

Urban Planning Standards and Transportation Planning



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INTRODUCTION – AIM – SCOPE

- **Standards** are necessary for the process of urban planning, along with respective technical specifications.
- The present research is part of the project “Integrated research for the update of Urban Planning Standards”, granted to the Department of Urban and Regional Planning of NTUA by the Ministry of Environment and Energy and the Green Fund.
- The **Aim** of the present research is to take Transportation and Traffic planning into account during the development of the new Urban Planning Standards, highlighting the synergies and dependencies between them.
- The **Scope** of the present research is to support in the update of ministerial decision nr. 10788/05-03-2004 (ΦΕΚ 285/Δ/2004) concerning existing urban planning standards.



Integrated Urban and Transportation Planning

- **Urban and Transportation planning are co-dependent** while their implementation produces constraints for the following steps of the planning process (city planning, transportation and traffic studies, architectural and urban regeneration studies, port studies, etc).
- The existence of **up-to-date Urban Planning Standards** in accordance with contemporary needs, policies and targets is a crucial factor for the success of urban and transportation planning.



Transportation Planning sectoral policies and Urban Planning standards

- While the National Transport Policy, through National Strategic Plans, supports sustainable and green transportation and the sustainability and resilience of transportation systems, there are **no specific national mandatory directives with regard to specific sectoral policies**, especially for cities.
- As far as **mobility, transport and the environment are concerned**, national policies follow targets and pledges set by the respective European policies.



Transportation Planning within the existing Urban Planning Standards

- The **existing Urban Planning Standards** (ΦΕΚ 285 Δ'/2004):
 - Can no longer respond to modern needs for combined transportation and urban planning
 - Do not sufficiently define common goals and sectoral policies
 - Do not clearly define the transportation planning parameters necessary for the preparation of urban planning studies



Recommendations for combined urban and transportation planning standards

- Within the framework of the present research:
 - an **analytic evaluation** of existing urban planning standards was carried out, to point out weaknesses and shortcomings.
 - **Updated standards as well as guidelines** are proposed in order to be included in the respective ministerial decision.



Recommended block perimeter and network surfaces

Greek cities mostly comprise of **small building blocks** and as a result:

- urban areas are severely **fragmented** by the road network
- **the road network** has insufficient geometric characteristics (small road widths with insufficient capacity for motorized traffic, walking, parking, cycling etc)
- **a lack open public space** is observed

Moreover, small building blocks affect road network **connectivity**:

- If the average number of intersections per sq. kilometer is very low, the distance between intersections increases, negatively affecting walking trips.
- If the average number of intersections is very high the average block size becomes too small to be economically viable, while at the same time the percentage of street surfaces increases significantly.

As a result, a generally accepted range for network connectivity is 80-120 intersections per sq. km.



Recommended block perimeter and network surfaces

The **relationship between block perimeter and required percentage of road network surface** was studied.

Two types of grids were analyzed:

- 60x60m grid, with a block perimeter of 240m, which is typical in Greek cities.
- 100x100m grid, which is widely recommended in international literature and is typical in western European cities.

The analysis showed that the **increase of block perimeter from 240 to 400 m leads to a decrease in road network surface by approximately 31%-33%.**

A **suggested block perimeter of 350 to 450m** concerning new urban planning expansions, is proposed for inclusion to the respective legislation.

Recommended block perimeter and network surfaces

The **minimum required road network surface percentage** by city category (based on population) was determined, based also on the respective road network geometric characteristics (by road type).

Moreover, an update of the **suggested percentage of road network surface** is proposed (% of total urban area) as follows:

- > Residential areas with **less than 2.000 inhabitants**, at least **15%**.
- > Residential areas with **2.000-3.000 inhabitants**, at least **20%**.
- > Medium cities with **30.000 - 100.000 inhabitants**, at least **25%**.
- > Large cities with **100.000 - 500.000 inhabitants**, at least **30%**.
- > Metropolitan areas with more than **500.000 inhabitants**, at least **35%**.

Road network - hierarchy

A clear hierarchy of urban road networks is suggested. The **guidelines** concern:

- the **categorization of road networks** (from an urban planning and traffic perspective)
- **Indicative minimum cross section widths by road type**, to determine the required new road network surface and enable the reservation of the respective space during the city planning process.
- **Cross section breakdown** (including minimum widths) into sidewalk, traffic lanes, parking space, median, etc.
- **Multiple Use Zones, to be included in arterials, collectors as well as local streets.** Located between the sidewalk and the traffic lanes, they concern parking spaces (for private vehicles and public transport), service and supply zones, charging spaces, sidewalk extensions (i.e. in corners, parks, ramps, etc), green spaces, urban equipment, etc.



Pedestrian flow axes

The introduction of the term **Pedestrian flow axes** is suggested, referring to pedestrian streets, streets with traffic calming, or streets with wide sidewalks.

Pedestrian flow axes aim in **strengthening accessibility, multimodality as well as the use of sustainable transport modes and public transport**. Pedestrian flow axes can also include:

- neighborhood traffic parks
- commercial streets – transit mall



Neighborhood traffic park

Defined as a **part of the road infrastructure** crossing a residential or central area, turned into a pedestrian street or street with traffic calming, servicing pedestrians, bicycles, micromobility (i.e. PLEVs) and public transport (with low service frequencies and speeds) and with road surface materials other from asphalt.

The **aim** of neighborhood traffic parks is the **unification of important activity nodes, cultural sites and green spaces**.

The creation of neighborhood traffic parks is useful **in densely built, degraded areas, lacking green and open public spaces**.



Commercial street - Transit Mall

Defined as a **part of the road infrastructure in an urban centre**, with commercial land uses and office / service buildings, in which public transport, emergency vehicles and sustainable transport modes (pedestrians, bicycles, micromobility) are allowed, while the use of passenger cars and motorcycles is either forbidden or restricted in specific segments and restricted spaces.



Bicycle flow axes

The introduction of the term **Bicycle flow axes** is suggested, referring to:

- bicycle streets,
- streets with traffic calming,
- local streets
- pedestrian streets (when other rules – obligating the cyclist to tow the vehicle on foot - do not apply).

Bicycle flow axes ensure the **continuity of bicycle transportation** in acceptable service levels.

They should connect **important travel nodes, residential areas, schools, city centers, stations, transfer nodes** and other important land uses.

The implementation of bicycle infrastructure is suggested (when possible) on every **arterial and collector**. The implementation of appropriate (non-administrative) measures on **local streets** is suggested, in order to reduce through motorized traffic and traffic speeds and facilitate the coexistence of bicycles and motorized traffic.



Parking

As a general principle:

- vehicle parking should be made **off-street**, in underground, surface, or above ground stations or private buildings.
- **Parking spaces should be allocated** in building blocks within central areas, near transfer stations or important travel nodes in order to **reduce on-street parking**.
- **On-street parking along arterials** should be prevented

The parking system **should service all transport modes** including passenger cars, HGV's (off-street), supply vehicles, motorcycles, bicycles, micromobility vehicles, vehicles of persons with reduced mobility, etc. It should also service the multimodality of transportation.

On-street parking should be allocated within bays, locally reducing the sidewalk width.



Transfer nodes

Transfer nodes:

- should preferably be **allocated in city entrances**, be equipped with **sufficient parking spaces**, and be **readily accessible** by road arterials as well as pedestrian and bicycle flow axes.
- nodes attracting high transport volumes should be **reinforced perimetrically with transfer nodes** as well as **infrastructure related to pedestrians, bicycles and public transport**, in order to avoid oversaturation from motorized traffic and insufficiency of parking spaces.

Special attention **should be given to ports** as their Master Plans need to be integrated in the general planning framework.



Guide for Special Sectoral Policies and Standards

Within the framework of the present research, **a guide** is developed including:

- current **sectoral policies**,
- current **legal framework**,
- current **technical specifications and standards**



Conclusions

- The updated Urban Planning Standards should successfully **guide the urban planning process** and their implementation should be **in line with the specific sectoral policies and specifications**
- Given that challenges, policies and targets evolve with time and in order to achieve a successful and integrated urban and transportation planning, **it is crucial to periodically update** urban planning standards, in order to be in accordance with contemporary needs, policies and planning targets.



Thank you for your attention!

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