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17–19 May 2018, Zadar, Croatia

# Road and Rail Infrastructure V

Stjepan Lakušić – EDITOR



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Organizer  
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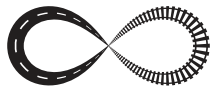
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## SHARED SPACE CONCEPT IN URBAN AREAS

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### Abstract

The “Shared Space” concept in urban environments firstly implemented within the Interreg IIIB North Sea program (2000-2006), with the aim of designing public spaces where personal traffic is not dominant. Increasing use of personal vehicles, has led to the adaptation of the public spaces to personal vehicles, when designing the space, and in this way all other types of transport became less relevant. The true flourishing of this concept was achieved by incorporating it in the Guidelines for Developing and Implementing a Sustainable Urban Mobility Plan, as an equal measure for reducing the use of personal vehicles in urban environments. By using the “Shared space” concept, the space is no longer shared, it merges, and the barriers are not lifted but crashed. Within the “Shared space” zones the corridors for vehicles, are not strictly defined. The same applies to corridors for pedestrians or facilities. All surfaces are usually located at the same level, ie they can be slightly raised, but in a way that they do not present an obstacle either to pedestrians or to personal vehicles. In this way, designing such spaces requires an innovative approach to planning, designing and making decisions. The result is involvement of the public and politics in decision making. The benefits identified by the use of such concept are not unified, but they lead to a reduction in the emission of harmful gases, increased traffic safety by reducing the number of traffic accidents and reducing urban congestion. One of the benefits of such approach, although not immediately visible, is that, participants in traffic, assume the responsibility for their behavior. Some examples of good practice will be presented in this paper.

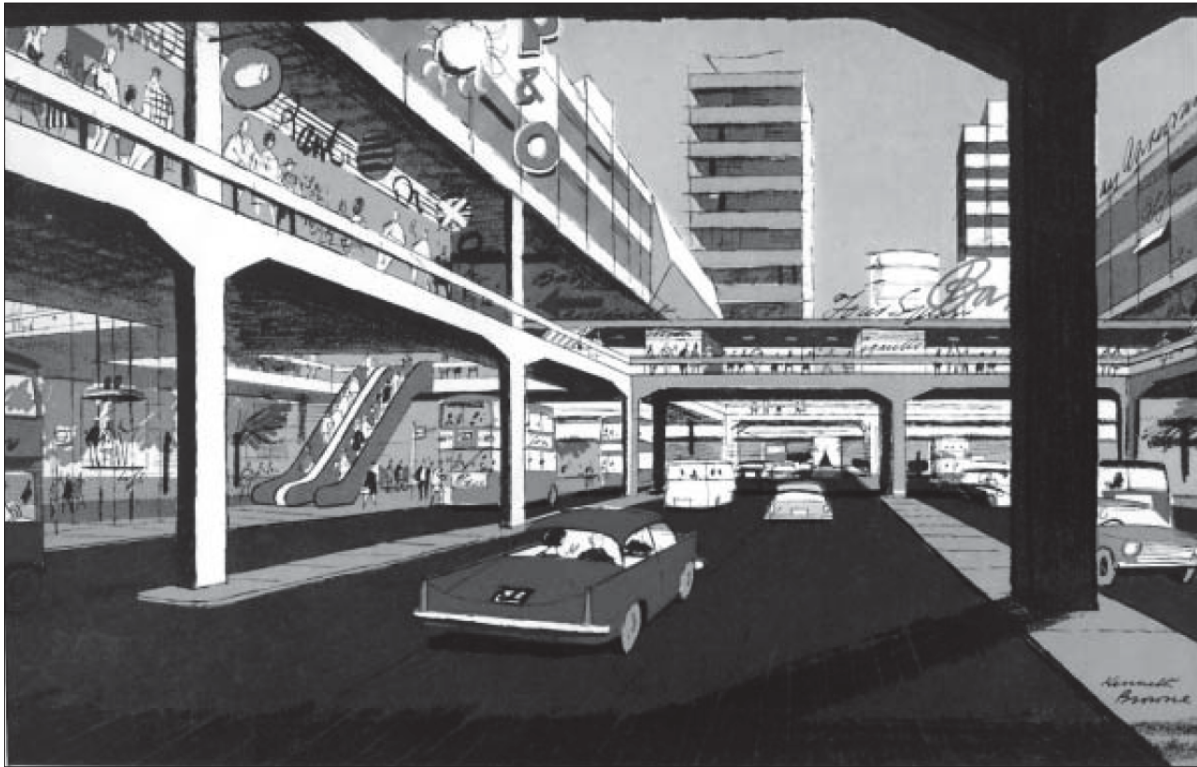
*Keywords: Shared space, urban mobility, SUMP*

### 1 Introduction

From the early 1960’s traffic planners are trying to find the optimal balance between motorized and unmotorised traffic in the urban areas. In 1963. Colin Buchanan published his report *Traffic in Towns* [1] where he argued that streets for movement should be strictly segregated from streets and public places for social interaction. A hypothesis that was accepted then, was that traffic segregation should be the keynote of modern road design.

Underpasses and bridges, road crossings and traffic signs have become a word that clearly gives dominance to traffic. Because of the dangers of interaction, the spaces in which people were walking, drinking coffee, or those in which children were playing were strictly separated from the traffic surfaces.

Today, there is more and more evidence that, instead of increasing safety, this separation actually increases the risk for pedestrians and cyclists, and that removing curbs, barriers and signs makes the urban environment more pleasant, slower, less crowded and cleaner. With that in mind, came the idea of “shared space”. Although we have no unambiguous definition of that term, we can say that “shared space” is an urban design and traffic engineering concept that integrates pedestrians, vehicles and other road users through the removal of traditional street elements such as signs, traffic lights, pedestrian barriers, road markings and kerbs, [2].



**Figure 1** Segregation of traffic from civic spaces, [1]

Within “shared space” concept, space is accessed from the point of view of the community. It is developed according to the philosophy that when designing public space all functions must be in balance. Designing and appearance of public spaces should therefore be made equal to the various functions and meaning of these areas for people. Areas, designed so far by the driver’s requirements and traffic politics, are now becoming a space with the fusion of different content.

There are areas in which people meet, which are the living quarters of a modern urban city where something is happening or taking place, where people are relaxed and where they get acquainted with public life and the environment. Movement, involving motorized and unmotorized forms of transport, is essential for people and goods to move from one place to another. Freedom of movement and social interaction between people are decisive criteria in the public space, and a person traveling through that space is considered a guest and must behave accordingly. On the other hand, this person’s behavior is different in corridors that are only used for traffic, or areas that are designed to move quickly from one place to another.

## 2 Shared space theory

In the beginning of the transport evolution and driving cars, people and vehicles “shared the space”. The increasing use of personal vehicles has led to the adaptation of the public spaces for the personal vehicles, when designing the space, pushing everything else apart. This has led to the marginalisation of pedestrians and cyclists in the upper tiers where vehicular capacity requirements predominate.

The idea of “shared space” grew out of the *woonerf* (meaning ‘residential area’) concept developed in the Netherlands in the late 1960s and early 1970s by Dutch traffic engineer Hans Monderman. A *woonerf* is a residential street where pedestrians and cyclists have legal priority over motorists. Personal vehicles are allowed, but Dutch law states that they are restricted to walking pace, [4].

Some villages and smaller cities in the Netherlands have been included in the program, and by removing the barriers they reached a speed reduction of more than 40 %, while some

towns (Makkinga) have virtually eliminated horizontal and vertical signaling, [3]. It could be concluded that the lack of signposts of priority and signaling at intersections does not affect the safety of traffic participants. Monderman and his colleagues embarked on a redesign of increasingly complex intersections with higher traffic burdens, and as a result, they reduced the speed and burden of accidents with a space closer to people.



Figure 2 Natural shared space in Elizabeth St, Melbourne c1900 [3]

The “Shared Space” concept in urban environments has begun to be implemented within the Interreg IIIB North Sea program (2000-2006), with the aim to set up an innovative road traffic project by a new approach with designing public space where traffic no longer dominated the environment rather, balanced itself out with other functions, [5].

Upon completion of the project, this philosophy based on seven pilot projects conducted in the most developed countries of European Union (Netherlands, Germany, UK, Denmark, Belgium), has begun to be used in other countries, based on “good practice” examples. By using the concept, the space is no longer divided, it joins, and the barriers are not lifted but tear down.

The true flourishing of this concept was achieved by incorporating it in the Guidelines for Developing and Implementing a Sustainable Urban Mobility Plan [6], as an equal measure for reducing the use of personal vehicles in urban environments.

### 3 Traffic regulations

In the most EU countries there are no “shared space” rules in the traffic signs regulations, or a sign that would regulate that term. However, in urban areas primarily intended for residential use, the terms like dutch “woonerf”, which means “residential area” or “living street”, or “traffic calming zone” or “walking speed area” are used. In zones marked with such a sign (fig. 3) pedestrians may use the full width of roads that pass through recreation area, [4]., drivers may not drive at more than a walking pace (or the speed is regulated on signs) and where childrens play is allowed everywhere, [7].



Figure 3 Traffic calming zone signs in Croatia [8]

In the UK, there is a “shared space” sign and it stands for the road ahead where motorists, cyclists and pedestrians should expect to share the same space, [9].

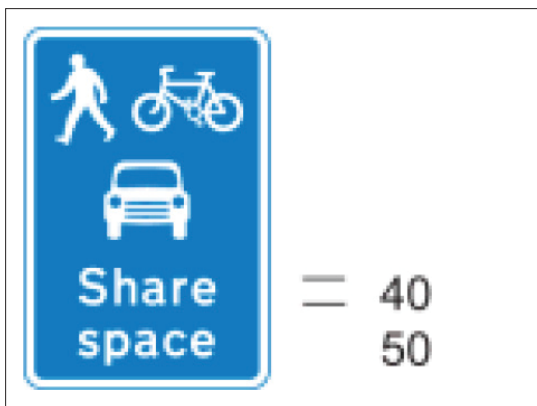


Figure 4 Shared space sign in UK [9]

Outside the EU, for example, according to Australian Road Rules [10], shared zone exists where there is a shared zone sign and an end shared zone sign on a road and there is no intersection on the length of road between the signs – that length of road. The speed-limit applying to a driver for any length of road in a shared zone is the number of kilometers per hour indicated by the number on the shared zone sign on a road, or the road into the zone. In the shared zone a driver of a vehicle entering or proceeding along or through a shared zone must give way to a pedestrian who is in the shared zone.



Figure 5 Shared space signs in Australia [10]



According to the New Zealand Transport Agency's Pedestrian Design and Planning Guide [11], a shared zone is a residential or retail street that has been designed to give priority to residents and pedestrians while significantly reducing the dominance of motorised vehicles.

The main difference between the shared space/zone streets and "woonerf" streets is a design. Usually "woonerf" streets have all typical street elements including line-markings, traffic signals, signs and kerbs, while in the shared space zone these elements are excluded, and contain elements like seats, cycle parking and landscaping.

Within the shared space zone, corridors for vehicles, as well as pedestrian or other corridors are not strictly defined. All surfaces are most commonly found in the same level, ie they can be slightly raised but in a way that they do not present an obstacle either to pedestrians or to personal vehicles. The only condition for vehicles is to respect the speed, which must be adjusted to the pedestrians.

## 4 Benefits and disadvantages

If properly implemented, shared space zones bring great benefits to urban mobility. One of the main goals is the **greater comfort of the pedestrians**, which is achieved by removing separations between pedestrians and vehicles. With the addition of non standard paving and other street furniture, shared space zone provides really pleasant environment for pedestrians. Research in the UK has shown that pedestrians are more likely to linger in a shared space and treat it as a 'place' (as opposed to just walking through), [12].

Apart from the mentioned, the goals are also **reduced vehicle speeds and reduced vehicle volumes**. With the Interreg project [5] a hypothesis appears that drivers will slow their speed with reducing demarcation on the road. Research has shown that the hypothesis was correct and that the speed in such zones decreased by an average of 20-25 km/h, [11]. Regarding reducing vehicle volumes, it has been shown, that if there is an alternative route for drivers, most of them will use faster route and not shared space. This can lead to increased volumes and problems on other roadways, so it is exceptionally important that shared space concept is considered within a network plan for the area.

Although in the beginning many people were skeptical regarding the goal of **increasing traffic safety** with this concept, there is no evidence that shared space schemes result in more casualties than traditional street layouts where traffic volumes are below 14,000 vehicles per day. For streets with vehicle flows above 14,000 vehicles per day there is some evidence (although inconclusive) that applying shared space design principles may increase accident rates, [13]. Although it is not strictly traffic-conscious, shared space brings another benefit as **improved economic activity**. Case studies from America, Australia and the UK have shown that streetscape enhancements can add value to an area and are associated with higher rents and the attraction of new business, [14].

Apart from the benefits, this concept brings some disadvantages. The most insecure group are people with disabilities, especially blind and partially sighted people. The key element that presents problems is removing the kerbs between the road and the footpath. That is why UK conducted a campaign called "Say No To Shared Streets" involving 32 British disability groups. They attacked shared space concept and the call it "death traps", saying they pose a threat to the safety of visually impaired pedestrians, [15].

In addition to the problem with kerbs, the problems with bicycles, trees and tables, which are an integral part of this concept, are also highlighted here because they affect blind and partially sighted people in a problematic way.

As a result, many blind people choose other, more secure routes for them, instead of passing through the shared space zone, [16]. Therefore, designers, city authorities and disability groups, must find a solution in the future to create a space where everyone feels good.

## 5 Conclusion

If properly implemented, shared space zones bring great benefits to urban mobility. One of the main goals is the greater comfort of the pedestrians. With “shared space” approach, streets should no longer be designed by assuming ‘place’ to be automatically subservient to ‘movement’. Both should be considered in combination, with their relative importance depending on the street’s function within a network. Research shows that, as the level of demarcation between pedestrians and drivers is reduced, the amount of interaction taking place between these modes increases. Reducing demarcation indicates that the street is meant to be shared equally by all users of the street. Implied priority for vehicles is reduced, as are physical and psychological barriers to pedestrians using the street, [17].

The concept is conceived in three steps: construction and extension of city boulevards, intra-urban planning of traffic in the sense of building one or more city rings and the introduction of a shared space zone, [18]. This concept has a powerful impact on reducing adverse environmental effects of road traffic. In addition, it solves the issues of increasing the safety of traffic participants, solves traffic congestion and improves economic vitality in streets and public spaces, thereby reducing noise in the streets.

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