

An Analysis on effects of Workshop as one of Integrated Approaches to Investigate Bus Services

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Author	Kawasaki, Koichi / Hino, Yasuo / Ise, Noboru
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An Analysis on effects of Workshop as one of Integrated Approaches to Investigate Bus Services

Koichi KAWASAKI*, Yasuo HINO** and Noboru ISE***

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Synopsis

Recently, the convenience of bus service has been deteriorated because of the congestion caused by automobiles. As a result, the mobility of vulnerable group including aged people has restricted. Although local governments have taken measures including subsidy to meet this situation, the effect was not always clear and also the many of local governments have been in financial difficulties to continue the subsidy. Therefore, the new policy under considering not only the mobility needs but also the life stage of residents must be necessary in order to continue the bus service in future.

In this study, we tried to introduce the workshop procedure as one of the integrated approaches in a typical suburb of Osaka City. As a result, some major findings came out of this case study as follows, 1) the integrated approach must be useful to realize some activities for stable bus service, 2) especially, workshop procedure may be effective to realize the cooperation of all parties concerned and 3) some objective data based on the survey and prediction model must be necessary to encourage the participants to understand the condition and make an agreement for bus service in the future.

KEYWORD: Public transport, Bus service, Lifecycle model, Integrated approach, Workshop

1. Introduction

The popularization of car use has brought the change of transportation behavior in the urban area where the public transport were well prepared, as well as in the rural area. As a result, users of bus service have decreased because the convenience of bus service has been deteriorated according to the congestion caused by automobiles. Furthermore, a part of services were abolished because of the decline of profitability. Therefore, the mobility of vulnerable group including aged people has restricted.

On the other hand, many of local governments have tried to support to the bus service by introducing subsidy for the bus company. However, the effect was not always clear and also the many of local governments have been in financial difficulties to continue the subsidy. This situation may show that the new policy under considering not only the mobility needs but also the life stage of residents must be necessary, in order to continue the bus service. Therefore, the residents as bus users should be involved in investigating the desirable bus service. And also, the integrated approach must be necessary and efficient.

The integrated approach may be realized by the cooperation with local government, users (residents) and a bus company. The general procedure may consist of the process of “publicity”, “agreement based on public

* Student, Master Course of Department of Civil Engineering

** Professor, Department of Civil Engineering

*** Student, Doctor Course of Department of Civil Engineering

comment” and “planning based on common policy”. In this study, a practical case study on the integrated approach, in Kawachi-nagano City located in the south-east of Osaka City, was introduced.

This paper consists of 1) the outline of case study, 2) life stage and mobility demand, 3) the workshop procedure as one of integrated approaches and 4) conclusion.

2. The outline of case study

2.1 The target city as case study

In this study, Kawachi-nagano city which is a typical suburb of Osaka city was selected as a case study. In this city, the population trend turned from increase to decrease in 2000 at a peak population of 120,000. The share of car as a modal split is over 40%, while the share of bus has decreased year by year, 3.5% in 2000. As a result, bus services have deteriorated and the mobility of many vulnerable people has drastically declined. In regard to this situation, the local government has supported to continue the unprofitable service by introducing the subsidy. However, the effect of subsidy was not always clear in financial difficulties. Therefore, the new policy for bus service must be introduced, through investigating some problems as follows;

- 1) The mobility needs and intension of bus usage, according to the change of life stage of residents,
- 2) The pattern of life stage of residents of each residential area,
- 3) The recognition and evaluation for presents situation including local governmental support,
- 4) The claim for the present bus service.

In order to obtain this information, some surveys including the questionnaire survey were executed, as described in the next section.

2.2 The outline of survey

(1) Questionnaire survey

The questionnaire survey was enforced for randomly sampled residents on January 2007, in order to know the life style and transport behavior according to the characteristics of housing estates. 5,000 of questionnaire sheets were distributed and 2,388 respondents were obtained.

Major findings of this survey are summarized as follows.

- 1) The image of major respondent (Characteristics of household) is 50-60years old, lived for 20-30years with a family of 2-3.
- 2) As to trip characteristics, automobiles (39%) and railway (32%) are used for commute (37%) and shopping (25%) almost every day. According to the change of life stage such as retirement and aging, 45% of respondents may intend to use public transport.
- 3) The ratio of bus as major mode may be around 10%, because of the inconvenience of bus service against the convenience of automobiles.
- 4) 40% of respondents may intend to use bus in case of improving the services. 80% of respondents accept the subsidy to the unprofitable bus service.
- 5) According to the time of developing of housing estate, the characteristics of residents may be different as follows;
 - > Development of 1950s: the alternation of generations has progressed, because of lower ratio of change of life stage
 - > Development during 1960s-70s: the change of life stage may progress from now, because of higher ratio

- of retirement and starting work
 - > Development of 1980s- : the diversity of lifestyle and mobility needs may progress from now, because of higher ratio of transfer residents as well as aging
- 6) The satisfaction level of mobility may change according to the life cycle of each housing estate, which brought by the change of life stage of major residents, as follows.
- > After retirement: the satisfaction level of car use may become higher, against the public transport, because of change from compulsory trip to free trip. Therefore, the service of public transport may change according to the change of trip needs.
 - > Alternation of generations: the satisfaction level for new generation respondents may lower, because of restrict of change from compulsory trip to free trip. Therefore, the service of public transport may improve to meet the needs of each area.
 - > Transfer residents: the satisfaction level of car use may higher, because of choice of residential place with prerequisite for car use.

(2) Housing estate and transport facility survey

In this city, 20 or more housing estates which were over 5 ha have developed almost by 10 years, and also the bus service was operated according to each development. As a result, although, till now these bus services did not drastically change, some parts of services have deteriorated, because of decrease of passengers. Here, these data were surveyed by the hearing for the local government and a bus company.

(3) Population survey

The data concerned with population was surveyed by the report of local government based on the national census, in order to develop the predict model.

3. Trend of bus use based on the change of life stage

3.1 The outline of Life Cycle Model

- In order to predict the life stage and trip needs including bus use, some conditions were set as follows.
- 1) The situation after 10 years and 20 years will be predicted.
 - 2) The characteristics of major households must be different according to each place of residence.
 - 3) The characteristics of trip needs of some life stage may be assumed as same.
 - 4) The aging may progress till the average life span of the Japanese.

Here, the periodic characteristic was found in the change of life cycle through the analysis of respondents of the questionnaire, as shown in **Figure 1**. And also, the number of years was set as shown in **Table 1**, based on this analysis.

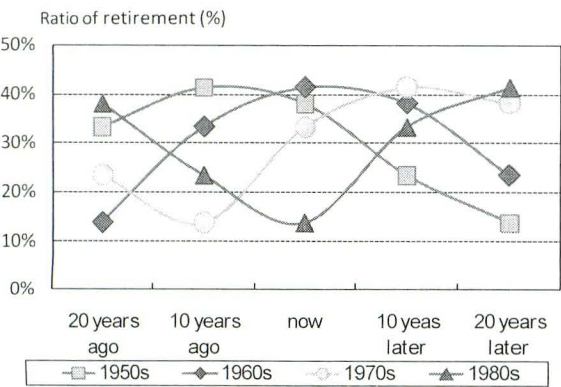


Figure 1 Example of periodic characteristic

Table 1 The number of years for change based on change of life stage

District pattern	retired	move-in	aging after retirement	starting works	continue work
all	40 years	30 years	30 years	50 years	50 years
I	50 years			40 years	30 years
II			50 years	50 years	60 years
III			30 years	50 years	50 years

Note: Area I, II, III is respectively defined as the area where is convenient to railway, convenient to bus service but not inconvenient to railway service, and inconvenient to both railway and bus service.

Some interesting findings came out of the prediction based on the life cycle model in consideration of the periodical characteristic for each life stage, as follows.

- 1) The number of starting works will increase in the housing estates developed in 1950s, while it will decrease in 1970-80s.
- 2) The ratio of retired persons will increase in case of development in 1970-80s.
- 3) The ratio of working population will drastically decrease in case of development in 1980s.
- 4) In case of development in 1950s, the ageing will progress after increasing of the alternation of generations and transfer residents.

3.2 Trip and bus use needs

Here, the major results of prediction of trip needs based on the prediction of change of life stage according to the period of housing development were shown in **Figure 2, 3** and as follows.

- 1) The number of trips will decrease because of reduction of population. And also, the number of bus passengers will decrease.
- 2) However, after 20 years, the decrease trend of trips will turn to increase in case of the housing development in 1970s in Area I and 1950s in Area II. Especially, in Area II, also the increase of bus passengers will come.

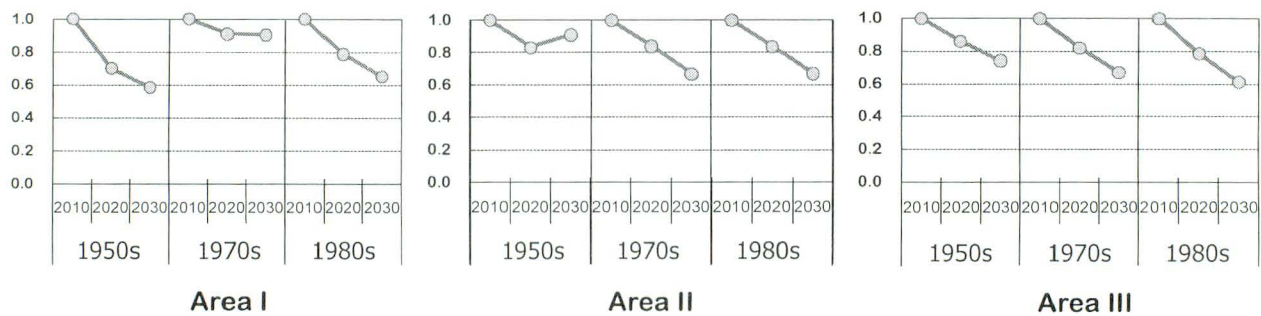


Figure 2 Trend of the number of trips according to the period and location of housing estates (The number of trips in 2005 is 1.0.)

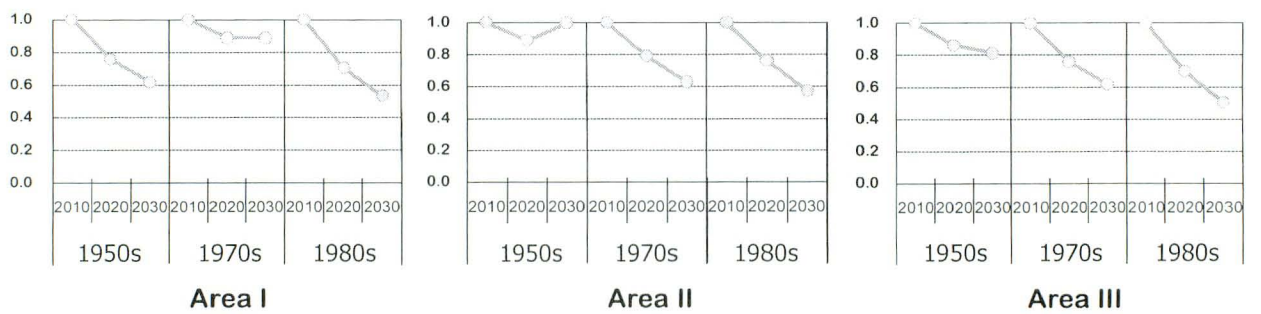


Figure 3 Trend of bus trips according to the period and location of housing estates (The number of trips in 2005 is 1.0.)

4. Workshop procedure as one of integrated approaches

4.1 Basic idea of integrated approach including workshop procedure

The integrated approach includes the cooperation both of procedure and activity. The procedure of integration must be composed of five steps, such as disclosure of information, public comment for the activity, participation of various positions including residents and public involved.

In this study, at first, the some information concerned with residential condition and trip characteristics was obtained by the questionnaire survey, and in the next step, the life cycle model in consideration of the change of life stage of residents. As a result, the information of present condition and the prediction of trip needs were available to provide to the parties concerned with bus use.

Therefore, as the next stage of the integration approach, a couple of types of workshop, such as for residents, for commercial parties, and for all parties concerned, were executed. On the other hand, another meeting with public transport companies including railway and bus and local government was hold.

4.2 Practical examples of workshop procedure

(1) Workshop for residents

As an example, the Mikkaichi Area where is located near the railroad station, was selected, because a part of residents need the bus service from a geographical condition. After the following information was provided, the necessity and problems of bus services were discussed with the bus user and non-user.

- > The number of bus passengers has decreased year by year. As a result, a part of bus services were operated by the subsidy from local government.
- > The necessity of bus service will increase according to aging in the future.

Through two workshops, some major issues were discussed as follows.

- 1) Some new system including a small bus should be necessary to overcome the geographical condition. And also new bus route must be investigated in consideration of user's needs, in order to increase bus passengers.
- 2) Some incentives from view point of carrot-and-stick policy may be needed to encourage the bus use.
- 3) Some problems concerned with bus operation such as noise, exhaust gas and accidents, should be also improved for residents along the bus route.

After all, it must be useful that almost of participants could have the common recognition for necessity of bus service.

(2) Workshop for commercial parties

Another issue to maintain and improve the bus service is to increase the demand for bus use by cooperating with the policy of tourism and urban activity. Then, the workshop concerned with the members of commerce and industry was executed. In case of this workshop, two tables with and without facilitator were prepared to compare and evaluate the difference of results. As a result, some findings came out as follows.

- 1) It was recognized that it should be important to prepare some events to increase visitors, in order to revitalize the economical condition.
- 2) Participants discussed that the necessity and possibility of the activity cooperated with local government, bus company and commerce and industry.
- 3) From the comparison of two tables, it was clear that the role of facilitator should be important, to lead the discussion to the major theme.
- 4) As a result, some ideas such as the discount price or ticket service for bus users, were concretely proposed, and some experimental events will be investigated.

(3) Conference for all parties concerned

From two types of workshops mentioned above, the conference of public transport was set with all parties including local government, bus and taxi company, tourism, commerce, party of aged people and residents. As the results of a couple of meetings, some major findings came out as follows.

- 1) Some information such as trials for bus service cooperated with tourism by presented bus and taxi company was hold in common.
- 2) Some problems to introduce the new service of tourism in cooperation with bus service were pointed out.
- 3) It should be recognized that the integrated activity involved local government, transport company, commerce and industry and residents was essential to realize the stable bus service and the revitalization of commerce.
- 4) As the common recognition, the stable bus service based on the demand and the revitalization of commerce should be necessary and the urgent activities to realize it was also important.
- 5) It was proposed to set a working group to execute an experimental activity to increase passengers of public transport including bus, taxi and railway and visitors of shopping and sightseeing.

(4) Effects and problems of workshop procedure as an integrated approach

The most significant effect of workshop procedure was that all of participant could learn and understand many problems and needs for each party. As the result, the opportunity to considerate some new trials for increase of bus use will be provided, in cooperation of all parties.

On the other hand, in order to introduce such activity, the cooperation of all parties based on the agreement for the necessity of stable bus service as well as the decision making of local government. However, some results of this study must be helpful to realize the progress of such activity.

5. Conclusion

Through execution this study, we could conclude that the integrated approach must be useful to realize some activities for consideration the stable bus service in future. Especially, it was made clear that the workshop procedure may be effect to realize the cooperation of all parties concerned. And also, in order to successfully progress the workshop procedure, some objective data must be necessary to encourage the participants to understand the condition and make an agreement for a desirable direction of public transport as bus service.

On the other hand, through a series of studies, the prediction model for trip needs and bus use was proposed and evaluated based on the lifestyle model for the condition of residential conditions. This proposal, as well as the verification of the integrated procedure, must be an academic result, while the practical case study with these academic results may become a fruit to realize the actual scheme of bus service in the local government.

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