

## Overview and Perception of the Transportation Demand Management Measures in Kwangju City Korea

Jeong, Bong-Hyun & Yoon, Pan

This paper provides findings from a public perception of TDM measures for reducing traffic congestion in Kwangju City. The purpose of this paper is to obtain comprehensive insights into the public understanding of legislative restraint measures in Kwangju City. The finding of this paper has important implications for future TDM policy to improve urban traffic. The lack of support for TDM could be especially, troubling for local policy makers in Kwangju. About the view of respondents, there was some reluctance to accept some TDM measures, nevertheless, it was recognized that they have come to recognize the need to implement a comprehensive TDM policy for the Kwangju City. It is also suggested that specific actions and incentives to encourage TDM measures should be considered by the Kwangju City.

## Sustainable Transportation Policies and Strategies for Urban Development

Chang, Fuon-Shea

According to "The act on the activation of bicycle usage", article 5 'the establishment of the facilities for bicycle, the mayors of Seoul and the other major cities, the magistrates of a country should establish the maintenance plan of the facilities for bicycle and get a agreement from the Minister of Home Affairs in accordance with a presidential decree. So recently in many cities and towns, the plans for the activation of bicycle usage have been drafted and are being planned. And it is reported that the other cities and towns where the plans are not drafted yet are trying to establish alternatives. Besides, in relation to traffic and environmental problems, the central government's efforts for the alleviation of traffic and environmental problems are being proceeding through the improvement of bicycle usage as one of the green transit systems.

But most contents of the existing studies deal with the maintenance plan of the facilities for bicycles. It is supposed that the premise that bicycle usage will be activated if the facilities for bicycles should be well equipped sets these directions of studies. The logic of the existing studies is following ; It puts the domestic realities of the life into the question as the division effect of a means of transportation by bicycle is very little in comparison with foreign countries. And the reason is the deficiency of the facilities for bicycle. Therefore, if the facilities for bicycle is provided, bicycle usage

will be activated.

The major results of studies is as follows ;

As the solutions to these problems, the network of bicycle roads must be constructed to provide the facilities for bicycle and there are many policy developments to find a solution to the problems of the facilities. (the problem of bicycle garage, road crossing, road structure, maintenance etc)

But the improvement of bicycle usage ratio seems to be so slight in case of bicycle road made by this problem-solving method. If we look over the usage condition of the bicycle road made taking much cost and time, this phenomenon is conspicuous. This is supposed to be unsuitable in the supply of facilities for bicycle to the persons willing to use bicycle. It is the estrangement generated by introducing foreign case in spite of the domestic condition that bicycle usage is not popular. So the improvement of .the facilities for bicycle is needed to activate the bicycle usage.

In this situation, the major purpose of this study is to reveal the behavior of the bicycle users. As the behavior of bicycle usage can be changed according to the purpose of usage, usage class, and region, the bicycle usage condition and recognition can be analyzed for the user and the non-user in both the regions where the bicycle road is supplied and the other regions. And based on this analysis, I want to introduce the political suggestions to activate the bicycle usage.

## **The Study on the Characteristics of Bicycle Use**

Baek, In-Gill, Kim Sei-Yong & Bae, Gi-Mok

-No abstract

## **A Study on the Effects of Parking Spaces on Traditional Houses and Transformaiton of the Townscape**

Kim, Hongii, Junzo MUNEMOTO & Yumi KANKI

Recently, due to an increasing need for cars and change of life-style in traditional districts, some residents of traditional houses have made their own parking spaces on their estates, and as a result the facades of houses, fences and, in some cases, even the houses themselves have been demolished. In the Hachiman Conservation District of Traditional Buildings, the case study considered here, the townscape has been well-formed by the repairs and reconstruction carried out under the conservation controls in effect. On the other hand, the townscape has been destroyed gradually by the renovation and demolition due to increased acquisition of cars. 1) To conserve the townscape in conservation districts, not only the present Conservation Controls are necessary to aid homeowners, but also effective measures for the conservation in consideration of the acquisition of cars.

## **A City Planning Topic : The Design of an Urban Network Traffic Signal Control**

Wey, Wann-Ming

The existing network traffic signal optimization formulations usually do not include traffic flow models, except for control schemes such as SCOOT that use simulation for heuristic optimization. Other conventional models normally use isolated intersection optimization with traffic arrival prediction using detector information, or optimization schemes based on green bandwidth. In this paper we present a complete formulation of the problem that include explicit constraints to model the movement of traffic along the streets between the intersections in a time-expanded network, as well as constraints to capture the permitted movements from modem signal controllers. The platoon dispersion model used is the well known Robertson's model, which forms linear constraints. Thus it is a rare example of a traffic simulation being analytically embedded in an optimization formulation. The formulation is an integer linear program, and does not assume fixed cycle lengths or phase sequences. It assumes full information on external inputs, but can be incorporated in a sensor-based environment, as well as in a feedback control framework. The formulation is an integer-linear program that may not be efficiently solved with standard simplex and branch and bound techniques. We discuss network programming formulations to handle the linear platoon dispersion equations and the integer constraints at the intersections. A special purpose network simplex algorithm for fast solution is also mentioned.

## **Study on Cooperative Pick-up and Delivery System for Goods in Central Business District**

Kim, Won-Yeon, Takeshi CHISHAKI ,Hwang, In-Sik & Yoshitaka KAJITA

In this paper, utilizing consciousness of shippers to this system and the actual conditions of cooperative pick-up

and delivery system for goods at Tenjin District of Fukuoka City are investigated and the factors for the use of the cooperative pick-up and delivery system are analyzed. And effective strategies to use the system are also discussed under the consideration of actual conditions.

## **Preliminary Analysis of the Connection between Urban Form and Travel Pattern in a Residential Area of Kwangju City**

Choi, Dong-Ho, Jeong, Bong-Hyun & Shin, Dong-Ho

This paper is aimed to explore the connection between urban form and travel behavior in land use-transport systems perspective, and to suggest some guidelines for transit sensitive land use design. Bongsun residential area of the Kwangju City was selected as the case study region for this paper.

Traffic congestion in Kwangju is partially ascribed to a disharmonious connection between land use and transport system. It is thus necessary to explore the connection between measures of urban form and trip frequency, VKT or total automobile travel. Multiple regression equations were used to test the relationship between intensity or land use balance and VKT as dependant variable. The measure of land use balance didn't proved to be significant in the analysis of travel behavior tested. It is assumed that a land use integration and compact development for reducing automobile dependence was not implemented in housing development sites.

## **Simulation Based Performance Studies of an Urban Network Traffic Control Design**

Wey, Wann-Ming

In this paper, we present a complete optimal formulation of a network traffic control scheme with embedded traffic flow models (platoon dispersion) in the form of arc-flows in a time-expanded network. The integer-linear network-programming formulation is solved using a modified network simplex and branch and bound scheme. The results of comparing the solutions to other actuated controls are discussed here. The platoon dispersion model used is the well-known Robertson's model, which forms linear constraints. Thus it is a rare example of a traffic simulation being analytically embedded in an optimization formulation. The formulation is an integer linear program, and does not assume fixed cycle lengths or phase sequences. It assumes full information on external inputs, but can be incorporated in a sensor-based environment, as well as in a feedback control framework. The integer-linear program formulation may not be efficiently solved with standard simplex and branch and bound techniques. We discuss network programming formulations to handle the linear platoon dispersion equations and the integer constraints at the intersections. A special purpose network simplex algorithm for fast solution is also mentioned.

The optimization model takes the form of mixed integer linear programming. The control strategies generated by these optimization models were compared with those derived from conventional signal timing models, using the TRAF-NETSIM microscopic simulation model. It was found that the optimization models successfully produced optimal signal timing plans for the various signalized intersections including simulated and real-world networks. The proposed optimization models consistently outperformed the conventional signal control methods with respect to system delay objective. This conclusion was drawn from the TRAF-NETSIM simulation.

## **Perspective of ITS Planning**

Kim, Hyung-Jin & Choi, Hoi-Kyun

The transportation planning process is an established but evolving process that has been designed to support local decisions on transportation plans, programs, and individual projects. As one of the goals of the planning process is to

provide objective analytical information to be used by decision makers, it is extremely important that the Intelligent Transportation Systems (ITS) be considered to remain consistent throughout the various stages of the planning process. Namely, ITS strategies and project directions should be developed and considered as part of the overall planning process. ITS and conventional transportation projects are typically initiated and developed within sponsoring modal agencies, that is, departments of transportation, transit agencies, and departments of public works. Also, ITS relies on information and control technologies provided by exemplary data sources. Given such information, more people may use alternative modes of travel. In other words, ITS is market-oriented. This paper provides an overview of the various ITS market functions to user service and discusses some key understanding of ITS planning. These results are then used to produce guidelines for ITS planning strategies in Korea.

## **Integrating Rail Transit Systems and Land Development to Achieve Sustainable Metropolitan Development : An Analysis of Experiences in California, USA and their Implication for Taiwan**

Wu, Kang-Li

The relationship between rail transit systems and land use patterns has been of interest to urban planners and decision-makers for a long time. Given the worsening of transportation-related air quality problems as well as the dramatic increase in long-haul auto commutes due in part to the mismatch between transportation supply and land use patterns, how one should integrate rail transit systems and land development patterns as a way to manage metropolitan development has become one important planning issue. However, many recent studies have found that the linkage between rail transit systems and land development patterns has been increasingly weakening in many metropolitan regions due to several planning problems. These include problems such as the lack of coordination and cooperation between transit planning and land use planning, the trend toward uncontrolled metropolitan sprawl, rapid population and employment suburbanization, and a rapid increase in the use of low occupancy private vehicles. In view of the problems indicated above, several critical planning questions arise:

(1) how can we best improve the integration between rail transit systems and land use patterns as a means to manage metropolitan development; (2) what are the roles and responsibilities of government agencies and the private sector in improving the connections between rail transit systems and related land development; and (3) what planning strategies should be considered and implemented to improve transit-land use planning practices in order to achieve sustainable metropolitan development.

This paper attempts to answer these questions. Employing a review of the recent literature and case studies in the US and Taiwan, this study attempts to explore the possibility of improving the integration of rail transit systems and land development patterns as a way to manage metropolitan development. This paper is divided into four parts. Section one outlines the research questions and research background. Section two provides a review and critique of the recent literature. Section three explores the efforts in promoting transit based development in the US and the lessons from the Bay Area Rapid Transit (BART) system in the San Francisco Bay Area, USA. Section four discusses the potential and limitation for managing metropolitan development through integrating rail transit systems and land development patterns in Taiwan.