

## DARE – Dynamic allocation of road space in the urban built environment

### Summary

After many decades of car-centered planning, many cities are favoring people-centric planning. Also, urban space is a contested space of which transport facilities use a significant amount (~20%). Hence, transport infrastructure may represent one of the most disputed spaces, including roads, parking, bicycle lanes, and sidewalks. Still, urban road space is often idling – e.g., congested multilane arterial avenues during peak hours are often underutilized in off-peak hours. Likewise, on-street parking in residential areas is scarce overnight but underutilized during the day when residents leave to work. Other examples could be given. Thus, planners could reallocate idling road space for other transport purposes (e.g., bus or cycling lanes) or urban functions (e.g., markets, promenades), without critically jeopardizing current road users. Such approaches exist today – e.g., nighttime parking or on-street weekend markets. Still, these approaches are predominantly local and stationary where they follow a fixed rule; or they are temporary like tactical urbanism (e.g., pop-up cycle lanes).

Overall, they do not vary according to demand-responsive dynamic criteria for varying mobility or accessibility needs. DARE's main goal is to accommodate the current and future multi-modal and multifunctional potential uses of the urban road space, while addressing severe problems such as congestion, sustainability, and safety, of cities. DARE will develop guidelines and tools for the design of adaptive urban road-space to define where, when, and how can the use of the road and adjacent urban space change dynamically when mobility demand and accessibility requirements vary, without severely compromising the level of service of concurring modes. The development of such guidelines enables city planners to make a better use of the limited urban road space.

### Keywords

Dynamic road space allocation, urban design, big data, Intelligent Transportation Systems, sensing, transport demand management.



*This photo demonstrates how much space is dedicated to motorized vehicles and the small space dedicated to cycling.*



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