# EFFICIENT SOLUTIONS OF LANDSCAPE DESIGN FOR THE MAIN CONNECTION NODES OF TRANSILVANIA HIGHWAY

**Bors-Oprișa Sonia**
*University of Agricultural Science and Veterinary Medicine, Cluj-Napoca, Manastur Street, No. 3-5, 400372, Romania, sonja_bors@yahoo.com*

**Abstract**. The main purpose of this paper is to highlite the importance of landscape design in planning the areas formed in the vicinity of highway-motorway junction nodes, by improving biodiversity, visual quality and providing a suitable framework for the traffic participants. The paper presents a scenario of a landscape planning project for the Gilău connection node, located on Highway A3, section 2B (Gilău-Câmpia Turzii) with a surface of 10499.33 $m^2$ and aims to identify the plants that adapt to the climate of the area, to provide new aesthetic valences to the site, to protect and improve the environment, to assure physical and psychological comfort to the drivers and to the neighboring communities by completion, protection and restoration of the vegetation.

**Keywords**: adapted species**,** landscape design, vegetation, visual images

## INTRODUCTION

Along with the highway construction, the nearby landscape changes considerably. Therefore it is necessary to apply some recovery measures and to improve the aesthetics of the adjacent areas, of the slopes and embankments as well as of the connection nodes using lasting landscape design projects that are in harmony with the sight situated in the visual area of the road users. This kind of action doesn't bring advantages only from aesthetical point of view, it also has a number of benefits over the site: improvement of microclimate, tehnical benefits and preservation of the existent flora and fauna (Motloch, 2001). The knowledge of the visual, cultural and ecological aspects is mainly required to achieve a viable project (Farina Almo, 200). Through such planning projects, the space becomes a friendly one from visual standpoint, easy and pleasant to pass by, tree and shrub species used contributing to the diversity of the landscape.

## MATERIALS AND METHODS

Was performed an exhaustive documentation and visual analyse relating to the pursued issued. The proposed landscape project has been accomplished as a result of a space visual analyses of the Gilău connection node, located on Highway A3, section 2B (Gilău - Câmpia Turzii) with a surface of 10499.33 $m^2$ (Figure 1). Datas collected from the site, brought out the positive and negative aspects of the area. Because there are no special decoration elements, nor in landscape terms neither in construction, the landscape project has the aim to emphasize the qualities of the space and reduce it's deficiences. The newly projected space will be composed of groups and patches of trees and shrubs adapted to the climate zone, with a high capacity of regeneration and prevention of soil erosion. This type of design will ensure the sustainability and rapid regeneration capacity of the whole area. By projecting this type of space is performed one of the landscape design principles, namely the harmony, by correlating artificial to the natural space.

The vegetation varies in terms of chromatical aspect, volume and tree crown shape, furnishing a delightful year-round background. The main species used in our project are: *Acer negundo, Acer pseudoplatanus, Betula pendula, Carpinus betulus, Forsythia suspensa, Hypericum calycinum, Cornus alba sibirica, Platanus hybrida, Prunus cerasifera pissardii, Pinus sp., Picea pungens, Tilia cordata, Ulmus minor* etc.


Fig. 1. Highway - motorway junction node: a) available surface; b) landscape design proposal

## RESULTS AND DISCUSSIONS

The landscape is homogeneous (Figure 2) and well structured with a final solution: moderation of the negative environmental tendency, adding new aesthetic areas by using diversified vegetation, adapted to the local climate. Plant species have been chosen using Robinette's table (Konijnendijk *et al*., 2005), which outlines the main features that can solve environmental problems The combination of textures and colours provides comfort and visual quality to those involved in traffic. The proposed species intercept, reflect, absorb and propagate the solar radiation contributing to cooling and air purification. Trees act as barriers against wind, noise and dust, reduce the erosion and soil washing phenomena.

Fig. 2. Landscape design rendering

## CONCLUSION

The landscape design project will visibly improve the appearance of the area, will develop valuable natural features of the land and existing landscape, removing negative traits and unwanted aspects and will provide interesting visual images, fitting and integrating harmoniously the area into the sight. The project assures an aesthetical and functional framework that do not require high maintenance costs, due to the species that are adapted to the certain bioclimatic area that require low maintenance.

## REFERENCES

1. Design Guidelines for Highway Rest & Service Area and Lay-By. First Edition. Malaysian Highway Authority.
2. Farina Almo (2000). Principles and methods in landscape ecology. Kluwer Academic Publishers, Netherlands.
3. Konijnendijk C., Nillson K., Randrup T. B., Schipperijn J. (2005). Urban Forests and Trees. Ed. Springer-Verlag Berlin Heidelberg, Netherland.
4. Motloch Jhon L. (2001). Introduction to Landscape Design. Second Edition Ed. John Willey and Sons, New York.