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A MULTIDISCIPLINARY APPROACH TO ACTIVE MOBILITY

EIN MULTIDISZIPLINÄRER ANSATZ ZUR AKTIVEN MOBILITÄT

Aglaée Degros & **Barbara Holler** (TU Graz)

KEYWORDS

Active mobility; multidisciplinary; urban design; coalition; pedestrian and bike-friendly space.

ABSTRACT

Active mobility (walking and cycling) represents a sustainable and healthy form of transportation and is increasingly promoted in urban and transportation planning as well as in healthcare to improve quality of life and address climate change. Concepts and pilot projects such as the *"Fußverkehrsstrategie Steiermark 2030+"* show how active mobility can be initiated. To counter the challenges of climate change sustainably, it is necessary to rethink and redesign the systems and standards of urban design and associated mobility spaces. This can only be achieved through interdisciplinary, multidisciplinary planning and strategies for joint implementation.

KURZFASSUNG

Aktive Mobilität (Gehen und Radfahren) stellt eine nachhaltige und gesunde Form der Fortbewegung dar und wird zunehmend in der Stadt- und Verkehrsplanung sowie im Gesundheitswesen gefördert, um die Lebensqualität zu verbessern und dem Klimawandel entgegenzuwirken. Konzepte und Pilotprojekte wie die *„Fußverkehrsstrategie Steiermark 2030+"* zeigen, wie aktive Mobilität initiiert werden kann. Um den Herausforderungen des Klimawandels nachhaltig zu begegnen, ist es notwendig, die Systeme und Standards des Städtebaus sowie der damit verbundenen Mobilitätsräume zu überdenken und neu zu gestalten. Dies kann nur durch interdisziplinäre, fachübergreifende Planung und Strategien zur gemeinsamen Umsetzung erreicht werden.

Figure 1: Parc Belle Vue, Leuven, Belgium; © *Michiel De Cleene*

1. INTRODUCTION

According to the VCÖ – Mobilität mit Zukunft the term "active mobility" primarily refers to the modes of walking and cycling and is defined as movement using one's own muscle power, which requires an expenditure of energy. Active forms of mobility "not only encourage people to stay active, with the use of human energy rather than fossil fuels contributing to a reduction in air pollution, but also promote social intelligence. After all, active mobility is based on interaction between road users and makes it possible to further negotiate traffic regulations. It adapts easily and simply to the surroundings, whereas passive mobility requires drastic interventions that do not necessarily help to improve the quality for public space."[1] Active mobility is both sustainable and healthy mobility, but it is also an opportunity for urban transformation.

In urban planning, the relationship between spatial design and mobility has always existed, we've just forgotten about it. With the specialization of disciplines and the organization of the territory according to zoning policy, traffic planning and urban planning have become dissociated. However, a global vision of infrastructure, space, and the environment has regularly been theorized, discussed, and implemented. Isn't a "parkway" the contextualization of a motorway in the landscape, and isn't a "close" the spatial arrangement of a cul-de-sac? An integral treatment of spaces dedicated to mobility has given rise to some of the most striking urban spaces in our environment, which continue to shape our cities today, such as the village street, the Haussmannian Boulevards and the Las Vegas Strip (Figure 2) documented by *Venturi* and *Scott Brown*. These different spaces of mobility all reflect the societal issues and concerns of the period in which they were conceived and implemented. *Haussmann* created a space where people could stroll in the middle of the street, where the army could move quickly, but also where the bourgeoisie had a foothold. As for *Robert Moses*, the urbanist that shape 20th century New York, he introduced into the urban texture a space, the parkway, where the modern technology of the automobile could develop.[2]

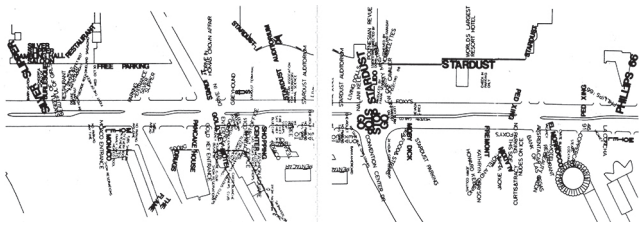

Figure 2: Las Vegas Strips; © *Venturi et al.*, published in *Bendiks/Degros*, Traffic Space (2019)

And yet, active mobility is a form of mobility that has been neglected since modern times, linked to images of an archaic world with no comfort, far removed from the idea of progress that has become widespread with the rise of technology. Today, we have arrived at a turning point: We are faced with climate change and the many calls (IPCC,[3] etc.) that urge us to use our resources more sparingly and reconsider the consequences of progress. Mobility systems are currently being rethought with a view to consuming fewer resources and reducing emissions, but it is also the production of infrastructure dedicated to mobility, which has been steadily increasing over the last 50 years, that is being called into question. That's why in different cities across Europe such as Milan (Piazza Aperte),[4] Utrecht (Catharijnesingel)[5] and Karlsruhe (ÖRMI Project)[6] mobility spaces are being reused and divided up in different ways between different modes of transportation, including active modes.

What's more, they are often partially unsealed to enhance their environmental qualities. In this way, urban space accommodates living dynamics in order to meet the challenge of climate change. Sharing mobility spaces to prioritize living dynamics not only helps to prevent climate change, but also provides a buffer space to absorb the dangers of its consequences. Reclaimed mobility space not only reduces emissions thanks to the development of active mobility, but also, given the decrease spatial footprint of these forms of mobility, provides space to accommodate external climatic events. As active mobility consumes very little space, it offers the possibility of demineralizing the space freed up. Reduced asphalt space means that the soil can be used as a buffer (often greened) to accommodate peaks in rainfall or to develop micro-climates that reduce peaks in heat. In urban planning, transport planning and public health, active mobility is promoted as sustainable mobility. Even though the specific goals of these different disciplines differ in many ways, they share the ambition to foster active mobility.[7]

2. CONCEPT

In the discourse, the shift towards active mobility is relatively widespread, as concepts such as *Carlos Moreno's* "The 15-minute city"[8] demonstrate. *Moreno's* city concept is based on the idea to reduce distances to life's essential needs, so that citizens can reach everyday destinations such as schools, medical services, playgrounds, stores or offices

1 *Bendiks/Degros*, Traffic Space Is Public Space – A Handbook for Transformation (2019), 25.

2 *Degros*, Loger mobiles: Le logement au défi des mobilités, in *Allemand et al.* (Eds.), Les Colloques Cerisy (2023).

3 The Intergovernmental Panel on Climate Change (IPCC) is an intergovernmental body of the United Nations. Its job is to advance scientific knowledge about climate change caused by human activities.

4 Milan: Piazza Aperte – Several (often former car dominated) open spaces in the city of Milan are redesigned and reclaimed as public spaces. In line with the project strategy, the squares are first temporarily redesigned, then the temporary transformation is evaluated and then a permanent design is implemented. See https://www.comune.milano.it/aree-tematiche/quartieri/piano-quartieri/piazze-aperte (accessed on 25.4.2024).

5 Utrecht: Catharijnesingel – As part of the redevelopment of the area around the Utrecht central station, the Catharijnesingel canal, that had been replaced by a road in 1969. The canal is no longer underground and was recovered and a new public space that is accessible for cyclists and pedestrians was created. The redesign includes green spaces, cycle paths and pedestrian zones as well as the integration of art and furniture and aims at improving the quality of life in the area and promoting the ecological transition. See https://www.publicspace.org/works/-/project/m357-catharijnesingel (accessed on 25.4.2024).

6 Karlsruhe: ÖRMI Project – Various public spaces in the inner city of Karlsruhe are being reorganized and redesigned with the strong participatory involvement of the population. The aim is to make the city center more livable and attractive, to provide more space for sustainable forms of mobility and for people to linger. See https://www.karlsruhe.de/mobilitaet-stadtbild/stadtplanung/staedtebauliche-projekte/neugestaltung-innenstadt/oeffentlicher-raum-und-mobilitaet-innenstadt-oermi (accessed on 25.4.2024).

7 *Koszowski et al.*, Active Mobility: Bringing Together Transport Planning, Urban Planning, and Public Health, in *Müller/Meyer*, (Eds), Towards User-Centric Transport in Europe (2019).

8 *Moreno*, The 15-Minute City: A Solution to Saving Our Time & Our Planet (2024).

within a 15-minute walk or bike ride, hence relating mobility to planning and time to space. In *Moreno's* approach of a vivid and compact urban space, where residential, office and commercial areas are no longer considered separately, active mobility is promoted while motorized traffic is reduced. By ensuring that all essential facilities and services are within easy reach, the need for long commutes is reduced and people automatically switch from motorized private transport to modes of active mobility such as cycling or walking. This helps to reduce traffic congestion, air pollution, and greenhouse gas emissions. At the same time, it promotes a healthier lifestyle by encouraging people to walk or take the bike.

In addition, the proximity of people and facilities strengthens the social fabric and boosts the local economy by supporting local retail and bringing communities together. A decentralized supply structure can strengthen a city's resilience and help to anticipate and manage crises such as natural disasters or health pandemics, as it enables a robust supply of goods and services at the local level. The 15-minute city can not only be adapted to small towns, but can also work in larger cities that are based on a polycentric structure. Here, too, it is possible to plan and arrange daily living areas within a 15-minute radius. If the built-up area is limited to this radius, the cities can be densified inwards while soil sealing is kept to a minimum. Overall, the concept of *Moreno's* "human-centric city"[9] aims to improve the quality of life by creating a balanced, sustainable and vibrant environment.

However, the implementation of the 15-minute city is not without challenges and potential negative effects. It's installation in individual district centres can lead to ghettoization. The concept lacks analytical rigor, particularly in addressing structural forces that enable urban inequalities and unequal access to essential services. The broader ideas of diversity and digitization are often at odds with the more specific and quantifiable measures of accessibility. There is also criticism that this concept is used as a mere advertising slogan. It is pointed out that the measurement of accessibility is insufficiently defined and, in some cases, misunderstood. There is no clear definition of the radius or distances to be considered for a 15-minute city.[10] As *Guzman* explains: "The 15-minute city concept has been associated exclusively with proximity, even though there is consensus in the transport and urban planning literature that accessibility is also a function of perceptions, diversity of services, and transport conditions."[11]

Realizing this concept is extremely difficult, also because we are confronted with routines born in modernity, frozen in norms that today seem unshakeable. Nevertheless, pilot projects are beginning to emerge that encourage a different sharing of space and challenge the existing system of passive mobility. One example is the emergence of "fietsstraats", "shared space", "Begegnungszonen", or "Tolerance track", across Europe. What started as an experimental project, has become a new regulation in public space vade mecums and other guides to regulating urban spaces.[12]

The space of mobility can not only be considered through the lens of traffic but rather as a public space that requires an approach that involves not only transport planning but also town and landscape planning and environmental engineering.

3. PILOT PROJECT

Figure 3: The Active Mobility Space, Parc Belle Vue, Leuven, Belgium; © Artgineering, H+N+S Landscape Architect, ARA

Park Belle-Vue, located in Leuven, is a 2 km long project area located near Leuven station, between the railway embankment and a housing estate.[13] The area once consisted of a busy through road (the Martelarenlaan) and a residual space used as a car park. There were wide lanes, also used by HGVs, a narrow pavement on one side and bike lane markings on the carriageway itself. The junction with the road at the southern end of the plot was one of the most problematic traffic hotspots in the city, with many traffic jams and accidents, also involving cyclists. The initial measures for the transformation involved the establishment of connections with the city's and the region's pedestrian and cycle routes, the closing of an infrastructural gap in the active mobility network, and the development of vegetation along the ecologically valuable railway corridor. The most important intervention, however, was the relocation of the busy Martelarenlaan and to partially embed it in the railway embankment. A small promenade runs alongside the buildings, combining a cycle path and a cycle boulevard, so active mobility has been combined with local residential traffic passing through the development on the promenade below. The landscape architecture is designed to be robust and flexible, so that it can respond to changing demands and conditions in the future[14] (see figures 4 and 5).

The promenade profile is a trick to prioritize active mobility. It consists of two concrete paths divided by a central strip of natural stone. These concrete paths are just wide enough for two cyclists to ride side by side, but are too narrow for a car to pass through smoothly. This means that cars always travel with two wheels on a bumpy stone surface, hence reducing their speed and ensuring that cyclists cannot be overtaken by cars, which is a requirement for a cycle lane. Following this pilot project, this profile was included in the Vademecum Fietssvoorzieningen,[15] a booklet describing the standard guidelines for quality cycling infrastructure in Flanders. The guidelines are not binding standards, but should be seen as recommendations and frameworks for quality cycling infrastructure, that can support designers in justifying their choices. The guidelines help to create an environment

9 *Moreno*, 15-Minute City (2024).
10 See *Guzman/Oviedo/Cantillo-Garcia*, Is Proximity Enough? A Critical Analysis of a 15-minute City Considering Individual Perceptions, Cities 2024, https://doi.org/10.1016/j.cities.2024.104882.
11 *Guzman/Oviedo/Cantillo-Garcia*, Cities 2024, 3.
12 *Institute of Urbanism*, Territorial Urbanism Now (forthcoming).
13 Leuven: Parc Belle-Vue project was awarded the best bicycle infrastructure in Flanders in 2021 and best public space in Belgium in 2023.
14 Project team: Artgineering, H+N+S Landscape, ARA.
15 *Artgineering,* Vademecum fietsvoorzieningen (2022), https://www.artgineering.eu/portfolio/vademecum-fietsvoorzieningen/ (accessed on 25.4.2024).

Figure 4: Before, Parc Belle Vue, Leuven, Belgium; © Artgineering, H+N+S Landscape Architect, ARA

Figure 5: After, Parc Belle Vue, Leuven, Belgium; © Artgineering, H+N+S Landscape Architect, ARA

in which cycling is safe, convenient, and easily accessible. In addition, they create the necessary conditions for a healthy, attractive, and legible public space. This being the case, the results of the pilot project have been applied to the entire regional infrastructure.[16]

As a continuation of the pilot project and the vademecum, in 2021, the Flemish Minister for Urban Affairs, the Team Vlaams Bouwmeester, Fietsberaad Vlaanderen and the Agentschap Binnenlands Bestuur launched a call addressing those local authorities who wanted to make a qualitative leap in the planned redevelopment of public space in one of their neighbourhoods. Today, seven selected towns and municipalities are supported in the transformation of a residential area into a genuine Leefbuurt,[17] a living neighbourhood largely designed from the point of view of pedestrians and cyclists, one that is healthy and pleasant to live in, invites encounters and offers more space for relaxation, greenery, and water. The Leefbuurt policy is about active mobility as means to achieve vital, liveable, inclusive and healthy neighbourhoods. It addresses accessibility for a diverse community including people of all ages, genders, ethnicities and abilities. The policy promotes behavioural change and formulates practical guidelines for the transformation of neighbourhoods, taking into account all users.[18]

Figure 6: Leefbuurt – Zeenstraat; © VLM

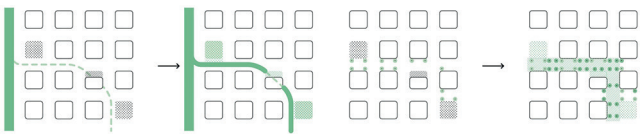

Figure 7: Leefbuurt – Zeenstraat; © Artgineering

4. POLICY

While the Leefbuurt policy in Flanders approach active mobility as a trigger of multidisciplinary planning, in Styria's walking master plan, created at the municipal level, pedestrian traffic links the various aspects of planning. Based on the Mobilitätsmasterplan 2030 (Master Plan Walking 2030) developed by the Federal Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology, the federal state of Styria published the *Fußverkehrsstrategie Steiermark 2030+*,[19] formulated by the Office of the Styrian Provincial Government, Department 16 Transport and Provincial Building Construction in October 2023.

This strategy, once again, sets out good reasons for walking and presents measures for improving the situation for pedestrians in Styrian cities and municipalities. This ranges from the establishment of suitable infrastructure to the pedestrian-friendly design of public spaces, to meaningful cooperation, to communication and the participation of citizens. In order to support the development of more walking, the Provincial Government of Styria relies on the following three pillars:

1. Building infrastructure and designing public spaces;
2. organization, cooperation and structures, and
3. communication and citizen participation.

16 *Artgineering,* in collaboration with the VUB, was commissioned by the Flemish agency AWV and Fietsberaad to provide the process, content and design.

17 Vlaams Bouwmeester, Leefbuurten (2024), see https://www.vlaamsbouwmeester.be/nl/subsite/leefbuurten (accessed on 25.4.2024).

18 *To* realize this project, the Flemish state architect and Fietsberaad Vlaanderen set up a collaboration. The study combines spatial planning and cycling policy, a top-down and bottom-up approach, as well as design practice and academic research. *Artgineering* with the support of VUB (Vrije Universiteit Brussel) and in collaboration with different municipalities, researched inspiring examples, strategies, and hands-on design principles.

19 *Fußverkehrsstrategie Steiermark 2030+* is a cooperation of Land Steiermark with Graz University of Technology, a team at the Science, Technology and Society Unit and at the Institute for Urbanism.

The Provincial Government of Styria promotes the creation of strategic concepts to improve pedestrian traffic on the basis of the "klimaaktiv mobil" funding program of the Federal Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology. The prerequisite is a local pedestrian traffic concept ("Örtliches Fußverkehrskonzept" or "Lokaler Masterplan") which must be drawn up by planners in cooperation with the respective municipalities. The concept is based on an analysis of the current situation, integrative planning with the participation of citizens, the involvement of various experts (from the fields of landscape planning, architecture, urban development, traffic planning, etc.) including the prioritization of permanent and temporary measures. However, the focus of the Styrian walking strategy is not only on urban and traffic planning, but primarily on the needs of pedestrians. Their experiences, expectations and perceptions are crucial for the development of attractive footpaths. In addition, the walking strategy aims to revitalize town centres and public spaces in order to make them more attractive (for pedestrians). Small communities which are severely affected by rural flight and vacancies are to be convinced by the fact that walking can also drive the local economy. Active mobility turns a street into a living space.

Based on this policy, the different municipalities will be supported in the realization of their master plan by a "Fußgängerstammtisch", a place of dialogue where the standards to be questioned will be discussed with representatives of the Federal State of Styria, local offices and experts of various fields like transport, health and urbanism on a regular basis. In order to be able to submit the pedestrian traffic concept, a detailed analysis, a preparation of the data and an evaluation of possible measures are required.[20]

5. CHANGING SYSTEMS AND STANDARDS

The existing conditions upon which the 15 min concept from Paris, the Pilot project of the Parc Belle-Vue and the *Fußverkehrsstrategie Steiermark 2030+* of the Province of Styria are dominated by car mobility and the presence of road infrastructure. Abundant and costly to maintain, these asphalt infrastructures are also rooted in standards that present them as "as found" conditions. Working with the existing situation and considering it as a set of found conditions on which the design is based, requires a thorough understanding of these conditions but also of the existing systems. The present situation is obviously made up of visible physical objects, roads, street, avenues … which are the "as found" conditions. Added to these conditions are the existing systems that underpin them: active, passive or collective mobility.

It would be an aberration to say that we have to start from an existing situation without thinking about the systems that govern them. Considering the current challenges the discipline has to face, it seems obvious to focus on those systems that are moving the discipline towards a sustainable world. Hence, it is a question of looking for traces and potentials of sustainability in the existing situations and prioritize them in future developments. We have to be able to question the

Figures 8: From the monofunctional street as a thoroughfare to a livable space – *Fußverkehrsstrategie Steiermark 2030+*; © *Sandra Freudenthaler*

norm. It seems impossible to imagine the world without the Anthropocene and its modernity, but it was preceded by other secular standards. Nowadays urbanism is a matter of applying a kind of urbanism in reverse, where priority is given to what has been neglected in Anthropocene urbanism. Priority is given to sustainable systems: green and blue ecological continuities, land reclamation, active and collective mobility, etc. Previously housed in residual spaces, these systems are now becoming structuring elements of the territory. There is indeed a spatial reuse of places, but above all there is a fundamental reassessment of the systems that support them.

To illustrate this, the spaces dedicated to car parks, are not being built on; the existing structure is considered as an "as found" condition, but the mobility system is being reorganised, using mobility schemes to free them from the functional aspect of car mobility. They are being unsealed and transformed into genuine public spaces. We could therefore speak of a systemic reverse,[21] where the systems prioritized are those that are the opposite of the systems that were prioritised in Anthropocene urbanism. The systems that take their place no longer value individual mobility as the top of the travel pyramid, but rather encourage a mobility that builds a community in harmony with its environment, i.e. active mobility. The standards are questioned in some innovative project seeing their materialization transformed: asphalt is giving way to grass block pavers, while their layout no longer responds to the desiderata of motorized speed, but rather to their potential as meeting places or places of activity and re-naturalized space.[22]

20 *Land Steiermark*, Nur einen Spaziergang entfernt – Fußverkehrsstrategie 2030+ (2023).

21 *Institute of Urbanism*, Territorial Urbanism Now (forthcoming).

22 *EUROPAN 17*, Living Cities 2 (forthcoming).

6. FROM MULTIDISCIPLINARITY TO COALITION

Active mobility and multidisciplinary are closely linked, as the promotion of active mobility involves a multitude of aspects that go beyond simple transport planning as described through the case studies mentioned above. To achieve a comprehensive and sustainable promotion of active mobility, different fields such as transport, urban planning, health, environment, social sciences and economics need to work together. A multidisciplinary approach makes it possible to understand the complex interactions between these different fields and to transform them to improve the sustainability and quality of life in urban areas. New developments call for interdisciplinary and mixed teams, in which different interests and needs of urban or local communities are represented.

Transforming systems requires bringing together the different disciplines that have been operating in silos since modernity. We need to perform the shift from a very fragmented conception of space and of mobility towards sustainable systems. This fundamental change, including transformative actions, can only emerge with joint forces in a process that requires not only a collaboration between different disciplines, but rather a coalition: an organizational structure that operates between a diversity of actors and agents who share a common mindset and collective goal (see figure 9).[23] A dense network of collaboration helps expand disciplinary boundaries, avoid silo thinking, and create alliances. These alliances can be formed spontaneously and can go beyond traditional stakeholders.

In Leuven, the ecology of the new unsealed park – as expressed by the landscape designers, but also the strong impact of local school representatives in favour of safe active mobility – was largely supported by a participatory process. Leefbuurt is supported by both the cycling lobby and local developers. As for the strategic pedestrian plan of Styria, it brings together the local and regional planning levels. A coalition can be made up of different interest groups, such as authorities, planners, organizations, businesses, urban planners, health experts and citizens, working together to improve infrastructure and policy in favour of active mobility. Forming a coalition makes it possible to pool resources, share expertise and exert political pressure in order to move transport policy towards an integral approach.

7. CONCLUSION

ZAM – Zentrum für Aktive Mobilität (Center for Active Mobility) is such a coalition. It was established in Graz in 2023 by the two largest universities in Graz as an inter- and transdisciplinary hub for research and knowledge devoted to active mobility. An endowed professorship was established at the Institute of Environmental System Science at the University of Graz by the Provincial Government of Styria and a position for a project assistant at the Institute for Urbanism at the University of Technology Graz, financed by the City of Graz. ZAM was first initiated by the Wegener Center and the Institute of Urbanism in collaboration with the city of Graz and is funded by the Federal State of Styria, the City of Graz and donors from the private sector (as for example an insurance company).

23 The figure comes from the publication *Armengaud/Degros/Radulova-Stahmer* (Eds.), Towards Territorial Transition (2023). The coalition is an interpretation of the notion of platform developed in the book.

Figure 9: Towards Territorial Transition; © AWP Agence de reconfiguration territoriale

The diversity of actors in this coalition enables the development of new scientific findings, decision-making principles and solutions for active mobility in the cross-field context between climate and environment, space, health and economy. It aims at establishing active mobility as an inter- and transdisciplinary field of research that considers urban and rural areas and that is made visible nationally and internationally. The focus is on questions around how the existing space can best be designed, how the transformation to public mobility spaces can succeed and how conflicts between the different modes of transport can be avoided. The researchers will develop findings and solutions together with various interest groups such as residents, businesses and politics. This approach aims at engaging, influencing and coordinating a wide range of stakeholders around a common vision.

The ZAM works on solutions to improve active mobility in Graz and beyond through the coalition of several disciplines, urban planning, environmental system sciences and the topic of traffic behaviour, and to link these with the work of the city's administration. Hence, several disciplines, organizations and departments contribute their expertise, experience and expectations to promote active means of transportation and create diverse and pedestrian-friendly urban and rural environments. The centre is currently focusing, among other things, on establishing *Lucy Saunders's* concept of "Healthy Streets"[24] in Graz. As a "human-centred framework for embedding public health in transport, public ream and planning,"[25] it presents "10 Healthy Street Indicators" that focus on "the human experience of being on streets"[26] and that

24 *Healthy Streets Ltd*, What is Healthy Streets? (2019), see https://www.healthystreets.com/what-is-healthy-streets (accessed on 25.4.2024).
25 *Healthy Streets Ltd*, https://www.healthystreets.com/what-is-healthy-streets.
26 *Healthy Streets Ltd*, https://www.healthystreets.com/what-is-healthy-streets.

follow the goal that all people should be welcomed in the streets and feel relaxed and safe. More specifically, this means raising the awareness for a healthier street space that improves the quality of life, that strengthens not only social contacts and neighbourhoods, but also the framework conditions necessary for public health and well-being.

AUTHORS

Arch. Univ.-Prof. **Aglaée Degros**
Institut für Städtebau
TU Graz
Rechbauerstraße 12/II
8010 Graz
a.degros@tugraz.at

Barbara Holler, BSc
Institut für Städtebau
TU Graz
Rechbauerstraße 12/II
8010 Graz
barbara.holler@tugraz.at