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Barrier Free Project in Muroran City

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ABSTRACT

Higashi-muroran Station is the main railway station in Muroran City. The concourse of the Station has been connected to the passage between west exit and east one. The old exits of the passage had only staircases with many steps so that those were inconvenient for the elderly, the disabled and others. Based on Public Transport Barrier Free Act, Barrier Free Promotion Plan Making Committee was established in March 2001. There are hospitals, commercial facilities and public facilities around the Station so that Higashi-muroran Area was designated "Barrier Free Promotion Area" and actual conditions of barrier free of the Area were investigated by Muroran Institute of Technology. The Barrier Free Promotion Plan of the Area was made under the Committee and approved by Ministry of Land, Infrastructure, Transport and Tourism in July 2001. It was the first case of all the cities in Japan. Based on the plan, the barrier free project has been carried out.

The Project consists of as followings;

- (1) Construction of new passage with lifts and escalators for up and down
- (2) Improvement of the Station with lifts between two platforms and concourse
- (3) Barrier free improvement of pedestrian ways and crossings of roads
- (4) Newly install of traffic signals with sound and signals with button switch

The Project mostly completed until the end of fiscal year 2010 (March 2011).

Keywords

Public Transport Barrier Free Act; Barrier Free Coordinating Committee; Barrier Free Promotion Area; Barrier Free Promotion Plan; Barrier Free Project

INTRODUCTION

Background

Muroran City is an industrial city and a port city in Hokkaido, Japan. At the peak time, population of Muroran City was 183 thousand. Because of the Dollar Shock in 1971, the first Oil Crisis in 1973 and the second Oil Crisis in 1979, Muroran's main industries such as steel, ship-building and the related were seriously damaged so that population had rapidly decreased year by year. After 1990, population decrease became slow down but it didn't mean the stop of population decrease.

The population has been decreasing one thousand per year because of low birth rate and aging.

The population is about 95 thousand and the ratio of the elderly to whole population is 29.8 percent in 2010. In 2000, the population was 105 thousand and the ratio of the elderly was 21.0 percent.

After the enforcement of "Public Transport Barrier Free Act" on 15 November 2000, Muroran City decided to promote barrier free at Higashi-muroran Station Area. JR Higashi-muroran Station is the main railway station in Muroran City.

So, Higashi-muroran Station Area was designated "Barrier Free Promotion Area" and "Barrier Free Promotion Plan" was made in 2001.

Purposes of the Study

The first purpose is to introduce the circumstances until the Project. It will be made the relation Muroran City and other organizations clearer. And it shows the importance of spontaneous and continuous activities of the above mentioned organizations.

The second purpose is to show the situation of “Barrier Free Promotion Area” and contents of “Barrier Free Promotion Plan”. The explanation of the situation of the former helps our understandings of sustainable built-up area after the Project. The explanation of contents of the latter helps our understandings of the emphases of the Project.

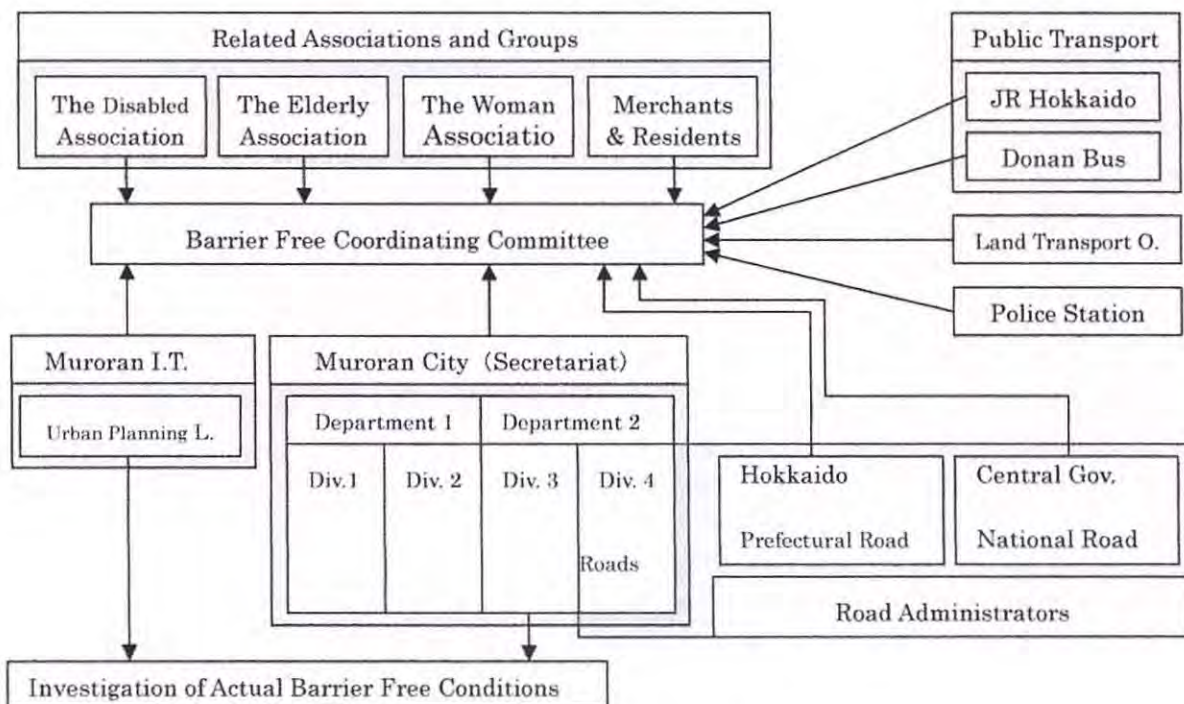
The third purpose is to show the consistence of “Barrier Free Coordinating Committee” as well as “Barrier Free Promotion Plan Making Committee”. It is made clear that spontaneous and continuous activities of the related organizations encourage those participation in plan making process and in realization of the Project.

The fourth purpose is to show the effects of the Project. It leads to the formation of sustainable built-up area.

The fifth purpose is to show the problems. It will show that conscious barrier free is more important than physical barrier free and more enlightenment for barrier free is necessary.

Circumstances until the Project

On 18 November 1997, Urban Planning Laboratory, Muroran Institute of Technology, held “Barrier Free Symposium and Workshop”. 107 persons attended the Symposium and Workshop. The elderly,



I.T.=Institute of Technology L.=Laboratory O.=Office Gov.=Government

Department 1=Department of Health and Welfare

Department 2=Department of Urban Planning and Construction

Div.1=Division of Welfare for the Elderly Div.2=Division of Welfare for the Disabled

Div.3=Division of Urban Planning Div.4=Division of City Road

Figure 1. Members of Barrier Free Coordinating Committee

the disabled, merchants, students, staff of Donan bus company, taxi company and JR Hokkaido, staff of urban planning division and social welfare division of Muroran City. It was pointed out that the passage of Higashi-muroran station had staircase with 46 steps at the West exit and staircase with 36 steps at the East exit while aging was rapidly going on. In 2000, the elderly occupied 21 percent of whole population and 62 percent of the disabled in Muroran City. Between concourse with ticket gates and two platforms, there were only staircases with 35 steps. Problems at pedestrian ways of arterial roads around the Station were also pointed out at the workshop.

Mr. Masashi Shingu who has been the Mayor of Muroran promised to make the passage of Higashi-muroran Station barrier free as his second election in April 1999.

Due to the enforcement of "Public Transport Barrier Free Act" on 15 November 2000, Muroran City designated the Higashi-muroran Station Area as "Barrier Free Promotion Area" in order to carry out barrier free project.

Firstly, actual barrier free conditions of 34 roads including the passage of the Station were investigated by urban planning laboratory, Muroran Institute of Technology in order to get data and to prepare the draft of "Barrier Free Promotion Plan".

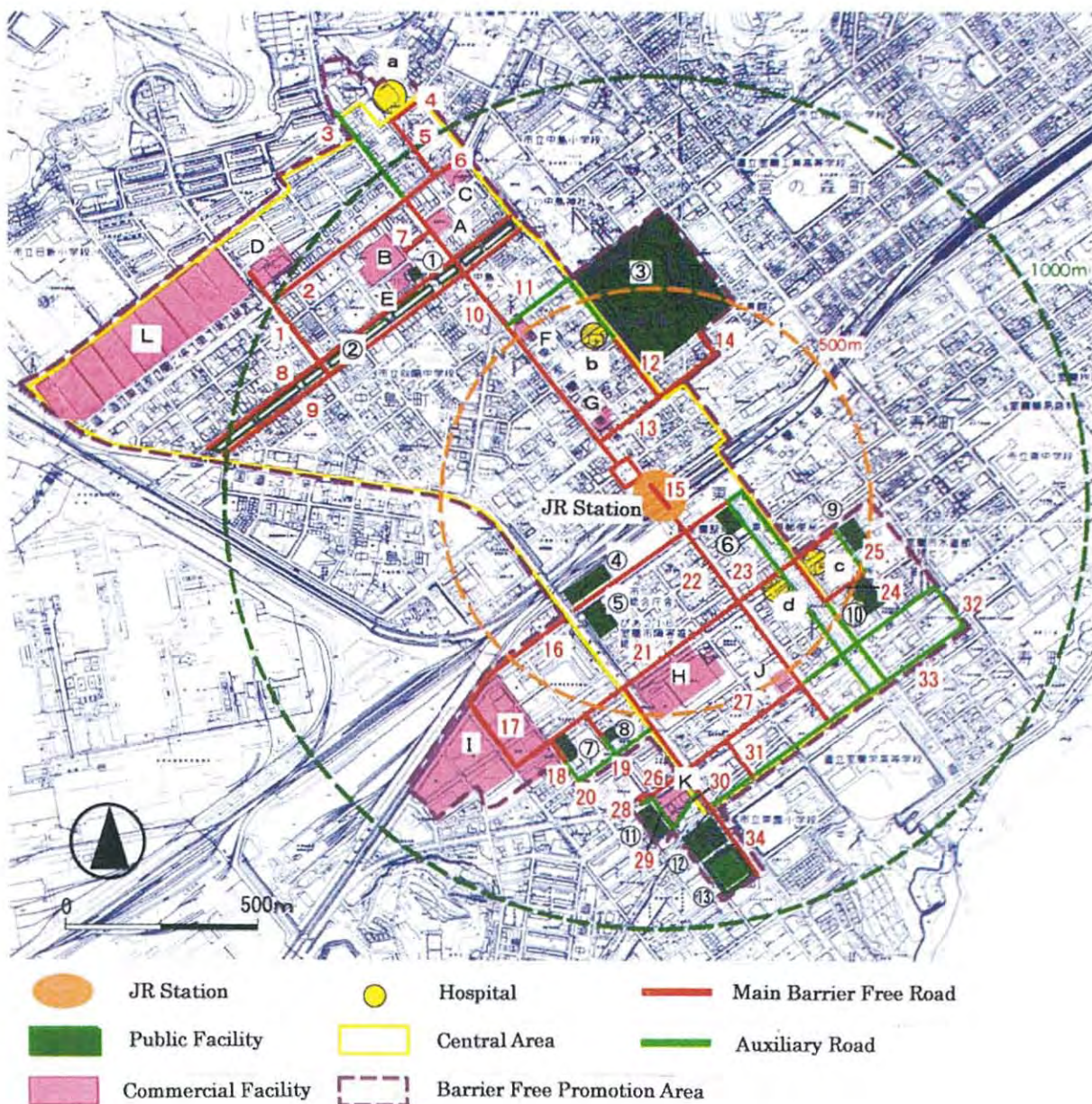


Figure 2. Map of Higashi-muroran Station Barrier Free Promotion Area

Secondly, “Barrier Free Promotion Plan Making Committee” was established and consisted of Muroran City, Hokkaido Prefecture and the branch of the Central government, Japan Rail Hokkaido, Donan Bus, the disabled association, the elderly association, representative of the West exit commercial district, representative of the East exit commercial district and Muroran Institute of Technology. Based on the result of the investigation, “Barrier Free Promotion Plan” of Higashi-muroran Station Area was made through the discussions at the Committee. “Barrier Free Promotion Plan” was submitted to and was approved by Ministry of Land, Infrastructure, Transport and Tourism in July 2001 as firstly approved city all over the Japan.

After the approval, “Barrier Free Coordinating Committee” shown at Figure 1 was established in order to promote and to adjust the Project. The members of “Barrier Free Coordinating Committee” were nearly same as those of “Barrier Free Promotion Plan Making Committee”.

Barrier Free Promotion Area

In and near “Barrier Free Promotion Area” shown at Figure 2, there were four hospitals marked “a” to “d”, 12 commercial facilities marked “A” to “L” and 13 public facilities marked “①” to “⑬”.

Four hospitals were as follows;

- a : Nippon Steel Muroran General Hospital
- b : Mimura Mental Hospital
- c : Okawara Neurosurgery Hospital
- d : Ueda Physical Hospital

12 commercial Facilities were as follows;

- A : Marui Imai Departmentstore (Closed in January 2010)
- B : Nagasakiya Supermarket
- C : Shiga Supermarket (Changed into Drugstore)
- D : Homestore Supermarket (Changed into Amusement facility)
- E : Green Departmentstore
- F : Sunplaza Shopping Building
- G : San-ei Shopping Center (Changed into Drugstore)
- H : Muroran Saty Shopping Center (Name was changed into Posful Muroran.)
- I : Yayoi Shopping Center
- J : Muroran Cooperative Shinonome Branch (Changed into Sapporo Cooperative)
- K : Sugai Amusement Building
- L : Morue Shpping Center (Newly opened during the Project)

13 public facilities were as follows;

- ① Nakajima Area Service Center (Integrated and moved to the Station Building)
- ② Chiribetsu River
- ③ Nakajima Athletic Park
- ④ Muroran Fire Station
- ⑤ Comprehensive Welfare Center for the Disabled
- ⑥ Higashi-muroran Post Office
- ⑦ Muroran Blood Center of Red Cross
- ⑧ Young Workers’ Center
- ⑨ Higashi Area Service Center (Integrated and moved to the Station Building)
- ⑩ Child Consultation Center
- ⑪ Day Service Center for the Elderly
- ⑫ Medium and Small Enterprise Center and Woman Center
- ⑬ Muroran Police Station

In the “Barrier Free Promotion Area”, 22 roads were designated “main barrier free road” and 12 roads shown No.3, No.11, No.18, No.19, No.20, No.23, No.25, No.29, No.30, No.31, No.32 and No.33 at Figure 2 were designated “auxiliary road”.

Investigation of Actual Barrier Free Conditions

Before making “Barrier Free Promotion Plan”, Urban Planning Laboratory, Muroran Institute of Technology investigated actual barrier free conditions of 34 roads shown at Figure 2. Survey items and evaluation criteria were set up referred by those of “Hokkaido Barrier Free Bylaw” enforced on 1 April 1998. Each road was divided into several sections for the investigation.

Items related to pedestrian ways were as follows:

- 1) Existence of pedestrian way itself
- 2) Effective width of pedestrian way
- 3) Condition of surface of pedestrian way
- 4) Pavement materials of pedestrian way
- 5) Shape of cover of drainage hole
- 6) Slope for car parking exit through pedestrian way
- 7) Existence of caution blocks
- 8) Existence of leading blocks
- 9) Materials of caution and leading blocks
- 10) Contrast of caution and leading blocks compared with pavement
- 11) Existence of roof at bus stop
- 12) Caution and leading blocks at bus stop
- 13) Existence of obstacles on pedestrian way
- 14) Existence of dangerous projection on or above pedestrian way

Items related to crossings were as follows:

- 1) Existence of traffic signal
- 2) Existence of crosswalk
- 3) Location of crosswalk
- 4) Existence of traffic signal with sound for visual disabled
- 5) Existence of traffic signal with button switch for wheelchair users or children
- 6) Gap between pedestrian way and roadway at crossing
- 7) Slope at crossing

Other item was gap between pedestrian way level and entrance level of roadside building.

As the results, there were a lot of problems those should be surely improved.

Contents of the Barrier Free Promotion Project

(1) Higashi-muroran Station

Muroran City constructed the new Passage between West exit and East exit as exclusive pedestrian road shown No.15 at Figure 2. The new Passage has not only staircase but also large lift and escalators for up and down at both West and East exits shown at Figure 3 of the next page. The lift is available for not only pedestrian and wheelchair user but also cyclist.

Muroran City expanded and improved the East traffic square while the West traffic one was already improved. The East traffic square has 3 bus berths, taxi stand, taxi pool and some pick-up points of private cars shown at figure 3. Muroran City also developed “Park & Ride” car parking at opposite side of the traffic square.

JR Hokkaido reconstructed the station building and attached lifts between concourse with ticket gates and two platforms. In addition, JR Hokkaido newly improved toilet and added multi-purpose toilet for the disabled. JR Hokkaido also opened Convenient Kiosk with bookstore faced to both the

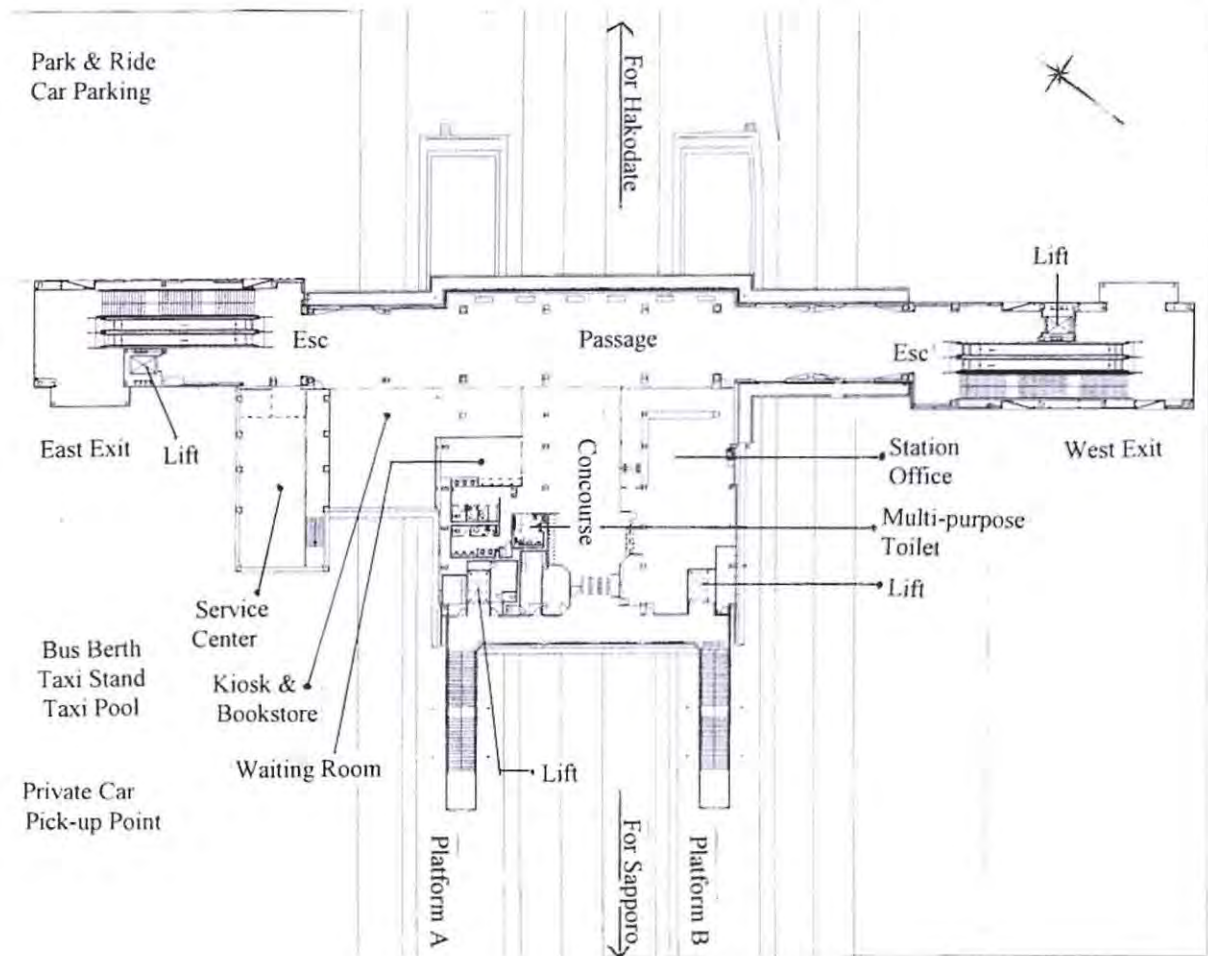


Figure 3. Higashimuroran Station after Barrier Free Project

Concourse and the new Passage and the new Kiosk is very convenient for passengers. Muroran City integrated both Nakajima Service Center and Higashi Service Center into the new Center faced to the new Passage shown at Figure 3.

The design of the new Passage was discussed and determined through the joint research working group between Muroran Institute of Technology and Muroran City chaired by Prof. Osakaya. Red color of both West Exit and East Exit shown at Photo 1 means melted iron in furnace because Muroran City is famous for iron and steel industry. The length of the new Passage is 160 meters. The nickname “Watareru” of the new Passage was selected and decided by “Nickname Selection Committee” held on 18 January 2007 among 145 proposals submitted by citizens. The Nickname Committee chaired by Prof. Osakaya consisted of Director of Muroran City, Higashimuroran stationmaster, representatives of the elderly, disabled, woman, merchant and resident associations or groups and representatives of students of two high schools. “Watareru” means both to overpass railway and to be possible for everybody to move between the East exit and the West exit. Photo 2 shows escalators up and down and lift. Lift is quite useful for wheel-chair users and cyclists because vertical move is quite difficult for them. Escalators up and down are very convenient for all walkers including passengers.

Opening ceremony of the Passage was done on 3 April 2007.

Opening ceremony of Higashi-muroran Station renewal was done on 1 March 2008 because JR Hokkaido started improvement work after the completion of the new Passage.

The park & ride car parking was opened on 1 April 2008.

The integrated service Center opened on 12 May 2008.

Donan Bus Co., Ltd. started to operate buses with both origin and destination at 3 berths of the East traffic square on 1 November 2009.



Photo 1. Design of the New Passage of Higashi-muroran Station



Photo 2. Lift(Right) and Escalator(Center) of West Exit

(2)Improvement of Roads

Until the end of 2008, pedestrian ways and crossings of 15 roads such as No.1, No.2, No.5, No.6, No.7, No.8, No.10, No.16, No.17, No.21, No.22, No.26, No.27, No.31 and No.34 at Figure 2 were improved. Those 15 roads had 154 sections of pedestrian ways and 147 crossings so that barrier free conditions after improvement project were compared with those before the project.

Photo3 shows an example of pedestrian way without leading blocks before barrier free improvement project.

Photo 4 shows an example of leading blocks on pedestrian way after barrier free improvement project. Barrier free conditions before the project were based on the data investigated by Muroran Institute of Technology in 2001. The results of comparison were shown at Table 1.

As for gaps at crossings, the ratio of improvement increased from 69.4 to 95.9 percent

For example, only 11.7 percent of crossings had caution blocks before the improvement project and 79.9 percent of crossings have caution blocks after the project.

Only 13.6 percent of roads had leading blocks before the project but now 82.5 percent of pedestrian ways have leading blocks after the project.

Maintenance of pedestrian ways was not so good and had a lot of defects on surface but those on surface have been improved during the project period.

Effective width of pedestrian way was extended through removal of obstacles on pedestrian way and installation of electric and telephone wires into underground.



Photo 3. Before Barrier Free Improvement



Photo 4. After Barrier Free Improvement

Table 1. Comparison before and after barrier free project as for roads

Objects improved	Action for barrier free	Before	After
Crossings	To improve gaps	69.4 %	95.9 %
	To remove obstacles	57.8 %	75.3 %
	To lay caution blocks	11.7 %	79.9 %
Pedestrian ways	To lay leading blocks	13.6 %	82.5 %
	To improve surface of pavement	55.8 %	94.8 %
	To have effective width	51.3 %	87.0 %

(3)Traffic Safety Project

Traffic signals with sound for the visual disabled and button switch of traffic signal for wheelchair users and children were newly installed based on the Promotion Plan.

Effects of the Project

As for Table 2, “West” means the Area in direction of West exit of the Station and is named Nakajima District. “East” means the Area in direction of East exit of the Station and is named Higashi District. “Total” means amount of “West” and “East”. Based on table 2, number of apartments and mansions increased from 183 to 229. New apartments and mansions guarantee the settled population at the Promotion Area because the Area is relatively the most convenient place for living.

Table 2. Change of Number of Buildings by Usage during 1998 to 2008

Building Usage	1998			2008		
	West	East	Total	West	East	Total
Individual retail shop	188	75	263	123	74	197
Large retail shop	3	1	4	2	2	4
Eating & Drinking	472	53	525	393	38	431
Life service	50	38	88	46	31	77
Hotel & Inn	17	4	21	7	5	12
Bank & Finance	19	2	21	12	7	19
Amusement	29	14	43	8	10	18
Various offices	242	240	482	186	231	417
Study support service	19	16	35	15	13	28
Medical & Welfare	24	25	49	25	30	55
Apartment & Mansion	126	57	183	152	77	229

Medical and welfare facilities also increased from 49 to 55. But others such as individual retail shops, eating and drinking shops, life service shops, hotels and inns, banks and finance shops, amusement facilities, various offices, study support facilities decreased during 1998 to 2008. In general, small shops have large share of closed or demolished buildings because of retirement of owners or deteriorated management environment.

But it doesn't always mean that residential environment becomes worse because number of those shops were relatively superfluous compared with the decrease of population. Due to the increase of apartments and mansions and the decrease of surplus shops, management environment is considered to become better direction.

Problems

(1) There are 34 roads including the new passage of Higashi-muroran Station within the Promotion Area. The Promotion Plan is 10 year plan (2001 fiscal year to 2010 fiscal year) but 8 auxiliary roads will not be improved until the end of 2010 fiscal year. There are two reasons. One is lack of budget because Muroran city has the responsibility to improve those roads and another is relatively less importance than others.

(2) There are many buildings with gaps between its entrance level and improved pedestrian way level. It means that building owners and merchants don't understand necessity and importance of barrier free.

(3) Although leading blocks were laid, there are some problems such as parked cars and bicycles of customers and flags and various goods of shops. It means that customers and merchants don't understand necessity and importance of barrier free.

(4) There were 12 commercial facilities marked "A" to "K" at Figure 2, but Marui Imai Departmentstore marked "A" was closed in January 2010. And Shiga Supermarket marked "C" and San-ei Shopping Center marked "G" were also closed and were changed into drugstores. In addition, Homestore Supermarket marked "D" moved out of the Promotion Area and an amusement facility opened at the vacant shop. Morue Shopping Center marked "L" didn't exist when the Promotion Plan was made in 2001.

Issues

Considering the problem (2) and (3), it is necessary to enhance the citizens' the understanding and consciousness for barrier free in whole Muroran City. Even if all the physical barriers are removed, the effects of barrier free improvement decrease without citizens' well understandings and consciousness. Since urban planning laboratory held "Barrier Free Forum" in September 2001, there were no symposium, no seminar and no official bulletin by Muroran City. The enlightenment movement for barrier free has not been enough during the Promotion Project period. As for Higashi-muroran Station Area, barrier free improvement was actually promoted. But for example, the ratio of the elderly of Chuo Area is higher than that of Higashi-muroran Area. How to promote barrier free at other areas is the largest issue because aging is rapidly going on whole Muroran City.

CONCLUSION

(1) Spontaneous and Continuous Activities

The spontaneous and continuous activities of Muroran Institute of Technology and its linkage to various associations and groups led and encouraged Muroran City to decide to promote barrier free. Muroran Institute of Technology investigated actual barrier free conditions of roads and the station at the Promotion Area. Such a situation helped to establish "Barrier Free Promotion Plan Making Committee" and "Barrier Free Coordinating Committee".

So that, "Higashi-muroran Area Barrier Free Promotion Plan" was approved by Ministry of Land, Infrastructure, Transport and Tourism in July 2001 as firstly approved city all over the Japan.

It consequently caused large benefit to the Project in Muroran City because it was relatively easy to get the subsidy from MLITT due to less number of cities compared with a lot of cities today. Muroran Institute of Technology also made the basic design of the new Passage of Higashi-muroran Station.

(2) Formation of Sustainable Settlement

Barrier Free Project had universal design and made sustainable built-up area for all the residents including the elderly and the disabled. During and after the Project, new apartments and mansions have been constructed at the Barrier Free Promotion Area and its surroundings. New apartments and mansions mean increase of permanent residents near the Station and the surroundings nevertheless whole population of Muroran City has been decreasing year by year. The improved area for barrier free is quite suitable for not only the elderly and the disabled but also other residents because it is very convenient and comfortable for daily life of all the residents there. It is possible for them to walk to commercial facilities, public facilities and hospitals. The Barrier Free Project is considered that it is the start to realize coexistence society among the elderly, the disabled and other residents.

NOTES

Barrier Free Promotion Plan of Higashi-muroran Station Area was the first plan all the cities in Japan, so that there were no referable plan at that time.

Investigation of actual barrier free conditions was carried out mainly based on reference 1) and experience of own papers shown at references 6) 7) and 8).

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- * AIJ means Architectural Institute of Japan.