The storage of vehicles has been part of building regulations in Germany for over 70 years. In this time the regulatory content hasn’t changed much: core aspect is the obligation to build parking space for users of a building. On the other hand the purpose of this regulation has changed fundamentally in the meantime. While promoting motorization was a professed goal of the so called “Reichsgaragenordnung” in 1939, the resumption of parking requirements after the Second World War had it’s foundation in the prevention of threats to public safety.

The performed analysis however shows that this change in justification of parking requirements did not result in a change of their effects. Parking requirements in fact turn out to be remarkably effective in terms of their original order to foster motorization and continue to work in this manner up until today. The inherent goal to guarantee easily accessible parking opportunities at every traffic source and destination has a paramount influence in this context. Parking requirements have not only led to an abundance of parking space of very high usability, i.e. located in the vicinity of the genuine trip destination, but the use of these parking facilities is cheap and in most cases even free.

On the other hand, this does not mean that there is no cost to this parking. The difference between the full costs of parking and the prices to be paid by the users are a subsidy and thus reduce the cost of owning a vehicle. This difference in terms of costs have significant volumes and result in an increase of motorization. As part of the analysis a theoretical change in motorization between 8 and 14 % was concluded even for a low elasticity of demand of -0.4 and, in perspective of full costs, minor rent of 100 € per parking space and month in residential areas.

Although providing low-cost parking spaces is not explicitly part of parking requirements, they are still a driving force in their occurrence, since they aim to satisfy the maximum expected volume of parked vehicles. This maximum volume is usually determined by the methodological assumption that the parking spaces are available free of charge. Following the basic laws of economics, this continuously leads to a calculated demand which is substantially too large and therefore more parking spaces than needed are built. An oversupply of one good on the other hand leads, ceteris paribus, to a reduction of the price, possibly to a price of zero – in any of this cases, a pricing that covers the costs is no longer possible. The prevention of a market for parking spaces is therefore an inherent part of parking requirements.
As the cost of parking spaces cannot be covered by charging for their service, the costs are distributed elsewhere. In practice this means rising costs for the use of buildings with parking spaces. Calculations made in this work and the literature data assume a current cost effect of 10 to 20% of average housing costs. This effect is generally significantly higher for small residential units as parking regulations usually require a number of parking spaces per residential unit, regardless of the size of this unit. Thus the share of cost for parking per square meter in small homes is correspondingly higher. My calculations show effects on costs between about 20 and 50% for a 30 m² apartment, depending on type of parking space.

Especially low-income households are affected by this disproportionate burden on small residential units in several ways. Low-income households usually live on smaller living space than average and are furthermore motorized below standard. On the other hand are households with large housing-units and high motorization the primary beneficiaries. This relationship reveals a significant social disparity that is caused by the parking requirements. As this scenario is especially applicable for households in social housing projects, it follows that scarce public funds for social housing are wasted to build unneeded parking spaces.

Another effect particularly associated with parking requirements concerns a declining urban density, which again triggers several negative consequences. Of central importance are the total increase in land consumption (and the inherent costs) and the declining accessibility by non-motorized traffic and public transport. For instance, a declining urban density makes the supply with neighborhood-oriented local shopping opportunities more difficult. In areas of low urban density, local shops do not find enough buyers potential in their catchment areas within walking distance. Furthermore are those integrated business units not able to compete for car-shoppers with large disintegrated shopping units that are excellent accessible by car (at keen costs) and that benefit from economies of scale and declining costs for logistics. Thus they are not able to exist without a certain amount of potential customers within walking or biking distance. Analogically this also applies on the potential for a supply with an attractive public transport, since less capita in the catchment area of each stop leads to higher effort in operation to reach the same amount of people. Declining density overall leads to growing distances between different points of interest, which poses an advantage for motorized traffic per se.

Recapitulating the evaluation of parking requirements based on a target system for sustainable urban development and mobility leads to a clear conclusion: parking requirements make not one positive contribution to any of the targets. It is therefore recommended to give up parking requirements for motor vehicles and establish separated markets for apartments (as well as other land uses) on one side and parking spaces on the other. This appears to be the only option, to prevent the at current conditions existing immense externalities of parked cars at future developments.

In light of these results, this work discusses the question if private parking spaces can have part in a future sustainable parking supply at all. The lack of options for management and sovereign control of private parking space by the public, as well as economic considerations to the fundamental behavior of the owners of private parking spaces lead to a clear conclusion: The prohibition of the construction of any private parking (possibly with a few narrow exceptions for the fleet of commercial uses), to generally organize the parking supply exclusively sovereign and to concentrate parking in centralized plants wherever possible. The conclusion of this work does not result in a recommendation to artificially cut back the supply of parking spaces. The existing demand for
parking at cost covering price (or at a higher chosen price that allows a sustainable amount of parking) should be satisfied.

The recommended exclusively sovereign supply of parking is not a disadvantage for local authorities, because the covering of all costs accompanied with the supply of parking is an inherent part of the proposal. However, local authorities must prepare for changing patterns of demand, which can be compensated for by parking structures that can be reconstructed for other uses or disassembled and reused.

The current regulations for bicycle parking also do not meet the requirements of sustainable urban development and mobility, although the reasons differ to parking requirements for cars. Bicycle parking has been required at apartment buildings for over 50 years and has become common standard for most other uses within the past 20 years as well. Still this hasn’t led to a satisfying situation. Due to the absence of any quantitative or qualitative requirements in building regulations the existing bicycle parking is usually of little or no practical value for everyday life bicycle users.

In contrast to fostering motorization the general promotion of bicycle ownership and use stands in high accordance with the goals of a sustainable development. In this respect, the adherence to the parking requirements for bicycles is not only objectively correct, but their further development and enhancement of appropriate quality criteria is urgently needed. For several years, a standard work on this topic has been available from the ‘German Research Association Roads and Transportation’ (Forschungsgesellschaft für Straßen- und Verkehrswesen, FGSV), giving all the relevant information. The availability of this data has however not resulted in common use in private developments. The conclusion of top priority to be drawn is the need to introduce qualitative requirements for bicycle parking in current housing regulations, analogous to the well known “Garagenverordnungen” that have been in effect since 1963 for car parking.

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