existing offers and their inability to meet the needs of their users.

**3.2.2. Deficiencies in the urban mobility offer:** The students questioned highlighted a number of shortcomings in the current urban mobility offer to Blida 1 University (table 3), which clearly contribute to its inefficiency. Firstly, the poor and irregular connections between the bus network (public and university) and other modes of mobility, notably the train. Secondly, the spatial inequity in the choice of service routes for the two bus services (public and university), revealing a real need for the development

of an intermodal offer that ensures spatial and modal equity in mobility towards the university campus. Lack of communication and difficulties in accessing data are strongly felt by users, who are marked by the absence of reliable information on timetables, travel times and punctuality. To remedy this, in October 2022 the Ministry of Higher Education and Scientific Research launched the MyBus application to enable students to quickly identify the locations of university buses (in real time), as well as to find out the approximate arrival time of the bus. This application is still at the experimental stage in the capital Algiers, and seems unattractive to students given its limitations (inability to search for routes and lack of precision). This reveals an archaic management of the mobility offer, in total opposition to new planning methods based on intelligent mobility solutions (ITS), involving operating and information support systems, traffic and public transport management systems, public transport safety tools and ticketing tools (<https://www.mobilite-intelligente.com>).

Users of both services (public and university buses) point to the lack of a suitable night-time mobility offer, which would enable students to continue their teaching activities beyond administrative hours. This problem is not specific to the University of Blida, but also affects other universities such as Constantine, where students have revealed the same concern (Chettah and Messaci, 2014). This requires the implementation of a flexible travel strategy adapted to their needs, ensuring them continuous access to training structures in complete safety and which would likewise participate in extending working hours at the university within laboratories, libraries...etc. (Chettah and Messaci, 2017). The last point raised concerns the lack of safety, comfort and cleanliness observed in public buses managed by private operators, as well as the dangerous driving of drivers. This finding was also raised in the study carried out by Chettah (2021) in the town of El Khroub (in eastern Algeria). The unreliability that characterizes the public bus offer in Blida and more generally throughout Algeria is due in particular to the non-qualification of private operators and their total ignorance of the regulations in force, as well as the failure to respect the lines allocated to them, contributing to the deficit in spatial coverage of conurbations (Chettah, 2021; Ramdini et al, 2016). Although the State has shown its renewed commitment to regulating local public transport, notably through the establishment of urban transport organizing authorities (AOTU), the latter have no regulatory powers and are confined to an executive and jurisdictional role (sanctions), thereby limiting their operational and decision-making scope.

**Table 3. Deficiencies in urban mobility to Blida 1 University (authors)**

Items	Failures/insufficiencies
Means	No direct link between Béni Merad railway station and Blida 1 University.
	Insufficient train frequency (one hour's delay before next train)
	No direct link between the new Blida bus station and Blida 1 University.
	Reduced number of routes (in some communes and from neighbouring wilayas), requiring significant travel time (on foot or by bus) to reach bus stops
Regulations	Saturation of public and university buses, which often carry less than their capacity
	Numerous stops along the various bus routes
Punctuality	Long stopping times at stations and bus stops (often in excess of 10 minutes)
	Lack of punctuality
	Unsuitable night-time travel options
	Travel time too long on public bus routes (urban and suburban) compared to the distance covered
Amenities	Public buses are considered uncomfortable, overcrowded, unsafe and unsuitable.
	Difficulty accessing information on bus schedules and timetables
Security	Dangerous driving by public and university bus drivers.
Equipment	No dedicated bicycle lanes
	Lack of bike and motorcycle shelters at the university
	No pedestrian walkways to Blida 1 University

#### 4. Recommendations

Analysis of the level of user satisfaction with the existing mobility offer to Blida 1 University, as well as the shortcomings raised by users, calls for an overhaul of mobility policy. This requires abandoning the top-down, centralized model of traditional transport planning, which gives no place to public participation in the planning decision-making process, and which fails to take account of the complexity of territories (Desjardins, 2008), in favor of shared urban governance involving the implementation of an open, partnership-based and innovative approach, which is intended to be sustainable in the long term (Lebreton and Beaucire, 2000). These orientations are confirmed by the conclusions of analyses carried out on 06 Mediterranean cities, including Algiers, as part of the Plan Bleu program, which identified weaknesses and trends in the organization of Algiers' mobility system. This led to the necessary orientation towards a sustainable mobility policy based in particular on : (i) an integrated urban planning/transportation approach; (ii) the creation of a multimodal network on a conurbation scale; and (iii) selective regulation of car use (Houpin, 2010). The materialization of such objectives has begun at the African level thanks to the multi-partner "Mobilise Your City" initiative, stemming from COP 21, implemented since

2017, to help developing African cities optimize their urban mobility system to be efficient, multimodal and sustainable, using the SUMP strategic planning tool (Helluin & al, 2018).

This overhaul is also based on integrating the travel needs of specific categories of users, notably the student community, by combining urban service rhythms and university rhythms for a better articulation of city times. This means introducing new digital technologies into urban mobility planning and management processes to ensure performance and efficiency. The real challenge is to establish a sustainable urban mobility policy (Curran, 2009) in the face of the lack of coordination in the formulation of master plans, which are closed and rapidly becoming obsolete in Africa (Helluin & al, 2018). It is then worthy to launch an approach that combines urban planning and transport and regenerates choices and strategies for long-term. The latter can should be based on the reduction of transport-related activities, the participation of all stakeholders in the transformation of transport models and systems, the development of alternative modes of mobility, the active involvement of users in fundamental changes to consumption habits (Bourdages and Champagne, 2012, Høyer, 1999; Wheeler, 2000; Banister, 2008; Gallez et al, 2013). For the specific case of Blida 1 University, urgent actions are required, such as:

- Introduce efficient multi-modal and intermodal transport by strengthening links (public bus/university bus/train) and a strategic study of bus routes to avoid overlapping, thereby reducing the use of individual and motorized transport.
- Adapting the mobility offer to the specific characteristics of the university environment by creating priority lines (direct links between the train station, the university and the multimodal hub) at peak times, and a night and weekend offer.
- Promote active mobility (pedestrians and cyclists), non-polluting mobility and exclusive right-of-way public transport (bus and streetcar) by adapting the network and facilities.
- Development of connected mobility, providing real-time access to traffic data, routes, timetables, trip simulation and car-sharing offers.
- Adoption of quality mobility, network modernization: introduction of punctuality, professionalism, safety and health conditions.
- Adoption of the "communauté tarifaire", i.e. the introduction of a single ticket for the entire network for the student and university community.

These various changes will have to be part of a global overhaul of joined planning and mobility policies. In the long term, this will enable sustainable, intelligent practices to become widespread.

## 5. Conclusion

The preponderant role played by urban mobility in the structuring of societies (Ascher, 1995), in shaping and transforming the urban environment, and in improving urban performance (Wenglenski, 2006) is fully confirmed by an exploration of the mobility practices of the student population at Blida 1 University, revealing a number of specific characteristics, particularly in terms of the behaviors to be taken into account when



organizing their travel and which are directly conditioned by the existing offer. Practices dominated by motorized (bus) and local travel within the wilaya itself, calling for the promotion of soft mobility modes, in particular walking and cycling, through the implementation of suitable facilities (Chettah, 2021), as well as the development of exclusive right-of-way public transport. The lack of a multi-modal offer leaves room for various organizational (punctuality, regularity, etc.), safety and hygiene problems, holding users hostage in the absence of alternatives. The very high levels of dissatisfaction expressed by students unequivocally confirm the inefficiency of this offer. The existing offer is thus inadequate, marked by the weakness of multimodal chains and its inability to respond effectively to the multiple and diverse needs of its various users, particularly the student community. The system's archaic management and organization do not meet any quality standards. Overhauling the current urban mobility offer means responding to students' ever-growing need for autonomy, and ensuring better network performance and access to real-time information to enable each user to control his or her own time and space. Today, the formulation of local urban mobility policies in the wilaya of Blida must take into account the needs of different categories of users, as well as the participation of the general public. Implementing such a policy requires a strategic, multimodal vision based on issues of efficiency, profitability and sustainability.

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