KAMAKURA'S COMPOSITE EXPERIMENTAL SCHEME OF TDM

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Abstract: In famous historical tourist city, Kamakura, Japan, where heavy traffic congestion on holidays is also famous, the citizens' committee has started the discussion to tackle the congestion problem since 1995. As a result of the discussion, the committee has already proposed a comprehensive TDM plan including road pricing, Park and Ride systems, promotion of public transportation, traffic information systems and traffic calming schemes. Based on the proposals, the city of Kamakura has already conducted several experimental schemes of proposed schemes to test their effectiveness. This paper discussed the result of a composite experimental scheme of TDM conducted in November 1999, in which one Park and Rail-Ride system, two Park and Bus-Ride systems, eco-free ticket of public transportation, dynamic information system and traffic calming project were tested. As a result of the experiment, some improvements and schemes' effectiveness were revealed.

Key Words: TDM, citizen participation, Park and Ride, public transportation, dynamic information system

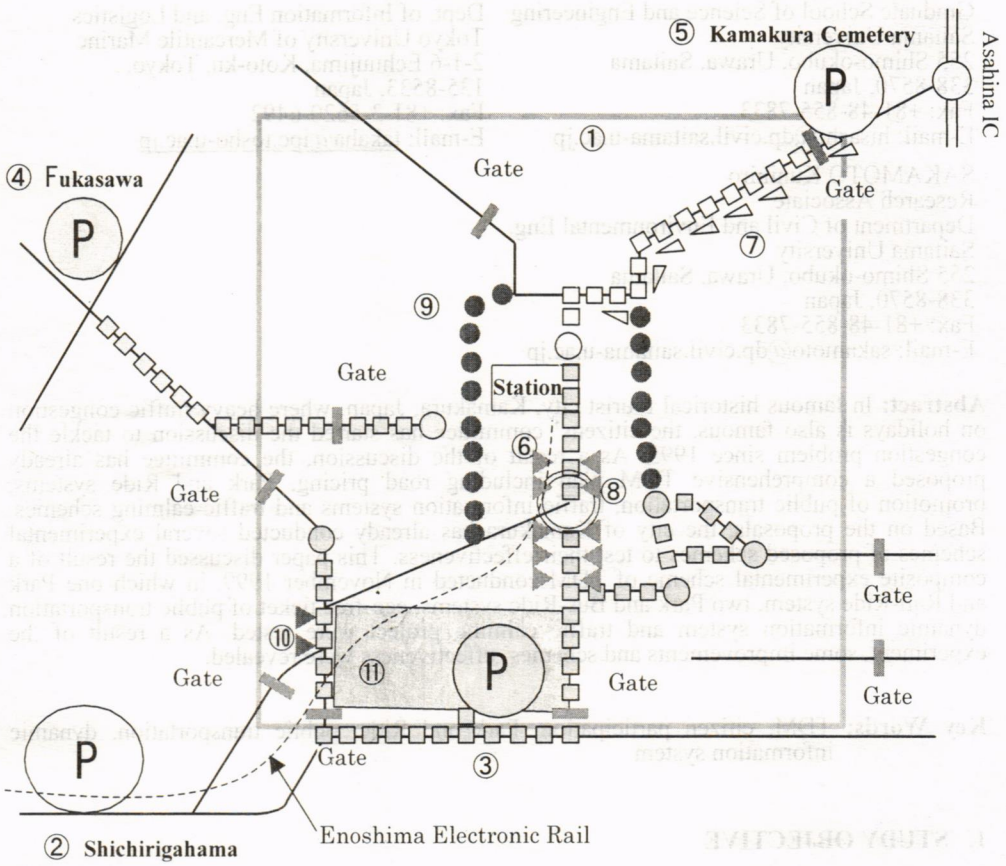
1. STUDY OBJECTIVE

The Kamakura historical area, which constitutes the heart of the ancient city of Kamakura, is suffering from severe traffic congestion over the weekends. In Kamakura, the citizens' committee has started the discussion to tackle the congestion problem since 1995. As a result of the discussion, the committee has already proposed a comprehensive TDM plan including road pricing, Park and Ride systems, promotion of public transportation, traffic information systems and traffic calming schemes (Figure 1: Kubota and Takahashi (1998)). Based on the proposals, the city of Kamakura has already conducted several experimental schemes of proposed schemes to test the effectiveness of them including Park and Rail-Ride scheme in 1996 and eco-free ticket of public transportation in 1998.

In November 1999, the experiment was conducted in composite way to make sure the composite effectiveness and feasibility. TDM schemes included were, Park and Rail-Ride system, two Park and Bus-Ride systems, eco-free ticket of public transportation, dynamic information system, and traffic calming project. Particularly, in terms of Park and Rail-Ride system and eco-free ticket of public transportation, the conditions of experiment such as management and fare was realistically set up to judge if they can be permanently introduced because the effectiveness of these two schemes has already been made clear by the first experiment respectively. The composite schemes were conducted for one month with the cooperation with transportation companies, shopkeepers, tourist facilities, police agencies, Kanagawa prefecture, Ministry of Construction, as well as about 420 volunteers.

This paper introduces the 1999 experiment conducted with the aim to facilitate traffic in the

district of Kamakura, and summarizes the facts and issues revealed as a result of this social experiment, with reference to experiment findings in the previous years also.



LEGEND			
①Road Pricing	Area Boundary / Gates	⑥Bus lane	
②Park & Rail-Ride	P Station	⑦ Bus Priority Signal System	
		⑧New Signal	
Park & Bus-ride	③ P	⑨Community Streets	
	④ P	⑩Community Street	
	⑤ P	⑪Community Zone	

Figure 1 Kamakura Comprehensive TDM Plan

2. EFFORTS MADE IN KAMAKURA

Kamakura City Government established the Citizens Committee in 1995, and made the proposal of comprehensive TDM plan in Kamakura historical area in May 1996. The Comprehensive TDM plan in Kamakura historical area consists of 20 policy measures that basically aim to give priority to pedestrians and public transport users and to convert drivers into public transport users.

The Citizens Committee, which focuses on social experiments as a step to implement the Plan in real society, conducted a "Park & Rail Ride" experiment in Shichirigahama in November 1996, and a "Eco Free Ticket" experiment in May/June 1998. In 1999, the Citizens Committee conducted the composite experiment including above two measures as well as a dynamic traffic information experiment based on "Park & Bus Ride", "pedestrian-priority roads", and information services.

In this paper, "experiment" is defined as an attempt to understand the effectiveness of policy measures and to identify the issues, whereas "trial" is defined as an attempt to check the conditions in detail, with reference to the experiment results, assuming the implementation of policy measures in real life.

3. EXPERIMENT PLAN

3.1 Experimental Schemes

Contents of the experiment are summarized in Table 1. Park and Rail Ride and Eco Free Ticket schemes, which were already tested as "experiment" before, were conducted as "trial" in this time.

Table 1 Outline of Composite Experiment

Scheme	Outline	Type	Purpose
Park & Rail Ride	Visitors park in Shichirigahama, western suburban parking and ride on Enoshima Electric railway to the city center. Parking Capacity:342 Fare: ¥1,500 for one-day for two persons It was conducted on weekends of November 1999.	Trial	To check the conditions for the permanent implementation
Eco Free Ticket	Visitors can freely use railways and buses for one-day Fare: ¥550(type A) and ¥500(type B) for one person It was sold in November 1999	Trial	
Share Taxi	Shared taxi connecting major visiting places with additional fare of Eco Free Ticket Additional Fare: ¥100 or ¥200 according to the distance It was conducted on weekends and national holidays of November 1999.	Experiment	To understand the effectiveness and points to be improved
Park & Bus Ride	Park and Bus Ride system using two suburban parking places Kamakura Cemetery and Fukasawa Area. Parking Capacity:97(Kamakura Cemetery),300(Fukasawa) Fare: ¥1.000 including one-day parking and bus fare for all passengers It was conducted on weekends of November 1999.	Experiment	
Traffic Calming	In Imakoji street, temporal one-way regulation was introduced as well as introducing humps and chokers. It was conducted in four weekend days.	Experiment	
Dynamic Traffic Information System	Dynamic travel time from parking to the city center was provided in front of Shichirigahama parking.	Experiment	

Up until the completion of the experiment plan (April – October 1999), the Citizens Committee held a meeting 3 times, the subcommittees 11 times (Planning Subcommittee : 3 times, Joint Subcommittee : 8 times) and the Local Workshop 11 times.

3.2 Experiment Organization and Partnership

The Kamakura City Government and the Citizens Committee was responsible for the experiment, which was carried out by volunteers, members of the Citizens Committee and the Local Workshop, municipal employees and many other staffs.

Volunteer positions were advertised as soon as the experiment plan was finalized in September 1999. Approximately 450 citizens applied, and about 420 actually participated. In May 1999, they started negotiating with and gained cooperation from railway and bus companies relating the area.

They also started negotiating with the local tourism industry in September 1999, considering the importance of developing the foundations to collaborate with them for the implementation of the Comprehensive TDM plan in Kamakura historical area. As a result, 57 collaborating stores including restaurants and souvenir shops offered special services and 12 temples/shrines and 8 public facilities offered discount entrance fares as additional service for Eco Free Ticket holders. (In the "public transport transfer system" experiment conducted in 1998, 23 stores collaborated.)

The City Government developed an internal framework of collaboration, and played a leading role in conducting the long-term experiment, making coordination efforts with the Kanagawa Prefectural Government. In July 1999, it also started making coordination efforts with the Prefectural Police Headquarters, in order to conduct the "pedestrian-priority road" experiment.

PR activities were launched about a month before the experiment started. Public transport, mass media, leaflets and billboards were used for PR activities during the experiment.

4. EXPERIMENT RESULTS

This paper covers 5 out of 6 experiments which basically aim to reduce the inflow of vehicle traffic and to encourage the use of public transport, namely, (1)Park & Rail Ride in Shichirigahama, (2)Kamakura Eco Free Ticket, (3)Share Taxi, (4)Park & Bus Ride both in Kamakura Cemetery and Fukasawa district and (5)Dynamic Information System.

4.1 "Park & Rail Ride" (Shichirigahama)

In 8 days, 498 cars used the system in total, posting an average of 62 cars per day. The city of Kamakura distributed 321 questionnaires, and managed to collect 245 responses. (Questionnaires were collected on the spot. Collection rate: 76.3%.)

In the experiment conducted in November 1996 (November 23 & 24), 737 cars used the system in 2 days, posting an average of 369 per day. In contrast, the usage rate turned out to be much lower in the latest experiment. In the days of the 1996 experiment, the main roads in Kamakura district and the surrounding areas were extremely congested. In the last 2-3 years, however, congestion in the area has diminished. The lower usage rate is believed to be largely due to the fact that National Highway Route-134 is now well known among drivers to be a relatively smooth route.

The system fare per vehicle was ¥1,000 in the 1996 experiment, in which they gave all users a free one-day ticket worth ¥570 issued by Enoshima Electric Railway. Considering the economic feasibility, they set the system fare per vehicle at ¥1,500 in the latest experiment, and gave each user a ticket valid between Shichirigahama and Kamakura Stations issued by Enoshima Electric Railway and a free one-day ticket between Kamakura Station and Kita-Kamakura Station for two persons. In the latest experiment, 72% of the users said the system fare was "reasonable", 17% "cheap" and 9% "expensive". It appears that the fare is set at a reasonable level (Table 2).

Table 2 Result of Questionnaire Survey on Park & Rail Ride

System Fare	
Reasonable	72.2%
Cheap	16.7%
Expensive	9.4%
No ans.	1.6%
User's Reaction	
Excellent	47.3%
Good	47.8%
Not Good	2.9%
No ans.	2.0%
User's Enthusiasm for Full Implementation	
Frequently	38.4%
Normally	52.7%
Not Much	6.5%
Not At All	0.8%
No ans.	1.6%
	n=245

In the 1996 experiment, the most common request from users was "to make the closing time of the parking lot (17:00) much later", accounting for 62% of all multiple choices. In the latest experiment, they set the closing time at 19:00. As a result, 58% of users said the closing time is "reasonable", 7% wanted "earlier opening" and 31% requested "later closing". Most people who demanded "later closing" preferred closing at some time between 21:00 and 22:00.

Users' impression of the system was "excellent" (47%), "good" (48%) and "not good" (3%), which are more or less the same as the 1996 experiment results. It seems that the experiment system is highly appreciated. Users' were also asked how often they will use the system in the event of full implementation; 38% of the respondents said "frequently", 53% "normally", 7% "not much" and 1% "not at all".

From the users' point of view, the full implementation of the system is a strong possibility, as long as coordination efforts are made between the interested parties.

4.2 Kamakura Eco Free Ticket

During the experiment, 8,375 passes were sold in a month, posting an average of 279 passes per day. Pass sales increased in the latter half of the month, as more citizens learned about the experiment. The maximum number of passes sold in one day was 936 on (Sunday) November 21st. They distributed 1,700 questionnaires, and managed to collect 350 responses. (Questionnaires were returned by post. Collection rate: 20.6%.)

The average number of passes used per day in the experiment conducted in May/June 1998 (May 23 – June 7) was 237 passes. The daily average in the latest experiment scored about 1.2 times more than that.

The motives for purchasing the pass were: "unrestricted use of buses" (28%), "unrestricted use of Enoshima Electric Railway" (27%), "discount at tourist sites" (26%), "special services at collaborating stores" (11%), "use of taxis" (4%) and "use of JR" (3%). (Multi-answer)(Table 3)

In the 1998 experiment, the system fare was set at ¥400 per person. About 75% of users said the fare was "reasonable" and around 15% said that they "would use it even if it was more expensive", assuming that buses operated according to the timetable without delays. Considering these results and the economic feasibility, fare was set at ¥550 for JR and ¥500 for Odakyu Electric Railway in the latest experiment.

Table 3 Result of Questionnaire Survey on Eco Free Ticket

Motive for Purchase(multi answer)	
Unrestricted use of buses	27.5%
Unrestricted use of Enoshima Electric Railway	27.0%
Discount at tourist sites	25.6%
Special Services at collaborating stores	10.6%
Use of share taxis	3.9%
Use of JR	2.6%
Others	2.7%
System Fare(type-A fare:¥550)	
Reasonable	54.3%
Cheap	1.7%
Expensive	26.9%
No ans.	17.1%
System Fare(type-A fare:¥550) ***on the condition that buses operate according to the timetable without delays***	
Reasonable	63.7%
Cheap	7.7%
Expensive	8.6%
No ans.	20.0%
User's Reaction	
Excellent	29.1%
Good	47.7%
Not Much	14.9%
Not Good	4.3%
No ans.	4.0%
User's Enthusiasm for Full Implementation	
Both on weekdays and weekends	35.7%
Mainly on weekdays	17.4%
Mainly on weekends	18.6%
Not much	16.9%
No ans.	11.4%
User's Enthusiasm for Full Implementation ***on the condition that buses operate according to the timetable without delays***	
Both on weekdays and weekends	56.3%
Mainly on weekdays	4.6%
Mainly on weekends	19.7%
Not much	6.9%
No ans.	12.6% n=350

With regard to the fare, 54% of the respondents claimed that it was "reasonable" considering the actual performance of buses at the time of the experiment. It should be noted that 64% said that they would regard the fare "reasonable" on the condition that buses operate according to the timetable without delays. The average preferred fare is ¥510 and ¥550 for JR and Odakyu Electric Railway, respectively. Assuming that buses run without delays, it was believed that the fares were set at a reasonable level in this experiment.

Users' responses were "excellent/good" (77%), and "not good/poor" (19%). Merits pointed out by users include "discount at tourist sites" (63%), "can visit more tourist sites than by foot" (44%) and "easy transfer" (26%)". Demerits mentioned by users are "bus got caught in traffic jam" (34%), "not enough collaborating stores" (22%) and "poor destination guidance " (20%).

Assuming that buses operate according to the timetable without delays, 56.3% of the

respondents said that they would use the bus on both weekdays and weekends. In short, the results indicate that the full implementation of the system is a strong possibility, provided that measures to improve the environment for buses are taken at the same time.

4.3 Share Taxi

In 10 days, 808 visitors used the system in total, posting an average of 81 per day. As a result of the questionnaire survey, 68% of respondents answered that "it was very convenient", while only 1% were negative.

Although the fare was also supported by most respondents (88%), taxi company has judged that the fare system of ¥100 for short trip and ¥200 for longer trip is not considered as feasible for the permanent implementation at all.

4.4 Park & Bus Ride (Kamakura Cemetery and Fukasawa Area)

To avoid the traffic congestion which may occurs in streets in city center, the shuttle bus from suburban parking was set to terminate at the fringe of city center. In 8 days, 394 cars used the system in total at Kamakura Cemetery, posting an average of 49 cars per day, whereas 237 cars used it in total in Fukasawa area, marking an average of 30 cars per day,

At Kamakura Cemetery, they distributed 238 questionnaires and managed to collect 210 responses. (Questionnaires were collected on the spot. Collection rate: 88.2%.) In Fukasawa area, they distributed 149 questionnaires and managed to collect 133 responses. (Questionnaires were collected on the spot. Collection rate: 89.3%.)(Table 4)

Kamakura Cemetery is located along the tourist route from Asahina Interchange, which made leaflet distribution at the Interchange's tollbooth more effective. Fukasawa area is far away from the tourist route, and the parking lot is not easy to find. These factors are believed to have led to the different results.

As the shuttle bus did not suffer from severe traffic congestion, 70%-80% of the users said the fare in this experiment (¥1,000) was "reasonable". About 90% of the users said the system was "excellent" or "good", owing to the fact that there were few traffic jams, and due to the prompt departure of buses in response to the arrival of passengers.

Table 4 Result of Questionnaire Survey on Park & Bus Ride

Kamakura Cemetery	n=210	**Fukasawa**	n=133
User's Reaction		**User's Reaction**	
Excellent	42.9%	*Excellent*	24.8%
Good	53.3%	*Good*	62.4%
Not Much	0.9%	*Not Much*	5.3%
Not Good	-	*Not Good*	0.8%
No ans.	2.9%	*No ans.*	6.8%
System Fare(¥1,000)		**System Fare(¥1,000)**	
Reasonable	79.5%	*Reasonable*	78.2%
Cheap	7.1%	*Cheap*	3.8%
Expensive	5.2%	*Expensive*	9.0%
Never use	0.5%	*Never use*	0.8%
No ans.	7.6%	*No ans.*	8.3%

Other than the fares, most users wanted measures that will give priority to buses over other vehicles (about 60%). This was followed by requests for "information on vacancy status of parking lots", "information on time taken to key destinations" and "shuttle bus services geared to seasonal tourist events".

In this experiment, the last bus left at 17:00. About 50%-60% of the users wanted the last bus to leave later, mostly between 18:00 and 21:00.

By looking into users who were frustrated with bus operation, with reference to the actual bus performance, it was discovered that users tend to get frustrated when it takes longer on the way back from somewhere than the way to, and when the travel time exceeds more than 20 minutes. It appears that passengers start to get frustrated when it takes more than twice the time than it normally would.

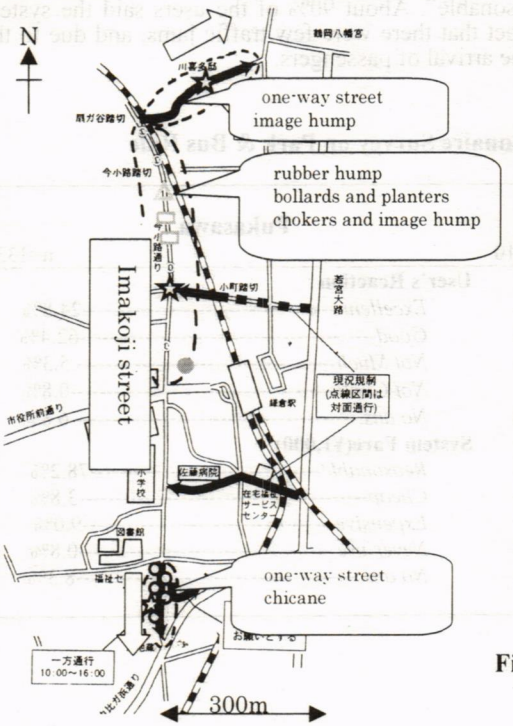
This means that it is important to take measures to ensure the smooth operation of shuttle buses, in order to make "park & bus ride" a popular practice. It is necessary to consider policies that will allow buses to take over other vehicles as proposed in the comprehensive TDM Plan, so that buses can overtake even in the event of traffic jams.

For the next step, "trial", the following issues need to be addressed in the future, in addition to taking measures that will ensure the smooth operation of shuttle buses.

-Give information on the location of parking lots and their vacancy status, which will promote the use of the system.
-Offer alternative means of transport to system users who missed the last bus in Fukasawa area. (At Kamakura Cemetery, users who missed the last bus can take the local bus.)
-Utilize existing bus stations to meet stopover requests.

4.5 Traffic Calming (Imakoji street)

In Imakoji street(street⑨ in Figure 1), traffic calming schemes were experimented including one-way streets, humps, chokers and so on(Figure 2). Because it was a four-days short-term experiment, "removal" physical devices such as rubber humps were used.



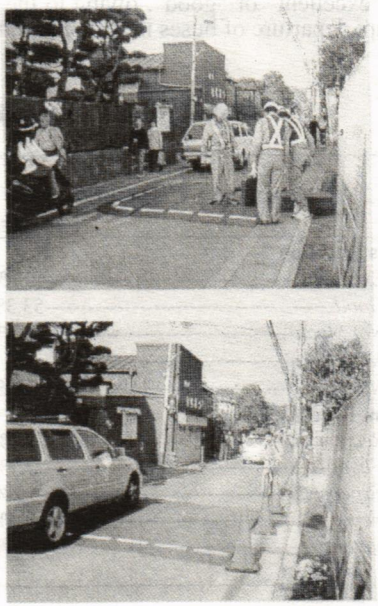


Figure 2 Traffic Calming Experiments in Imakoji street

As a result of the questionnaire survey, it was found that about half pedestrians supported this scheme. The majority of car drivers are also in favor of it notwithstanding they suffer more or less inconvenience from this scheme.

4.6 Dynamic Traffic Information System

To promote the use of Park & Ride systems, it seems effective to dynamically provide the real time from suburban parking to city center both by cars and by public transportation. To test the effectiveness, Dynamic Traffic Information System was experimented in Park & Rail Ride system in Shichirigahama.

As a experiment, duration time was taken by manual at four points along the road from Shichirigahama to city center. The data including car license number and the passing time were digitally input in portable computers in each point. By using portable telephone, the data periodically were sent to the center server and made matching to know the duration time during the neighboring two points. By summing up those times, duration time from Shichirigahama to the city center was calculated (Figure 3).

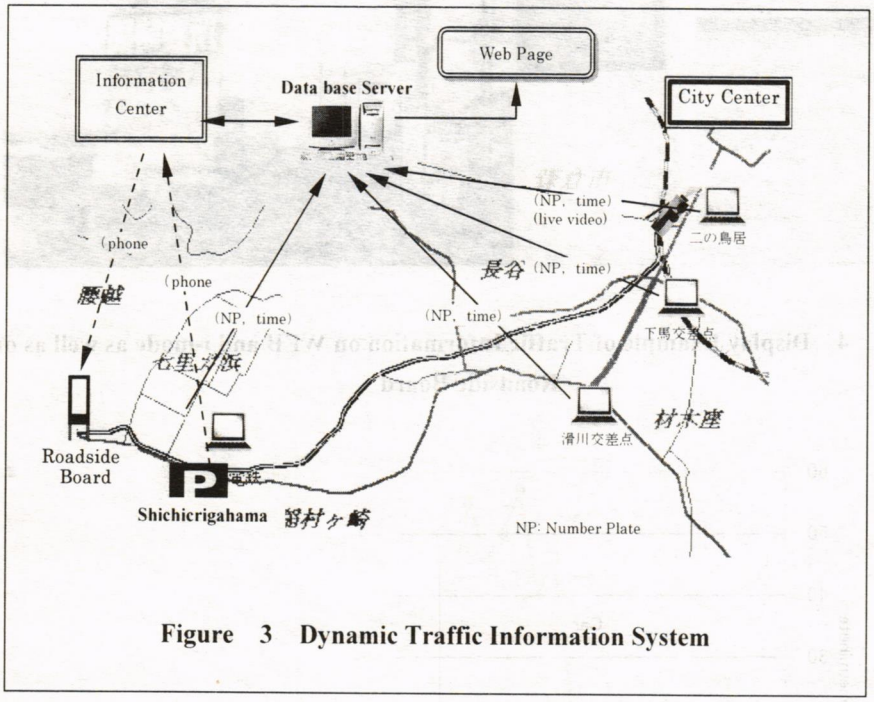


Figure 3 Dynamic Traffic Information System

The time was provided in WEB and i-mode (internet on portable telephone) as well as on the roadside board in front of Shichirigahama parking(Table 5 and Figure 4). For the comparison, the time of public transportation was also displayed as a constant ("*30 minutes*").

As mentioned earlier, traffic was not so congested during the experiment. By comparing the duration time of cars and rail from Shichirigahama to city center, cars takes much time only on afternoon (Figure 5).

Table 5 Contents of Dynamic Traffic Information System

Purpose	Contents	Media
Pre-trip (Information at home)	System Introduction Duration time Vacant/Full information of parking Live Video of Street congestion in city center	WEB Portable Telephone (i -mode)
In-trip (Information in car)	Duration time Vacant/Full information of parking Live Video of Street congestion in city center	Roadside Board

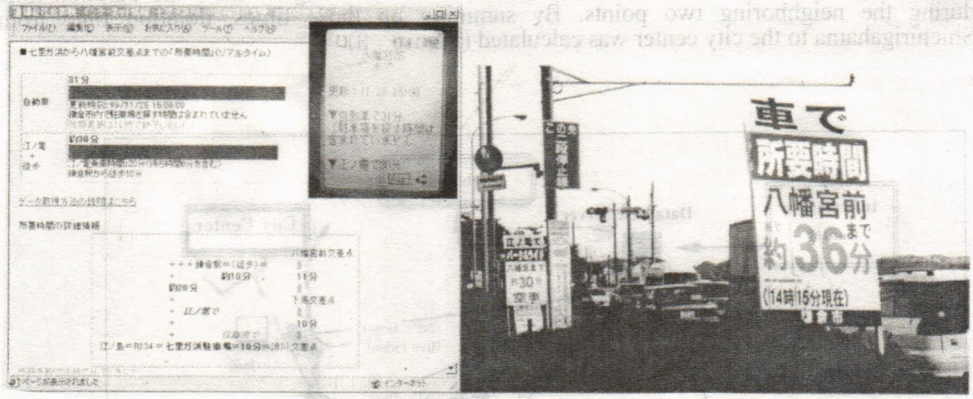


Figure 4 Display Example of Traffic Information on WEB and i-mode as well as on Roadside Board

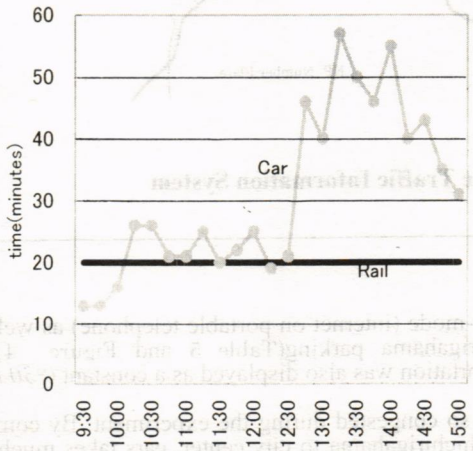


Figure 5 Time Comparisons from Shichirigahama to City Center (November 28)

By looking at the relationship between display time showing the time to get to city center and number of vehicles that have started to use Park and Rail Ride system in Shichirigahama parking, it seems impossible to say that visitors would use the Park and Rail Ride system when traffic congestion ahead is displayed (Figure 6). The reason probably is traffic congestion of the day started in the afternoon, while potential users of Park and Ride system will want to start to use it in the morning.

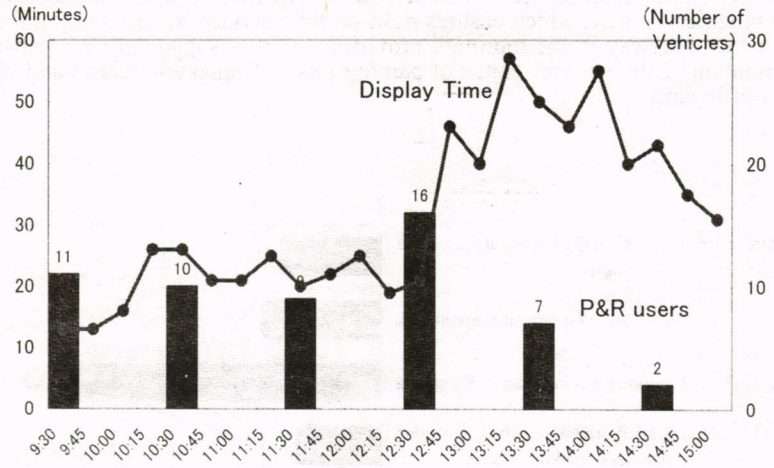


Figure 6 Relationships between Display Time and Number of Vehicles Starting to Use Park & Rail Ride System (Nov. 28)

Provided information itself was evaluated reliable enough by users (Table 6), probably because the displayed time was not directly collected from origin-destination duration time but calculated as a total of three sections from origin to destination to know the latest time.

Table 6 Reliability of Dynamic Traffic Information Provision

User's Evaluation		
Reliable	45.0%	
Not Reliable	15.0%	
Neutral	5.0%	
No ans.	35.0%	n=188

5. WAY TO PERMANENT IMPLEMENTATION

Within the experimented schemes, Park and Rail Ride and Eco Free Ticket were intended to check the feasibility of permanent implementation.

5.1 "Park & Rail Ride" (Shichirigahama)

In the 1996 experiment, it was confirmed that some drivers who visit the Kamakura district have the desire to sightsee the area with the use of "park & rail ride". It was also revealed that

the demand of "park & rail ride" parking lots concentrated in the morning.

As shown in Figure 7, information deemed useful from the users' point of view include "vacancy status of parking lots in center of Kamakura"(48%), "video showing traffic jam conditions" (42%), "installation of more road signs" (20%), "information on expected arrival time" (18%) and "more information on the destination at the time of arrival" (15%). (Multi-answer) The results indicate that it will be effective to apply the system utilizing Enoshima Electric Railway, which ensures right-on-time service by providing information of the experiment underway in the morning, provided that it is supported by a subsystem that gives information of the vacancy status of parking lots in Kamakura district and information (video) of traffic jams.

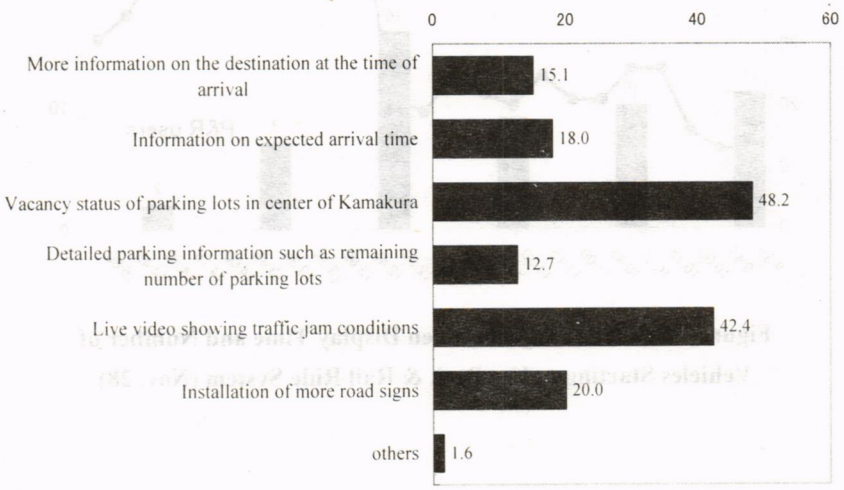


Figure 7 Desirable Traffic Information in Kamakura (n=210)

According to the interview survey to transport operators after the experiment, and it was found that the system's performance at the time of the experiment and the transport capacity of Enoshima Electric Railway will be sufficient to support the full implementation of the system, excluding summer-time(July and August) when the demand of parking lots dramatically increase due to beach visitors.

For full implementation, it is considered that it will be necessary to consider the extension of operating hours depending on users' requests and the extent to which the tourist industry is promoted thereby.

In the experiment, two staff members (including one station employee) handled ticket sales. For the installation of a ticket machine, the system must support year-round ticket sales excluding summertime.

Vehicles accessing the parking lot from the west via National Highway route-134 are required to turn right in the middle of the road. Hence, safety precautions must be taken for full implementation.

5.2 Kamakura Eco Free Ticket

The system is popular among users, and has a high potential of being continually applied as a policy measure. At this stage, system users highly appreciate the "discounts at tourists sites".

Once the public transport environment is improved, users will appreciate the system more. Creating an environment in which people can smoothly travel by public transport in Kamakura district may increase user population.

In the latest experiment, the Eco Free Ticket merely has the effect of switching 2% of drivers to travel by train instead of car. However, it should be noted that 66% of the users said that train use will "substantially increase" or "somewhat increase" if the pass can be purchased at the boarding station. Therefore, people are likely to switch to public transport from origin of trip if there is a system for selling Eco Free Tickets at the boarding station.

Through the questionnaire survey after the experiment targeting collaborating stores[1], it was revealed that 13 stores (41%) believed the Eco Free Ticket had a positive impact on their business during the experiment. Store owners were asked whether they would like to become collaborating stores in the event of the system's full implementation; 12 stores (38%) responded YES, including those that imposed certain terms and conditions; 3 stores (9%) answered NO; and 14 stores (44%) were undecided.

Interviews with transport operators after the experiment revealed that, for the full introduction of the Eco Free Ticket, it will be essential to integrate with the existing similar free tickets covering Kamakura district currently issued by each train and bus company, and make the system more practical at the same time.

Hence, it will be necessary to cooperate and coordinate with collaborating stores, and develop a system that makes people switch from cars to public transport from origin as well as a system that enables users to purchase the pass in Kamakura, considering the nature of the systems, the level of fares, and the sellers of the pass.

6. CONCLUTIONS AND FUTURE ISSUES

6.1 Effect and Impact of Combined Experiments

According to the result of citizens' consciousness survey[2] that was conducted at the same time, with the aim to understand the effect and the impact of the experiment, it was made clear that most residents and businesses said that the traffic situation in Kamakura district during the November was hardly different from other years, meaning that the effect and the impact of combined experiments were insufficient to convert drivers into public transport users.

As traffic jams have become less severe over the past few years, it is becoming increasingly difficult to encourage people to switch to public transport. In that sense, the latest experiment findings cannot easily be compared with the results of previous years. Based on experiments and trials performed to date, it is essential to apply strategies for enhancing the policy measure by itself and for boosting the multiplier effect of combined measures, and to collaborate with events organized by the tourist industry. It is also necessary to study the effect and impact of combined experiments.

6.2 Effect and Impact on the Local Tourism Industry

"Park & ride" is expected to make traveling easier for tourists. However, it should be noted that some respondents claimed that it reduced their scope of activity and resulted in less sightseeing time. Thus, it is necessary to consider extending the operating hours of the parking

[1] The survey targeted collaborating stores. Questionnaires were distributed directly to the owners and were collected by mail: 55 questionnaires were distributed and 32 were collected (collection rate: 58.2%).

[2] This refers to the survey on citizens' consciousness conducted for the third time since 1995, targeting residents and businesses in Kamakura district. Questionnaires were distributed and collected by mail. Residents: 1,000 questionnaires were distributed and 509 were collected (collection rate: 50.9%). Businesses: 500 questionnaires were distributed and 178 were collected (collection rate: 35.6%).

lot and taking measures to ensure smoother shuttle bus operation.

Meanwhile, the Eco Free Ticket generally makes each person visit more sites and spend more money. Eco Free Ticket carriers are believed to visit more sites and spend more money as they save more time by coming to Kamakura by train, and because they use public transport to sightsee many places in the district.

In this experiment, only 2% of the respondents claimed that the Eco Free Ticket motivated them to visit Kamakura district. Nevertheless, it is worth noting that 69% of the respondents said that they would be "substantially motivated" or "somewhat motivated" by the pass in the event of full implementation. Hence, the Eco Free Ticket has the potential to increase the tourist demand in the entire Kamakura district, based on train travel.

The Eco Free Ticket also motivates people to sightsee places that are far away from the station. In order to make the Eco Free Ticket popular and to promote tourism, it is vital to suppress the traffic volume in Kamakura district to a reasonable level and create an environment in which buses and taxis can smoothly operate.

About 20% of pass users pointed out that the number of collaborating stores were insufficient, which indicates how big their expectations are for collaborating stores. It is therefore important to develop strategies with multiplier effects, covering a wide area with respect to stores.

6.3 Future Issues with Citizens' Participation

The Citizens Committee has conducted a number of experiments since its decision of the Comprehensive TDM Plan, and at the same time, made efforts to determine the effect and impact of those experiments. As a result, some potent policy measures were identified.

Overall, the Plan has become a real possibility pursuant to the experiments. In response, the chamber of commerce and industry and other organizations have submitted petitions to the Citizens Committee and the City Government, calling for the review/abolition of the road pricing policy.

In the Citizens Committee, heated discussions are taking place, as to whether the decreasing number of tourists is due to the "Kamakura = car-free zone" image created by the experiment, and how to build a consensus among local residents when none of the members are elected local representatives. Currently, Kamakura is facing a crucial test in citizens' participation, from experiment to implementation stages of the plan. It will be extremely important to reaffirm the ideals and objects of the Local Traffic Plan (i.e., "urban development centering on pedestrians and public transport" and "finding a happy medium between a residential city and a tourist city"), confirmed facts and simulation results, and at the same time, deepen citizens and businesses' understanding of the Plan.

ACKNOWLEDGEMENTS

The authors wish to thank Citizens Committee and Kamakura city government for providing data of the experiment. The experiment was supported by Ministry of Construction.

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