

## **Re-Evaluation on Planning of Local High-Grade Highway for Reducing Costs**

Ryousuke ANDO

This paper aims to make an opinion exchange with all relative attendants by an application of the Value Engineering (abbreviated as VE in the followings) having been implemented for a local high-grade highway's planning in Gifu Prefecture of Japan. Since the late 1990s, as the financial difficulties of the Japanese (both national and local) governments, it had become impossible to construct all of the planned roads in a short period. Thus, it has been treated as a very serious topic for the governments to reduce the construction costs of the public works. To decide what parts of the total cost should be reduced, we need an evaluating approach to view objectively and fairly. In this paper, we applied VE as an evaluation approach to seek the best answer. VE is known as a managerial method and useful tool for cost management in the production process. Since VE was developed in 1947 in the United States of America, VE has been widely applied in the various kinds of productive activities in the world including Japan although VE is still considered as a new idea for many people in the field of public works including the researchers, the engineers and the officers of governments in Japan. Finally, I suggest applying VE as one step for the road planning and the reliable VE activities to be implemented for the road design in the future.

## **Characteristics of Journey-to-work Traffic considering Preference Function: A Case Study of Sapporo City**

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A preference function is proposed on the basis of Stouffer's intervening opportunities model as a technique of analyzing the change of journey-to-work traffic following the visual and quantitative change of city structure. Traffic activity change is analyzed visually and quantitative. SX and SY, the sums of the cumulative proportion on the X and Y-axes of the preference function, respectively, are employed as indices for quantitative analysis. In zones with the same area value, different traffic flow can be illustrated with SX and SY. Furthermore, the preference function for each transportation mode proved that traffic flow properties might differ even in the same zone depending on transportation means.

## **Research Needs and Seeds on Demand Responsible Transport Systems(DRTs) -Case Studies in Japan, Europe, and North America**

Ryusuke TAKEUCHI, Izumi OKURA & Fumihiko NAKAMURA

In recent years patronage for bus system has been decreasing because of bus delay due to traffic congestion in urban areas, and population decrease in rural areas. Some operators have been giving up operating buses. As a result, the elderly or disabled people without car license have been facing lack of public transport.

Demand Responsive Transport systems (DRTs) are expected to accommodate in low-demand-areas, which can be operated responding to users demand without fixed routes and timetables and provide flexible and dynamic service. DRTs have been developed, demonstrated, and implemented in cities/towns in Japan, Europe, and North America in order to improve mobility.

In this paper, the authors aimed at research needs and seeds on DRTs through case studies in Japan, Europe, and

North America. Firstly, we indicated a system perspective of DRTs considering classification of DRTs, optimum domain of operation and service types. And we observe the current situation of DRTs in case studies. Demonstration programs and permanent services, their findings and perspectives are shown. Finally we examined research needs and seeds for both demand and supply analyses, which are needed for implementation of DRTs. In demand analyses we indicated that users booking may influence the other user's Level of Service (LOS), and users' acceptances to LOS provided by DRTs are one of the important issues. In supply analyses, operation systems determining vehicle scheduling and dispatching dynamically and are required with considering user satisfactions.

## **Transport Survey and Marketing Methods in Urban Public Transport by Using Boarding Records Collected by Integrated Stored Fare Card System**

Toshiyuki OKAMURA, Akimasa FUJIWARA  
& Junyi ZHANG

This paper focuses on boarding records of automatic fare collection system with stored fare card that is introduced in public transport in a certain metropolis in Japan, and aims to clarify the applicability of the data by integrating all operators' record to urban city planning and operators' marketing, and to propose practical applications for data utilization such as the analysis of passengers' transfer behavior and classifying passenger based on behavioral characteristics and finding behavioral rules for marketing by using data mining methods. Although this study stands in the first step, this will be the first opened research to focus on electric fare collection system data in urban public transport system in transportation planning field and to propose the practical utilization of the data for urban transport planning and marketing.

## **Process of Suburban Development based on the Railway Systems under the Modernization in Kyoto**

Naoto TANAKA & Yoshifumi DEMURA

In Kyoto, once the capital of Japan, vistas of many special places around this city have been carefully preserved. After modernization, these views were also included as part of the city's plan. Railway systems played an important role in establishing these areas in "Grand Kyoto", which was the concept of city planning in the modern era. The railway allowed transportation to such destinations and allowed people to enjoy wonderful areas more closely.

In this paper, I dealt with the process of suburban development in Kyoto, centering on the railway systems. The data to be discussed below were collected from historical books, drawings, photos, and maps. This study clarified the influence of railway systems in the development of suburban in Kyoto under modernization. I focused on tourism in case of the Arashiyama district, a place well known for its scenery, where three railways were created in modern times. In this case, the suburbs were closely associated with tourism and railways were strongly tourism-oriented. A survey of the plan and the process of the development based on historical data showed that tourism then was typed and ruled by railway systems and played an important role in suburban development.

## **Research on the Amendments of Taipei City Zoning Regulation**

Ping-li CHEN & Kenjiro OMURA

Zoning is a general method of land use control, and it is employed in Taiwan. The Taipei City Zoning Regulation (the Regulation) was launched in 1983 and had been amended eight times. For Taiwan, the concern on what kind of

"use groups" could be permitted in the residential district is the key point of all amendments. As zoning regulation is used for maintaining space order, it should be kept stable and relevant for the stability of space or it would burden concerned public officials and lose the meaning of regulation control.

In this study, we will focus on the revisions in residential zones in Taipei City Zoning Regulation. We will first review the literature of zoning, land mixed-use, and regulation theory. Then, we will investigate the text of the narrations gained by in-depth interview from the officials, the texts of the narrations, the legislative record of Taipei City Council, and the minutes of municipal conferences by narrative analysis and thematic analysis. Finally, we will display the results of analysis in four parts: 1) the main points of the amendments; 2) the reason for legislating and amending explained by the officials; 3) the leading players who influenced the decision of the officials; 4) and the concerns of the officials.

## **Urban Land-Use Model to Assess the Effects of Building Cost Support Policy**

Shamim Mahabubul HAQUE & Makoto OKUMURA

To achieve a desired spatial pattern for any particular city, traditionally land-use controls in terms of zoning regulation are applied. Such zoning regulations are generally very static and are effective when the pace of construction activities in a city is very high. Naturally if construction activities in a city are not very high, consequently very little or nothing to control, such zoning regulations might not have effective role in delivering desired spatial pattern of that city. In this study, a land-use model has been proposed, emphasizing on economic measures of development control/assistance, adding to the traditional static zoning measures. Objective of this research is to build a statistical model to assess the effect of cost assistance policies on the construction activities, expressed in terms of land-use changes, for the study area. A random bid-rent model to describe competitions between four land-use types viz., commercial, industrial, residential and vacant has been developed using physical characteristics, land price information and dummy regulation variables. To assess the effectiveness of such economic measures of development control/assistance, development cost variables (preparation cost for future use and cost/gain from former use) have been explicitly included in formulation of the proposed model. All estimated parameters of the model have been found to be statistically significant and having expected signs. Using estimated parameter values, land-use simulation has been done for the study area and predicted land-use has been found to be reasonably consistent to the observed land-use. Effects of different cost assistance regimes have been illustrated in the present research in terms land-use change of the study area; different cost assistance regimes generate different spatial pattern for the city in terms of different land-use configurations, suggesting the applicability of such type of mechanism instead of strict zoning regulations only.

## **The Extent of Satisfactions of Floor Area Ratio in New and Old City Center and its Determinant Factors in Busan, Korea**

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& Yoshiaki HONDA

This study intends to find out and analyze the designation of floor area ratio, the extent of satisfaction of the floor area ratio and the determinants of floor area ratio in the old city center and the new city center in Busan, Korea. In addition, it also aims to clarify influences of some factors on the extent to which the floor area ratio is fulfilled. The results of this study are summarized as follows. 1) Among buildings in the new city center of Busan, the highest realization ratio (0.61) was obtained from those built with an average floor area realization ratio of 0.51 and a legal floor area ratio of 1100 percent. In case of the old city center, the buildings with an average floor area realization ratio of 0.58 and a legal floor area ratio of 800 percent showed the highest realization ratio (0.61). 2) In the new city center, the item of front-road width has the greatest influence on the floor area realization ratio the width of front road. As the category score for the front road width (0 \$BK (B6 meters) shows a positive value, the category is considered as

contributing to increasing the average of realization ratios. 3) For the size of site, posted land prices and ownership, the items have different influence in the new city center and the old city center. 4) In the planning of reviewing or resetting of floor area ratio, considered as the influencing factors on the realization ratio should be the front road width, the using purpose of buildings and posted land prices in the new city center, and the front road width, posted land prices and the size of site in the old city center.

## **A Research on the Postwar Transition Urban Structure for Kanazawa Metropolitan Region -- A GIS Analysis of Population Density and Land Use --**

Akihiko TANI, Tatsuo MASUTA & Masahiro RACHI

This research attempts to analyze the geographic change in population density and land use in Kanazawa Metropolitan Region over the past 30 years. Based on the data set of population density by town unit (cho-cho-moku) and land use by parcel for years 1970, 1980, 1990 and 2000, we reproduced the process of urban expansion. Then, we intend to project the future urban structure of Kanazawa Region based on the past trends in population density and land use when three different scenarios of urban policy have been taken. It was intended to show the necessity of urban policy to pursue "a compact city" in Kanazawa Region.