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## Traffic in the city

### A new approach to design of public space

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#### Abstract

The concept of 'Traffic in the city' is a structured way of thinking about the design of public space and the choices that have to be made in this context. It provides a guideline on structural level which means the different networks of transportation and the difference zones in a city; from predominantly living quarters to shops and other amenities. It also describes steps on local level that help with the translation of policy-, social- and environmental goals into the design of streets. Though Traffic in the city hasn't been physically implemented yet, it has inspired several local governments on how to go about urban design in a different way.

#### Keywords

Public space; micromobility; networks; transportation; guideline.

### Traffic in the city: a new design approach for urban public space

Cities are becoming increasingly crowded. It is not easy to keep cities accessible and pleasant to live in. Fortunately, cycling is getting more and more popular. In recent years, there have been not only more but also many new types of bicycles and other small means of transport added. With or without (auxiliary) engine. Those vehicles often go faster and/or are larger than the bicycle. Just think of e-bikes, large cargo bikes, scooters, etc.. On the cycle lanes it becomes ever more crowded. The result: congestion, irritation and unsafe situations. In addition, we see in our cities and the design of the public space more attention to themes such as sustainable mobility, health and higher residential quality. Also the tendency to reduce the provided space for the car, both on the road as parked on the street. Different urban functions and qualities are competing with traffic ambitions and values. Our current city layout is more and more deficient in this new reality with a great diversity of vehicles and a heightened focus on sustainability, liveability and safety in addition to accessibility.

### A different approach to the design of urban public space

The city belongs to everyone. At the same time, it is impossible to satisfy everyone in it when it comes to the quality of the public space, quality of life, road safety and accessibility. This requires choices to be made when (re-)designing the public space: choices on different scales and choices where you have to make integral considerations. How do you do that? ANWB, as representative of the interests of all 'mobilitists', together with mobility experts (Ben Immers consultancy, Mobycon, Bart Egeter consultancy, Awareness) figured out how to design cities in such a way that all traffic participants have enough space, traffic becomes safer and the city is pleasant to live in. We want more sustainability, liveability, road safety and accessibility: this calls for a different, integrated approach to the design of public space. The result is the design methodology 'Traffic in the city'. This methodology is in line with national policy and is applicable under the current laws and regulations. There are always multiple options for designing streets. Traffic in the city helps with selection the right ones in a structured way.

In reality this means that there's given more room to residing, walking, cycling and light electric vehicles en less room for cars. This may mean that the car is not allowed to go as fast, that the car loses a lane or direction of travel, or that the car is a guest in a narrower street. It may also lead to a reduction in the number of on-street parking spaces. In other places, you consciously choose to facilitate main access routes for car, bus and freight traffic. The methodology is essentially policy-neutral, but requires choices and will in practice often lead to a very conscious redistribution of space.

## The core of the methodology: the most important principles

In the design method Traffic in the City, we lay a new foundation, with new principles for design. Traffic in the City is a method whereby you first map out your starting points on the basis of the desired spatial quality and then on the basis of the desired traffic flow, at policy level, structural level and on network level. Safety, liveability and accessibility all receive attention. The methodology offers a process-oriented approach of design issues and also handles the shaping of that design. Below, we will discuss some of the principles of the methodology.

### I. The design of a street determines which speed is allowed

The speed limit for all road users will be no longer linked to the type of vehicle, but is linked to where you are. That is already the case for cars, but for many vehicles - think particularly of light motor vehicles such as the electric carrier bicycle and the speed pedelec - it is not yet normal in the city. This principle reduces the speed differences between road users sharing the same part of the public space, which contributes greatly to the road safety. By letting the design of the public space determine the speed limit, we create a calmer and safer traffic flow (fewer differences in speed) and more clarity about what is and is not allowed. Choices in policy, wishes and ambitions on the subject of space and traffic, determine who can drive where and at which speed. The maximum speed is initially enforced by a good and logical design of public space, secondly by regulations and only then - if necessary - by enforcement. A logical design is a design that, by its very nature, meets the right expectations and enforces the behaviour of the users of that space. By applying design interventions it should feel logical where you can or should drive and how fast you can or may drive.

### II. Classification of vehicles by mass and speed

For traffic safety, it is important that differences in mass and speed between traffic participants are as small as possible. A second important principle related to this is working with "vehicle families". We define vehicle families by including similar vehicles in a 'family' on the basis of mass. On the basis of achievable speed, families are further divided into vehicle types. By "achievable speed" we mean: the speed that a vehicle can normally achieve, i.e. without excessive effort from the rider or (illegal) boosting operations on the vehicle. In this way, you can classify a growing variety of vehicles in a limited number of comparable vehicle types as regards to mass and speed. New vehicles can also be easily and quickly placed in this framework. The essence of this methodology is that the vehicle type is used as the basis to determine the position on the road and the associated maximum speed. Each vehicle family deserves its own fully fledged network and we advised cities to determine this for all vehicle families, including pedestrians, light motor vehicles, buses and freight traffic.

### III. Balance between space and traffic at all levels

Every resident or visitor in the city uses the public space in two ways. To reside there, but also to participate to traffic. This notion forms the basis of the design approach: at every design step, there needs to be a balance between spatial quality in the broad sense of the word and an optimally functioning traffic system. In Traffic in the City, spatial quality means not only quality of life, but also space for all the other urban functions that are not related to traffic. In the methodology, we develop urban desire structures for 'space' and 'traffic'. We prevent them from coming together in a late stage

when at the local level the concrete design of a street or route is made. This has the risk that incompatible requirements come to light, when it's too late. We therefore distinguish two design levels within the design approach which we link at the right time: the structural level and the location level.

### *The structural level*

At this level, it is determined for each street, space or area which spatial qualities are important and which traffic networks (per vehicle family) must be given a place. These are considerations on functional level: which vehicles are admitted, which speeds are desirable? Where qualities are mutually exclusive, a choice will have to be made. These considerations at the structural level between spatial and traffic demands, determine the type of urban traffic environment we will be able to assign to a particular public space. With urban traffic environment we mean a street (or area of streets) with a particular speed limit, possibly with special requirements from spatial quality or traffic networks. Think, for example, of qualifications as "residential street-30km/h", "shopping street-10km/h", "school zone-20km/h" or "mixed urban street-30km/h". These urban traffic environments provide a guiding framework for the further layout and the actual design at a more detailed level of individual streets. For example, a 'school zone-20km/h' or perhaps 'school zone-10km/h' means that safety, walking and (slow) cycling are paramount here. A school zone can never coincide with a main car route. A 'living yard-10km/h' means that living, staying and playing are leading. The 'residential street-30' is now the common practice in The Netherlands, but in many places it must be redesigned in order to make the car a real guest. Today, residential streets are too often primarily designed as 'roads'. A '50km/h main road' means a clear choice for the car as the dominant mode of transport. You should preferably only do that in those places where values such as 'tranquility' and 'crossability' are less important. This also means that cyclists should always use a separate cycle track, or better still, should be able to cycle on a wide moped track. A 'mixed urban street-30km/h' is primarily made for cyclists and light motor vehicles, where cars are the guest, but where, in practice, there is also lot of space for pedestrians. The choice and description of the urban traffic environments leads to the framing of the actual design. Although there will often be a number of standard recognizable situations, it is also possible to apply customized solutions.

### *The location level*

At this level a concrete design is made per street, road or square in which a balance is sought between the structural level and the spatial and traffic qualities and what that means for the division of that space into different 'domains'. With a domain we mean a physically separate part of the public space within which a speed limit applies to all vehicles and vehicle types that are assigned to that part of the public space; and whose design is based on a normative vehicle family and a design speed which is appropriate for the maximum speed in that domain.

## Mixing or separating

Depending on the space available, the next choice is which vehicle families do we mix and which do we need to separate? Traffic in the City has drawn up a number of clear rules for this, with the central focus on the principle: mix where it is safe, separate where necessary. Under certain circumstances, a vehicle family may be a "guest" in a domain where another vehicle family is the dominant user. It must abide by all the rules that apply to the family with whom it is a 'guest', such as the speed limit. Faster vehicles that are guests in a domain for a slower type of vehicle, will have to moderate their speed. Think, for example, of a cyclist who must ride at a slow pace in a pedestrian zone, or a speed pedelec that must not exceed a maximum of 20 km/h on a cycle track but is allowed to drive 30 km/h in another street on a moped track. There may also be additional conditions. Being a guest is not an given or right, it has to be considered for each situation.

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## Classification principles

The methodology has a number of standard classification principles that we are already familiar with. Think of a pedestrian area, a residential street in a 30 km zone and a main road with separate cycle paths. In particular for fast bicycles and light motor vehicles these lead to complications in the area of safety (speed and mass differences) or at least unsatisfactory solutions (the fast participant must adapt to the slower ones). Traffic in the city can also accommodate other arrangements, which, thanks to local customization, can better meet all the policy requirements. By thinking about domains and mixing and separating, in combination with principles that follow from choices made at the network level, it is easy to make choices for the actual (re)design. Is a route a main route for cyclists and light motor vehicles but not for cars? Then the bicycle street is a real option. Is it a main route for both and there's little space? Then you could end up on a narrower area access road with a speed limit of 30 km/h with separate bicycle lanes, where the faster e-bikes can choose between 20 km/h on the cycle track or 30 km/h on the carriageway. Car-free or car-limited areas in the inner cities can be implemented as shared space or, on the contrary by providing separate space in different areas. The latter is done less if crossing, shopping or meeting are important themes. And since we also advocate full-fledged networks for light motor vehicles, it also means that in the city you will have more moped lanes or parallel lanes, whether or not at the expense of car lanes or parking. Finally, space must also be reserved for the parking of vehicles. The need for parking space for bicycles and light motor vehicles is increasing. Storing them should not be at the expense of space for the pedestrian. Traffic in the City argues for separate domains for parking.

FOR THE COMPLETE APPROACH TO THE DESIGN METHODOLOGY WE REFER TO  
[WWW.ANWB.NL/VERKEERINDESTAD](http://WWW.ANWB.NL/VERKEERINDESTAD)