Study on System Approach Methods through Hybrid Planning Analysis to Realize Optimal Project Design of New Transit System Construction Introducing Social Psychological Analysis

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The Otsu-Konan Region in the Shiga-prefecture has been a remarkably developed region in Japan during the last ten years, since the accessibility is well provided where the trunk lines are concentrated in the region. However, the feeder transportation network has been poor in connecting terminals of trunk lines and the suburban areas where the large residential districts, lots of factories and universities produce large transportation demand. Based on the understandings above stated on the urbanizing situation, such a project of new transit system can evoke more attractive development in this region as is analyzed in following study. The study is implemented by the system approach method through hybrid planning analysis to realize optimal project design of new transit system construction introducing social psychological analysis. In the first part of the study, social needs of inhabitants and communities were analyzed by introducing social psychological analysis approach. Daily behaviors such as person trips are surveyed to build up the passengers' behavior simulation model. In the second part designs and planning of the new transit system are studied mainly focusing from the functional planning aspects in relation with visiting and consuming behaviors in the experiments of "passengers' behavior simulation". In the third part based on output information from these experiments, forecasting model and new transit project financial model are combined into one planning system through the project designs. This hybrid planning analysis is applied to obtain the optimal project design which can maximize the passengers' satisfaction which is measured by utility function to each passenger under the constraints for attaining the feasibility of the new transit project. In the final part verification studies to confirm the effectiveness and efficiency of approach method developed here are implemented for the HSST (high speed surface transportation) construction project which is proposed in this region.