

# **A STUDY OF OPINION AMONG INHABITANTS REGARDING SAKAI CITY LRT PLAN BASED ON A POLL**

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## **ABSTRACT**

Sakai City has released a plan to construct a new light rail line (6.9 km) as an east-west railway. The residents of Sakai City have various opinions regarding the plan. A new Sakai City mayor was elected in September 2009, and has since declared that the LRT line shall be reconsidered because of the lack of consensus among Sakai City residents. This study intends to analyze the opinions among Sakai City residents before the introduction of the LRT in 2008. It is essential that these kinds of opinions be recorded and then analyzed to find a consensus among the residents regarding the LRT project.

*Keywords: Light Rail Transit, Public Transportation Planning, Opinion Poll*

## **1. INTRODUCTION**

Sakai City has released a plan to construct a new light rail line (6.9 km) as an east-west railway (Sakai City, 2006). The light rail is designed to connect the Bay Area, Sakai station, which services the Main Line of Nankai Electric Railway, Oshoji station, which services the Hankai Tram Line and Sakai-Higashi station, which services the Koya Line of Nankai Electric Railway.

This light rail transit (LRT) project is the first of its kind in Japan and the residents of Sakai City have various opinions regarding the plan. Some individuals believe that this plan will bring new business opportunities from the technology sector to the Bay Area as well as increase sightseeing in the historical old town. On the other hand, some people doubt that the city government will invest in such large-scale development. Consequently, there needs to be a consensus among residents in order to bring the new LRT line into fruition.

A new Sakai City mayor was elected in September 2009, and has since declared that the LRT line shall be reconsidered because of the lack of consensus among Sakai City

residents. Thus, there is a possibility that the LRT project will be cancelled and that the existing tram line will be abandoned.

Generally speaking, the significance of constructing the LRT line is clear, but once the plan took shape, the residents' various opinions regarding the plan generated confusion, bringing to a halt any subsequent process after the election.

The present study intends to analyze the opinions among Sakai City residents before the introduction of the LRT. As this has only been tried once before in Japan, it is essential that these kinds of opinions be recorded and then analyzed to find a consensus among the residents regarding the LRT project.

## **2. SURVEY METHOD**

### **(1) Survey contents**

We conducted an opinion poll across the whole of Sakai City area in September 2008. The contents of the questionnaire were as follows:

- 1) Questions
  - a. Individual attributes
  - b. Travel behavior and travel purpose
  - c. Evaluation of public transportation
  - d. Evaluation of Sakai City LRT Plan
  - e. Evaluation of living situation
  - f. Opinion regarding urban planning in Sakai City

- 2) Period  
September 13 to 20, 2008

- 3) Method  
Questionnaires were distributed to 8,000 households located in all seven wards of Sakai City. Three individual questionnaire sheets were distributed to each household, and respondents were instructed to return the completed questionnaires by mail.

### **(2) Respondents' characteristics**

The questionnaire was distributed to 7,400 households (2.1% of sampling rate) and collected from 1,397 households (18.9% of collection rate). Of the total number of households returning questionnaires, the responses of 2,247 individuals (0.27% of Sakai City residents) were analyzed.

The study area is shown in Figure 1. There are seven wards in Sakai City. The new LRT line was planned for Sakai ward and the existing tram line is located in Sakai and Nishi wards.

The results concerning the survey are shown in Table 1. The collection rate in Sakai and Nishi wards was higher than that for other wards. The LRT plan is of particular interest to residents of these wards.

The distribution of respondents by sex for each ward is shown in Figure 2. The number of female residents is higher in every ward.

The distribution of respondents by age for each ward is shown in Figure 3. More than half of the respondents were over the age of 60.

The living history of respondents by ward is shown in Figure 4. There are a few having lived for over 40 years in Naka and Minami wards where new towns have been developed.

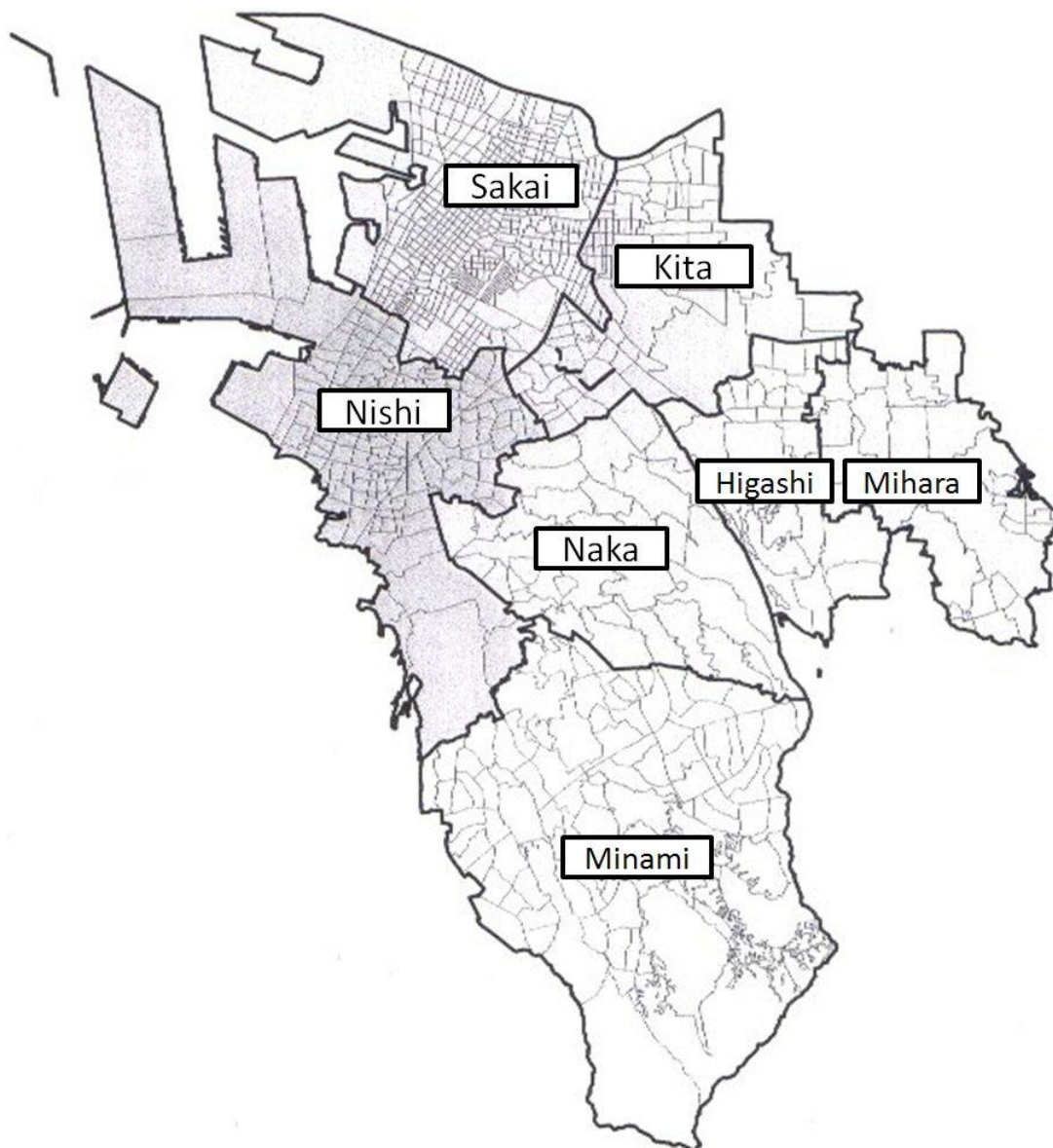


Figure 1 – The study area

*A study of opinion among inhabitants regarding Sakai City LRT plan based on a poll  
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Table 1 – The figures concerning the survey

| Ward    | No. of Households | Population | No. of Objective Households | Sampling Rate (Household) | No. of Responded Households | Collection Rate | No. of Valid Individuals | Sampling Rate (Individual) |
|---------|-------------------|------------|-----------------------------|---------------------------|-----------------------------|-----------------|--------------------------|----------------------------|
| Sakai   | 68,022            | 143,316    | 2,200                       | 3.2%                      | 362                         | 16.5%           | 597                      | 0.42%                      |
| Naka    | 49,366            | 121,382    | 800                         | 1.6%                      | 137                         | 17.1%           | 219                      | 0.18%                      |
| Higashi | 35,860            | 86,623     | 600                         | 1.7%                      | 129                         | 21.5%           | 198                      | 0.23%                      |
| Nishi   | 56,091            | 133,986    | 1,200                       | 2.1%                      | 319                         | 26.6%           | 520                      | 0.39%                      |
| Minami  | 64,046            | 157,164    | 1,000                       | 1.6%                      | 169                         | 16.9%           | 243                      | 0.15%                      |
| Kita    | 67,000            | 153,146    | 1,200                       | 1.8%                      | 177                         | 14.8%           | 274                      | 0.18%                      |
| Mihara  | 14,918            | 39,191     | 400                         | 2.7%                      | 84                          | 21.0%           | 152                      | 0.39%                      |
| Others  | N/A               | N/A        | N/A                         | N/A                       | 20                          | N/A             | 44                       | N/A                        |
| Total   | 355,303           | 834,808    | 7,400                       | 2.1%                      | 1,397                       | 18.9%           | 2,247                    | 0.27%                      |



Figure 2 – Respondents' constitution of sex

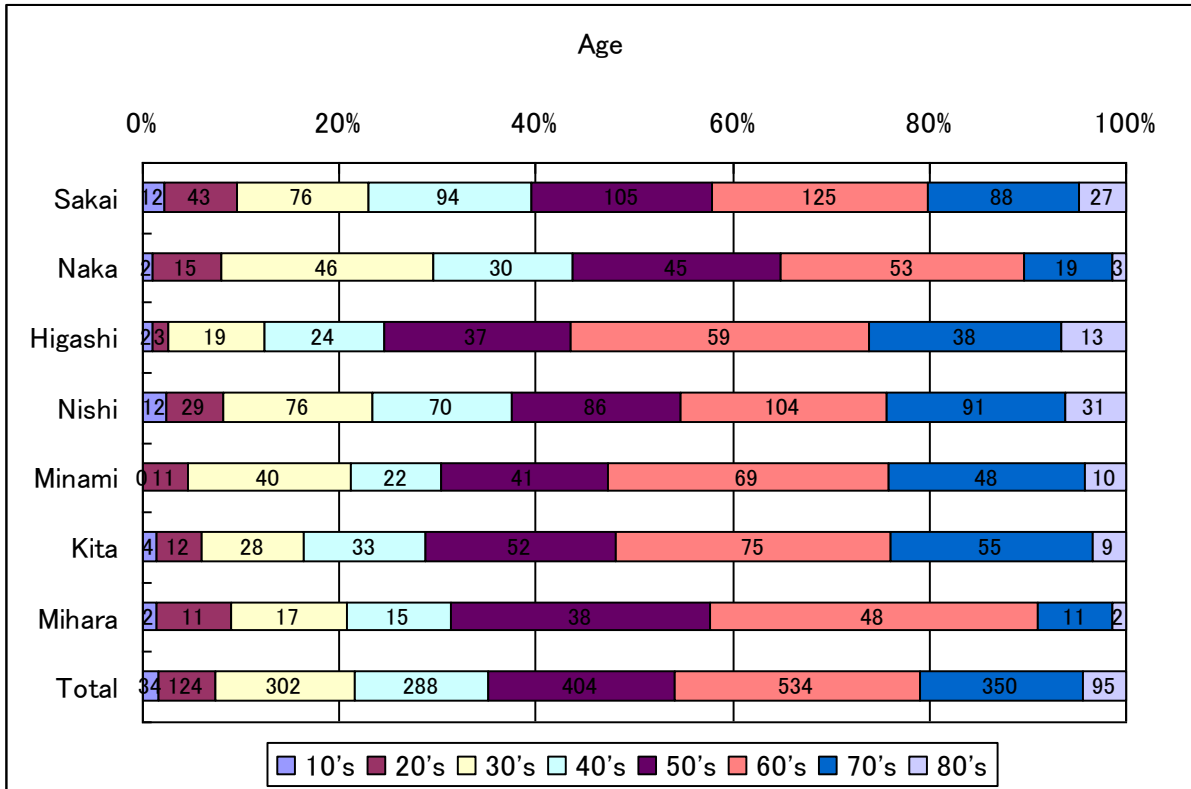


Figure 3 – Respondents' constitution of age

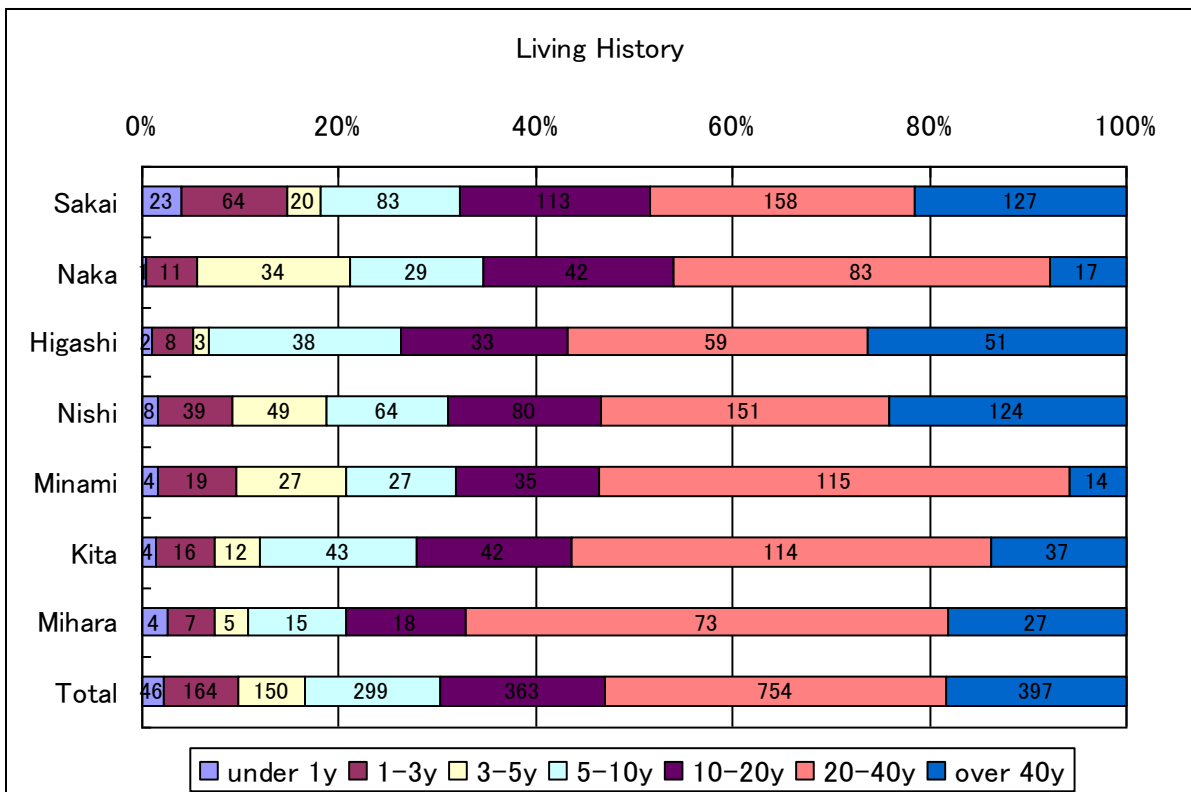


Figure 4 – Respondents' constitution of living history

### **3. EVALUATION OF CITY AND TRANSPORTATION**

#### **(1) Evaluation of the city**

The respondents' impressions of the city are shown in Figure 5. More than half of the residents that responded feel an attachment to the city and find it an easy place to live. However, they also feel that the "historical and traditional culture" is the only advantage of the city and other aspects concerning liveliness and bustling activity received a much lower evaluation.

The respondents' comprehensive evaluation of the city is shown in Figure 6. While the central districts of Sakai, Higashi and Nishi wards show a higher evaluation, the suburb districts of Minami and Mihara wards show lower evaluation.

#### **(2) Evaluation of public transportation**

An evaluation of the train service is shown in Figure 7. As north-south bound trains of the railway network in the city are enough, evaluation of these services is high, on average. However, the evaluation is lower in Minami ward where the fare is relatively high and in Mihara ward which lacks a train station.

An evaluation of the bus service is shown in Figure 8. As the bus network covers only east-west bound directions and feeder service from the train stations, evaluation is low. In particular, evaluation is the lowest in Mihara ward where bus service is relatively sparse.

### **4. OPINIONS OF THE LRT PLAN**

#### **(1) LRT plan awareness**

The awareness among respondents regarding the LRT plan is shown in Table 2. Seventy percent of respondents were already aware of the LRT plan. Compared to our survey in January 2006, in which awareness was only 33% (Tsukamoto and Hatoko, 2006), the current awareness has clearly increased. While awareness is higher in Sakai and Nishi wards where the LRT line is planned, awareness is lower in suburb district of Naka and Mihara wards.

#### **(2) Opinions of the LRT plan**

Evaluation of respondents' opinions concerning the LRT plan is shown in Figure 9. Overall, there are 21 opinions, with opinions 1 to 11 being positive opinions of the LRT plan, and opinions 12 to 19 being negative. Opinion 20 is concerning the publicity of the city and the last item is a comprehensive evaluation.

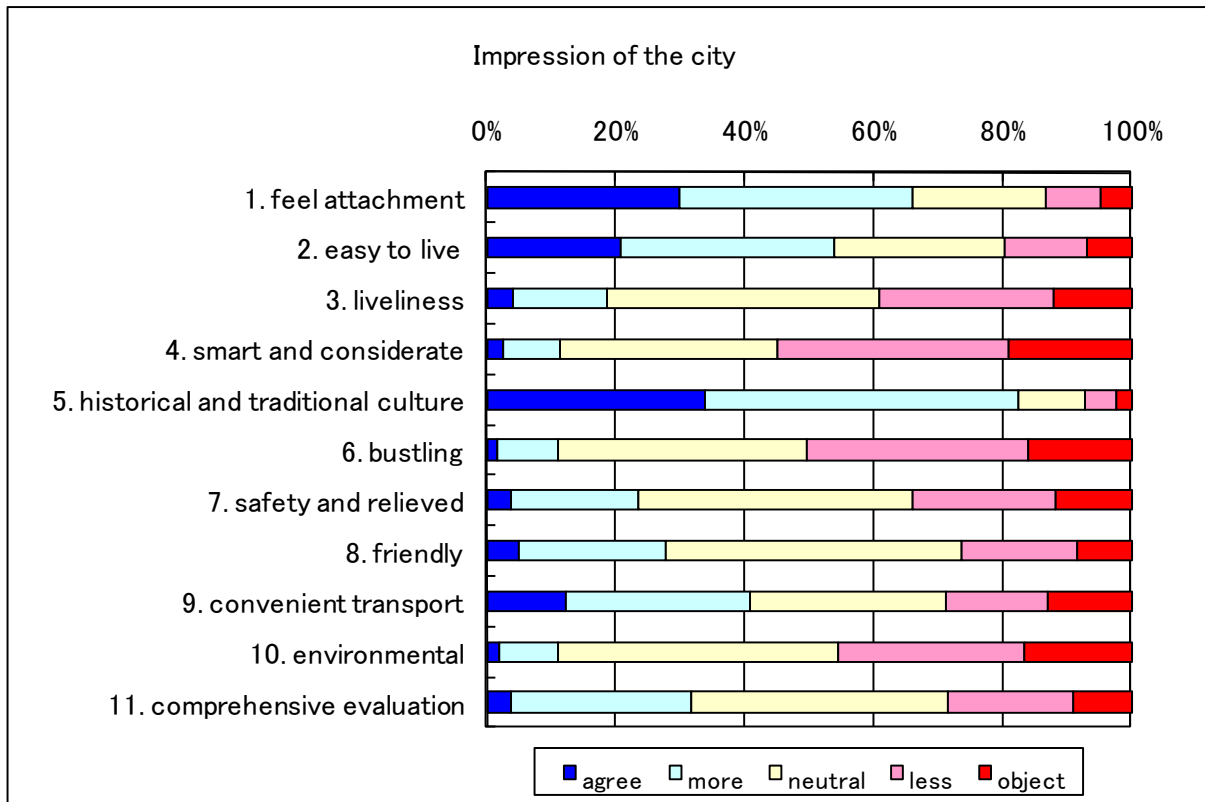


Figure 5 – Respondents' impression of the city

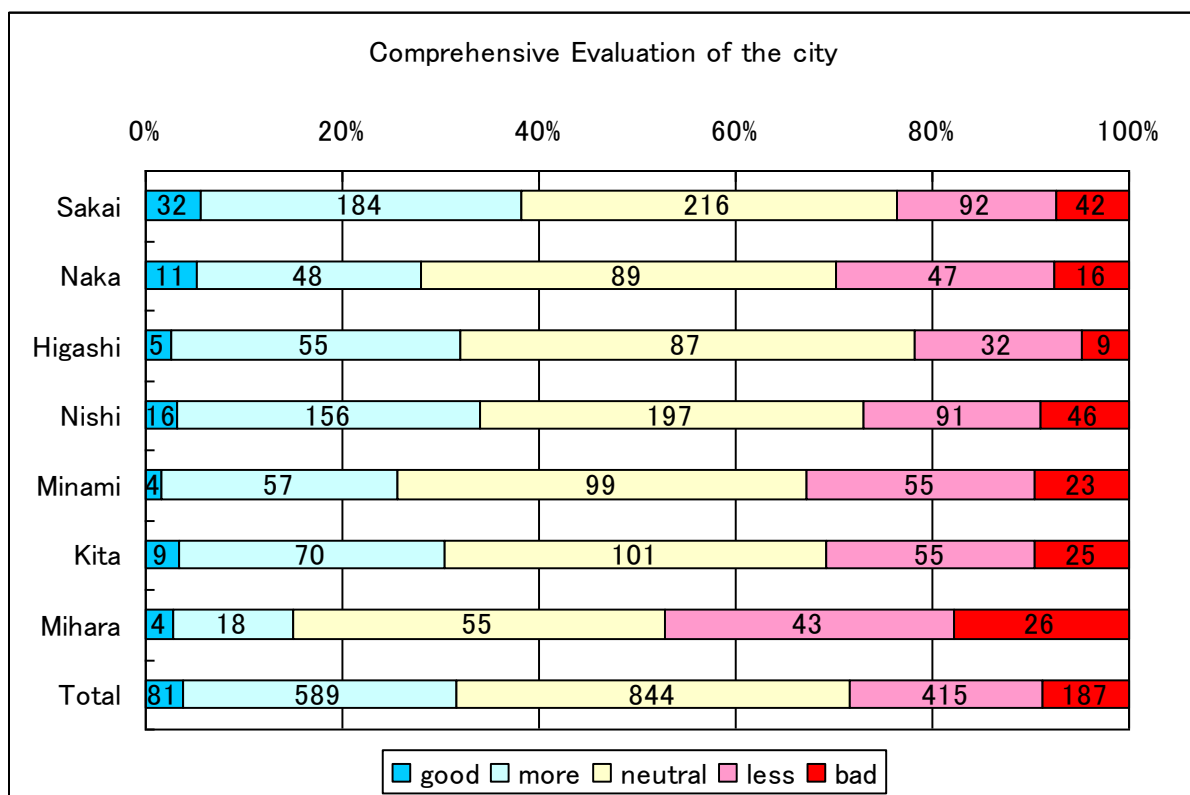


Figure 6 – Respondents' comprehensive evaluation of the city

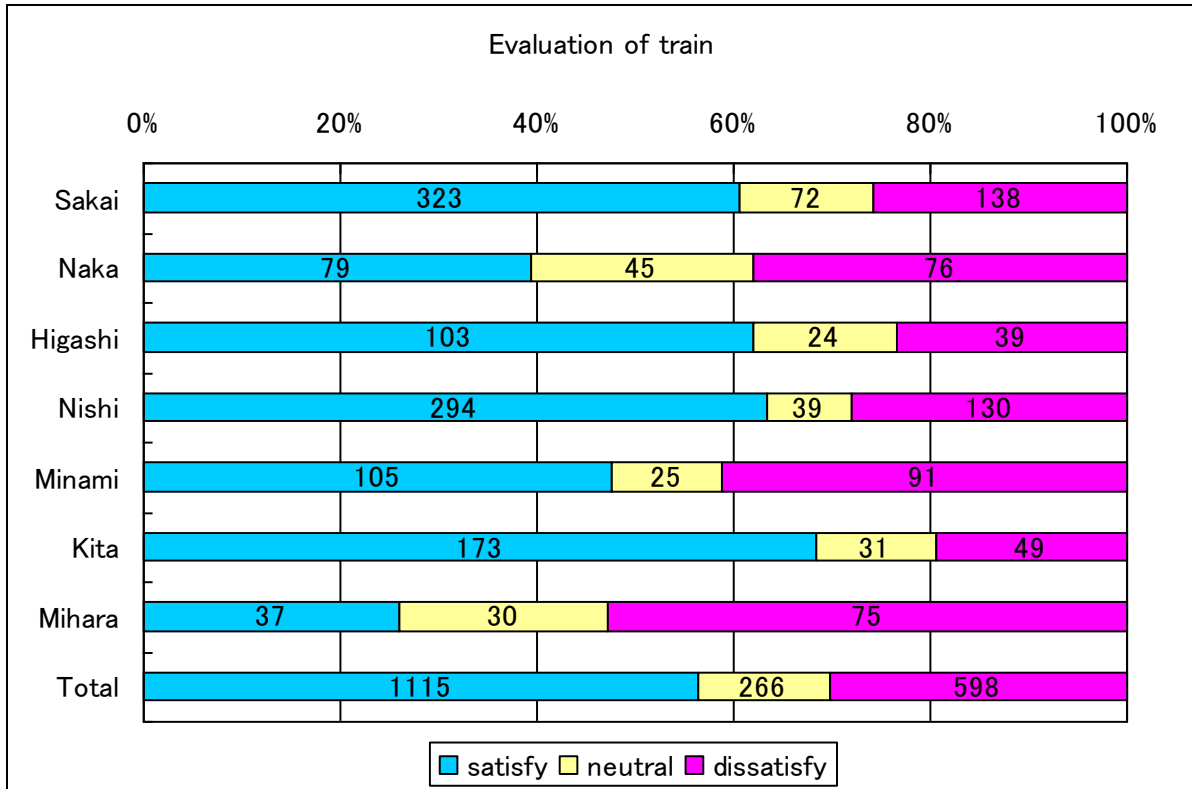


Figure 7 – Respondents' evaluation of train service

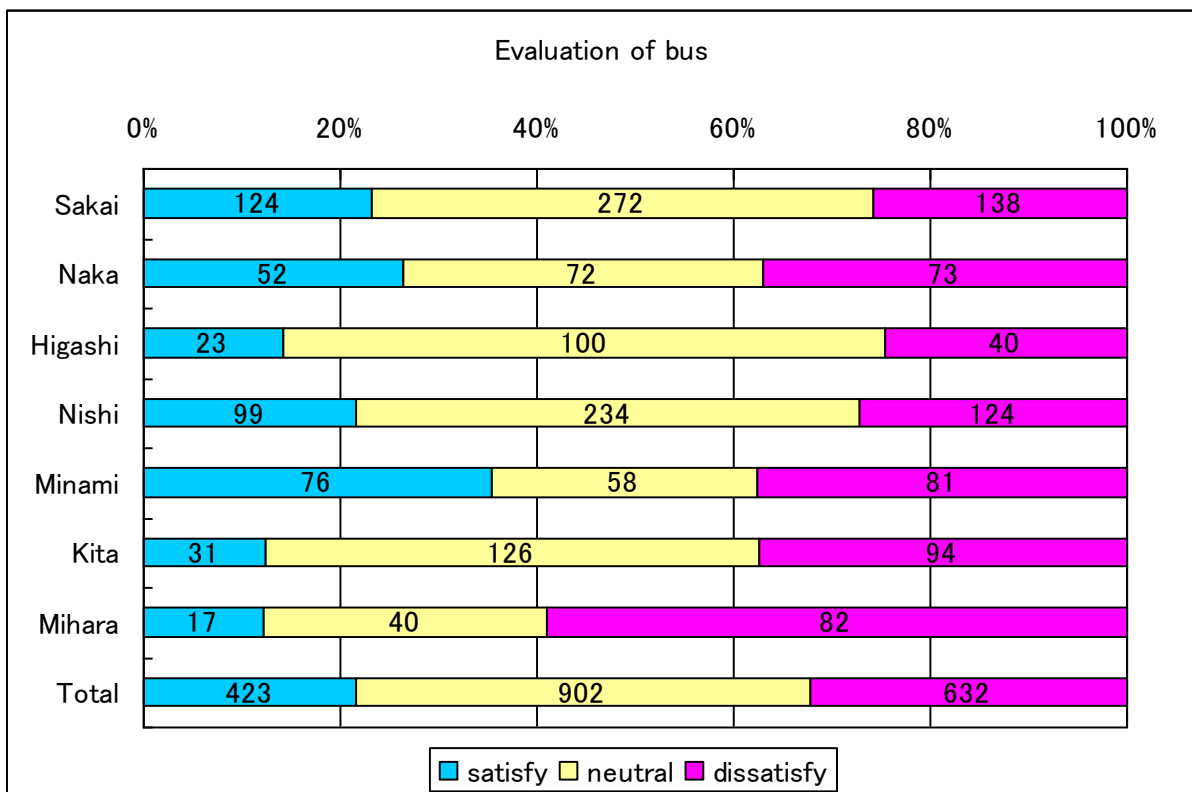


Figure 8 – Respondents' evaluation of bus service



Table 2 – Respondents' degree of awareness about the LRT plan

| Ward    | Degree of awareness |
|---------|---------------------|
| Sakai   | 82.0%               |
| Naka    | 54.6%               |
| Higashi | 64.2%               |
| Nishi   | 71.5%               |
| Minami  | 65.4%               |
| Kita    | 70.4%               |
| Mihara  | 54.8%               |
| Total   | 70.0%               |

Concerning the environment and barrier free of the LRT plan, many respondents evaluated the plan positively. Convenience of the mode of transportation also shows a relatively high evaluation. However, concerning regional effects (e.g., “9. increasing pedestrian traffic” and “10. revitalization”), the evaluation is relatively low. On the other hand, concerning distinct expectations (e.g., “8. good impression” and “11. renewal of landscape”), the evaluation is relatively high. The LRT plan must specifically clarify the measures to be taken in order to vitalize the city. The LRT plan needs to explain specific measure to vitalize the city.

Concerning negative opinions, “15. invest considering a regional balance” and “14. no priority given to the LRT plan” were evaluated relatively high. Respondents doubt an investment in and the effect of the LRT. As “13. no interest from another area” shows a high evaluation, this suggests that many Sakai City residents do not care about the central district of the city.

The comprehensive evaluation of the LRT plan is shown in Figure 10. The planning area of Nishi ward shows the highest evaluation and they expect the completion of the LRT line. The planning area of Sakai ward, however, shows only an average evaluation. As there exists a significant group of residents having no opinion and there is an opinion of “little publicity from the city government”, city government needs to further the progress in understanding the goals and impact of the LRT plan.

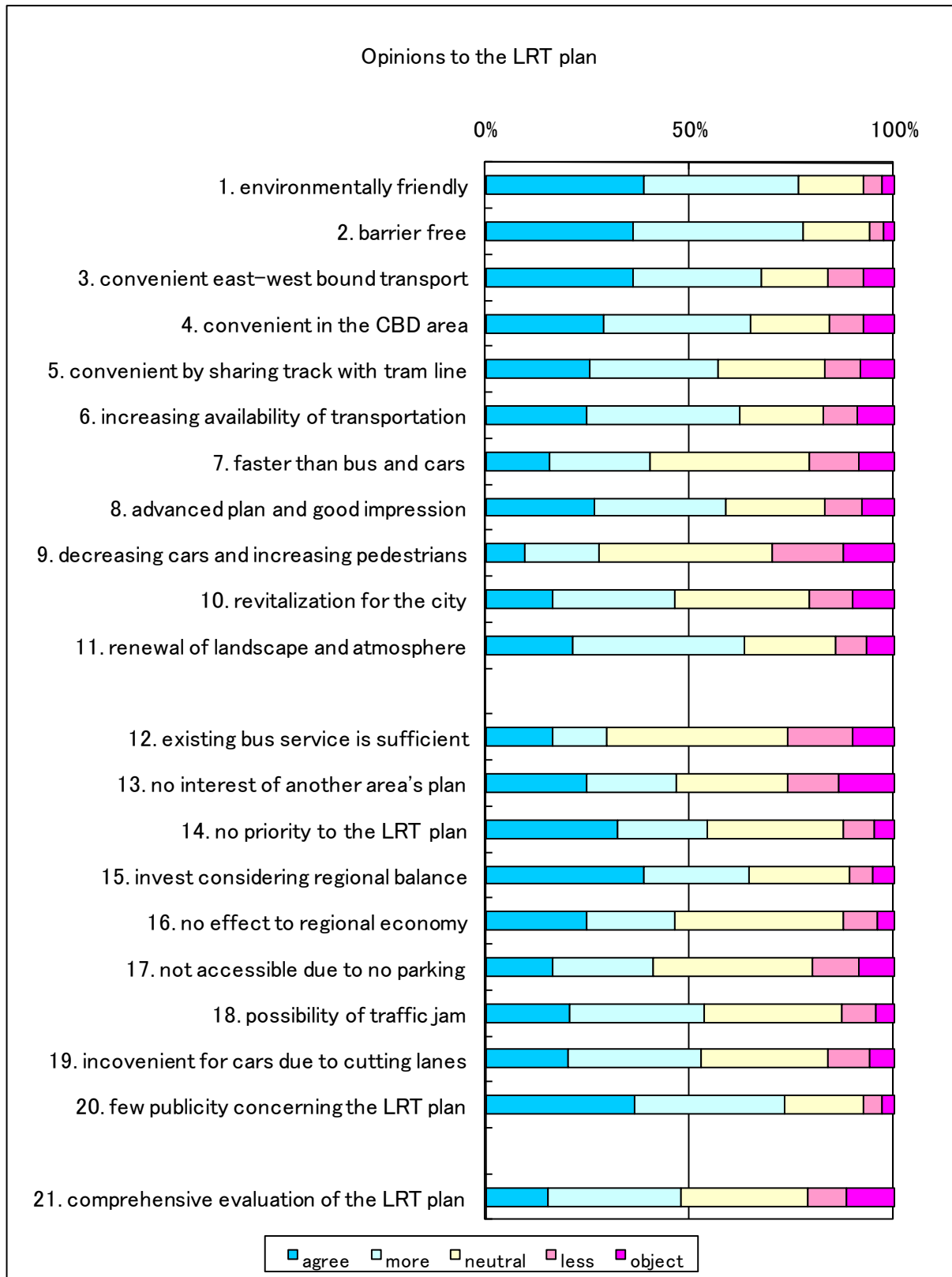


Figure 9 – Respondents' evaluation of opinions to the LRT plan

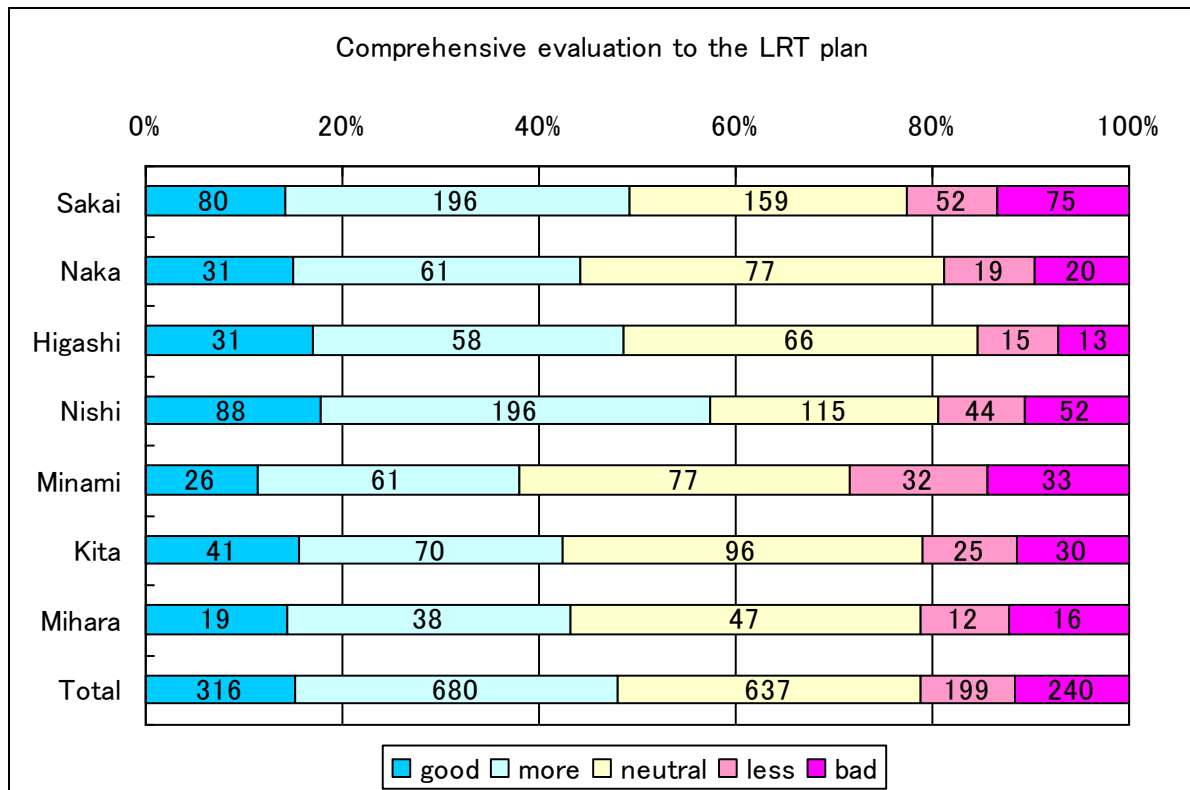


Figure 10 – Respondents' comprehensive evaluation to the LRT plan

## 5. CONCLUDING REMARKS

The LRT line should have a comprehensive role as a new mode of transportation in Sakai City. We have formulated a hypothesis that there are five conditions for the successful introduction of an LRT line to a city (Tsukamoto, 2009).

- 1) Proper city size
- 2) Proper street and district
- 3) Existing rail or tram company
- 4) Expected impact under current socio-economic situation
- 5) Physical space for LRT facilities

In the case of Sakai City, we consider that these five conditions are satisfied; however, proper street and district (condition 2) seems to be a weak point. As residents do not perceive Oshoji (planned street) as a symbol of Sakai City, city government needs to conduct comprehensive city planning in association with the LRT plan.

In addition, concerning recent Japanese political changes and the special nature of the LRT project, the case in Sakai City shows that conventional project management is not applicable. Contemporary project management needs to incorporate various projects to actualize future city goals, and city governments should provide precise information about planning and find a consensus among residents.

## **REFERENCES**

- Sakai City, City department of construction and urban planning (2006), Sakai city LRT plan. Japan Railway and Transport Review (East Japan Railway Culture Foundation), No.46, pp.6-11.
- Tsukamoto, N. and M. Hatoko (2006), Activity of Exhibition Center aiming for Social Consensus about the Implementation of LRT Project in Sakai City. Proceedings of Infrastructure Planning (Japan Society of Civil Engineers), Vol.33, CD-ROM. (in Japanese)
- Tsukamoto, N. (2009), Challenges for Sakai city as a government-designated city bordering a large metropolis. IATSS Review (International Association of Traffic and Safety Sciences), Vol.34, No.2, pp.204-212. (in Japanese)
- Tsukamoto, N., M. Tsuchihashi, K. Yoshikawa and P. Li (2009), A study on opinion among Sakai inhabitants regarding Sakai LRT project based on a poll. Proceedings of Infrastructure Planning (Japan Society of Civil Engineers), Vol.39, CD-ROM. (in Japanese)