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Transforming small towns by remedial street design

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Abstract

The basic principle for a proper road design is a balanced consideration of the factors capacity and safety adapted in an environment-friendly context. This approach, generally adopted in the case of interurban road projects is also applicable to small urban localities. In a remedial street design plan the factor “environment” needs to be examined in close relation with road safety and traffic capacity at the design stage. The aim of the new tendency in urban road network re-design is to find solutions that meet the need of society to move easily and safely, all by providing a pleasant natural background. In this paper, basic principles for the re-design of street networks combining safe mobility with friendly environment and aesthetics are presented. This model for street re-design was applied to three small towns of the Prefecture of Phthia, to face serious traffic and environment problems. Accordingly, the formulated proposal moved towards a holistic consideration of the urban road space and the related activities, operations and peculiarities. The accent was given to concrete but applicable measures to accommodate and assist the varying needs of citizens for mobility providing a street network that is driven calmly enhancing the surrounding environment.

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1. Introduction

A properly designed road project takes into consideration efficient mobility and safety issues while addressing human needs and environmental aspects. In the case of small towns, a redesign of the street network must allow for typical local features and preserve the inherent community character, Stamatiadis (2006), (2011). To achieve such a balance, tradeoffs among these constraining factors are performed all by reserving an outstanding position to the environmental factor. Specifically, the factor “environment” enters the design process both as preservation of the surroundings and ecological enhancements of the urban settlement in question. The street network upgrading project is meant to provide distinct improvement in road safety, in traffic capacity and in town livability, (Kehagia, 2007). The aim of the new tendency in urban network design is to produce a street pattern that meets the need of mobility and liveliness in the settlement, while still respecting the surroundings.

In this paper, some practices and techniques for the design of urban road networks combining safe mobility with environmental preservation are presented. These practices have been elaborated and formulated in the case of a project aiming at restoring three towns of the Prefecture of Phthia of Greece with quite different characteristics. In all cases, the analysis had to take into consideration the inherent features of the built environment and the current and future needs of the community. The respective outcome, that is the proposal for a remedial street network, consists of a cluster of engineering operations to accommodate and assist the varying needs of people for safe and attractive modes

of traffic. The proposed operations support economic growth and community development by providing comfortable and safe mobility to vehicles and pedestrians.

2. Remedial street design

The street design plan based on traffic and geometric data comprises traffic considerations and proposes explicit and quantifiable engineering operations. It focuses on the community character and the notable local features to provide suitable solutions for mobility and safety, FHA (2001), (2012). The environmental factor plays a significant role in the plan, not only by additional planting but also by supporting engineering operations aiming at reducing noise (“silent” pavements) and pollution (limited use of vehicles). The design plan steps are highlighted in a comprehensive flowchart (Figure 1).

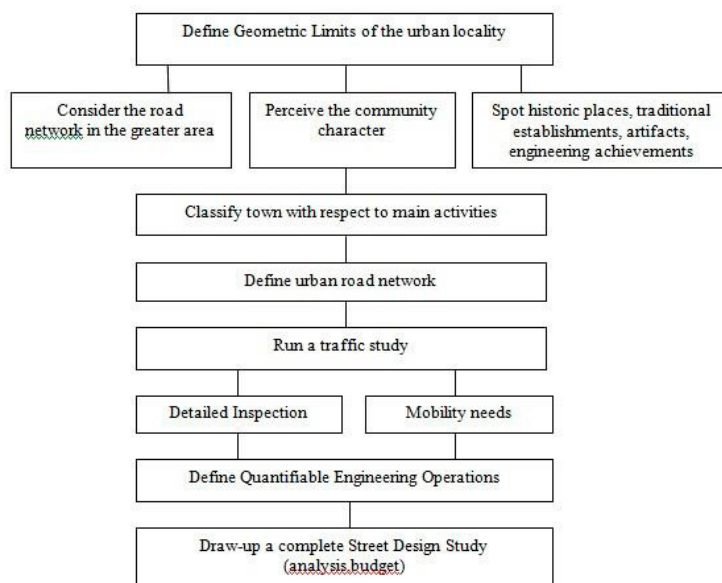


Figure 1. Applicable steps in planning street design

3. Town and community features

The Prefecture of Phthia is one of the regional units of Greece. It is part of the administrative region of Central Greece. Three towns of the Prefecture of Phthia were examined in the frame of the re-design project (Figure 2). Each town had been facing traffic and environmental problems in a different urban context. Town S (Stylis) is a port. Commercial transactions and administrative actions predominate in the community life. Traditional buildings and artifacts are encountered in the inhabited zone. Town K (K.Vourla) is a traditional bathing place, a spa town and a touristic destination. This eminent resort is mainly constituted of a variety of modern hotels and accommodation establishments. Town T (Tithorea) is a small town of rural character. Agriculture is the main occupation of residents. Streets, alleys and passages constitute the urban network. Peculiarities and differences in cultural, geographic and economic conditions make each town discernible and significant. One could be reticent in regard to applying the same method of upgrading the street network in totally different context. However, in small urban localities, the integrated approach produced effective, though different, engineering solutions to ensure community development and long-term quality of life in each town examined.

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