

## Presentation

Mr. Akira Takamine

The Head of the City Planning Department, Naha City

### Chairman

Next, we will have a presentation by the gentleman from Naha. In Naha there is no rail transportation and so their transportation policies focus solely on road transportation.

I would like to now hand the floor over to the representative from Naha.



### Mr. Akira Takamine (NAHA)

Hello, my name is Takamine and I am the Head of the Naha City Government City Planning Department. Today I would like to explain to you about traffic management policy in Naha City.

The area known today as Okinawa Prefecture was in the past called Ryukyu. Okinawa Prefecture lies at the center of a roughly 1000 kilometer radius circle which includes Osaka, Pyongyang, Hong Kong and Manila which is a very large number of major cities at such a small distance. Tokyo and even Beijing are within about 2000 kilometers. Okinawa is also close to Taiwan, and Shanghai is extremely close. It is much closer than Fukuoka City in Kyushu. Okinawa Prefecture extends approximately 400 kilometers all the way from Kagoshima down to Taiwan and is comprised of numerous scattered islands.

Naha City's administrative area is extremely small and is approximately 8 kilometers north to south and 10 kilometers east to west. There are approximately 310,000 people living in the city and this red area is the business district. This area has been the heart of commerce in Naha for the last 40 years which is the exact period since the end of World War Two. This is the central part of Naha City and in this sector in the 1960's United States military facilities occupied what amounted to 30% of the city's area. The military land in the north is 214 hectares and although land in the south is also occupied by the military, a rezoning project is underway. Some parts of the harbour remain under military use but in the 1960's it was approximately 30%. For a period in 1945 during World War Two the whole of Naha City fell under a so called "off limits" status. Once this ban on entry was lifted, the city's development began from this central area. What developed was in stark contrast to the city's structure in pre-War days. Consequently, in accordance with these developments, the city's traffic changed significantly. At present, military occupied land has been returned but although this project is progressing, even when it is

complete, military occupied land will still compromise 11% of Naha's area.

To describe the city's structure roughly, there is the waterfront, the central city area and the area known as Shuri. The city's structure existed for approximately 500 years with the economic and political spheres divided into two sectors with Shuri Castle at the center. Next slide please.

This is Shuri Castle. It was burned down during World War Two but has since been rebuilt. An architecture style unique to Okinawa has developed based on the geographic conditions I mentioned earlier. Next slide please.

This is the harbour area. The island is small but trade within the extremely wide region I mentioned earlier that encompasses Asia, East Asia and Japan has been ongoing. Okinawa is very resource poor and so its prosperity was based on trade mediation and the exchange of information. Next slide please.

In 1945, Naha encountered war damage and the whole area was burnt down. The city area developed again from this central part. Shuri Castle was destroyed entirely and the city's structure became one where the economic and political centers merged. Next slide please.

This is the city some time in the post war 1940's. Most of it was burnt down. This is a military road which has now become National Route 58. This whole town was burnt down. Next slide please. This slide is taken from the same angle and shows the same National Route 58 and the river. The entire area was burnt down and only after 50 years has it reached this stage of recovery. Further to the north is the land occupied by the US military which is about 214 hectares and is right in the center of the city. This land has been returned.

This slide is the view from the military occupied land in the north which is bordered by the city area and is very congested. One quarter of Okinawa Prefecture's population is concentrated in Naha City. Situated next to military installations, the city is extremely crowded with 9000 people per square kilometer. It is a very overcrowded city.

Traffic management is a key issue in the handling of the problem of overcrowding. The city is comprised of 214 hectares of military land in the north, 109 hectares in the south, the central city, the waterfront and Shuri Castle and in accordance with this diverse structure we must utilize traffic management policy in the relationship between the centralized city structure and traffic. Next slide please.

The combined size of the central city area I mentioned earlier and the military facilities in the north and south exceeds the area of the land which for 40 years supported Okinawa's central businesses. This area accepts traffic flow from the north and the south and we are working on ways of alleviating the traffic flow into the central area.

This slide is the shoreline development. We have also redeveloped the harbour allowing for as much citizen access as possible and we have made new roads and have plans to develop the waterfront.

This is in the south. We have built new roads to alleviate the traffic flow from the south.

This is the central city area development. To develop this area we are building a monorail system and are making strong efforts to revitalize the financial and government office districts.

For example, here are some of the buildings I showed you earlier. This is the Prefectural Government Building and this is City Hall. The city monorail will pass by here and construction is expected to begin next year. It has taken approximately 20 years to plan the monorail. We are encouraging firms to put buildings around stations such as this. In redeveloping Kumoji the prefectural government building has already been rebuilt and private buildings are also being rebuilt. At present we are developing a plan for bank buildings. In this way by focusing on one key point we can make more efficient use of land as a whole.

This is our plan for the 214 hectare northern area presently occupied by the military. This is Fuzhou Park. Naha City has a sister city relationship with Fuzhou City in China. Historically there is a strong connection and this is seen to some extent in the city's architecture. So although the city is part of Japan it has a slightly different look.

In the castle precinct buildings retain these architectural features and our city plans center around this.

Restored roads are narrow but they are designed for people not vehicles. To preserve this historic environment a loop road is being built around it. We have a preservation plan for historically significant quarters and the city spends one million yen for each period style building. During the war, the buildings which made up our cultural heritage were lost and so the creation of such historical quarters is not merely development. While incorporating road traffic we are advancing this preservation policy.

This slide is an elementary school nearby Shuri Castle. Its design is modern but to fit in with its surroundings red roof tiles have been used. This is one classroom. It is a modern school but by emphasizing the Okinawa style and history of this and other public buildings the historical environment is maintained. This type of rebuilding is another of the projects we have undertaken.

This is a dragon boat used for racing. Dragon boats exist in Hong Kong and China also and are raced in similar events. In Okinawa we have this type of folk performance. This slide is a tug-of-war that is held on a national road. It will be published

in the Guinness Book of World Records this year. Every year two hundred thousand people attend the Naha Tug-of-War. As I explained earlier, the Naha City precincts are very small so we stop traffic on this national road and hold a festival. In Japan stopping traffic on national routes is not readily permitted and we are probably the only ones to do it, which is symbolic of the lack of space. This is the King of Ryukyu and this is a folk parade. This is near Shuri Castle and such events are held on the 3rd of next month. To look at, Naha is a city with a unique Asian aspect.

This is National Route 58 which is the principal arterial road of Okinawa's main island. I apologize that it wasn't taken at the time of day when traffic jams occur. Traffic enters on this road from the north and south.

A bus lane also runs along this road. On this long, narrow island, cars and buses are the only modes of transport and as a result most people have cars, in fact, one per household. With the increase in cars, the operation of public transport is made more difficult. Also, people's reliance has shifted toward private vehicles as public transport cannot maintain schedules or keep up speeds due to traffic jams. This shift to reliance on passenger vehicles means public transport cannot live up to passengers' expectations and so it has become a really vicious circle. This is a roughly 1.6 kilometer stretch of central Naha which is lined all the way with buses. There are four bus companies who use the same roads. They compete with one another to get the routes to increase their passenger numbers. For this reason there are occasions when one third of the road area in the central area is full of buses like this. This leads to traffic jams. There are "bus only" lanes but nevertheless something must be done about the bus problem and public transport institutions are very slow in reacting.

Based on the factors I have described above we have spent a lot of time examining a monorail project. A so called rail transport system. One problem associated with the monorail is the rivalry with the bus companies. Competition means that both bus and monorail operations will suffer. Therefore we spent a lot of time discussing this with the bus companies and we have finally reached agreement. Consequently city monorail construction will begin next year. It will take approximately seven years but we have hammered things out with the bus companies concerning reorganization of bus lines, stations and their surrounds, taxis and other traffic readjustment and so we now have the green light to proceed.

We want as many people as possible to utilize public transport but bus stops up until now have been very crude. Okinawa is a very hot place and is sub-tropical and so if the environment of bus stops is no good it is very inconvenient for passengers. Therefore we are developing plans to improve the environment of bus stops.

This is greater Naha City including the surrounding cities but this is Naha City's administrative area. It is ten kilometers east to west and eight kilometers north to south. In the surrounding areas cities have spread out but as I pointed out earlier the size of the military installations act as an impediment to sound development. In this area there are these roads. At this point the roads must detour around the installations and so traffic routes are very limited. The city's growth pattern has been determined by this obstacle. The population is centered on the roadside and if the roads were consolidated it may have the adverse effect of creating traffic jams because population and commerce would gather around these roads. In this respect if cities do not develop soundly in a concentric circle pattern land use will be concentrated by roadside's which is one cause of traffic problems.

The red points are intersection improvements and bottlenecks which we will endeavor to overcome. In addition, as I explained before, National Route 58 is the central southern area's main arterial road. One of its lanes is painted black and is a bus only lane and was developed to alleviate traffic congestion, even if this only relates to public transport.

In order that people are aware that it is a bus lane, signs are inadequate and so we decided on painting the road. There was a lot of debate on the topic-should we paint the road yellow? or should it be brown? or maybe green?-but in the end we decided on green. We have painted the road to inform people of bus lanes rather than just relying on writing this.

This is also a bus lane and on this side you can see the dark green lane for buses only. This color indicates that during specified times taxis, buses and motorcycles can use this lane. However the lanes are 'reversible', which is to say that we can change traffic flow in a particular lane. For example we can make it into a three lane road or a two lane road and so in the morning and evening rush periods we can change a lane to control the traffic. It is only a limited number of roads where we can do this but within this scope we are developing this project. We also have signs like this indicating where such reversible center lanes come to an end. We also have a "No Car Day" policy on the first and twentieth of each month.

We are planning two loop roads and several radial roads in the central city and the surrounding area. This is how it is and so we are developing a plan to separate roads into loop roads and radial roads.

This is the monorail route from the airport which is approximately 13 kilometers. This project has had to take into account the problem of the military facilities and their redevelopment as we intend to utilize the old site. This 13 kilometer route has cost about one hundred billion yen and we have tried wherever possible

to combine government projects with it. We have also developed plans for land use and have spent 4 to 5 times the original project budget.

This is the northern military installation. The city area surrounding it is extremely crowded. The land occupied by the military is 214 hectares. At present we are developing this land and this will consume 22% of our budget and is 75% complete. We expect this to be completely finished in four years. Next slide please.

The monorail route will run alongside National Route 58 which runs north-south. By passing over these commercial facilities and this long narrow park, people can move freely north or south. As for land use, there are areas in this development people can utilise free of transport, areas utilized by using public transport, roadside use and residential land use. In this development we are trying to avoid traffic concentration. Furthermore, this plan takes into account the relationship with the city area of the surrounding precinct.

When the project is completed we will have monorail stations such as this. Along here there is a thin strip of land running about 40 meters. Here we will place commercial facilities and Naha City Hall will be moved to here. Because we will place an art gallery, a museum, cultural facilities and commercial premises here, traffic from the north will be stopped here. This is our northern traffic management plan which allows for the necessary traffic into the central area.

This is the southern area. This is also military occupied land and is approximately half the size of the military land I just described. In this way the north and the south and the traffic coming from these areas are connected with the city and so our plan is to use this area to more effectively coordinate the traffic flow into the central area.

This is the southern military installation. This project is already 99% complete. We are developing traffic management policy and have set up the Naha City Traffic Demand Management (TDM) Conference. It is divided up into sub-committees which investigate flex time, promote "No Car Day," look into consolidating car parking and organize traffic management.

The Traffic Management Committee is in charge of very concrete projects such as bus only lanes, reversible lanes, color paving, upgrading bus stops and traffic management. The "No Car Day" Promotion Committee reports the extent to which city employees are adhering to this policy each month. The mayor of Naha does not use his official car on the 1st and 20th of the month to get to and from City Hall and instead in the morning uses a bus or taxi. This is one way of instructing the citizens and by doing this we hope to increase the number of public transport passengers. The Committee for Promotion of Staggered Commuting Hours and Flex Time is looking into the problem that due to the limited road space in this small

city, no matter which route you choose it will be congested. This can be changed by using flex time. This promotion conference has been set up to look at ways of solving such chronic traffic congestion. Thank you very much. (Applause)

## **Discussion** |||||

### **Chairman**

Thank you very much, Mr. Takamine. Mr. Takamine spoke about Naha City's traffic management policies especially regarding its public transport system and improvement of public bus service. He also explained the city's current conditions and issues, the basic guidelines of urban planning and such issues as waterfront development, land rezoning of urban areas, and preservation of historic quarters. As he mentioned, the construction of a monorail system will start in 1996, and I do hope it will be accomplished as soon as possible so that the public transport system in Naha City will further be enriched. Now I'd like to invite your questions and comments on Mr. Takamine's presentation. Since this is being simultaneously translated, please tell your name and which city you are representing before you speak. Does anybody have any question?

### **Mr. Ross Rutherford (AUCKLAND)**

Ross Rutherford, Auckland City Council. One question. You chose monorail. Did you look at alternatives before you chose monorail including perhaps subway. What evaluation did you go through?

### **Mr. Akira Takamine (NAHA)**

Yes, we have examined various alternatives. But, Naha City's administrative area is extremely small and the roads are very narrow, and so it is very difficult to remove existing structures to introduce a new public transport system. The way the city was constructed makes its structure inadequate to incorporate a new high-speed public transport system because of its narrow winding roads. Especially the possibility of a new overland transport system is quite limited in such a crowded city as Naha. This is why we decided on the new monorail system. Another factor we considered is related to local industries. Okinawa Prefecture manufactures concrete and this is one of the limited kinds of industries which can exist in a land of limestone such as Okinawa. And such local industry will benefit by the monorail construction because the project would spend some sixty billion yen to build the monorail's supporting structure only. This is one of the reasons for our choice. Another factor is potential damage caused by winds from the sea. We occasionally

have wind from the sea and the city's transport system must be maintained under such conditions. This was also a big factor we had to consider in the selection of construction material between steel and concrete. Thank you.

Mr. Ross Rutherford (AUCKLAND)

I think so. But did you look at underground? Are there reasons why you didn't go underground?

Mr. Akira Takamine (NAHA)

We considered subway system as well. But the cost is very high. And there is also a geographical problem. As the land level of Okinawa is very low, subway should run through the land below sea level. Another problem is Okinawa's sub-tropical climate with its extremely high humidity level. This kind of climate costs too much money for air-conditioning subway facilities. Though we have sub-tropical climate in Okinawa, it is comparatively cool thanks to the wind blowing constantly. We have twice as much wind as you do on the mainland of Japan. Therefore the monorail which is suspended in the air does not need expensive air-conditioning. Thus we decided that the monorail would be the most effective transportation for us. Thank you.

Mr. Ross Rutherford (AUCKLAND)

Thank you very much.

Mr. Masanori Kitamura (KUMAMOTO)

I'm from Kumamoto City. As you explained earlier, the bus companies which have been the only public transportation services in the city of Naha agreed that the city should introduce a monorail system next year. It seems to me, however, that the rivalry between the monorail system and bus services would affect the management of both sides. Have the bus companies agreed in the discussion to take a supplementary role in the city's public transportation system? I presume that the route where the monorail operation is planned has been the most profitable lines for the bus companies. Will you tell us what you discussed and how you finally reached agreement with the bus companies?

Mr. Akira Takamine (NAHA)

We had a railroad system in Okinawa Prefecture before the World War II. Since the end of the war the bus lines have been serving as the only public transportation system in the prefecture for fifty years. As noted earlier, however, due to the increase



of private vehicles in number and the inefficiency of the bus services on the city's narrow roads, customers have been turning away from the bus transportation system. Consequently the bus companies are economically suffering. One of the four bus companies which had made agreement with the city even declared bankruptcy. The other companies are also more or less in a similar financial situation. Under these circumstances, the bus companies are beginning to consider how to coexist rather than compete with monorail system.

In order to cope with the financial problem of the bus lines, we have agreed that the city would distribute approximately four billion yen among the four companies partly as compensation for their prospective loss of profit caused by the new monorail system. We calculated this figure by estimating the loss on the bus lines and the influences on their employees. And we also agreed to loan an amount which is equivalent to sixty per cent of this four billion yen to the bus companies free of interest before the monorail is implemented because they are even now financially troubled and not likely to survive the coming seven or eight years while the construction is carried on. By doing so we expect the management of the bus lines to become sound enough to co-exist with the monorail system by the time its operation starts. We made this kind of special agreement of compensation for this particular project hoping that both the bus business and the citizens of Okinawa would understand the importance of the good relationship between the bus and monorail services.

**Mr. Hong Wan-Shik (PUSAN)**

The effort from Naha City on their traffic management policies was quite interesting. Above all we are interested most in the organization of the Naha City TDM Promotion Conference. To implement successful traffic management policies, I believe we need the commitment of as many citizens as possible. However, Naha City TDM Promotion Conference seems to be comprised mainly of public officials as its members. Will you comment on whether or not this kind of public official-oriented organization operates really effectively? Also I'd like to know if the traffic management policies of Naha City as "No Car Day" have been carried out successfully, though you mentioned earlier that the public transportation system has not yet developed sufficiently. Would you like to comment on these two points?

**Mr. Akira Takamine (NAHA)**

As may be the same in any city, when it comes to traffic problems, people tend to forget the fact that they are part of the cause of traffic congestions themselves and seem to like to think that the municipality should be in charge. In our city also, people are strongly criticizing the city saying that our urban planning is the

very factor that creates traffic jams. We have, as I mentioned earlier, the problem of military occupied land which is an impediment to sound development of the city including the transportation system. In these aspects, people tend to rely on the municipality as they might do in any other city. Though our TDM has been carried out mainly by the city so far, we are planning on a new conference which will include private citizens as its members. We hope this will help enlighten people more about what we are doing. We have a "No Car Day" policy on the first and the twentieth of each month, but unfortunately it has no strong regulation for enforcement. As there is no such practical penalty as fining, this policy is not so effectively functioning. Naturally we have been taking every opportunity to promote this policy to the general public in various areas including bus and other transportation companies and many other businesses. As a part the PR of this policy, the Mayor has been using bus and taxi for his daily activities hoping that the exposure of his bus and taxi ride would promote the "No Car Day" policy among the citizens.

**Mr. Hong Wan-Shik (PUSAN)**

In our opinion, we are presenting later in the afternoon as well, there should be some economical incentives for people if you really mean to establish such policy based on people's voluntary commitment as your "No Car Day." People wouldn't be so motivated by seeing the mayor taking bus or taxi just once or twice a month. We can say this from our own experience back in Pusan. I hope what I mentioned could be of some value to your city.

**Mr. Badrul Hisham b.Kamaruddin (IPOH)**

My name is Badrul from Ipoh City Council. Because Naha and Ipoh have similar climatic conditions, we face the same problem of the public using bus stops. Therefore, we are very interested in your measures to upgrade your bus stops. Can you go to clarify on such measures? Thank you.

**Mr. Akira Takamine (NAHA)**

For instance, we sometimes buy additional piece of land behind a bus stop to extend the bus stop area, or beautify the area with plants. We are also trying to improve the design of bus stop structure including its roof and to solve the various problems caused by bus such as concentration of exhaust gas in bus stop area. Currently we are planning to construct more bus stops along national highways. The preparatory discussion is going on regarding the bus stop design and improvement of the surrounding environment in order to construct a kind of bus stops that give favorable impressions to the general public.

Ms. Shi Yu Xue (SHANGHAI)

I am Shi Yu Xue from Shanghai. I was very much interested in the presentation by the representative of Naha City, especially in their monorail project. We are also planning to develop a railroad system in Shanghai. We have considered monorail system as well. So we would like to know more in detail about the monorail project in Naha. First may we ask how much money will be invested in total in the construction of a 13 kilometer-long monorail system? You might have mentioned it earlier, but I couldn't catch it clearly. And who is going to pay for it? Is it Naha City any other organization? Anyhow it must be a huge amount of money.

Mr. Akira Takamine (NAHA)

There are basically two parts in the construction of monorail. The first part is the infrastructure including the roads and the supporting structure. Trains are included in the other part. Necessary consolidation of roads and construction of stays will be public works funded by both the government's subsidy and the municipal budget. The vehicles will be paid for by a monorail company established as a third sector by the prefecture, the city and some private companies. This monorail company will start with a capital of some seven billion yen. The estimated cost for vehicles around forty billion yen including the maintenance fee and the cost for depots. The construction of stays will cost approximately sixty billion yen. And the related road consolidation will be carried out as a public work. As for the issue of competition with the bus lines, as I said earlier answering the question from Kumamoto City, the focal point of the agreement with the four bus companies was the amount of loss on the bus lines caused by monorail operation. The companies expected the city to compensate what they would lose. So we studied how many of the existing bus routes should be affected by the monorail operation and figured out that the loss on bus business would amount to approximately four billion yen. We hold this figure as the bottom line.

Ms. Shi Yu Xue (SHANGHAI)

You said that there would be a competition with the existing public transportation companies, and that the city would subsidize them. You also said the population of the city is a little more than 300 thousand. Then how many people out of this do you expect will use the monorail? You will invest a pretty huge amount of money and you predict that there will be a competition with other public transportation services. Then if the operation runs into the red, who is going to make up the deficit? Will you tell us what kind of discussion you have about these matters in the course of your planning?

Mr. Akira Takamine (NAHA)

We estimate that there will be around 34 thousand passengers per day. With this number, we figure that the monorail operation will be marginally on a paying system, there may be some period of years in which it would be in the red. We are expecting to be on a paying basis in ten years. And in about twenty five years it will finally run in the black. Since the monorail will be run by a third sector and should be profitable as business, it is very important to set a proper target number of passengers. It took us quite a long time to hammer out a feasible figure. Anyway we are aiming to have 34 thousand passengers per day to sustain the 13 kilometer-long monorail.

Ms. Shi Yu Xue (SHANGHAI)

Thank you very much.

Mr. Harutaka Umemoto (KITAKYUSYU)

I am Umemoto from Kitakyushu City. We started an urban monorail system of 8.4 kilometers in our city in 1985. We have improved the roads where there had been street cars and bus lines and built a monorail there. We shifted the streetcar operators into monorail operators and we had a good prospect for the number of passengers. But, once the monorail operation started we found competition with bus lines. So we have not been very successful in coordinating with the bus lines, and have not yet gone into the black after ten years. Now may I ask how Naha City is going to restructure the existing bus lines in relation to overlapping with the monorail route?

In our city we are now considering several new measures of TDM such as bus and monorail ride' system and a special transfer system between bus and monorail. Do you have any comment on these plans?

Mr. Akira Takamine (NAHA)

The first thing we had to do in restructuring our bus routes was to divide the city bus lines and suburban bus lines which were operating on the same routes inside the city. This also concerns the "Park and Ride" policy which we are studying now. We reviewed each of the existing bus lines closely. We simulated which line should connect to which monorail station and spotted various areas where people need more bus lines. We believe we can create new demands for the bus service by connecting to monorail stations and starting new routes wherever necessary. And the bus companies understand this way of connecting both systems. As for the "Park and Ride" policy, we expect drivers to take the monorail after they park.

However, as may be the case in any other city, we have to solve a problem of time and money, in other words, no car drivers want to spend either extra time for changing to the bus or extra money for parking or the bus fare raise. The "Park and Ride" policy can not succeed, if it would give drivers these demerits. This is a very difficult problem for Naha City to solve in such a limited city area of ten kilometers East to West and eight kilometers North to South. Our calculation shows that in general car drivers can not benefit in terms of time and money from a "Park and Ride" policy unless traveling distance from the car park is more than 13 kilometers. So we believe if you want to implement a successful "Park and Ride" policy in your city, you have to very carefully choose beneficial locations and facilities for transfer passengers.

Mr. Harutaka Umemoto (KITAKYUSYU)

Thank you.

Chairman

I am sure that there are further questions but unfortunately we are out of time for the morning session and so the conference will go into recess. At this conference we would like to hear the opinion of as many representatives as possible so I urge those who have not contributed so far to do so in the afternoon session. Thank you.

..... *LUNCH* .....

Chairman

I would now like to begin the afternoon session. We will begin with a presentation from Pusan. In Pusan they are implementing transportation policies in preparation for the Asian Games to be held there in 2002. Thank you, the representative from Pusan.