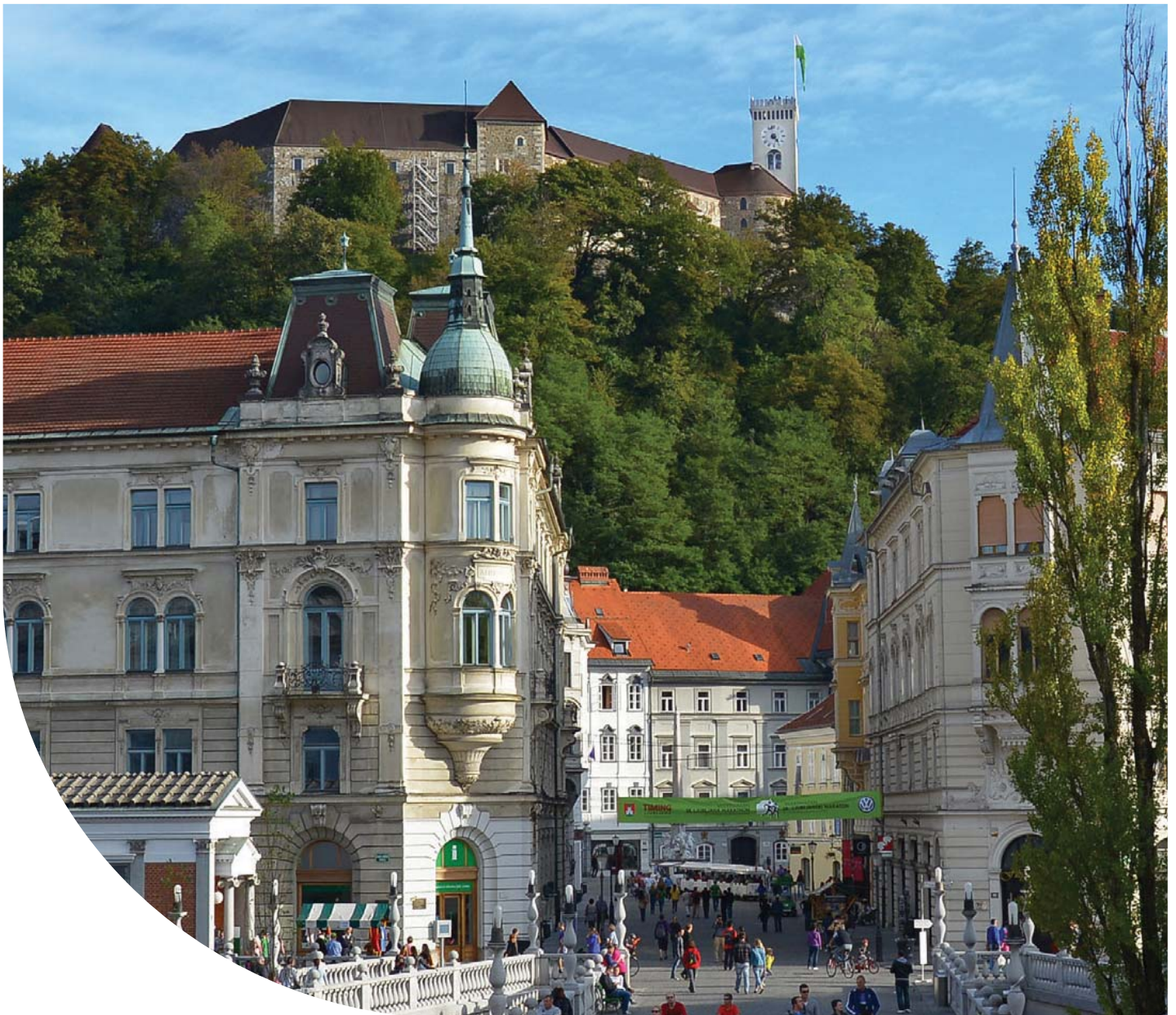




STREETS FOR 2030: PROPOSING STREETS FOR INTEGRATED, AND UNIVERSAL MOBILITY

UNIVERSITY OF LJUBLJANA, FACULTY OF ARCHITECTURE and
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NOTRE DAME UNIVERSITY-LOUAIZE, RAMEZ G. CHAGOURY FACULTY
OF ARCHITECTURE, ART AND DESIGN and
AESOP Thematic group Public spaces and urban cultures





STREETS FOR 2030:
PROPOSING STREETS FOR
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INTRODUCTION

Dear Participants,

Welcome to the City Street4 (CS4) Conference! In 2020 this conference examines mobility in various aspects: the users, modes of mobility, and the streets facilitating but also affecting it. A current and imminent need for revisiting streets stems from the COVID-19 pandemic, which has imposed new requirements for encounter, co-presence and mobility in public spaces, among them streets. This conference is entitled:

STREETS FOR 2030: PROPOSING STREETS FOR INTEGRATED AND UNVIERSAL MOBILITY

The conference theme outlines global mobility challenges in relation to parameters of various transactions, communication modes and human flows. The status of streets is put under the spotlight to address scholars with multiple questions referring to society, climate change, the environment, technical and technological aspects, safety, urban health and quality of life implications. This international and interdisciplinary conference seeks to engage participants in discussions of everyday living and explore it from various backgrounds and considerations, with the purpose of forwarding knowledge on addressing streets to respond to current needs.

Choosing Ljubljana as the location for CS4 was intentional, as this city strives towards universal and integrated mobility. Mobility in Ljubljana is underpinned by serious endeavours from urban planners and academicians supporting professional practices and local authorities in providing a city for all. Also, the strong collaboration between the institutions: Ramez G. Chagoury Faculty of Architecture, Arts and Design at Notre Dame University-Louaize, and the Faculty of Architecture at the University of Ljubljana, along with the Urban Planning Institute of the Republic of Slovenia, emphasises the attention given to the public realm, particularly streets. This conference in Ljubljana provides a nexus across geographic areas linking academicians, practitioners from various disciplines and all those concerned with the future of streets. The richness of the contributions from which participants will learn is included within the nine conference tracks, the five keynote speakers from different backgrounds, the two roundtables related to the Association of the European Schools of Planning (AESOP) Thematic Group on Public Space and Urban Cultures, as well as the other conference activities. The tracks have contributions from 43 papers

and two posters, which cover countries in Europe, Asia, and Latin America, and explore global issues on streets and mobility. Each track focuses on different aspects related to the year 2030 ranging from the users, to diverse urban development, and implications for traffic congestion, transport systems with a focus on public transport, the role of streets as dividers or connectors, green mobility and resilience, pedestrians, walkability, culture and activism.

Under Track 1: ‘Integrated and Universal Mobility: Whose Streets?’ the contributions are concerned with street design for all amidst privatisation; the integration of ecological concerns; health concerns, accessibility and increased mobility in public spaces; the introduction of e-scooters and new technologies with their anticipated impact on public spaces; supporting social inclusion and different user groups including students through mobility; the impact of temporary changes leading to inclusion in public space. In Track 2: ‘Dense, Diverse and Designed Urban Development’ contributions address the emphasis of historic city parts through mobility; accessibility and urban design; walkability in mega projects. These topics are addressed through case studies from different cities. In Track 3: ‘Mitigating Traffic Congestion with Urban Development’ contributions examine current case studies related to globalisation, and impact on streets; street dynamics as manifested through programs; changing patterns in building uses and impact on transport. In Track 4: ‘Travel Time and Efficiency of Transport Systems’ the exploration of sustainable urban mobility measures, digitalisation of traffic, autonomous vehicles, joint development of transit corridors in various contexts provides lessons learned for streets. Within Track 5: ‘Public-Transport-Oriented Cities for All’ multimodal corridors, green spaces, alternative mobility and public health, and transit-oriented development provide analyses of advantages and disadvantages of public transport that could inform different urban contexts. Track 6: ‘Borders in Street Life: Dividing or Protecting?’ comprises papers exploring the role of material and immaterial divides including fences, music, and art in streets. Track 7: ‘Green Mobility in a Way to Climate Resilient Streets’ highlights directions for improving streets at various scales and considerations for pollution, low carbon emissions, seismic hazards. The papers provide examples at city scale and others at a university campus scale. Track 8: ‘Pedestrian Friendly Cities to Support Climate Change’ considers temporary strategies, integrated mobility, walkability as explained through several case studies. Track 9: ‘Perspectives on Sustainable Mobility: Culture of Everyday Activism’ presents the theme from the eyes of the users and their cultural milieus: students, riders of informal mobility psychological impact and human experience in public

spaces; digitalisation to enhance the identity of historic public spaces; streetscape transformations with the innovative interventions to street design and social aspects, beyond engineering; and social innovation to enhance urban mobility. And finally, Track 10: ‘Street Lighting – Supporting Sustainable Urban Development’ addresses the questions of nocturnal cityscapes and presents the role of light in managing the architectonic, social and environmental dimensions of built environments.

We wish you a successful conference in which this platform triggers new ‘convivialities’ among participants, through the scholarly exchange of thoughts, participatory debates, and inspirations for new and adaptive approaches to further inhabit, manage, and sustain mobility in city streets for 2030.

Assoc. Prof. DR. CHRISTINE MADY

Notre Dame University-Louaize, Ramez G. Chagoury Faculty of Architecture, Art and Design:

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THE ROLE OF GREEN SPACE AND ALTERNATIVE TRANSPORTATION IN IMPROVING PUBLIC HEALTH

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ABSTRACT

The shift of paradigms regarding public health from pathogenesis to salutogenesis (Antonovsky, 1979) is reflected in the famous definition of health given by the World Health Organization. Health is not simply identified through the absence of disease, but as a state of complete physical and mental well-being. The main issues that affect public health in the modern era are stress and a sedentary lifestyle. There is a growing body of research suggesting that exposure to natural characteristics of open green space can improve both physical and mental well-being (Ulrich et al., 1991). Additionally, environmental psychologists argue that green space design can influence public health and positive behaviour of people, such as social interaction, physical activity and the use of alternative transportation, pedestrian and biking.

The aim of this research is to identify how specific characteristics and urban design of green space can be beneficial to public health, as well as how the use of alternative transportation solutions can increase positive health outcomes. In addition we will try to identify which areas in the urban city areas have the most healing potential for improving public health. The methodology is based on theoretical research and extensive literature review regarding the aforementioned topics, followed by expert observation of green space and people's behaviour in the riverfront area of New Belgrade.

Keywords: Green space, Alternative transportation, Public health and well-being, healing space, riverfront.

¹ Corresponding author

INTRODUCTION

The shift of paradigms regarding public health from pathogenesis to salutogenesis (Antonovsky, 1979) is reflected in the famous definition of health given by the World Health Organization (WHO). In the modern era and contemporary lifestyle, health is not simply identified through the absence of disease or trauma, but as a state of complete physical and mental well-being. Regarding international declarations and agendas, and Sustainable Development Goals (SDGs) physical environment is perceived as an important determinant of health (WHO 2016, 2017). In the city context, we have to consider areas that can be used for improving public health. Open green areas present urban hubs within a city that can be beneficial for all the users. In this paper we are going to analyze these benefits, i.e. how these natural settings can impact health and well-being, with natural and built characteristics, as well as alternative modes of transportation. Furthermore, we will try to identify the type of open green space in the city that can be considered as healing or restorative space.

BACKGROUND RESEARCH

Regarding the overall aim of this research in this section we are going to present critical and focused literature overview regarding role of open green space on public health and the significance of alternative transportation.

Positive - healing effects of open green space

There is a growing recognition for the role of open space, focusing on green infrastructure, such as forests, gardens and parks in overall physical and mental health and wellbeing. The healing and therapeutic effect of open green space has been a focal point of several researchers and studies. In order to better understand this connection between space and health we have to consider various theories and theoretical concepts, which are dealing with the subject of the restorative environment, such as *Environmental Psychology* and similar concepts and *Psycho-Evolutionary theories*. *Environmental psychology* is a field acclaimed in the late 1960s as an interdisciplinary theory that focuses on the interrelation between people and their surroundings. It examines the way in which the natural and built environments shape human behaviour and affect people (Ulrich, 1984; Ulrich et al., 1991). Ulrich claims that green, natural space influences not only positive behaviour, but also outcomes in the form of better physical and mental health. The relation between natural settings and people is more clearly described in the *Psycho-evolutionary theory*. This theory claims that people are experiencing their surroundings through psycho-neuro-endocrine mechanisms that influence our senses. A large number of theorists argue that exposure to natural scenery and open space can promote recovery from stress, and overall health outcomes (Thake et al., 2017; Velarde, Fry, & Tveit, 2007, Ulrich et al., 1991). A range of authors from psychologists and sociologists to landscape architects and urban planners are

contemplating the role of nature and open space in public health and well-being. In the overall context, combining different theoretical and practical approaches, we can state that green open public spaces can influence well-being on different levels. Firstly, natural characteristics can contribute to physical and mental health. Restorative environments, natural views, ambient, colours and sounds can have a soothing and calming effect and influence stress reduction, which directly affects the heart rate and blood pressure (De Vries, 2010; Ulrich, 1984). Exposure to direct sunlight is believed to increase the vitamin D levels and regulate the sleeping hygiene and overall circadian rhythm (Farhud et al., 2018). Apart from natural qualities, built characteristics of open space can engage people in physical activity, sport and recreation as well as socialization and communication (Thake et al., 2017; Tyrväinen et al., 2014). These activities are strongly connected with positive behaviours that have restorative outcomes on people. Urban green spaces particularly offer health benefits for citizens in urban dense areas. WHO has released important publications in 2016 and 2017 (WHO, 2016; WHO, 2017) where they list and explain in detail all of the positive effects that open green space can have regarding human health, such as: Improved social capital; Enhanced physical activity; Optimized production of natural sounds exposure to sunlight and improved sleep; Reduced exposure to air pollution and reduction of the urban heat island effect; Enhanced pro-environmental behaviour; Reduction of pain and stress; Reduced cardiovascular disease and mortality; Alleviation of depression and anxiety and Reduction of aggressive behaviour.

Open green space offers a range of physical activities that directly influences peoples' health outcomes and overall level of public health. In that context, we are going to analyze the role of alternative transportation as means for physical activities in open green space.

ROLE OF ALTERNATIVE TRANSPORTATION IN IMPROVING PUBLIC HEALTH

Alternative transportation, or active transportation, as it is often referred to in literature present non-motorized transport modes including pedestrian walking, cycling, and different other variations. Regarding available literature on the subject we can summarise that alternative, or active modes of transportation can benefit public health directly and indirectly, by: (1) indirectly - reduced air pollution and better air quality and (2) directly - increased physical activity (WHO, 2008; Litman, 2013; Rissel et al., 2012). Tod Litman in the Annual Review of Public Health discusses major categories of public health impacts that tend to be significantly affected by transport policies and planning decisions. "Transportation policy and planning decisions can affect health in various ways. How people travel affects physical and mental health, including cancer, cardiovascular disease, vehicle crashes, and diabetes, four major causes of death" (Tod Litman, 2013). Important category of health outcomes that involves transportation is pollution emissions that comes from motor vehicle and can cause serious ecological damage, therefore influencing several health conditions as well as climate change (Mundorf et al., 2018). According to a recent WHO report, approximately 1.3 million premature

deaths worldwide are attributed to outdoor air pollution in 2009 (WHO, 2008). Another major topic of health and well-being impacts is related to the effects that transport-planning decisions have on physical activity, which is on the top of the “public health risk factors” list (Rissel et al., 2012). Alternative or active transportations modes provide an opportunity to increase frequent physical activity on the daily basis, which could help people stay more active and fit, thus improving the physical health and well-being (Rissel et al., 2012; WHO, 2000). In addition, active transportation modes can affect mental health by improving physical activity and supporting community cohesion and positive interactions among people in public space (Oja et al., 2011).

In this chapter we have gathered and presented data regarding health outcomes of open green space and alternative modes of transportation. In the city context we have areas that combine open green space characteristics and possibilities for active transportation. These areas are usually located in the riverfront, as it is the case with Belgrade, and in the next chapters we are going to briefly present one of the riverfronts in New Belgrade, from the aspects of public health benefits.

METHODOLOGY

The methodology is based on theoretical research and focused literature review regarding topics of public health and health determinants. In particular, we analyze the impact of open green space and alternative transportation on the health and well-being outcomes. The research includes primary and secondary resources, such as: theoretical research, studies, statements, publications and regulations. Next phase of this research is focused on the case study Area of New Belgrade. More precisely, the area of Sava riverfront in New Belgrade was selected, in order to analyze the elements of design and usage. Regarding methodology, firstly, the expert observation of natural and built characteristics was applied. In this regard, we tried to determine the elements of riverfront areas that could be connected with the healing characteristics of open green space that have been previously identified through the theoretical background research. Secondly, we analyzed people behaviour, regarding usage and means of transportation in the open green space – riverfront. This form of methodology is based on the concept of environmental design research, in specific environment (Markus, Cooper & Barns 1995,1999). This particular methodology is especially popular and applied in urbanism, architecture and design professions.

RESULTS - FINDINGS

With the presented theoretical background research we were able to identify how natural and urban design characteristics of open green space can be beneficial to public health, as well as how the use of alternative transportation solutions can increase positive health outcomes, including both physical and mental health. In the context of urban city areas most potential for improving public health can be

assigned to the waterfront areas. These areas represent part of city green infrastructure, with all the positive natural characteristics, as well as urban furniture for socialization and communication. In addition, these areas are very often used for alternative transportation such as pedestrian walking or cycling. In the next chapter we are going to briefly present expert observation of open green space and people's behaviour in the riverfront area of New Belgrade.

New Belgrade – Sava riverfront

In pre-industrial cities, waterfront areas were intensely used and thriving with people and activities. Also, during this period, a close relationship was between waterfront and cities. With industrial era, this relationship was interrupted due to some uses, such as huge ports, commercial, industry, warehouses and transportation. Through the evolution of technology, port activities moved to outside of the city, leaving areas of riverfront for sport and recreation - as a public open spaces with natural elements, pedestrian and bike lines and vistas towards water. With the increasing environmental awareness and as a consequence of the pressure for upgrade in a urban areas, waterfronts were rediscovered in the city. In this paper we are going to present the formal and functional characteristics of Sava riverfront in New Belgrade. Sava riverfront represents a public green landscape along the banks of the Sava River, in the coastal land. This area of "preserved" natural greenery, in addition to a significant role in improving the quality of the environment, due to the pronounced strip shape, represent the "green connections" of the system of green areas of Belgrade, thus achieving a significant ecological function. The Sava riverfront in New Belgrade is located alongside the river bay area as a part of New Belgrade mega blocks 70, 44 and 45. This area is developed as a linear park, divided into several segments, with greenery in form of regulated park areas and densely planted trees, providing shaded surfaces and spaces with direct sunlight. This type of landscape with natural settings and vistas of water has positive image for users and provides a restorative and calming effect. Another component of a healing environment is fresh air. Air quality is relatively high in this area due to tall trees and dense vegetation as well as distance from the main roads and traffic.



Figure 1-3: Natural greenery of the Sava riverfront; source: author

Built characteristics of Sava riverfront are in correlation with the aforementioned urban design of a healing or restorative environment. Although often neglected and outdated, selection of a garden-furniture and architectural elements of the square are adapted to the type of use. The complete area is equipped with urban furniture for communal use, as well as small shops, famous coffee places and restaurants on the river, popularly known as “splavovi”, variety of benches for small and large groups of people, communication and socialization. In addition, the area is adequately equipped for different types of physical activity, such as courts for different sports and open gym, as well as pedestrian and bike lines for active modes of transportation, throughout the whole area. The riverfront area offers variety of places that are proved to be beneficial for mental and physical health. Besides positive natural characteristics, there are places for peace and quiet as well as places for socialization, sport and recreation. People behaviour patterns are subjected to the aforementioned types of places in riverfront area. During months with warmer weather, users are sitting in a park, relaxing or walking the dog, playing with children, sitting in restaurants and coffees or doing sports. People are active and engaged in alternative transportation, of exercise in open gym areas.

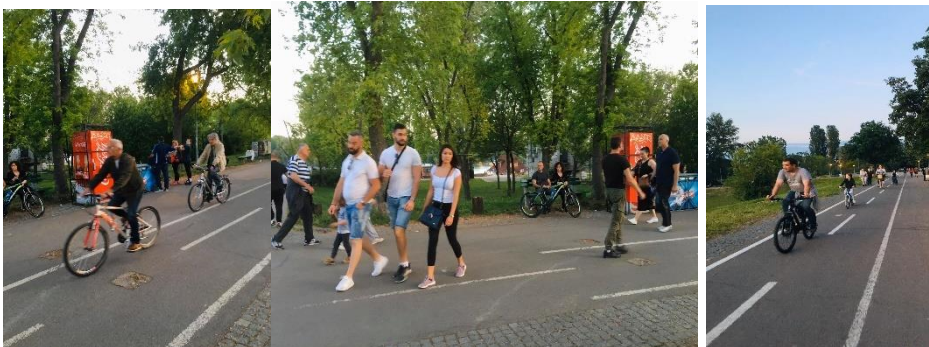


Figure 4-6: People behaviour in Sava riverfront / active transportation; source: author

As seen in the figures, majority of users are engaged in active types of transportation, such as pedestrian walking or cycling. In that regard, the riverfront area is playing an important role in increased physical activity in the city and directly contributing to better outcomes regarding public health.

CONCLUSIONS

The aim of this paper was two-folded. In the first part of the paper – the background theoretical research, we defined characteristics of open public space that can be beneficial for physical and mental health and well-being. Based on presented research we can conclude that green open space can have healing and restorative components, that makes these areas crucial for public life and public health. Promoting sustainable and alternative transportation is an important objective not only for transportation planners, but also for public health researchers and policy-makers. Population health includes preventing disease, prolonging life, promoting health equity, as well as physical, mental, and social well-being. Sustainable transportation can improve population health, through individual transportation choices, activity patterns, walk ability, and increased exposure to green spaces (Munford et al., 2018). Secondary aim of the research referred to the case study research, we identified areas of open public space in a city that can combine all the aforementioned healing characteristics. Riverfront areas presented in this paper showed great potential for improving public health, due to their natural characteristics in combination with urban design that can support activities beneficial for mental and physical health. In order to improve the impact on public health in our cities we should promote and enhance overall usage of riverfront areas.

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