



Croatian Motorway Network Today and some Possibilities for the Future

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Summary

Croatian Motorway Network has greatly expanded in the last decade. During that time numerous bridges and viaducts were designed and built. They were mostly built from prefabricated girders which enabled fast construction. On the other hand it was limiting factor for the designers since standardized girders were used.

Although they were similarly designed, great attention was given to detail design in order to have primarily durable structures. Visible details like safety barriers are parts users mostly criticize and complain about. Therefore aesthetics aspects were highly respected as well. However, Croatian bridges are proving that we also have respectable achievements in this field. Croatian experience in building large concrete arch bridges is well-known (Krk Bridge).

Keywords: motorway network, fast construction, precast girders, continuous systems, joints, bearing capacity

1. Introduction

Croatia has enormously enhanced its traffic infrastructure in the last decade. This mostly concerns motorway network development which includes several motorway routes that are already in use and those that need to be built (Fig. 1 and Table 1). The longest among them is motorway A1 from Zagreb to Split which is important connection of Croatian's capital Zagreb and the second largest city Split which is on the Adriatic coast. This motorway is under heavy traffic in the summer months when we have high touristic season.

Bridges and viaducts along motorways were mostly designed as standardized structures, which satisfied client's demands for fast and simple construction process. Detail design is the only phase in the design process where the designer can intervene in structure, which mostly affects its durability. These aspects are to be presented in this paper.

However, motorway construction in Croatia is not as fast any more as it was 5 years ago. Therefore the recommendations are to build monolithic structures whenever it is possible (overpasses) and design semi-prefabricated construction system for bridge structures along motorway.

Some possibilities for overpasses (integral structures) which are designed on the Croatian part of the VC Corridor will be described. Comparative advantages of integral over structures from prefabricated girders will be analysed.

This paper concerns concrete bridges which are common bridges built in Croatia. Steel and composite bridges are rarely built, but there are few good examples: Dubrovnik cable stayed bridge and arch bridge over Krka river (Fig. 6) which both have composite superstructures.