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Master's Thesis

Perceived Neighbourhood Walkability Assessment in a Small Urban Environment, a case study of Nové Butovice (Prague 13)

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DIPLOMA THESIS ASSIGNMENT

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Thesis title

Perceived Neighborhood Walkability Assessment in a Small Urban Environment, a case study of Nové Butovice (Prague 13)

Objectives of thesis

Over the last decade, there has been significant research conducted to determine what is a walkable city and why. Many of these studies emphasize the significance and importance of why a walkable neighborhood is necessary to achieving quality of life for its residents, and what are the many elements that influence this. Although the impact of the built environment upon walkable communities is discussed in great detail in the literature, much of these research have been limited to theoretical concepts and have not been carried out as one might expect in practice. As a result, planners and government agencies face a significant task in making these ideals a reality and establishing a healthy walkable state. Although people are aware of the benefits of walking, only a small percentage of them are able to practice it on a daily basis since our cities and neighborhoods are not currently favorable to walking. This is because less effort has been invested what exactly people need to have a walkable neighborhood; there is a significant gap between the literature and practical practices.

The purpose of this master thesis is to identify the principal factors affecting walkability from the viewpoint of the inhabitants of Nové Butovice in Stodůlky, Prague 13. This research aims to discover whether inhabitants' conception of factors affecting walkability complies with the factors identified in the literature as will be explored in a literature review.

Methodology

Numerous studies have examined the influencing parameters of walkability. This thesis research will employ a quantitative approach, based on a questionnaire survey as the analysis method.

Specifically, the questionnaire items will be factor-analyzed to explore the principal drivers that affect walkability from the viewpoint of the inhabitants of Nové Butovice. The methodology and sequence of analysis will be explained in this thesis, including the development of the questionnaire and the analysis of the data gathered. The intention will be to determine the most important factors of walkability in practice.

The proposed extent of the thesis

65 pages

Keywords

Walkability, user survey, sense of well being

Recommended information sources

Baobeid A, K. M.-G. (2021). Walkability and Its Relationships With Health, Sustainability, and Livability: Elements of Physical Environment and Evaluation Frameworks. Front Built Environ.

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Forsyth, A. (2015). What is a walkable place? The walkability debate in urban design. Urban Design International, 274-292.

Jaśkiewicz, M., Besta, T. (2014). Is Easy Access Related to Better Life? Walkability and Overlapping of Personal and Communal Identity as Predictors of Quality of Life. Applied Research Quality Life, 505–516.

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Author's Declaration:

I hereby declare that I have independently elaborated the diploma/final thesis with the topic of: "**Perceived Neighbourhood Walkability Assessment in a Small Urban Environment, a case study of Nové Butovice (Prague 13)**" and that I have cited all the information sources that I used in the thesis and that are also listed at the end of the thesis in the list of used information sources. I am aware that my diploma/final thesis is subject to Act No. 121/2000 Coll., on copyright, on rights related to copyright and on amendment of some acts, as amended by later regulations, particularly the provisions of Section 35(3) of the act on the use of the thesis. I am aware that by submitting the diploma/final thesis I agree with its publication under Act No. 111/1998 Coll., on universities and on the change and amendments of some acts, as amended, regardless of the result of its defence. With my own signature, I also declare that the electronic version is identical to the printed version and the data stated in the thesis has been processed in relation to the GDPR.

Mojtaba Khalili Baseri

In Prague on 26.03.2023

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Perceived Neighbourhood Walkability Assessment in a Small Urban Environment, a case study of Nové Butovice (Prague 13)

Abstract

The thesis explores the walkability of Nové Butovice in Prague and assesses locals' satisfaction with the pedestrian environment. It divides walkability into three categories based on findings in literature into physical, perceptual, and social components, emphasizing the importance of subjective experiences in addition to objective measurements. Surveys and field observations were used to analyse walking patterns, neighbourhood impressions, and demographic characteristics. The findings reveal diverse perspectives on infrastructure, safety, cleanliness, and aesthetics, with overall positive satisfaction among locals. At the end the study gives a few suggestions for improvement, such as improving visual aesthetics, managing safety concerns, and maintaining sidewalks. The study emphasizes the importance of considering local opinions into account when designing urban areas and making legislative decisions to improve pedestrian-friendly surroundings. Landscape architects, urban planners, and lawmakers can use the insights offered to prioritize community needs and improve the quality of life in Nové Butovice and the surrounding areas.

Keywords: walkability, perceived walkability, user survey, sense of wellbeing, urban environment, neighbouhood environment

Hodnocení vnímané pěší dostupnosti sousedství v malém městském prostředí, případová studie Nových Butovic (Praha 13)

Abstrakt

Práce studuje pěší dostupnost Nových Butovic v Praze a hodnotí spokojenost místních obyvatel s pěším prostředím. Na základě poznatků z literatury rozděluje pěší dostupnost do tří kategorií na fyzickou, percepční a sociální složku, přičemž kromě objektivních měření zdůrazňuje i význam subjektivních prožitků. K analýze vzorců chůze, dojmů ze sousedství a demografických charakteristik byly použity průzkumy a terénní pozorování. Zjištění odhalují různé pohledy na infrastrukturu, bezpečnost, čistotu a estetiku, přičemž místní obyvatelé jsou celkově pozitivně spokojeni. V závěru studie uvádí několik návrhů na zlepšení, jako je zlepšení vizuální estetiky, řešení bezpečnostních problémů a údržba chodníků. Studie zdůrazňuje, že je důležité zohledňovat názory místních obyvatel při navrhování městských oblastí a přijímání legislativních rozhodnutí s cílem zlepšit prostředí přívětivé pro chodce. Krajinní architekti, urbanisté a zákonodárci mohou využít nabízené poznatky k upřednostnění potřeb komunity a zlepšení kvality života v Nových Butovicích a okolí.

Klíčová slova: Klíčová slova: schůdnost, vnímaná schůdnost, průzkum mezi uživateli, pocit pohody, městské prostředí, sousedské prostředí.

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1. Introduction

In the present day, more than half of the global population resides in urban areas, and it is projected that urbanization will continue to expand across all regions in the coming decades. By the year 2050, approximately 66 percent of the world's population is anticipated to live in cities and substantial urban clusters.

This ongoing urbanization trend necessitates institutions to enhance their effectiveness in the design and planning of cities, aiming to enhance the well-being of their inhabitants. Moreover, the recent phenomenon of extensive tourism. further complicates the responsibilities of city managers. This is due to the growing demand for services catering to visitors and the challenging-to-predict impacts of the significant tourist influx on urban infrastructures during large-scale events and exhibitions *(Figure 1)*.

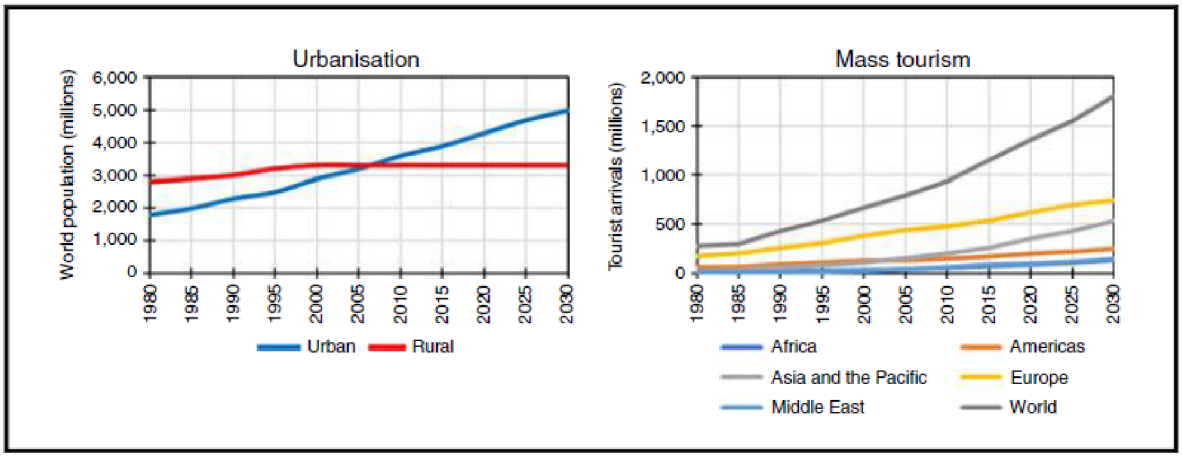

Figure 1- The demographic trends related to the global urbanization (United nation,2014) and mass tourism phenomena (UNWTO, 2017)

Walking is a sustainable commute mode, and walkability is considered an essential sign of sustainable mobility. Despite the abundance of assessment tools designed to measure walkability around the globe, a comprehensive method to evaluate these tools based on pedestrian needs is lacking. This ensures critical walking requirements aren't overlooked.

1.1. Problem Statement

Over the last decade, there has been a lot of research done on "walkability." These studies emphasize the significance of walkability and identify many elements that influence it. Theories like New Urbanism and Smart Codes explore how the built environment shapes walkable communities. However, it has been continuously shown that these thoughts and knowledge have been limited to theoretical concepts and have not been carried out to an expected degree in practice. As a result, planners and government agencies face a significant task in making these ideals a reality and establishing a healthy walkable state. Although people are aware of the benefits of walking, only a small percentage of them are able to practice it on a daily basis since our cities and neighborhoods are not currently favorable to walking. This is because less effort has been invested into making neighborhoods walkable. There is a significant gap between the literature and practical practices. Many localities focus solely on wide walking paths to promote themselves as "walkable communities," neglecting other crucial elements for walkability identified by research. These elements include density, urban form, land use, building design, open spaces, streetscapes, and safety. This study will examine relevant literature to establish a comprehensive understanding of walkability.

1.2. Objectives

Over the last decade, there has been significant research conducted to determine what is a walkable city and why. Many of these studies emphasize the significance and importance of why a walkable neighborhood is necessary to achieving quality of life for its residents, and what are the many elements that influence this. Although the impact of the built environment upon walkable communities is discussed in great detail in the literature, much of this research have been limited to theoretical concepts and have not been carried out as one might expect in practice. As a result, planners and government agencies face a significant task in making these ideals a reality and establishing a healthy walkable state. Although people are aware of the benefits of walking, only a small percentage of them are able to practice it on a daily basis since our cities and neighborhoods are not currently

favorable to walking. This is because less effort has been invested what exactly people need to have a walkable neighborhood; there is a significant gap between the literature and practical practices. The purpose of this master thesis is to identify the principal factors affecting walkability from the viewpoint of the inhabitants of Nové Butovice in Stodůlky, Prague 13. This research aims to discover whether inhabitants' conception of factors affecting walkability complies with the factors identified in the literature as will be explored in a literature review.

2. Literature Review

2.1. What is walkability?

The walkability of a location is a terminology used to measure of how conducive a place is to walking. It considers things like the presence of footpaths, sidewalks, and other pedestrian rights-of-way, street connectivity, land use patterns, building accessibility, and safety (Wang & Yang, 2019).

The term "walkability" applies to how flexible, suitable, or secure a location is for pedestrian movement. It measures the friendliness or perhaps the accessibility of the built environment to people who live, shop, explore, rest, or participate in activities in a certain location (Wang & Yang, 2019). The concept of walkability comes from the belief that urban spaces should be more than just transportation corridors planned for maximum car throughput. They should instead be appropriately full livable environments that serve a variety of uses, users, and transit modes, reducing the demand for cars for travel (Gorrini & Bertini, 2018) . The presence or absence and quality of pathways, sidewalks, or other pedestrian rights-of-way, traffic and road conditions, land use patterns, building accessibility, and safety are all factors that influence walkability. Because of its health, economic, and environmental benefits, walkability has grown in popularity in recent years. It is a fundamental notion in the creation of sustainable cities, which we will mention later.

Table 1- Definition of Walkability (Khabiri et al., 2020)

Reference	Year	Definition
Seilo	2004	A measure of the urban form and the quality and availability of pedestrian infrastructure within a defined area.
Southworth	2005	The ability of the place to connect people with varied destinations within a reasonable amount of time and effort, and to offer visual interest in journeys throughout the network.
Abley	2005	The extent to which the built environment is walking friendly.
Steve	2005	The extent to which walking is readily available as safe, connected, accessible, and pleasant mode of transport.
Leslie et al.	2007	The extent to which characteristics of the built environment and land use may or may not be conductive to residents in the area walking for either leisure, exercise or recreation, to access services, or to travel to work.
Nosal	2009	The extent to which the built environment is friendly to the presence of people living, shopping, visiting, enjoying or spending time in an area.
American Planning Association	2010	A place in which residents of all ages and abilities feel that it is safe, comfortable, convenient, efficient, and welcoming to walk, not only for recreation but also for utility and transportation.
Litman	2011	The quality of walking conditions in an urban space which is inclusive of comfort, safety, connectedness and permeability (inclusiveness of neighborhood design).
Un-Habitat	2015	The extent to which the built environment is friendly to people moving on foot in an area.

Other researchers have broadened this definition to encompass the extent of support for walking provided by the urban environment and an evaluation of pedestrians' experiences within that setting (Blečić et al., 2020). This broader definition emphasizes that walkability is not just about the physical infrastructure but also takes into account the social and experiential aspects of walking in an urban environment (Blečić et al., 2020). Other studies expanded this definition to include the level of support for walking supplied by the urban environment, as well as an assessment of walkers' experiences within that context.

2.2. Factors of Walkability

Taking into consideration the conceptual categorizations, the following families of characteristics were identified:

- Efficiency and comfort;
- Safety security and certainty;
- Pleasantness;
- Attractiveness.

Ivan Blecic and colleagues believe that these summarized the environmental aspects at different scales that most influence the susceptibility of urban space to be walked, and, more importantly, to enhance the potential of the built environment to enable the majority of people to effectively "use" the city and its opportunities, beginning with people's (differential) individual abilities (Blečić et al., 2020). In Table 1, presented a description of the primary characteristics evaluated for each family, as well as some instances of the most commonly used indicators discovered in the literature, along with their associated references.

Table 2- Factors of walkability (Blečić et al., 2020)

Family	Description	Examples of Factors/Indicators
Efficiency & Comfort	Designed to evaluate an urban space's walkability, this metric takes into account both the physical features that make walking convenient and those that create obstacles.	Travel costs can be measured by factors including distance, time, route directness and continuity, path slope, sidewalk width, presence of shelters and shade, crossing safety, street lighting, pavement maintenance, signage and information, accessibility by various transportation modes, frequency of public transit, and availability of parking.
Safety, Security, Certainty	The relationship between pedestrian exposure to traffic risk, including factors that create conflicts or hinder safe passage versus those that provide protection, and the sense of security and certainty conveyed by the urban environment.	Car traffic volume, design speed of the route, on-street parking, geometry of crossings and facilities for pedestrians at crossings, coexistence or conflicts with other modes (including separation features, traffic calming measures, surface texture, and signalization), transparency and permeability of the built environment, presence and type of activities, hours of operation, street lighting, landmarks, crime/police presence, urban space maintenance, cleanliness, pedestrian activity, and natural surveillance all contribute to the character of a place
Pleasantness	Sense of place and “vibrant atmosphere” infused by urban space which encourage pedestrian to spend time in.	Site atmosphere, aesthetics of places, architectural and landscape design, scenery, cleanliness, pedestrian activity, noise level, transparency and permeability of the built environment, and urban texture
Attractiveness	Presence, type and level of urban opportunities and services achievable and reachable by foot.	Number, Density, Size, Diversity (land use mix, entropy index), Hours of operation, Frequency of service

This system for classifying things into four groups is based on the types of measurements typically used in evaluation (Blečić et al., 2020). Therefore, "efficiency and comfort" are encompassed by topological characteristics of the road network and spatial qualities that contribute to physical ease; "safety, security, and certainty" refer to perceptible and

physically measurable attributes of the walked environment that affect people's perception of being protected from traffic and crime and of being walking in the right direction; "pleasantness" relates to the sense of enjoyment and satisfaction transmitted by the urban-design qualities people experience while walking; and, finally, "attractiveness" refers to the land use patterns and to the number, class, and location of urban attractors and opportunities (Blečić et al., 2020).

2.3. Main types of walkability

2.3.1. **Physical walkability:**

This refers to the physical characteristics of a place, such as the presence of sidewalks, crosswalks, and bike lanes (Forsyth, 2015). Physical walkability is an important aspect of creating a pedestrian-friendly environment, as it provides the necessary infrastructure for individuals to engage in walking and other forms of active transportation (Molaei et al., 2021). These include things like:

- Sidewalks that are free of obstacles and in good repair,
- Crosswalks that are well-marked and easy to cross,
- Bike lanes that are protected from traffic,
- Traffic calming measures such as speed bumps and roundabouts that make it safer to cross the street,
- Street lighting that makes it safe to walk at night, Shade trees that provide relief from the sun (Amanda Leahy et al., n.d.)

There are a number of ways to measure physical walkability. One common approach is to use a walkability checklist for assessing the existence of specific characteristics, such as sidewalks, crosswalks, and traffic calming measures. Another approach is to use geographic information systems (GIS) to map the physical characteristics of a neighborhood, such as the width of sidewalks and the distance to the nearest park (Knapskog et al., 2019).

Here are some specific things that can be done to improve physical walkability:

- Add sidewalks and crosswalks where they are missing.
- Repair sidewalks that are in poor condition.
- Install traffic calming measures, such as speed bumps and roundabouts, to reduce traffic speeds and make it safer to cross the street.
- Add street lighting to improve safety at night.
- Plant shade trees to provide relief from the sun.
- Make sure that all streets are accessible to people with disabilities (Daniel Castro, 2020).

2.3.2. **Perceived walkability:**

This refers to how people feel about walking in a place, such as how safe and comfortable they feel. Perceived walkability plays a significant role in determining whether individuals choose to walk or use alternative modes of transportation (Saadi et al., 2022). It is influenced by a variety of factors, including the physical characteristics of the environment, such as the presence of sidewalks and crosswalks, the safety of the area, and the overall aesthetics (Westenhöfer et al., 2023) . However, perceived walkability is also influenced by individual factors, such as a person's age, health, and preferences. Research has shown that perceived walkability is a strong predictor of walking behavior (Tobin et al., 2022) . People who perceive their neighborhoods as being walkable are more likely to walk, even after controlling for other factors such as income and access to a car. This is because perceived walkability reflects the subjective experience of walking, which is likely to be a more important determinant of behavior than objective measures of walkability (Carson et al., 2023)

Here are some specific things that can be done to improve perceived walkability:

- Make it easier and safer for people to walk by adding sidewalks, crosswalks, and other pedestrian infrastructure.
- Reduce traffic speeds and make streets more pedestrian-friendly.
- Create and improve public spaces, such as parks, plazas, and pedestrian malls.
- Add street furniture, such as benches, tables, and chairs, to provide places for people to sit and relax.

- Improve the aesthetics of neighborhoods by planting trees, adding flowers, and reducing graffiti and litter (Saadi et al., 2022).

2.3.3. **Social walkability:**

This refers to the opportunities people have to interact with others while walking, such as the presence of parks, plazas, and cafes (Singh, 2016). Social walkability is a term used to describe the way that the built environment can promote social interaction and community building. It is related to the concept of walkability, which is a measure of how easy and safe it is to walk around a neighborhood (Bozovic et al., 2020). social walkability goes beyond simply considering the physical characteristics of a place, such as the presence of sidewalks and crosswalks. It also takes into account factors such as the mix of land uses, the design of public spaces, and the overall feel and atmosphere of a neighborhood (Glanz, 2011). Studies have shown that people who live in walkable neighborhoods are more likely to know their neighbors, participate in community activities, and feel a sense of belonging to their community (Jaśkiewicz & Besta, 2014), because walkable neighborhoods provide opportunities for people to interact with each other as they go about their daily lives. For example, people may greet their neighbors as they walk to work, stop to chat with someone while they are waiting for a bus, or meet up with friends for a walk around the park (Jaśkiewicz & Besta, 2014) . Social walkability is important for a number of reasons. It can help to reduce social isolation, improve mental and physical health, and foster a more vibrant and cohesive community (Baobeid et al., 2021). It is also important for creating equitable and inclusive neighborhoods, as it can help to ensure that everyone has access to the opportunity to walk and connect with others (Tobin et al., 2022)

Here are some specific examples of features that can contribute to social walkability: (Molaei et al., 2021)

- Mixed-use development: Neighborhoods with a mix of land uses, such as residential, commercial, and office space, provide more opportunities for people to interact with each other as they go about their daily lives.

- Public spaces: Well-designed public spaces, such as parks, plazas, and pedestrian malls, provide places for people to gather, socialize, and participate in activities.
- Street furniture: Street furniture, such as benches, tables, and chairs, provides places for people to sit and relax, and also encourages people to linger and interact with each other.
- Slow traffic: Streets with slow traffic and pedestrian-friendly features, such as raised crosswalks and narrow traffic lanes, make it safer and more comfortable for people to walk and interact with each other. These features help to create a sense of community and encourage social interaction in walkable neighborhoods.

All three types of walkability are essential for creating walkable communities but this study focused on Perceived walkability.

2.4. Walkability assessment criteria

Walkability assessment criteria are the factors that are considered when evaluating how easy and pleasant it is to walk in a particular place (Gorrini & Bertini, 2018). These criteria can be divided into two main categories: objective and subjective (Saadi et al., 2022). Different walkability assessment tools may weigh these criteria differently, depending on the specific purpose of the assessment. For example, an assessment tool focused on pedestrian safety might place more weight on factors such as traffic volume and speed, while an assessment tool focused on walkability for tourism might place more weight on factors such as aesthetics and sense of community.

2.4.1. **Objective criteria:**

These are factors that can be measured or observed directly, such as:

- **Street connectivity:** refers to the ease of movement and accessibility within a city or urban area. It encompasses factors such as the density of intersections, the presence of multiple routes, and how well streets are connected (Dalila & El-Kerdany, 2019). Walkable cities should have a well-connected network of streets that allow

pedestrians to navigate from one destination to another using various routes easily (Molaei et al., 2021).

- **Pedestrian infrastructure:** The physical features that facilitate walking, such as sidewalks, crosswalks, and pedestrian bridges, are referred to as pedestrian infrastructure (Talen & Koschinsky, 2013). Adequate pedestrian infrastructure is required for cities to be walkable. Sidewalks should be wide enough and in good repair to accommodate people comfortably and safely. Crosswalks should be properly marked and well-lit, as well as positioned in safe and convenient areas (Talen & Koschinsky, 2013). Pedestrian bridges should be designed so that they are accessible to all users and provide a safe and enjoyable walking experience (Talen & Koschinsky, 2013).
- **Land use mix:** refers to the variety of uses that are present in an area. Walkable cities should have a mix of uses, including residential, commercial, and recreational (Talen & Koschinsky, 2013). This variety helps to create a vibrant and active streetscape that is attractive to pedestrians. Residential areas provide housing for residents, commercial establishments provide goods and services, and recreational spaces provide opportunities for exercise and relaxation (Singh, 2016).
- **Traffic volume and speed:** The volume and pace of traffic can have a substantial impact on a city's walkability. High traffic volumes can make crossing roadways and sidewalks difficult and dangerous for pedestrians (Molaei et al., 2021). High traffic speeds can make pedestrians feel intimidated and fearful, and they might make it difficult to hear and see approaching automobiles. Traffic calming measures, such as speed bumps, pedestrian-only streets, and decreased traffic lanes, should be implemented in walkable cities (Molaei et al., 2021).

2.4.2. **Subjective criteria:**

Subjective criteria are factors that are perceived by pedestrians and cannot be objectively measured. They are based on individual opinions and preferences and can vary depending on a variety of factors, such as age, culture, and personal experiences (Singh, 2016).

- **Aesthetics**: is the visual attraction of a space. Pedestrians are more likely to walk in areas that are visually appealing to them (Tabatabaee et al., 2021). This means that the neighborhood should be well-kept, with clean walkways, appealing landscaping, and fascinating architecture. Because aesthetics is a matter of personal preference, there is no one-size-fits-all strategy for producing an aesthetically pleasant workplace (Deng et al., 2020).
- **Comfort**: The physical comfort of pedestrians is referred to as comfort. This includes things like sidewalk width, surface smoothness, and the availability of shade and seating. Pedestrians are more inclined to stroll in an area that they find comfortable, hence it is critical to maintain walkways and other pedestrian infrastructure (Singh, 2016).
- **Orientation**: - Orientation refers to the ease with which one can find one's way around a region. This includes factors such as the clarity of signposts, the existence of landmarks, and the availability of maps and other navigation tools. Because pedestrians prefer to walk in locations that are easy to navigate, it is vital to give clear and consistent navigational cues throughout the space (Talen & Koschinsky, 2013).
- **Safety and security:** Different walkability assessment tools may weigh these criteria differently, depending on the specific purpose of the assessment(Deng et al., 2020). For example, an assessment tool focused on pedestrian safety might place more weight on factors such as traffic volume and speed, while an assessment tool focused on walkability for tourism might place more weight on factors such as aesthetics and sense of community (Deng et al., 2020).

2.5. How is walkability measured?

Walkability can be measured using a variety of methods that have emerged from different fields of study (Molaei et al., 2021). These methods include audit tools, checklists, questionnaires, surveys, inventories, level-of-service scales such as the International Physical Activity Questionnaire, the Neighborhood Environment Walkability Scale, the Indicators of Accessibility and Attractiveness of Pedestrian Environments, Walk Score, and

direct field observations. Each of these methods uses a set of indicators to assess the walking environment and urban design-related factors (Tabatabaee et al., 2021). For example, field observations involve visually detecting spatial elements that affect pedestrian behavior in urban areas. Alternatively, audits and checklists involve conducting qualitative or quantitative assessments of different segments of streets to evaluate various aspects of walkability (Alves et al., 2020).

Table 3- Common tools and data sources for walkability measurements.

Tools	Example articles	Data sources	Advantages	Disadvantages
Walk Score	Carr, Dunsiger, and Marcus (2010) Carr, Dunsiger, and Marcus (2011) Duncan, Aldstadt, Whalen, Melly, and Gortmaker (2011)	GIS, questionnaire survey, department documents GIS, department documents GIS, survey by another project	Free, easy to use Quick proxy of neighborhood density and access to nearby amenities Convenient and inexpensive option for exploring the relationship between access to walkable amenities and health behaviors Confirming and extending the generalizability in multiple geographic locations and at multiple spatial scales	Limited capacity to include variables like crime, aesthetics, topography, and weather Limited capacity to consider variables contributing to total neighborhood walkability Spatio-temporal mismatches between the neighborhood walkability of GIS indicators and Walk Scores Limited number of case studies The adapted Walkability Index may generate different results on the association between walkability and physical activities
Walkability Index	Ellis et al. (2016)	GIS, case study, interviews	Adaptive use with customized input data, e.g., a road network replaced by a footpath network	Lack of the integration of green factors/spaces with the analysis of route paths in the GIS arena
Other models	Lwin and Murayama (2011) Cubukcu, Hepguzel, Onder, and Tumer (2015)	GIS	Enabling users to evaluate the environmental quality of a neighbourhood, find the nearest facilities accessible on foot, and choose an ecofriendly place to live Be able to measure walkability of street segments Be able to develop walkability maps	Fail to utilize data collected via street audits (presence of sidewalks, traffic safety, environmental aesthetics, etc.) Unsatisfactory accuracy of walkability maps

Additionally, surveys and questionnaires are used to collect data on individuals' perceptions and experiences related to walking mobility. These measurement methods aim to assess the pedestrian-friendliness of urban environments and provide valuable insights into the strengths and weaknesses of these areas. Furthermore, the use of GIS tools has become increasingly prevalent in measuring walkability (Alves et al., 2020)

2.6. What is an urban environment?

An urban environment refers to the characteristics, infrastructure, and conditions of a city or town It includes the physical, social, economic, and cultural aspects of densely inhabited locations (Poulopoulos & Inglezakis, 2016). Urban environments are complex systems that consist of abiotic, biotic, and human components. These components include physical elements such as buildings, roads, parks, and water systems, as well as living organisms like plants, animals, and humans (Verma et al., n.d.). In addition to being areas where anthropogenic activities are concentrated, urban environments are also ecosystems that contain natural structures and systems and interact with cultural facilities (ÇİÇEK KURDOĞLU et al., 2022). High population density, various land uses, extensive transportation infrastructure, availability of amenities and services, and a sense of community are all characteristics of urban areas *(Lehmann, 2016)*. These characteristics create a unique environment that is different from rural areas and has a significant impact on the daily lives of individuals living in urban areas. Furthermore, the urban environment is shaped by the interactions and relationships among these components. Therefore, studying and analyzing the urban environment is important for understanding how these components interact and how they impact the overall quality of life in cities. These environmental variables cover different aspects of the urban built environment related to walkability *(Deng et al., 2020)*.

2.7. Urban environment and urban neighborhood?

In today's rapidly urbanizing world, studying the urban environment and urban neighborhoods plays a crucial role in understanding and improving the quality of life for city dwellers (Koohsari et al., 2023). The urban environment refers to the overall physical, social, and

economic characteristics of a city or urban area (Ma et al., 2023). It includes factors such as housing quality, level of urbanization, access to amenities, safety, environmental quality, and socioeconomic characteristics (Ma et al., 2023).

On the other hand, urban neighborhoods refer to specific areas within the urban environment that are characterized by their residential nature and community feel. These neighborhoods can include a variety of features such as squares, green spaces, or parks which provide socio-economic, environmental, and ecological benefits to the city (Singh, 2016). The development of quality open outdoor environments in these neighborhoods is essential for promoting healthy urban living and encouraging more people to use these spaces. Urban space design plays an important role in achieving this ultimate goal (Singh, 2016).

The urban environment has a significant impact on the quality of life in urban neighborhoods. For example, well-maintained streets and parks can make a neighborhood more attractive and livable. Conversely, crime and pollution can make a neighborhood feel unsafe and unhealthy.

In summary, the urban environment encompasses the overall characteristics of a city or urban area, while urban neighborhoods are specific, localized areas within that environment where people live and interact *(Talen & Koschinsky, 2013)*.

2.8. Understanding and Importance of walkability in urban environments

With the growing urban population and the pressing need for more sustainable forms of transportation, walkability has emerged as a critical factor in urban planning. Walkability plays a crucial role in urban development as it promotes sustainable transportation, enhances public health, fosters social interaction, and creates vibrant and livable communities (Baobeid et al., 2021). As mentioned previously, according to research, walkability is not only about the physical infrastructure of sidewalks and pedestrian crossings but also encompasses factors such as perceived friendliness, aesthetics, and safety of urban space (Wang & Yang, 2019).

Improving walkability in urban areas can have numerous environmental and social secondary benefits. Firstly, promoting walkability in urban areas can contribute to the reduction of air and noise pollution by encouraging people to walk instead of using cars or other motorized vehicles, the emission of pollutants decreases, resulting in better air quality and a healthier environment *(Westenhöfer et al., 2023)*. Secondly, walkability can improve public health. Research has consistently shown that increased walking and physical activity have numerous health benefits, such as a reduced risk of chronic diseases like obesity, diabetes, and cardiovascular disorders. Encouraging pedestrian-friendly urban environments not only promotes active lifestyles but also contributes to overall community well-being *(Su et al., 2017)*. Furthermore, walkability in urban development fosters social interaction and creates vibrant communities *(Su et al., 2017)*. By providing safe and accessible pedestrian infrastructure, urban areas become more conducive to social interactions between residents. Citizens can have the opportunity to interact with each other while walking or engaging in activities in pedestrian-friendly spaces *(Baobeid et al., 2021).*

3. Methodology

3.1. Methodology introduction

Numerous studies have examined the influencing parameters of walkability. This study uses a quantitative approach, based on a questionnaire survey as the analysis method. This survey method is widely used and effective in walkability investigations. The questionnaire was based on questions meant for the general public. It intended to survey the opinions of people on walkability in their neighborhoods based on what was mentioned in the literature review.

The methods that are used are quantitative analysis and observation. Firstly, the overall methodological design will be explained. Secondly, the Study Site will be outlined. Thirdly, an overview of the different phases of the proposed research will be given.

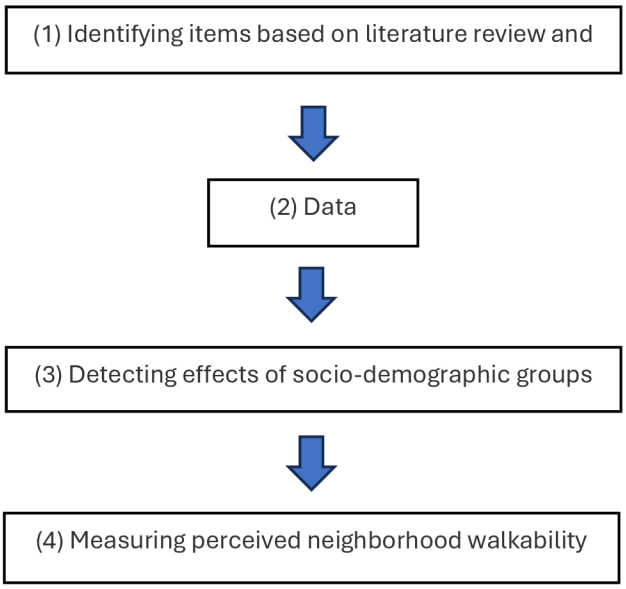

Figure 2- Overview of the assessment framework

3.2. Study Site

The study area for this thesis is Nové Butovice, which is located in the cadastral territory of Stodůlky, Prague 13. They got their name from the old village of Butovice, which is located east of the settlement. The name Butovice is derived from the personal name Buta. The first written mention of Butovice comes from the charter of the Vyšehrad collegiate chapter from 1088. At that time, one part of the Vyšehrad Chapter belonged to the village and the other part to the Czech monarch (at that time Vratislav II.). During the 15th century, Butovice came under the ownership of the Old Town of Prague.

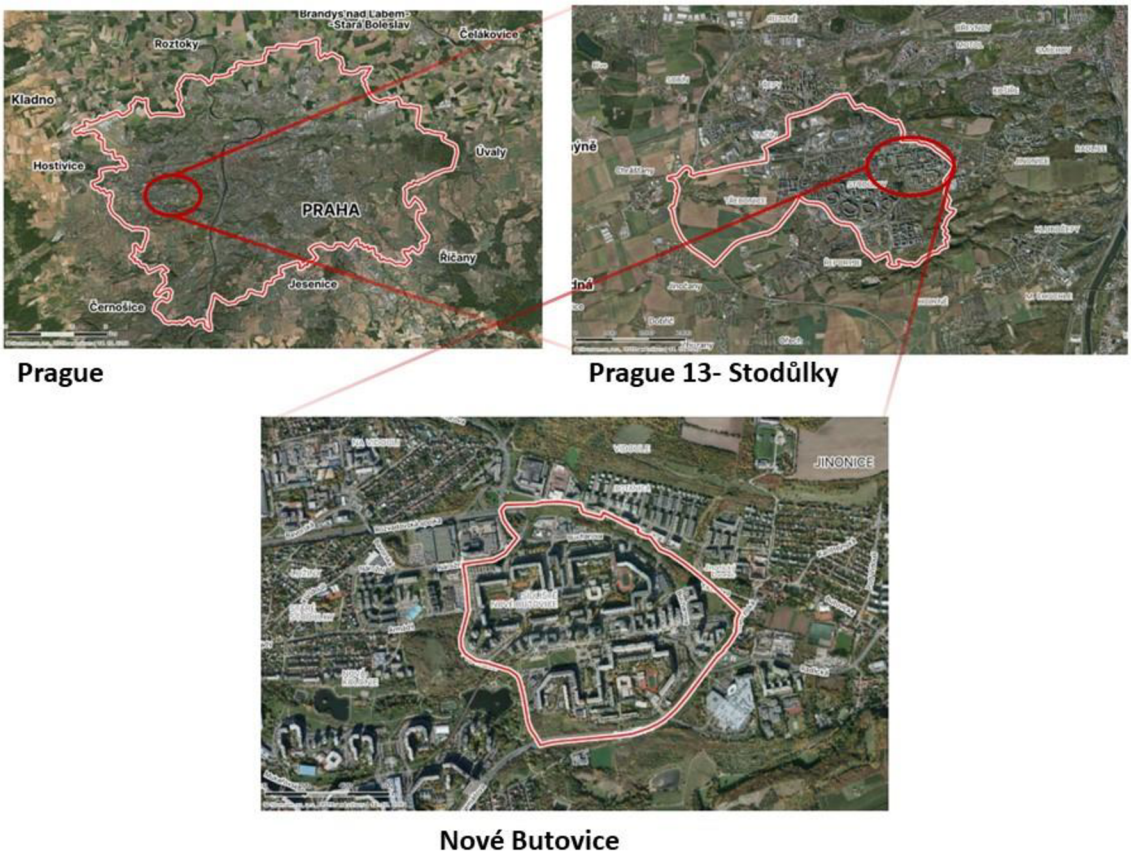

Figure 3- Case of interest, Prague, The Czech Republic. *(*Mapy.Cz*, 2023)*

. In 1890, there were 96 houses in Butovice. In 1922, Jinonice was annexed to Prague and, together with Butovice, had 257 descriptive numbers, which were inhabited by 2,294 inhabitants, who either worked in agriculture or went to work in Prague and its surroundings *(Kostely, n.d.)*. At the beginning of the 21st century, Nové Butovice experienced a significant change. The housing estate is separated from the old development by the four-lane Bucharová street. Two metro stations (Hůrka and Nové Butovice) belong to the main transport hubs of the housing estate. The metro line forms the natural axis of the housing estate *(Butovice (Praha) – Wikipedie, n.d.).* At Nové Butovice station there is a terminal for city bus transport and stops for regional bus lines. Other four-lane roads that bypass the entire JZM ensure the availability of bus transport as well as individual car transport to more distant places *(Praha 5 – Wikipedie, n.d.)*.

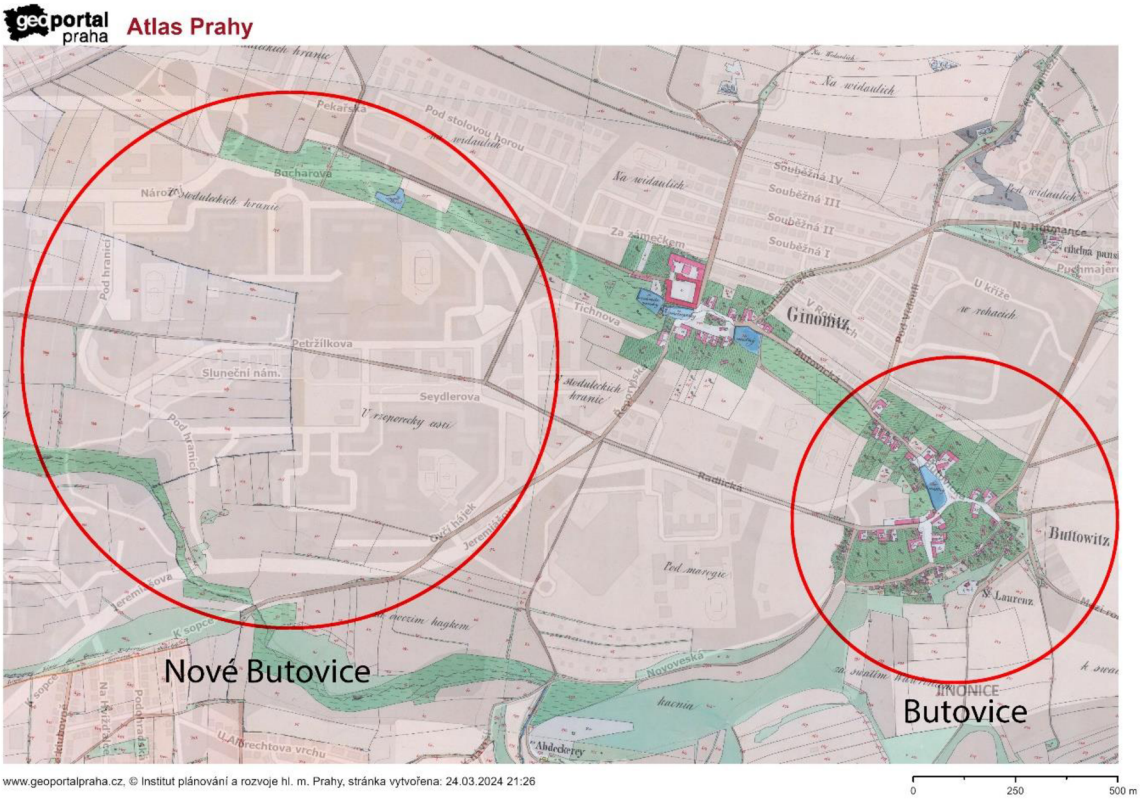

*Figure 4- Location of Nové Butovice relative to old Butovice village. (*Geoportal Prague*, n.d.)*

The site is part of the South West Town, designed in 1968. The development is characterized by the joining of houses into organically shaped blocks which, despite their size, respect the morphology of the area. The construction of Nové Butovice started as the last of the entire South-Western Town. The main compositional axis of the urban complex is the central pedestrian promenade, which was built in the original design with important civic amenities, eventually mostly administrative buildings, and residential buildings.(IPR, 2020)

*Figure 5- Aerial view. southwest to northeast. (*Mapy.Cz*, 2023)*

*Figure 6- Aerial view. northwest to southeast (*Mapy.Cz*, 2023)*

*Figure 7- Aerial view. Northeast to southwest. (*Mapy.Cz*, 2023)*

*Figure 8- Aerial view. South to North(*Mapy.Cz*, 2023)*

The main axis is complemented by two perpendicular compositional axes, the southern of which forms the central space - Sluneční náměstí. The public spaces are mainly made up of open-air parks. The development is made up of slab houses clustered in large-scale blocks, with amenity areas within the blocks. The development around the central promenade is varied. The height level of the development is characterized by a contrast of low-rise amenity buildings and tall residential buildings. The significant center of gravity of the locality is located in the vicinity of the Nove Butovice and Hurka metro

stations, and Petržílkova and Pod Hranicí streets are also important public spaces. Two strategically located areas in the locality show a low level of stability and a high level of potential and are intended for transformation.(IPR, 2020). Figure 5 to Figure 8 , provide a variety of aerial perspectives for a better understanding of the site layout.

Pedestrians crossing urban surroundings may come across areas with a high degree of physical similarity. This translates to extended exposure to monotonous streetscapes with few varied architectural forms. (In simpler terms, you might walk for a long time and see the same types of buildings over and over.) (*The Diverse Prague*, n.d.) *(Figure 9)*

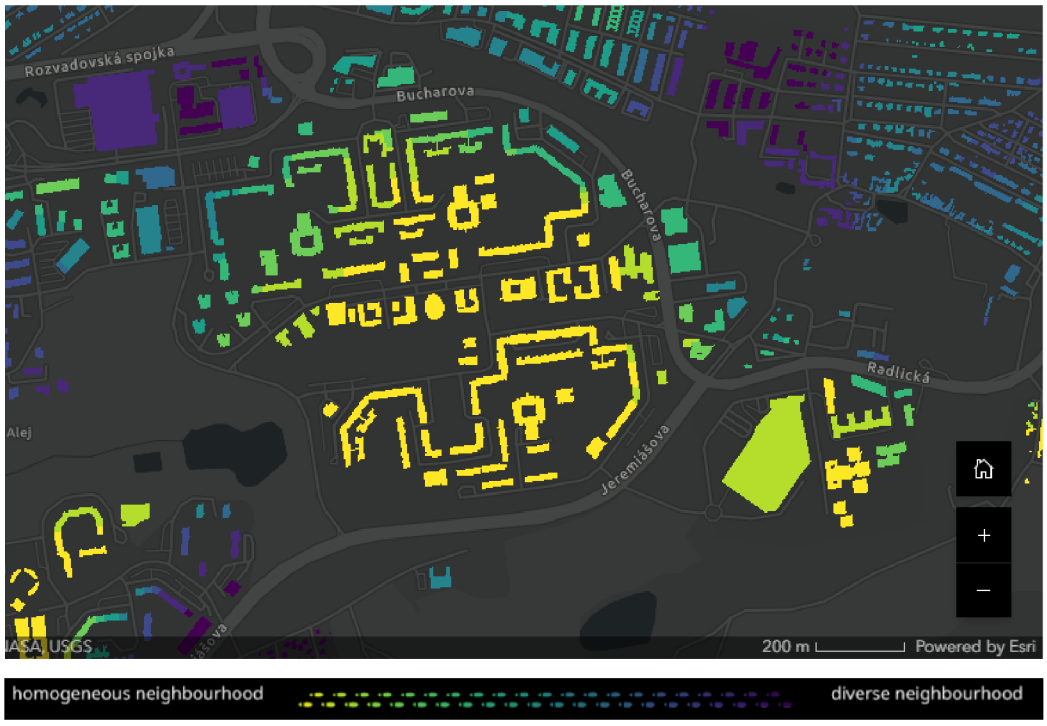

Figure 9- Map of pedestrians' perspective on neighborhood homogeneity in Nové Butovice (The Diverse Prague, n.d.).

3.3. Questionnaire structure

Based on the walkability assessment criteria mentioned in the literature review and considering the approach of the study, the following criteria were selected for each Objective and Subjective criterion. The questionnaire's structure is based on these principles.

Table 4- The main criteria for the questionnaire

Objective criteria	Subjective criteria
Pedestrian Infrastructure	Visual aesthetics
landscape and nature-related features	Safety
Land use mix	Cleanliness

The survey aims to evaluate how walkable the neighborhood of Nové Butovice in Stodůlky, Prague 13 is from the perspective of people who live there. When considering their daily tasks such as commuting to work, shopping for personal needs, and enjoying leisure activities, the author asked them to consider how easy or difficult it might be to get access to the life-needs described above.

The questionnaire consists of three parts, including an introduction explaining the purpose of the study, instructions for filling out the questionnaire, and the questions themselves. 42 questions in total. The survey includes two types of questions: one or multiple-choice questions and rating questions. The first section is about general questions like gender and educations. Following that, questions about Land use mix, how accessible facilities are, and how frequently people utilize such places. Following that, for each criterion, some questions were provided, with responses ranging from 1 to 5. Finally, people's opinions were questioned about how pleasant the neighborhood is for walking. The full questionnaire is included below.

The purpose of questions 01 to 06 is to collect general and socio-demographic data on respondents; regarding gender, age, highest level of education, duration of residing in the area *(Figure 10).* Questions 7 and 8 attempts to determine the accessibility of facilities in the

neighborhood *(Figure 10).* Question 9 is about the most significant obstacles that prevent people from walking *(Figure 10)*. Questions 10-14 focus on cleanliness and how inhabitants think that their neighborhood is clean *(Figure 11*Figure 11*)*. The next questions 15-19 are on the visual aesthetics of the neighborhood, people's perceptions of building architecture and facades, neighborhood character, and identity, and determining their level of satisfaction *(Figure 11)*. Questions 20 to 24 aimed to find out about landscape and nature-related features and green spaces in the neighborhood and the level of residents' satisfaction with this category *(Figure 11)*. questions 25 to 29 focus on the impact of safety on how much it tends to be walkable *(Figure 11)*.

Questions 30 to 37 are designed to assess the resident's perceptions of neighborhood Pedestrian Infrastructure *(Figure 11 & Figure 12).* Final questions 38–42 concern the overall level of people's satisfaction with walking in their neighborhood in general. (*Figure 12)*.

To improve respondents' understanding of questions 10 to 42, the author indicated that the number 1 with a sad emoji represents a negative answer, similar to "Strongly disagree" or "Very Bad" or "Very Little." Conversely, the number 5 with a happy emoji signifies a positive answer, similar to "Strongly agree" or "Very Good" or "Very Much.

Survey About Walking in Your Neighborhood

This survey aims to measure and evaluate how walkable the neighborhood of Nové Butovice in Stodůlky, Prague 13 is from the perspective of people who live there. When considering your daily tasks such as commuting to work, shopping for personal needs, and enjoying leisure activities, we wish for you to consider how easy or difficult it might be to get access to the life-needs described above.

Questions:

01- What is your Gender?

- ☐ Male
- ☐ Female
- ☐ Prefer not to say

02- What is your Age?

- ☐ Less than18
- ☐ 18-26
- ☐ 27-45
- ☐ 46-60
- ☐ More than 60

03- What is your highest level of education?

- ☐ Less than high school diploma
- ☐ High school diploma or equivalent
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ PhD or equivalent

04- How long have you lived in Nové Butovice?

- ☐ Less than 1 year
- ☐ 1-3 years
- ☐ 4-5 years
- ☐ More than 5 years
  If more than 5 years, state how long _____.

05- On average, how much time do you spend walking in your neighborhood per day?

- ☐ Less than 5 minuets
- ☐ 05-10 minutes
- ☐ 11-15 minutes
- ☐ 16-20 minutes
- ☐ 21-25 minutes
- ☐ 26-30 minutes
- ☐ More than 30 minutes

06- What is the main purpose for your walks? (check all that apply)

- ☐ To go to work or school
- ☐ To go shopping
- ☐ For exercise or recreation
- ☐ To socialize

07- Which of the following are within 2 km (approx. 6 blocks) of your home? (check all that apply)

- ☐ Convenience store / small grocery store
- ☐ Supermarket
- ☐ Home improvement store
- ☐ Laundry
- ☐ Post Office
- ☐ Library
- ☐ Elementary school
- ☐ Other school
- ☐ Book store
- ☐ Takeout restaurants
- ☐ Sit Down restaurants
- ☐ Coffee Shop
- ☐ Bank
- ☐ Pharmacy / Drug Store
- ☐ Salon / Barber Shop
- ☐ Public transport
- ☐ Recreation center
- ☐ Gym or fitness center

08- Of those places checked in the previous question, which do you walk to on a regular basis? (check all that apply)

- ☐ Convenience store / small grocery store
- ☐ Supermarket
- ☐ Hardware store
- ☐ Laundry
- ☐ Post Office
- ☐ Library
- ☐ Elementary school
- ☐ Other school
- ☐ Book store
- ☐ Takeout restaurants
- ☐ Sit Down restaurants
- ☐ Coffee Shop
- ☐ Bank
- ☐ Pharmacy / Drug Store
- ☐ Salon / Barber Shop
- ☐ Employment
- ☐ Bus stop
- ☐ Recreation center
- ☐ Gym or fitness center

09- What prevents you from walking in your neighborhood more than you do now? (check all that apply)

- ☐ No time / too busy
- ☐ Health reasons
- ☐ No sidewalks / not enough sidewalks
- ☐ Busy / dangerous streets
- ☐ Unsafe cross walks
- ☐ Not enough stores / destinations
- ☐ Extreme weather
- ☐ I do not feel safe

Figure 10- Questions from the research questionnaire. Part 1. (Credits: Author)

Note: for questions number 10 to 42, option 1 with 😫 is negative answers like "Strongly disagree" or "Very Bad" or "Very Little" and option 5 with 😀 is positive answers "Strongly agree" or "Very Good" or "Very Much".

			😫 1	😟 2	😐 3	🙂 4	😀 5
Cleanliness	10	The streets in my neighborhood are clean.	☐	☐	☐	☐	☐
	11	The paved walking surfaces in my neighborhood are clean.	☐	☐	☐	☐	☐
	12	There is little garbage or trash discarded on the ground in my neighborhood.	☐	☐	☐	☐	☐
	13	Public garbage bins are emptied regularly.	☐	☐	☐	☐	☐
	14	The overall cleanliness of my neighborhood is satisfactory.	☐	☐	☐	☐	☐
Visual aesthetics	15	The architecture in my neighborhood is visually appealing.	☐	☐	☐	☐	☐
	16	The use of colors on the buildings in my neighborhood is pleasant.	☐	☐	☐	☐	☐
	17	The overall panorama of my neighborhood is attractive.	☐	☐	☐	☐	☐
	18	My neighborhood has a unique character, history, tradition, and strong sense of community. Explain please _____	☐	☐	☐	☐	☐
	19	The overall visual aesthetics of my neighborhood are acceptable.	☐	☐	☐	☐	☐
Questions about landscape and nature-related features	20	There are adequate green spaces in my neighborhood.	☐	☐	☐	☐	☐
	21	The green spaces in my neighborhood are well-maintained.	☐	☐	☐	☐	☐
	22	There are water features in my neighborhood that make it attractive and appealing to me.	☐	☐	☐	☐	☐
	23	My neighborhood has scenic views that are enjoyable to experience.	☐	☐	☐	☐	☐
	24	The overall presence of natural places in my neighborhood is enjoyable to experience.	☐	☐	☐	☐	☐
Safety	25	Do you feel safe walking in your neighborhood during the day? If NO, please describe why: _____	☐	☐	☐	☐	☐
	26	Do you feel safe walking in your neighborhood at night? If NO, please describe why: _____	☐	☐	☐	☐	☐
	27	There are pleasant spots in my neighborhood where I can converse with people.	☐	☐	☐	☐	☐
	28	Crime in my neighborhood makes it feel unsafe for me to walk.	☐	☐	☐	☐	☐
	29	The sidewalks in my neighborhood are well maintained.	☐	☐	☐	☐	☐
Pedestrian Infrastructure	30	How would you characterize the quality of sidewalks in your neighborhood?	☐	☐	☐	☐	☐
	31	Are sidewalks wide enough?	☐	☐	☐	☐	☐
	32	Rate the availability and accessibility of crosswalks in your neighborhood. Explain please _____	☐	☐	☐	☐	☐
	33	How would you rate the adequacy of pedestrian lighting in your neiberhood?	☐	☐	☐	☐	☐

Figure 11- Questions from the research questionnaire. Part 2. (Credits: Author)

	34	How would you rate the presence of pedestrian-friendly spaces in your neighborhood? "Are there sidewalks, benches, shaded spaces, or other things for you to use?"	☐	☐	☐	☐	☐
	35	Are pedestrian-friendly amenities, such as trash cans, and water fountains available in your neighborhood?	☐	☐	☐	☐	☐
	36	Do the streets in your neighborhood have sidewalks on your daily route?	☐	☐	☐	☐	☐
	37	There are crosswalks and pedestrian signals to help you cross busy streets?	☐	☐	☐	☐	☐
Final Questions	38	Overall, I enjoy walking in my neighborhood. Explain why: _____	☐	☐	☐	☐	☐
	39	I find it convenient to walk to most places in my neighborhood. Explain why: _____	☐	☐	☐	☐	☐
	40	My neighborhood is a good place to walk for exercise or leisure.	☐	☐	☐	☐	☐
	41	I would recommend walking in my neighborhood to other people.	☐	☐	☐	☐	☐
	42	How would you rate the overall walking condition of your neighborhood?	☐	☐	☐	☐	☐

Figure 12- Questions from the research questionnaire. Part 3. (Credits: Author)

3.4. Data collection

Questionnaires were distributed in the area in the form of 40 QR code posters, based on Microsoft form survey application, in three languages, English, Russian and Czech. The poster itself was in Czech. QR code posters were placed in typically busy locations, such as supermarket entrances, restaurants, and grocery stores. Additionally, posters were placed in main halls and municipal buildings. Finally, posters were placed inside buildings and elevators. Data collection occurred from January to February 2024. *(Figure 13)* to *(Figure 15)*

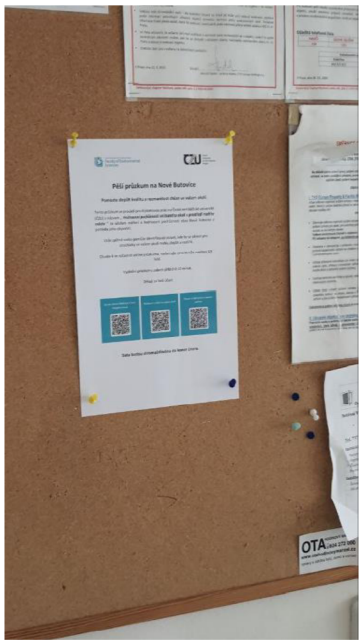

Figure 13- poster placed inside the residential building (Credits: Author).

Figure 14- poster placed on the residential building entrances (Credits: Author).

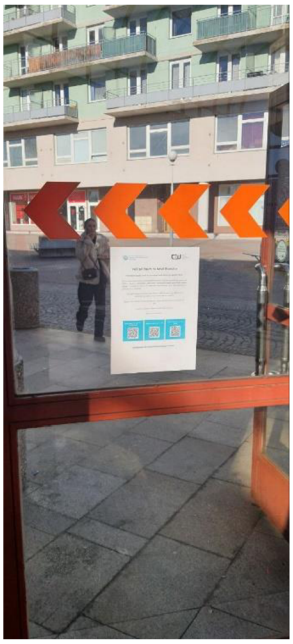

Figure 15- poster placed on the entrances (Credits: Author).

Data gathering was completed by the end of February 2024, with total of 132 questionnaires completed by respondents in all three languages. ***(Error! Reference source not found.)***

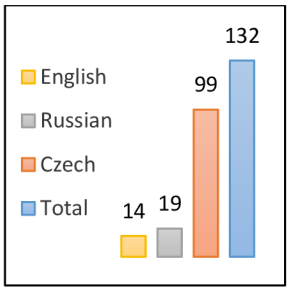

Chart 1- The distribution of completed questionnaires. (Credits: Author)

3.5. Data analysis

The collected data was organized into three separate Excel spreadsheets. Then, all the data were combined into one Excel sheet. This organization in tables generally facilitates the extraction of information and enables easier analysis of the data.

Descriptive statistics are used as the main method for interpreting received datasets. This method provides for the representation of data in an understandable and useful format, as well as the creation of graphical representations of the data in the form of histograms, charts, box plots, and so on. Since this research project involves a large number of findings, the use of descriptive statistics can be an effective means of presenting a manageable quantitative analysis of the data, and then provided summary will enable comparisons across data.

4. Results

The total number of respondents was 132; all respondents filled in all asked questions within their chosen survey language, either Czech, Russian, or English. The majority filled out the questionnaire in Czech (75%, 99), almost fifteen percent in Russian (14.4%, 19), and ten percent in English (10.6%, 14) *(**Error! Reference source not found.**)*. As mentioned before, the author made no additional distinction between these three categories and merged the responses for examination. Regarding the demographic questions, the author provided the option not to disclose the information (Prefer not to say), but no one chose this option. Among the responders, 58.4% (77 people) were female, and the rest (41.6%, or 55 people) were male *(Chart 2)*. Chart 3 shows the majority of responders fall between 27-45 years old (45.45 %, or 66 people), with the next largest group being 18–26 years old (28.78%, or 38 people). Out of the respondents, 15 people are under 18 years old, which implies that they are most likely attending school.

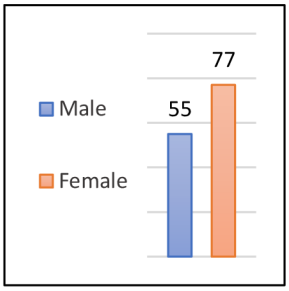

Chart 2- What is your Gender?

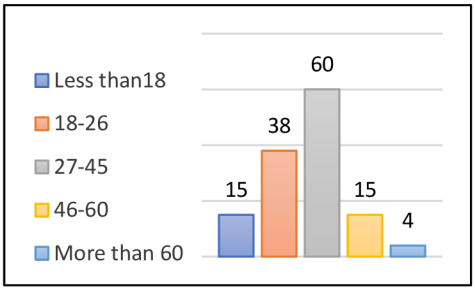

Chart 3- What is your Age?

In the field of education, 67.42%, or 89 people, have a university education, while only 12.87%, or 17 people, have an education level below high school. Considering that 15 of the respondents are under 18 years old, only 2 people in this age group have an education level below high school. *(Chart 4)*.

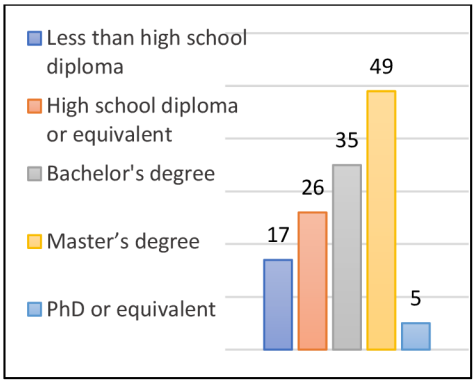

Chart 4- What is your highest level of education?

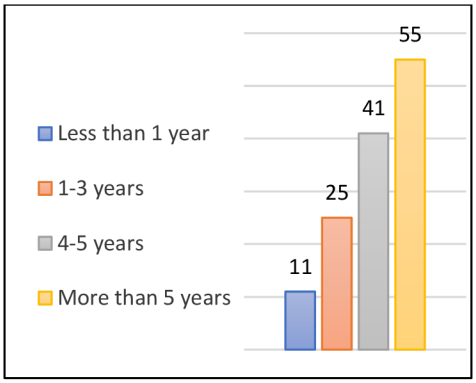

Chart 5- How long have you lived in Nové Butovice?

As Chart 5 shows, the majority of inhabitants (41.6% or 55 people) have lived in Nové Butovice for more than 5 years. And another 31% (or 41 people) have resided in the neighborhood between 4 and 5 years. Thus, more than 72% or 96 people have lived in the neighborhood for more than 4 years, which makes the survey answers more reliable.

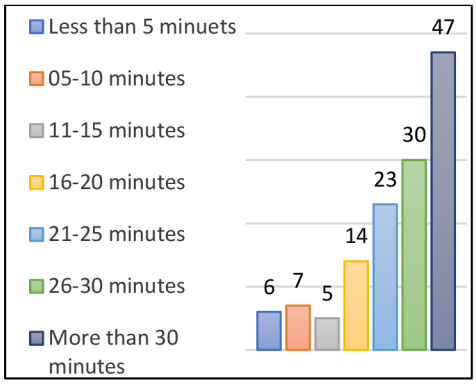

Chart 6- On average, how much time do you spend walking in your neighborhood per day?

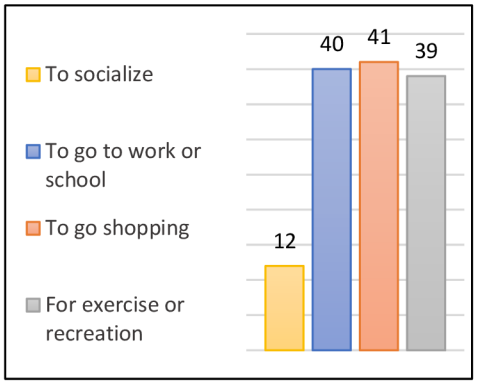

Chart 7- What is the main purpose for your walks? (check all that apply)

To answer the question of how much time people spend walking in their neighborhood per day, a significant number of respondents (35%, or 47 people) chose more than 30 minutes. This is a significant difference from the second option, which was 26-30 minutes (22%, or 30 people*) (Chart 6).* This graph shows that at least half (75%, or 100 people) of the surveyed individuals walk in their neighborhoods for more than 20 minutes.

Among the walkers, the most common reason for walking is shopping (31.06 %, or 41 people). Going to school and work are close seconds (30.3 %, or 40 people). Recreation follows slightly behind at 29.5% (or 39 people). In this context, activities like socializing, recreation, and shopping are considered leisure activities, while tasks like going to work and school are considered necessities. Based on the results in this specific category, the author infers that 68.9% or 91 people believe they can walk in the neighborhood during their leisure time *(Chart 7)*.

In response to the question "What prevents you from walking?" the majority of people (62%, or 82 people) said they lack time and feel too busy *(Chart 8)*.

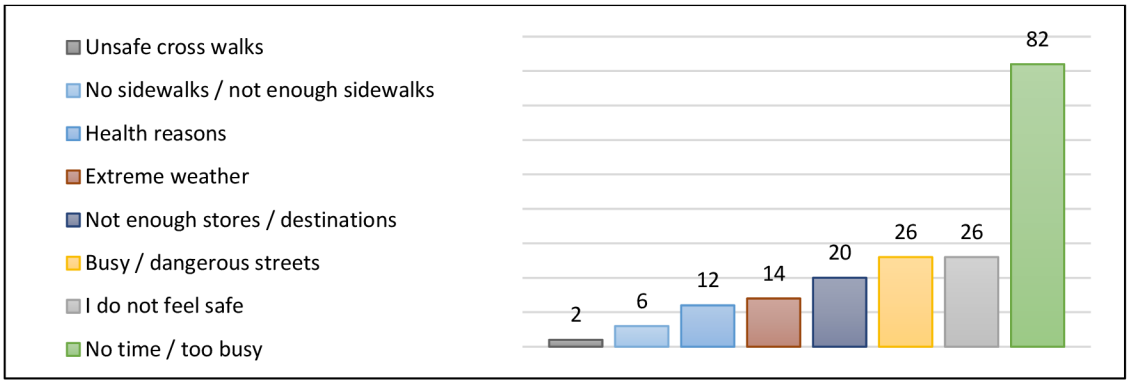

Chart 8- What prevents you from walking in your neighborhood more than you do now? (check all that apply)

Land Use Mix

In next section which is related to land use, participants were asked to identify facilities approximately within a 2-kilometer radius of their homes *(Chart 9)*.

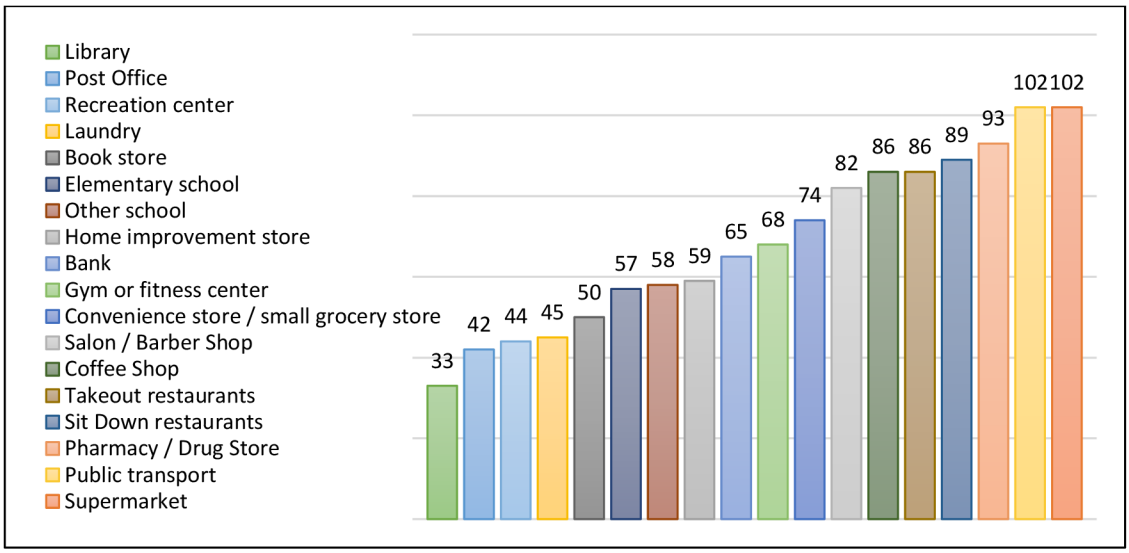

Chart 9- Which of the following are within 2 km (approx. 6 blocks) of your home? (check all that apply)

In this survey, supermarkets and public transport received the most ratings from the 102 participants. In the next stage, the author analyzes restaurants by categorizing them as dine-in or take-out. which in both categories 86 people chose that its within 2 km of their place for each of them. The coffee shop in the next position had been chosen by 82 people.

On the other hand, the least distributed facilities in the neighborhood, the library, post office, recreation center, and laundry, have been chosen by 33, 42, 44, and 45 people, respectively.

For comparison also, the author provides additional maps to show the distribution of each facility. It's worth noting that these additional maps were not included in the survey itself and its for more information and understanding *(Figure 16)* to *(Figure 23)*.

*Figure 16- public transport stations distribution map(*Mapy.Cz*, 2023)*

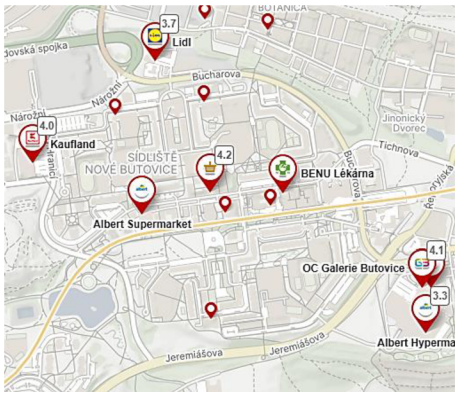

*Figure 17- Supermarkets distribution map(*Mapy.Cz*, 2023)*

*Figure 18- Restaurants distribution map(*Mapy.Cz*, 2023)*

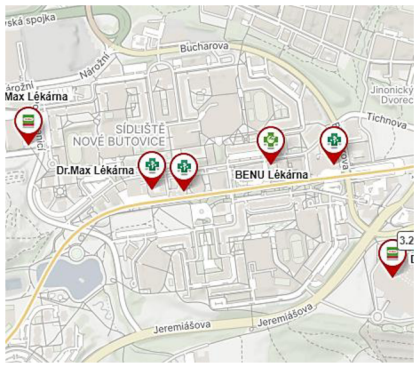

*Figure 19- Pharmacys distribution map(*Mapy.Cz*, 2023)*

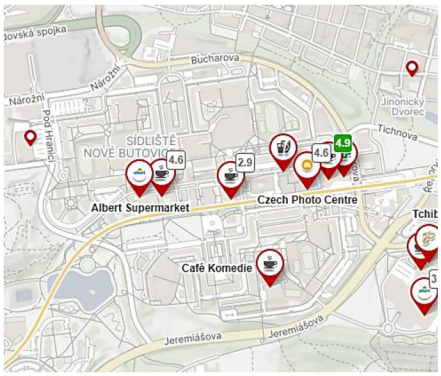

*Figure 20- coffee shops distribution map (*Mapy.Cz, *2023)*

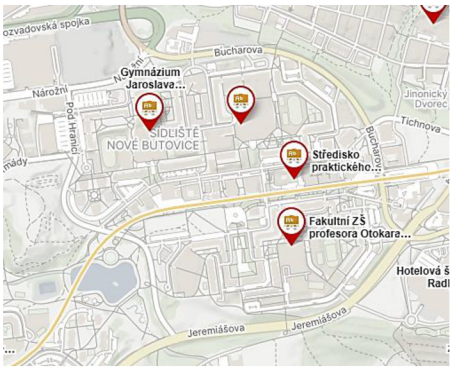

*Figure 21- Schools distribution map (*Mapy.Cz, *2023)*

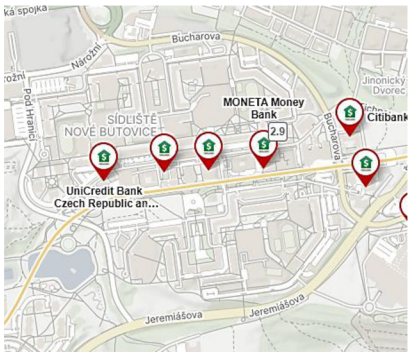

*Figure 22- Banks distribution map (*Mapy.Cz, *2023)*

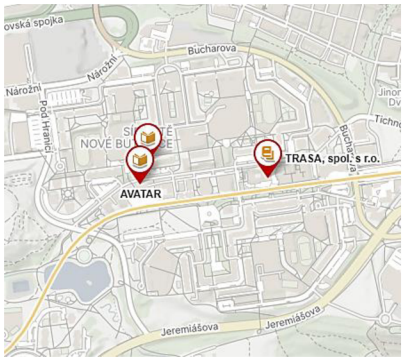

*Figure 23- Book stores(*Mapy.Cz, *2023)*

In response to the previous question people picked the most visited facilities in their daily routine walk, and 52 people chose the supermarket as their top destination, highlighting the importance of shopping as one of the most important purposes for walking *(Chart 10)*. in the second stage, public transport is the second most important destination for 51 people. This finding aligns with the fact that commuting to work or school is the second most common reason for walking. Pharmacies were chosen by 47 people, followed by dining and take-out restaurants by 45 and 42 people, coffee shops by 39, grocery stores by 38, and gyms by 36. On the other hand, post offices and barber shops are less likely to be destinations that encourage walking *(Chart 10)*.

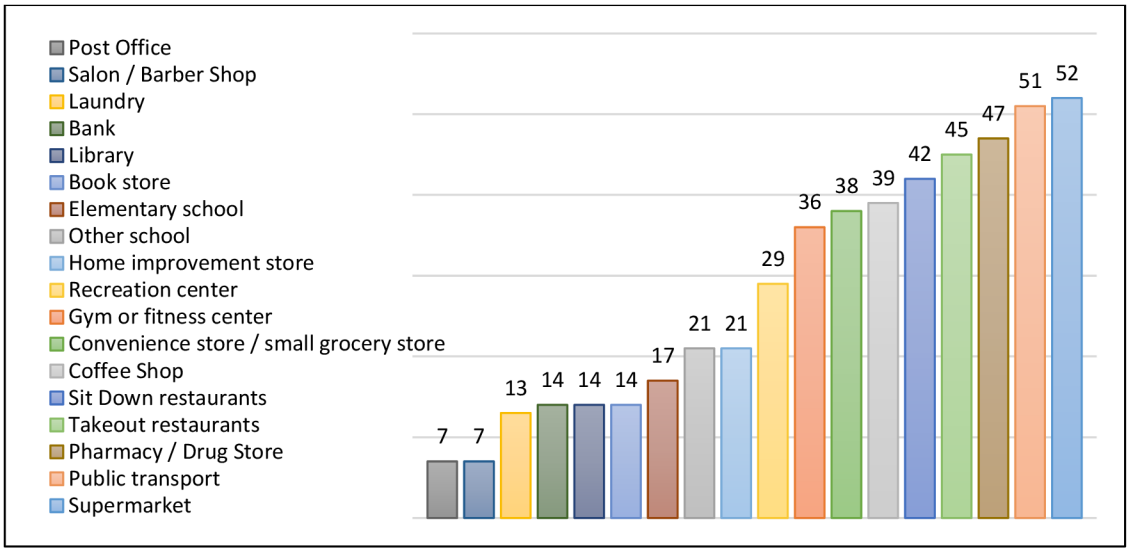

Chart 10- Of those places checked in the previous question, which do you walk to on a regular basis? (check all that apply)-

Based on what was mentioned in Table 4 from the literature review, the author asked some questions in each criterion. Questions 7 and 8 were about land use mix. The following categories were Cleanliness, Visual aesthetics, Landscape and nature-related features, Safety, Pedestrian Infrastructure, and Overall impression.

It's worth mentioning again that, questions 10 to 42 use a 1-to-5 rating scale to assess question quality. To ensure respondents fully understand these types of questions, the author clarified that "1" with a sad emoji indicates a negative answer, similar to "Strongly Disagree" or "Very Bad" or "Very Little." Conversely, "5" with a happy emoji signifies a positive answer, like "Strongly Agree" or "Very Good" or "Very Much."

Cleanliness

Five questions were asked about the cleanliness of the neighborhood. Based on the survey results, opinions on streets cleanliness are divided. The largest group (35.6%) finds street cleaning mediocre, but significant portions rate it as good/very good (32.5%) or bad/very bad (31.8%). Most people (35.6%, or 47 people) rated the street cleaning as mediocre. 32.5% (43 people) said it was good or very good, while 31.8% (42 people) said it was bad or very good *(Chart 11) (Figure 24)* to *(Figure 26)*.

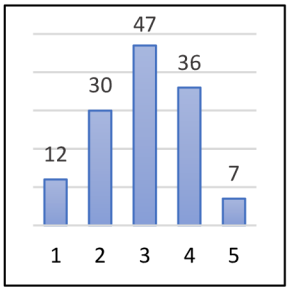

Chart 11- The streets in my neighborhood are clean

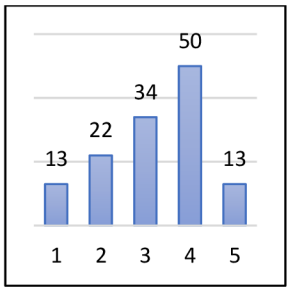

Chart 12- The paved walking surfaces in my neighborhood are clean.

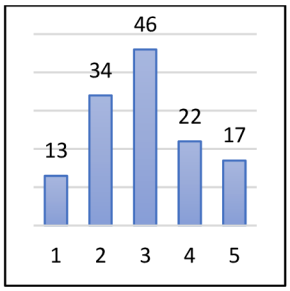

Chart 13- There is little garbage or trash discarded on the ground in my neighborhood

Figure 24- Behunkova Street condition. North Edge of the Neighborhood. (Credits: Alisa Malakhova)

Figure 25- Petržilkova Street condition. Central through street. (Credits: Alisa Malakhova)

Figure 26- V Hurkah Street condition. South neighborhood part. (Credits: Alisa Malakhova)

In the next question, respondents were asked about the condition of paved walking surfaces. Over two-thirds (63.63%, or 84 people) rated them as moderate or good. Fewer (9.8%, or 13 people each) considered them very good or very bad. Finally, 16.6% (22 people) said they were bad *(Chart 12)* - *(Figure 27)* to *(Figure 29)*.

Figure 27- Side walk condition of in-between path leading to Mezi Školami. (Credits: Alisa Malakhova)

Figure 28- Side walk condition of in-between path parallel to Petržilkova. (Credits: Alisa Malakhova)

Figure 29- Side walk condition of in-between path parallel to Petržilkova. (Credits: Alisa Malakhova)

In response to the question "There is little garbage or trash discarded on the ground in my neighborhood," 34.85% or 46 people rated it moderate, 35.61%, 47 people said it's very bad or bad, and 29.55% or 39 people said it's good or very good *(Chart 13)*.

In response to the next question, 51 people or 38.63% believed public garbage bins are emptied regularly and rated them in good condition. On the other hand, 31 people, or 23.48% said the bins are in bad or very bad condition, while 14 or 10.6% consider them moderate. Another 14 said the bins are in very good condition ***(Error! Reference source not found.)*** *– (Figure 30)* to *(Figure 32)*.

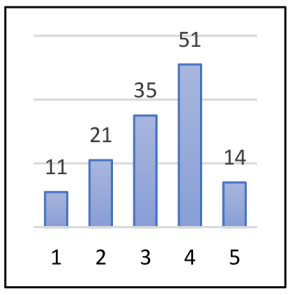

Chart 14- Public garbage bins are emptied regularly.

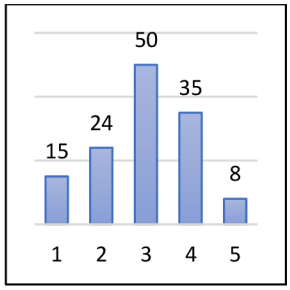

Chart 15- The overall cleanliness of my neighborhood is satisfactory.

Figure 30- Garbage bins condition at Blattneho street. (Credits: Alisa Malakhova)

Figure 31- Garbage bins condition at Mezi Školami street. (Credits: Alisa Malakhova)

Figure 32- Textile collection bins condition at Behunkova street. (Credits: Alisa Malakhova)

50 people or 37.87% of the responders were Neutral about the overall cleanliness of their neighborhood and rated it as moderate. While 29.54% (39 people) said it's very bad or bad, the rest (43 people, 32.57%) said it's good or very good. One interesting takeaway from this chart is the difference in responses between 'good' and 'very good.' Only 8 people mentioned it as very good, while 35 people said it's good *(**Error! Reference source not found.**)*.

The author used the average of various quality ratings (very bad to very good) to visualize which quality had the most people associated with it. Based on the percentages, most residents believe their neighborhood's cleanliness is in moderate condition. Here, 31.9%, or around 42 people, believe that their neighborhood is in moderate condition in terms of cleanliness. 29.3%, or approximately 39 people, believe their neighborhood is in good condition. Only 19.8%, or roughly 26 people, believe it's in bad condition *(Chart 16)*.

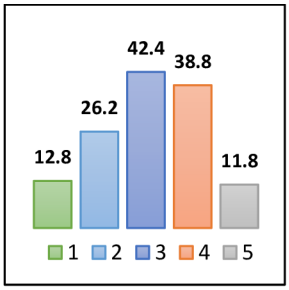

Chart 16- Average rate of Cleanliness

Visual aesthetics

In the survey, the majority of respondents did not find the neighborhood visually appealing. Over 80%, or 98 people rated it as bad, very bad, or mediocre, with 40.1%, or 54 respondents

selecting the lowest two ratings. Only 18.1%, 24 people found it good or very good *(Chart 17) (Figure 33).*

The majority of respondents also didn't prefer the color scheme of the neighborhood, 85.6% or people 113 scored it as mediocre and lower *(Chart 18) (Figure 34).*

Overall panorama got a very mixed result. While 40.1% of people were satisfied rating it as good and very good, another 40.1% were dissatisfied rating it as bad and very bad *(Chart 19) (Figure 35).*

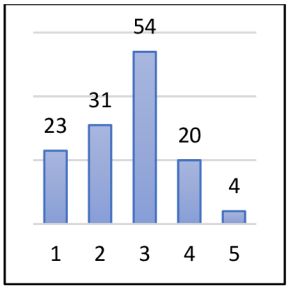

Chart 17- The architecture in my neighborhood is visually appealing.

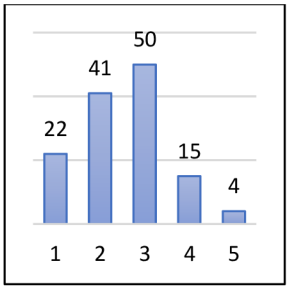

Chart 18- The use of colors on the buildings in my neighborhood is pleasant.

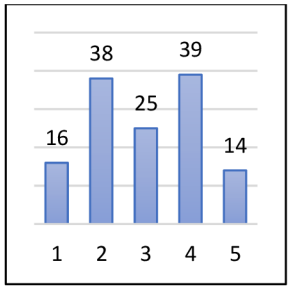

Chart 19- The overall panorama of my neighborhood is attractive.

Figure 33- Krasna Hurka Housing Complex of 2005 – Modernist architecture on Petržilkova street. (Credits: Alisa Malakhova)

Figure 34- 1980s original modernist block architecture. (Credits: Alisa Malakhova)

Figure 35- Panoramic view of the southern edge Ovči Hajek. (Credits: Alisa Malakhova)

The responses regarding the uniqueness of the neighborhood's history and tradition are generally negative. 83.3% (or 110 people) responded with mediocre or lower ratings, while only 16.6% (or 22 people) found it good or very good *(Chart 20)- (Figure 36)* to *(Figure 38)* .

The overall aesthetic seems to be generally well-received. While 37.8%, or 50 people rated it as good and very good, 31.8%, or 42 people rated it as bad and very bad. The remaining third of the people left it at mediocre *(Chart 21)*.

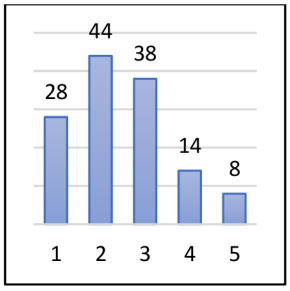

Chart 20-My neighborhood has a unique character, history, tradition, and strong sense of community.

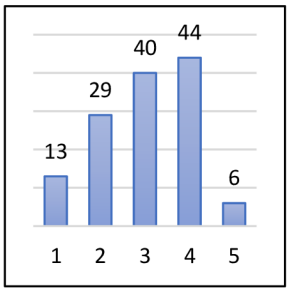

Chart 21-The overall visual aesthetics of my neighborhood are acceptable.

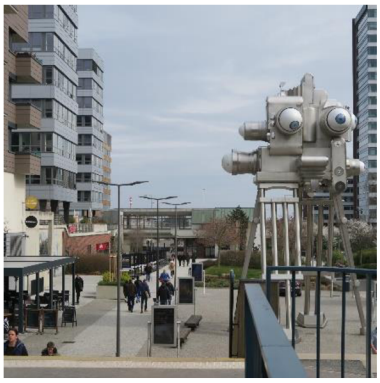

Figure 36- Neighborhood monument – Prague Press Photo Centre with exhibition area. (Credits: Alisa Malakhova)

Figure 37- Neighborhood monument – Prague 13 Municipal Building at Slunečni Namesti. (Credits: Alisa Malakhova)

Figure 38- Neighborhood monument 2001 Modernist Catholic church at Slunečni Namesti. (Credits: Alisa Malakhova)

The review of visual aesthetics in the modernist neighborhood of Nove Butovice is mixed, leaning closer to mediocre or bad. As shown in Chart 22, the average score is 3, which means 'mediocre.' followed by 2 "bad". However, 25% of responders were satisfied, rating it 4 'good' or 5 'very good'.

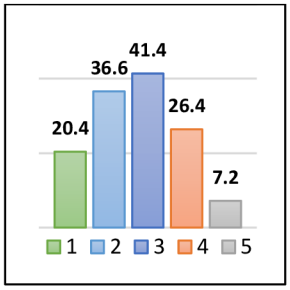

Chart 22- Average rate of Visual aesthetics

landscape and nature-related features

Asking the following five questions about landscape and nature in the neighborhood revealed general satisfaction. The most common answer regarding the availability of green spaces was "good," with 34.1%, or 45 respondents selecting this option. "Very good" followed closely behind at 25%, or 33 responses. Interestingly, less than half of the respondents rated the spaces as mediocre. Another noteworthy finding is the low number of people who rated the availability of green spaces as "very bad" – only 6%, or 8 people *(Chart 23)* – *(Figure 39)* to *(Figure 41)*.

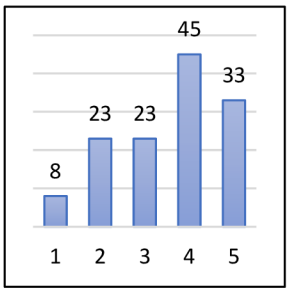

Chart 23- There are adequate green spaces in my neighborhood.

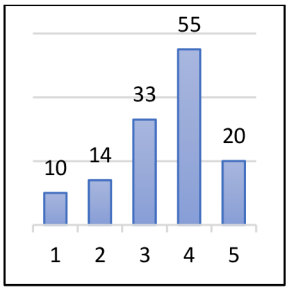

Chart 24- The green spaces in my neighborhood are well-maintained.

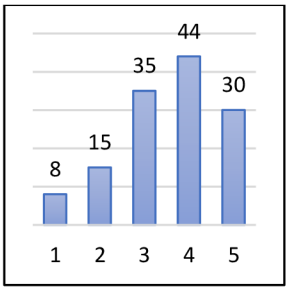

Chart 25- There are water features in my neighborhood that make it attractive and appealing to me.

Regarding green space maintenance, a little over half, 56.8% or 75 people responded with positive feedback ('good' or 'very good'). The remaining respondents scored it below average *(Chart 24)*.

Figure 39- Green open space at Slunečni Namesti. (Credits: Alisa Malakhova)

Figure 40- Green space inbetween houses and ventilation vents at Mezi Školami. (Credits: Alisa Malakhova)

Figure 41- Green Space inbetween houses at Suchy Vršek. (Credits: Alisa Malakhova)

The majority of the responders 82.6% or 109 people find the water features in the neighborhood attractive and rate it from "mediocre, good, or very good *(Chart 25)*.

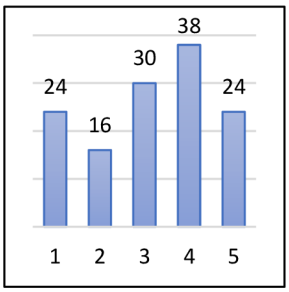

Chart 26- My neighborhood has scenic views that are enjoyable to experience.

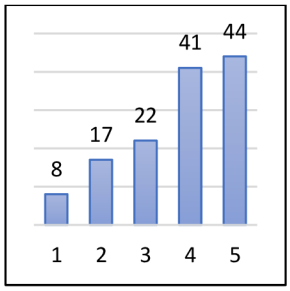

Chart 27- The overall presence of natural places in my neighborhood is enjoyable to experience.

The most mixed response in the survey about the landscape concerned scenic views in the neighborhood. Only 47% (62 responses) were satisfied with the views. 22.7% (30 people) found the views mediocre, and 30.3% (40 people) rated the availability of scenic views as bad or very bad *(Chart 26)*.

Enjoyable natural areas were a positive for the neighborhood. Over 64% or 85 respondents, rated them as good to very good. The remaining 35.6% spread their ratings across mediocre, bad and very bad *(Chart 27)*.

Chart 28 shows the distribution of ratings for landscape and natural features. 'Good' was the most common rating, at 33.7% (or 44.6 people). 'Very good' and 'mediocre' ratings were also given, by 22.8% (30.2 people) and 21.6% (28.6 people), respectively.

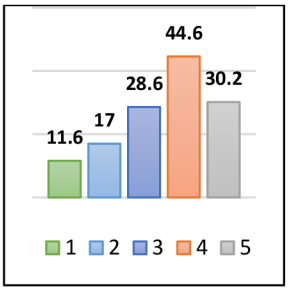

Chart 28- Average rate of landscape and nature-related features

Safety

Five questions regarding safety also show general satisfaction. The majority of responders 66.7% 88 people feel safe during the day; however, the results mix with nightfall and perception of safety drops to 45% 60 people and unsafe

perception increases from 12.9% 17 respondents during day to 29.5% 39 respondents at night *(Chart 29) (Chart 30)*. Half of the respondents 53% don't feel unsafe walking however other half responded with mainly 38 people medium score *(Figure 42)*.

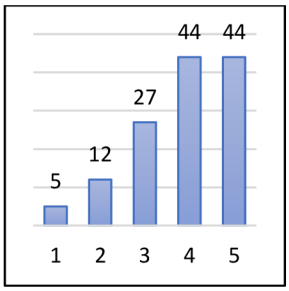

Chart 29- Do you feel safe walking in your neighborhood during the day?

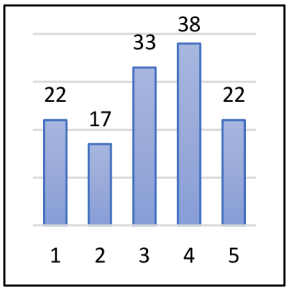

Chart 30- Do you feel safe walking in your neighborhood at night?

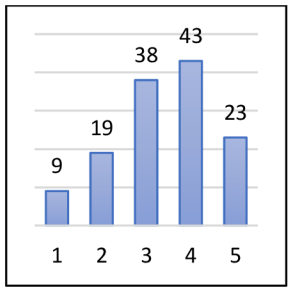

Chart 31- There are pleasant spots in my neighborhood where I can converse with people.

Regarding spaces for conversations, 32.57%, 43 people rated the neighborhood as good while 28.78%, 38 people were moderate. Only 6.8%, 9 people said that it's hard to find a spot to converse with people and rated by 1 which represents very bad *(Chart 31) (Figure 43) (Figure 44).*

Figure 42- Tunnels of the housing blocks V Hurkach. (Credits: Alisa Malakhova)

Figure 43- Children play near inter-block schools. (Credits: Alisa Malakhova)

Figure 44- Outdoor seating spaces. (Credits: Alisa Malakhova)

The crime rating has a very mixed score. A majority 34% or 45 residents said crime in the neighborhood makes them feel unsafe. Only 18% 24 people were fully satisfied. 28%, 38 people rated safety as moderate. In total, 53%, 70 residents rated safety as bad or very bad *(Chart 32)*.

Regarding maintenance of the sidewalks, most of the respondents 36.36%, or 48 people scored it as 4, which means 'Good'. The second most common rating was 'Moderate' by 28.78%, 38 people, followed by 'Bad' and 'Very Bad', 33.33%, 44 people combined. There is a significant difference between 'Good' and 'Very Good' ratings. Only 2 people rated the sidewalk maintenance as very good *(Chart 33)*.

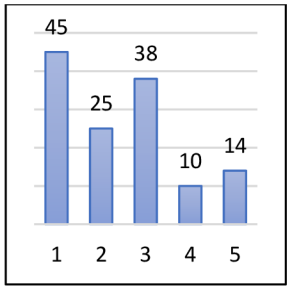

Chart 32- Crime in my neighborhood makes it feel unsafe for me to walk.

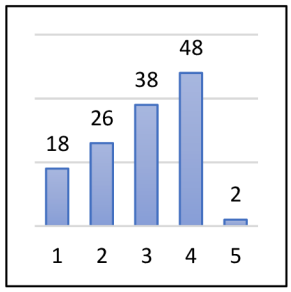

Chart 33- The sidewalks in my neighborhood are well maintained.

Based on the data in Chart 34, it appears that most people rated the safety as 'Good' or 'Moderate'. The ratings for the other categories were lower and relatively even. This Chart shows the distribution of safety ratings 'Good' and 'Moderate' were the most common ratings, received by 27%, 36 and 25% 34 people, respectively. The ratings for 'Very Good,' 'Bad,' and 'Very Bad' were almost the same, with 16% 21, 15% 20, and 15% 20 people selecting each option, respectively.

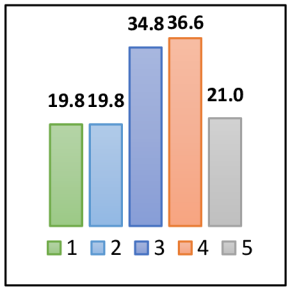

Chart 34- Average rate of Safety

Pedestrian Infrastructure

Eight questions about the quality of pedestrian infrastructure were asked. 43%, 57 people answered the question about the quality of sidewalks, giving it a score of 4 (considered good). Following this, 28%, 38 people considered the quality moderate. 22%, 29 people rated the condition as bad (score of 2). The difference between very good and good is significant, with only 3%, 4 people rating the sidewalks as very good. Additionally, 3%, 4 people considered the sidewalks to be in very bad condition *(Chart 35) (Figure 45).*

Based on the ratings, 60.6% of people found the sidewalks wide enough.41%, or 54 people believed that the sidewalks are wide enough by rating them as 4 grades (or "good"). 27%, or 36 people rated moderate, and 20%, or 26 people rated very good. Only 12 %, 16 people rated them as bad or very bad. This suggests that a majority of people are satisfied with the sidewalk width *(Chart 36) (Figure 47).*

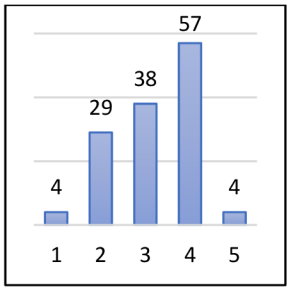

Chart 35- How would you characterize the quality of sidewalks in your neighborhood?

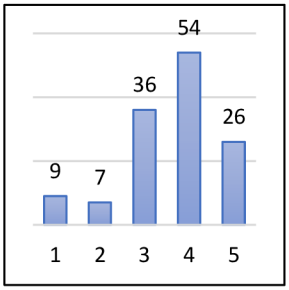

Chart 36- Are sidewalks wide enough?

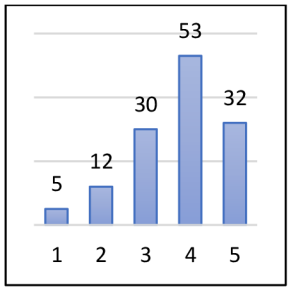

Chart 37- Rate the availability and accessibility of crosswalks in your neighborhood.

Chart 37 shows the availability and accessibility of crosswalks in the neighborhood. In which 87%, or 115 people said it's above moderate or higher. Only 13%, or 17 people rated for bad and very bad *(Figure 46)*.

Figure 45- Between house paths leading to Ovči Hajek. (Credits: Alisa Malakhova)

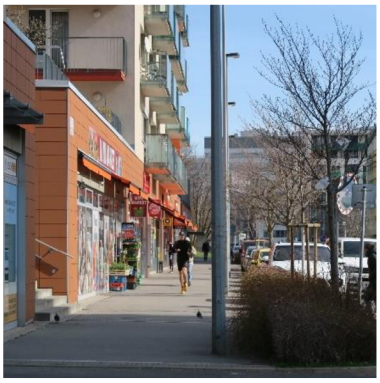

Figure 46- A sidewalk of central Petržilkova street. (Credits: Alisa Malakhova)

Figure 47- The main promenade near Prague 13 Municipality Hall at Slunečni Namesti. (Credits: Alisa Malakhova)

According to the response to the question about the adequacy of sidewalk lighting in the neighborhood, this suggests that a majority of people are satisfied. 54 people said it was good by rating it as 4, 32 said it was moderate by rating it as 3, and 26 said it was very good by rating it as 5. Only 20 people rated it as bad or very bad *(Chart 38) (Figure 48)* to *(Figure 50)*.

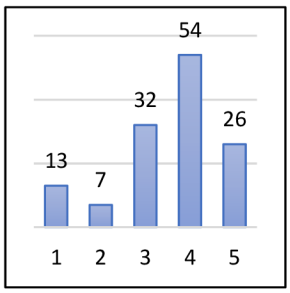

Chart 38- How would you rate the adequacy of pedestrian lighting in your neiberhood?

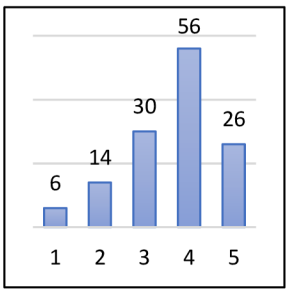

Chart 39- How would you rate the presence of pedestrian-friendly spaces in your neighborhood?

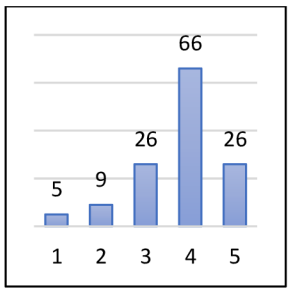

Chart 40- Are pedestrian-friendly amenities, such as trash cans, and water fountains available in your neighborhood?

In the survey, 56 people rated their neighborhoods as having good pedestrian-friendly spaces. They rated 4 as 'good'. Following this, 36 people rated them as 'moderate' and 26 as 'very good'. Additionally, 20 people rated them as 'bad' or 'very bad'. *(Chart 39)*.

Out of the participants, 66 people believed there were enough pedestrian-friendly amenities in their neighborhood. They rated this with a 4 ("good"). This was followed by a significant drop for "very good" and "moderate," with 26 people choosing each option. Only 14 people rated the pedestrian-friendly spaces as bad or very bad *(Chart 40)*.

Figure 48- A path in the south of the neighborhood leading Ovči hajek bus station on Jeremiašova street. (Credits: Alisa Malakhova)

Figure 49- A sidewalk in the Blattneho Street. (Credits: Alisa Malakhova)

Figure 50- A path between houses leading to Primary School Otakar Chlup. (Credits: Alisa Malakhova)

On the last two questions about the presence of sidewalks during daily commutes and the presence of crosswalks or traffic safety signals the majority answered as 5 – very good, leaving approximately 65% of respondents satisfied *(Chart 41) (Chart 42) (Figure 46) (Figure 49)* .

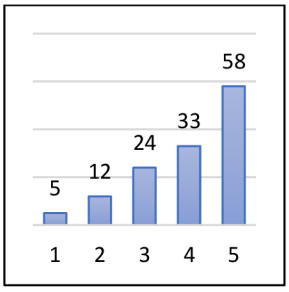

Chart 41- Do the streets in your neighborhood have sidewalks on your daily route?

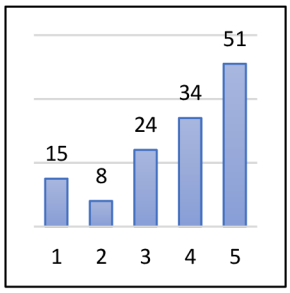

Chart 42- There are crosswalks and pedestrian signals to help you cross busy streets?

Figure 51- A garage drive way near Ovči Hajek (Credits: Alisa Malakhova)

Figure 52- A made circulation path near Ovči Hajek. (leading to bus station and parking) (Credits: Alisa Malakhova)

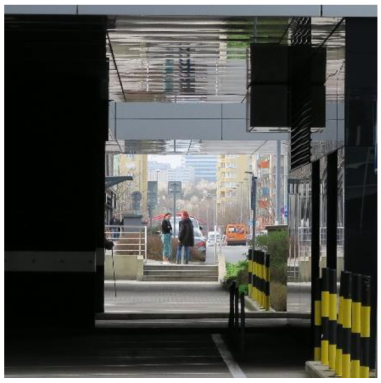

Figure 53- A tunnel in Metronom Business Centre looking through to the main Petržilkova street. (Credits: Alisa Malakhova)

Based on the data in Chart 43, most people rated Pedestrian Infrastructure as 'Good'. Ratings for other categories were lower and relatively even. 'Very good' and 'Moderate' were the most common ratings after "good", with 30 and 31 people selecting them, respectively. Ratings for 'Bad' and 'Very Bad' were similar, with 12 and 7 people choosing each option."

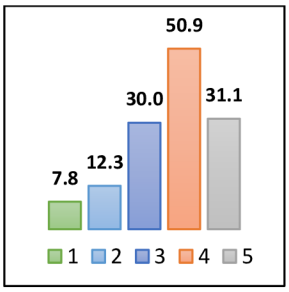

Chart 43- Average rate of Pedestrian Infrastructure

Overall impression

To assess residents' perceptions of walkability, five questions were asked: enjoyment of walking in the neighborhood, convenience of walking, chance to recommend walking to others, suitability for leisure time, and overall neighborhood rating.

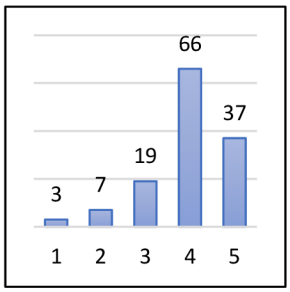

Chart 44- Overall, I enjoy walking in my neighborhood.

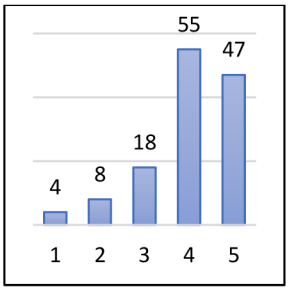

Chart 45- I find it convenient to walk to most places in my neighborhood.

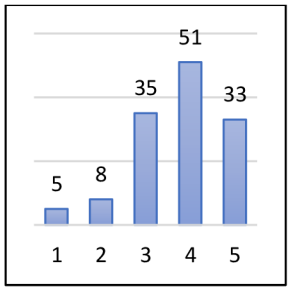

Chart 46- My neighborhood is a good place to walk for exercise or leisure.

The majority of residents, 78% or 103 people rated the quality of the neighborhood's walkability as good and higher *(Chart 44)*. There was a significant drop in ratings for "bad" and "very bad" across all five questions.

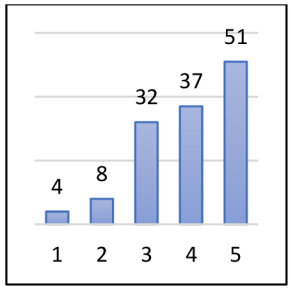

Chart 47- I would recommend walking in my neighborhood to other people.

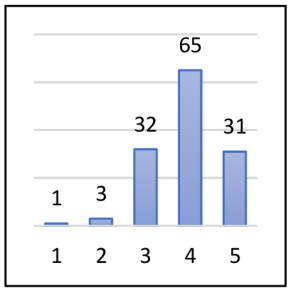

Chart 48- How would you rate the overall walking condition of your neighborhood?

Looking at particular details, 77%, or 102 people found it convenient to walk in the neighborhood *(Chart 45)*. This number increases for the next two questions. 90%, or 119 people think their neighborhood is a good place to walk for exercise or leisure *(Chart 46)*. following that 91%, or 120 people recommend walking in the neighborhood to others ***(Error! Reference source not found.)***. additionally, 97%, or 128

people are satisfied with the overall condition of the neighborhood's walkability *(**Error! Reference source not found.**)*.

On average, out of the five questions about walkability, 41%, or 54 people considered their neighborhood to be in 'good' condition, 30%, or 40 believed it to be 'very good,' and 22%, or 30 people rated it as 'moderate.' Only around 7%, or 10 people had a negative opinion about their neighborhood's walkability (bad or very bad) *(Chart 49)*.

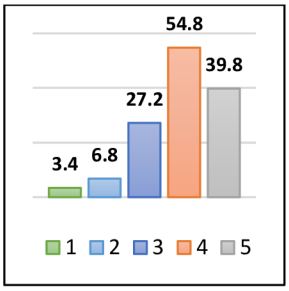

Chart 49- Average rate of Overall

5. Discussion

The present thesis study fulfilled 2 goals. First, the main factors affecting walkability were evaluated from the perspective of Nové Butovice residents. Second, the study explored how satisfied inhabitants of Nové Butovice were with the quality of walkability in their neighborhood. It also identified the main reason why they felt this way.

Walkability is a measure of how well-suited an area is for pedestrians. It considers factors like sidewalks, traffic, land use, and safety. It's about creating livable spaces that encourage walking, not just car traffic. The concept has grown in importance due to its health, economic, and environmental benefits. There are various definitions of walkability, but they all emphasize the importance of a pedestrian-friendly built environment. Some recent definitions acknowledge the social and experiential aspects of walking in addition to physical infrastructure.

The literature identifies four main categories of factors affecting walkability:

- Efficiency & Comfort (e.g., sidewalk width, shade, lighting)
- Safety, Security & Certainty (e.g., traffic volume, crossing design, crime rate)

- Pleasantness (e.g., aesthetics, noise level, activity)
- Attractiveness (e.g., variety of destinations, land use mix)

Each category has specific characteristics and indicators used for measurement.

To get a deeper comprehension of walkable environments, the following section of the literature review will look at the different ways walkability can be classified.

- Physical Walkability: This refers to the measurable features of the built environment that affect how easy and safe it is to walk, like sidewalks, crosswalks, traffic calming measures, etc.
- Perceived Walkability: This focuses on how people feel about walking in a place, considering safety, comfort, and aesthetics. It's subjective and influenced by both environmental factors and individual preferences. Perceived walkability is a strong predictor of actual walking behavior.
- Social Walkability: This is about the opportunities for social interaction while walking, influenced by land-use mix, public spaces, and the overall feel of a neighborhood. Social walkability can improve mental and physical health and foster community.

The literature study found that several previous studies had focused on various aspects of walkability. To close this gap, the author made perceived walkability a core concept of this thesis. This decision defines the general structure of the study, and also because perceived walkability strong predictor of actual walking activity. If people feel safe, comfortable, and engaged when walking, they are more likely to choose it over other forms of transportation.

In order to take a scientific approach to this study, the author first needs to identify the specific criteria for assessing walkability. This will identify how well the quality of walking in a neighborhood can be assessed. As the author discovered, there are numerous ways for determining walkability, including. Surveys' questions are shaped by these two categories: subjective and objective criteria. Subjective criteria involve opinions, feelings, and preferences, while objective criteria deal with facts, measurements, and verifiable data.

walkability can be measured in several ways, including using audit tools and checklists, questionnaires and surveys, walkability scores, like Walk scores, walkability indices derived from GIS, and direct field observations. However, for understanding perceived walkability, which focuses on how people experience an environment, questionnaires and surveys combined with direct field observations provide the most valuable data and information. This approach allows researchers to capture not only the objective features of a space but also the subjective experiences of pedestrians

After analyzing the data, several major findings emerged. Demographically, the majority of respondents were female (58.4%) and aged 27 to 45 (45.45%). A high percentage (67.42%) had a university education. In terms of walking habits, more than half (75%) of residents walked in their neighborhood for more than 20 minutes each day. The top motivations for walking were shopping (31.06%), going to school or work (30.3%), and recreation (29.5%). it's notable that, lack of time was the most significant barrier to increased walking by (62%), and in terms of land use mix, supermarkets, and public transportation were the most popular destinations.

Exploring residents' perceptions of their neighborhood environment in the result analysis chapter showed that opinions were divided on cleanliness, with roughly equal portions finding street cleaning mediocre (35.6%), good/very good (32.5%), or bad/very bad (31.8%). The condition of paved surfaces and public garbage bins also received mixed reviews. The majority of residents (over 80%) did not find the neighborhood visually appealing. Architecture, color scheme, overall panorama, uniqueness, and historical character were rated mostly mediocre or bad. In contrast, there was general satisfaction with green spaces, their maintenance, and water features. Scenic views, however, had mixed reviews. Safety concerns varied depending on the time of day. While 66.7% of residents felt safe walking during the day, that number dropped to 45% at night. Crime rates and poorly maintained sidewalks were cited as contributing factors. Perceptions of pedestrian infrastructure were positive. Residents generally considered the quality and width of sidewalks to be good.

Additionally, the availability and accessibility of crosswalks, and pedestrian-friendly spaces received favorable reviews.

Despite some negative aspects of the environment, the majority of residents (78%) enjoyed walking in the neighborhood and found it convenient (77%). They considered it a good place for exercise and leisure (90%) and would recommend walking there to others (91%). Overall, 97% were satisfied with the walkability of Nové Butovice. *(Chart 50)*

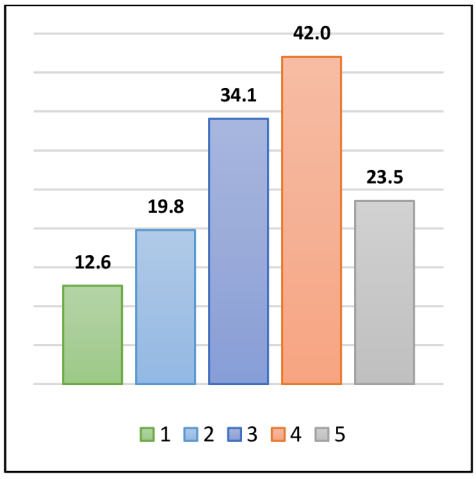

Chart 50- Average rate of all categories

After analyzing the data received by residents and recognizing the site's strengths and weaknesses mentioned by people, the author made suggestions for improvement in three key areas:

Based on the study's findings, three significant areas for improvement can be identified: neighborhood visual aesthetics, crime rates and perceived nighttime safety, and sidewalk maintenance in specific regions.

Visual Aesthetics: The current visual appeal of Nové Butovice, excluding green spaces, has received mixed feedback. Residents were dissatisfied with the architecture, color scheme,

overall view, distinctiveness, and historical character. This shows that the neighborhood's visual design may be improved. Urban planners and architects can improve Nové Butovice's visual attractiveness by including aspects like as street art, landscaping enhancements, and a more coherent building style.

Nighttime Safety: Residents have expressed significant concerns about their safety, particularly at night. Crime rates and inadequately maintained sidewalks were recognized as major reasons. To address these problems, more street lighting, increased police presence, and better sidewalk care, particularly in low-light areas, are recommended. Furthermore, creating a feeling of community through events and activities might result in a more watchful and supportive local environment.

Sidewalk maintenance: Although the overall quality and width of the sidewalks received excellent feedback, several residents mentioned problems with sidewalk maintenance. Addressing these challenges requires adequate sidewalk repair and care. Additionally, prioritizing accessibility elements such as ramps and lowered curbs can improve Nové Butovice's walkability for all residents.

The responses received can be used by urban planners, policymakers, and landscape architects to gain a deeper understanding of the needs of different demographic groups when walking in various neighborhoods. This will allow them to improve the quality of Prague's sidewalks by prioritizing features that are important to residents, ultimately contributing to the well-being of the population.

6. Conclusion

This thesis focused on the walkability of Nové Butovice, a neighborhood in Prague. The study used a survey of 132 residents to assess their impressions of the area and how suitable it was for walking. It explored the factors influencing their perceived walkability and their overall satisfaction with walking in their neighborhood.

The neighborhood has good functional walkability. Residents reported regular walking for daily needs and enjoyment, with easy access to stores, public transportation, and open spaces. The availability of well-maintained sidewalks and pedestrian infrastructure makes walking routes even easier. This corresponds to overall resident satisfaction with walkability, emphasizing the neighborhood's ability to promote a healthy and active lifestyle.

This thesis serves as a springboard for further studies. Future research could look into how inhabitants' demographics and walking habits and their sense of walkability. In-depth qualitative studies could also help to better understand inhabitants' aesthetic and safety preferences. By combining this research with objective evaluations of infrastructure and environmental elements, a full walkability scoring system might be created to aid in the design and assessment of future walkable neighborhoods.

In conclusion, Nové Butovice provides a case study showing the significance of a diversified approach to walkability. While the neighborhood succeeds in utility, improving aesthetics provides a clear path to improve residents' walking experiences. This thesis emphasizes the importance of balancing these features in the design of truly walkable cities that encourage health, aliveness, and a sustainable future.

Figure 54- A view through the neighborhood to the south (Credits: Alisa Malakhova)

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8. List of tables used in this thesis:

9. List of charts used in this thesis:

10. List of figures used in this thesis