

Stadslab is  
a knowledge centre  
and laboratory for  
urban design in today's  
European cities, where  
participants take  
advantage of real time  
postgraduate and  
PhD programs

MASTERCLASSES  
FUKUOKA 2012  
& Transportation  
& Mobility



TILBURG



Fontys  
University of Applied Sciences

Stadslab European Urban Design Laboratory is the postgraduate program of Fontys Academy of Architecture and Urbanism, Tilburg, Netherlands



# Transportation & Mobility

## Stadslab

# Master Class Fukuoka 2012



# 1

## Foreword

Radinck J. van Vollenhoven, Ambassador of the Kingdom of the Netherlands

### Dear Reader,

Japan and the Netherlands are old friends. Although the Dutch were not the first to arrive in Japan, they were to stay the longest. Even when Japan closed itself off from the rest of the world, the Dutch were allowed to remain. As a result, the ties between the Netherlands and Japan developed into a truly unique relationship that continues up to today.

It all started when on April 16, 1600 the ship 'De Liefde' arrived at Kuroshima, on the east coast of Kyushu. Initially treated with suspicion, a relation based on mutual trust, interest, and curiosity quickly developed between the stranded sailors and their hosts. Some crew members would even be appointed as special advisors to the shogun! When four decades later Japan closed itself off to the world, that relationship helped the Dutch to maintain their presence and become the only western country to remain in Japan. As a result the Dutch would play a unique role in Japanese history and the development of modern Japan. Although trade was the principal component of the relationship, there were many exchanges in other fields too, most notably (medical) science and technology. And, contrary to popular image, those exchanges were not always a mere one-way-street. Deshima may have been Japan's window to the world, it also enabled the Dutch to gain much knowledge about Japan and its people, especially during the Edo court journeys.

With the opening of Japan in 1854, the Dutch lost their unique position but the relationship continued to develop. One field in particular stands out: water related civil engineering. When it comes to the planning and development of areas that are threatened by water, the Dutch had already centuries of experience. It is therefore not surprising that the Meiji-government invited Dutch civil engineers to improve the Japanese rivers and plan harbors including that of Tokyo, Osaka, and Hakata. Today the Dutch are still the foremost experts in the field of water

related civil engineering. Related to this is also the wealth of knowledge in the field of urban planning the Netherlands has gained over the years. Being a small and densely populated country, the Netherlands cannot but efficiently plan and use its limited living space. "God created the world, but the Dutch created the Netherlands" might be a cliché but it underscores very well the Dutch ability to meet challenges and transform them into opportunities.

We are therefore very pleased with the cooperation between Stadslab and Fukuoka Directive Council in this field. During master classes, young professionals are given a chance to look upon a city and its problems and try to work out solutions to these problems with the help of experts and local people. In the first master class the focus was on the waterfront and the city center. The second master class focused on urban transportation mobility. How can a city, that is obviously not the 6th biggest in the world, have a bus company that is the 6th biggest in the world? The task at hand was not an easy one, how to improve mobility within the city with as little cost as possible, but several solutions were put forward and presented to an audience of locals, businesses and interested people. Solutions that might put Fukuoka at the forefront of urban transport and mobility within Japan.

The last master class is scheduled for April 2013, around the time KLM starts flying directly from Amsterdam to Fukuoka. After Osaka and Tokyo, a third direct flight from and to the Netherlands and one that I think will set in motion a further exchange of views and opinions, technology and knowledge, people and businesses right here on the island where our shared history took off. I sincerely hope to be able to come back to Fukuoka and see some of the proposed changes with my own eyes. Changes set in motion by old friends of many centuries and partners, Japan and the Netherlands.

# 2

## Introduction

Marc Glaudemans, Director Stadslab European Urban Design Laboratory  
Professor of Urban Strategies, Fontys University of Applied Sciences, Tilburg, Netherlands

One of the things a first-time visitor to Fukuoka may notice after a while is how many buses there are on the streets. It is truly exceptional. Not only during the morning and evening rush hours but also in the middle of the afternoon, when the visitor might expect the streets to be relatively quiet—there they are, lots of buses. Once you start to take a closer look, the buses' occupancy rate is often also exceptionally low. There are very few riders on many buses. Moreover, most of the buses are relatively old-fashioned: diesel engine, and lacking the level of comfort provided by the modern, wide-body buses that have become common in European cities. Nishitetsu, the main bus operator in Fukuoka and Kyushu, reportedly operates over 2,000 buses, making it one of the largest bus operators in the world, another remarkable fact.

The Master Class on Urban Transportation and Mobility was intended to focus on the 'missing links' identified during the Stadslab-sponsored Expert Meeting in July 2011. At that meeting the invited experts observed the lack of high-quality connections between the main transportation nodes in the city: cruise ship terminal, airport terminal, Hakata train station, and Tenjin Fukuoka train/bus station. In and of themselves these nodes are impressive, efficient, multi-modal mobility hubs. But an enduring weakness of the total transport system is the fact these nodes are not well connected to each other. Visitors arriving by ferry from Korea or by Shinkansen bullet train from Tokyo or Osaka are often bewildered by the difficulty of navigating from where they arrived to the downtown core around Tenjin. In the detailed preparation of the Master Class, Stadslab concluded that improving the missing links could not be done in isolation. Addressing the citywide bus network in its entirety would have to be the starting point. The extensive and fine-grained bus network is not only a weak point but also a strong point of Fukuoka's transport system. This network makes bus transport widely accepted and widely accessible throughout the metropolitan area.

The Master Class was held under the direction of transport planner Rob van der Bijl, who supervised an international team of designers, supported by local professionals from Nishitetsu and Fukuoka City. The participants started with a thoroughgoing reconsideration of the bus network aimed at providing a more highly efficient, more seamlessly connected, and more attractively designed mobility solution to serve the city center. The results of their work are presented in this publication. They were also presented, and discussed, during a public seminar held on the closing day of the Master Class. In many respects the proposed solutions attempt to rationalize the network, offering superior service with far fewer resources (fewer buses, fewer bus lines). Equally important is the effect implementation of the solutions would have on the quality of the public space along the main streets. The provision of dedicated bus lanes for through buses is part and parcel of a redesign of the street profile in the vision sketched out by the Master Class participants. The streets themselves become more pleasant public spaces as an integral part of a strategy whose primary goal is to make transport more efficient. In this vision, pedestrians and bicycles are accommodated in separate zones on the streets, while taxis may share the bus lanes. Reducing the number of car lanes, a key component of the vision, will enhance the environment for pedestrians and cyclists. All in all, the vision entails an ambitious reconfiguration of the transport network serving the center.

In concrete terms, the Master Class recommendation is to start on a small scale by reconfiguring one part of one of the proposed corridors. By building a number of street configurations, citizen acceptance can be tested. Acceptance is a necessary precondition for citizen commitment to a larger project, implementation of which could be planned and coordinated with regularly scheduled street maintenance to minimize interruption and interference with normal transport operations. Fukuoka Directive Council



(FDC), our local partner, will review our recommendations and include relevant items in the overall urban development strategic Master Plan they are preparing. Having finished this third Master Class, we have reached a significant milestone in our two year collaborative project with FDC. An Expert Meeting to assess the new Master Plan is scheduled for May 2013. During that Expert Meeting we will formalize our overall recommendations and attempt to sketch a roadmap for further development. At this point I would like to express once again our thanks to FDC. The collaboration with them has developed into an open,

inspiring and productive debate about the future of Fukuoka. The Dutch Embassy in Japan has also noticed the results of this special international collaboration and is fully supportive of deepening connections and exchanges of ideas between Dutch and Japanese urban development professionals and institutions. All in all, our efforts and collaboration to date have strengthened my conviction that a 'meeting of minds' has been established, with long-lasting and mutual effects not unlike those that resulted from the exchanges that took place in previous centuries at Dejima in Nagasaki.

# 3

## Master Class program

### Six Master Class themes to build upon

#### Urban Land Use and Transportation:

spatial interactions considering the nature, extent, origins and destinations of the urban movements and the set of transport infrastructures and modes that support passengers and freight. Special theme: 'transit oriented development'.

#### Urban Design and Placemaking:

formal and functional land use representations with both the economic and qualitative attributes of space such as form, morphology, pattern, public space and architecture.

#### Special theme:

public realm and transportation infrastructure. Network Planning and Design: transportation infrastructure operates on a long term, though movements of passengers and freight are highly dynamic; optimise the transit city by enhancing the network with facilities for bicycles and pedestrians (the bike city and the walking city). Special theme: public transport network design.

#### Environmental impact:

sustainable development by coping with the supply of resources (water, energy, etc), the economic efficiency and the consumption of space. Realizing a smaller footprint by mitigation and adaptation of the network.

#### User requirements:

effective traveller information addresses a range of issues to understand user needs to refrain from treating the travelling public as an homogeneous entity.

#### Technical issues:

elaboration of transportation technologies (all relevant modes), including the need for Smart Intelligent Transportation Systems

#### Friday 5 October 2012

19.00 Opening and welcome dinner in Tenjin district in Fukuoka (for early arrivals).

#### Saturday 6 October 2012

09.30 Opening by Marc Glaudemans (Stadslab and professor Urban Strategies), welcome lecture with a general introduction to Stadslab and the Master Class.

10.30 Lecture on urbanism in Fukuoka and Japan in general by John Mader, Lend Lease Japan.

11.30 Depart for a tour through the city center, we visit several projects which will be introduced. Lunch during the tour.

17.00 Back to the hotel.

19.30 Dinner.

#### Sunday 7 October 2012

09.30 Lecture about (Stadslab) on the results of the expert meeting in 2012 and the Master Class Placemaking in 2012.

11.00 Field trip by touring car through the city and its hinterland. Lunch during the trip.

19.30 Dinner.

#### Monday 8 October 2012

09.00 Design studio, SWOT analysis.

12.00 Short presentation of the first impressions. Simple lunch.

13.30 Field trip to the various locations for all subgroups.

18.00 Open lecture Urban Transportation and Development by Rob van der Bijl, director of RVDB/Lightrail.nl, Amsterdam.

19.30 Dinner.

#### Tuesday 9 October 2012

09.00 Lecture by Taichi Goto on the Fukuoka Directive Council and its mission.

10.00 Lecture by Prof. Aitani about Urban development and transportation in Japan.

11.30 Design studio.

12.30 Simple lunch.

13.30 Design studio.

17.00 Open lecture by a Transportation Planner (tba).

19.30 Dinner.

#### Wednesday 10 October 2012

09.00 Design studio.

12.30 Simple lunch.

13.30 Design studio.

16.30 Presentation: short plenary presentation of today's work, some partners will be present and may react on proposals.

18.00 Design studio.

19.30 Dinner.

#### Thursday 11 October 2012

09.00 Design studio.

12.30 Simple lunch.

13.30 Design studio.

17.30 Presentation: plenary presentation of today's work.

19.30 Dinner.

#### Friday 12 October 2012

09.00 Design studio: finalizing results, fine-tuning presentation.

12.30 Simple lunch.

13.30 Design studio.

16.00 Public presentation to partners, stakeholders and others in the Acros building.

18.00 Reception.

19.30 Dinner with closing ceremony and certificates.

#### Saturday 13 October 2012

Free time. Flight back home.



# 4

## Urban Mobility, The Fukuoka Case

Rob van der Bijl, Urban Planner & Transportation Expert

The infrastructure needed to provide for urban mobility represents a basic condition for urban development. It frames urban growth. It follows that this infrastructure can serve as an important tool for urban planning and design. Moreover, the way existing infrastructure is adapted or new infrastructure is built to meet the needs of cities has a long-lasting impact. It determines the mobility characteristics of the city, whether the city is automobile-oriented, transit-oriented, or pedestrian/bicycle-oriented (or features smart combinations of these orientations).

Today Fukuoka is, like so many cities in Japan and other countries, an 'automobile city'. Many trips are done by car, because cars are flexible, able to provide local accessibility as well as able to cover long regional, even national distances. This has promoted a pattern of urban sprawl, which in the case of Fukuoka has been worsened due to the remote locations of some recent major urban developments like Island City and the new Kyushu University campus.

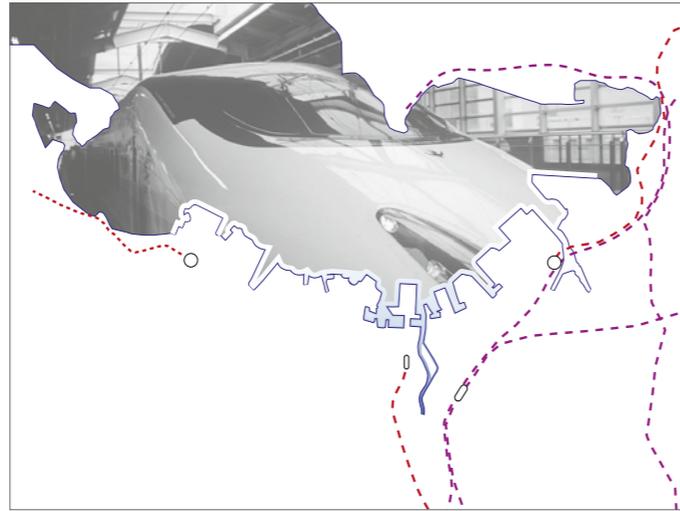
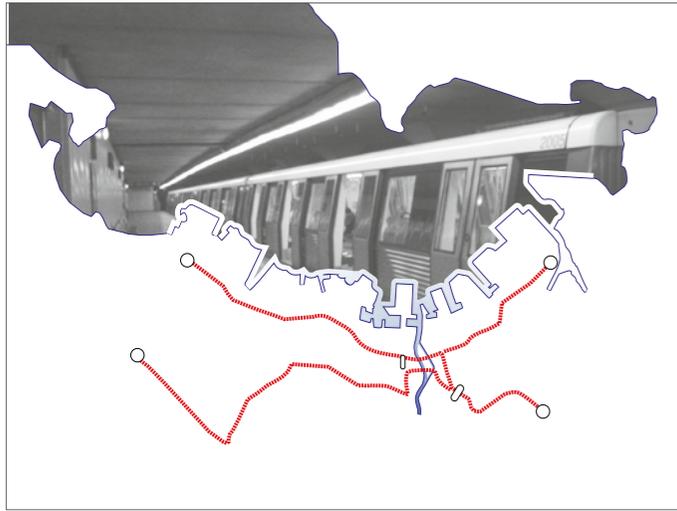
Though car-oriented, Fukuoka is certainly also a 'transit city'. The regional and local train system offers access to many centers and districts. The city center (Tenjin and vicinity) is connected in virtually all directions to vast areas of the urban region of Fukuoka. In the core city several nodes offer transfer to other public transport on all levels (national, regional, local). An extensive bus network complete a good system of public transport that provides coverage throughout the metropolitan area.

Still, bus service could be improved. The lack of bus lanes and other dedicated infrastructure is obvious. The legibility of the system demands substantial improvements as well, while many services should be speeded up. Though not a prime subject for

urban planning, the operational costs of bus services deserve attention. Possible reductions of costs should be taken into account. Certainly, from an urban planning point of view these reductions could free money for new or improved public transport that lays the basis for urban (re)development.

To some extent Fukuoka also deserves to be considered a 'walking city'. Overall, its public realm favors walking and well-being in the public environment. The fine-grained structure of streets creates good accessibility. The city center in particular is well-served by a pedestrian infrastructure closely linked to major urban amenities, offices and upscale shops. The recent transformation of the urban environment around the main station, Hakata Station, has further enhanced this quality.

Nevertheless, the automobile still dominates public space in the center of Fukuoka. At street level in particular, pedestrians (and bicycles!) are forced to accept long waiting times or uncomfortable detours and staircases. Moreover, Fukuoka lacks major pedestrian and bicycle connections that extend throughout the city. Important links are missing, such as one between the main station at Hakata and the main downtown office and retail district around Tenjin, or one between the main downtown and the waterfront. Riverfront and waterfront accessibility are especially deserving of improvements for pedestrians and bicyclists.



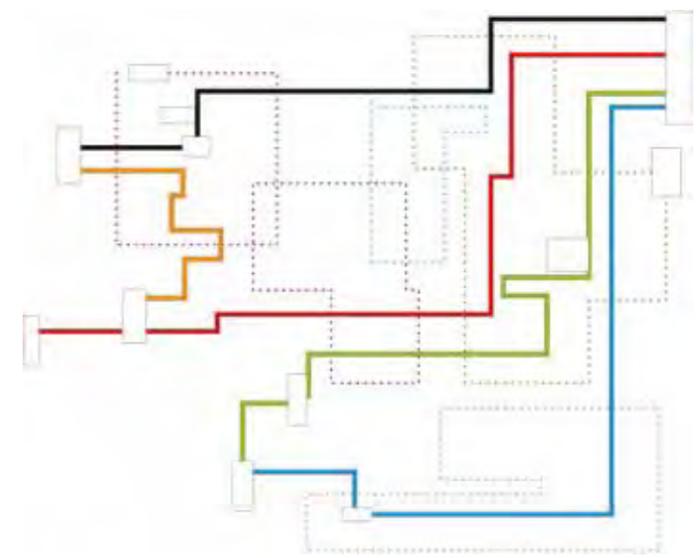
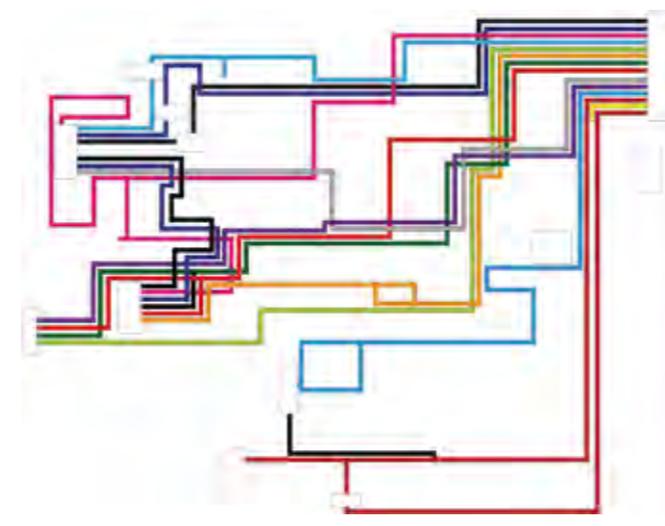
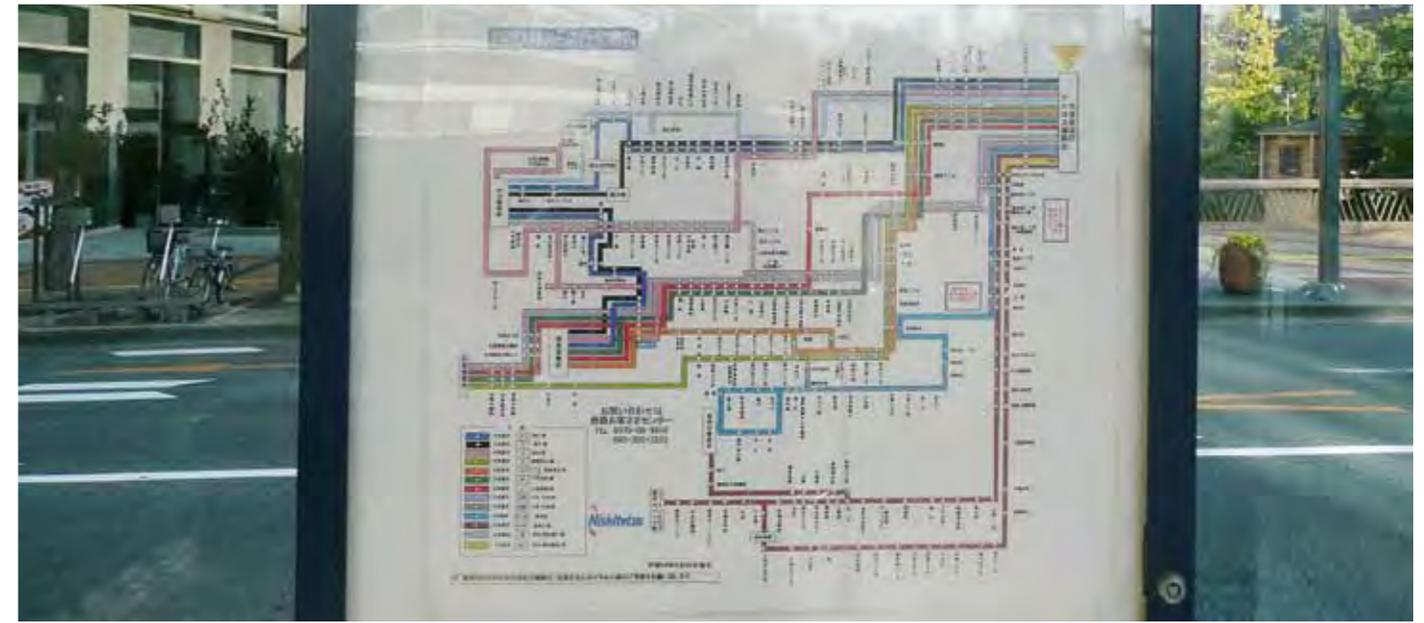
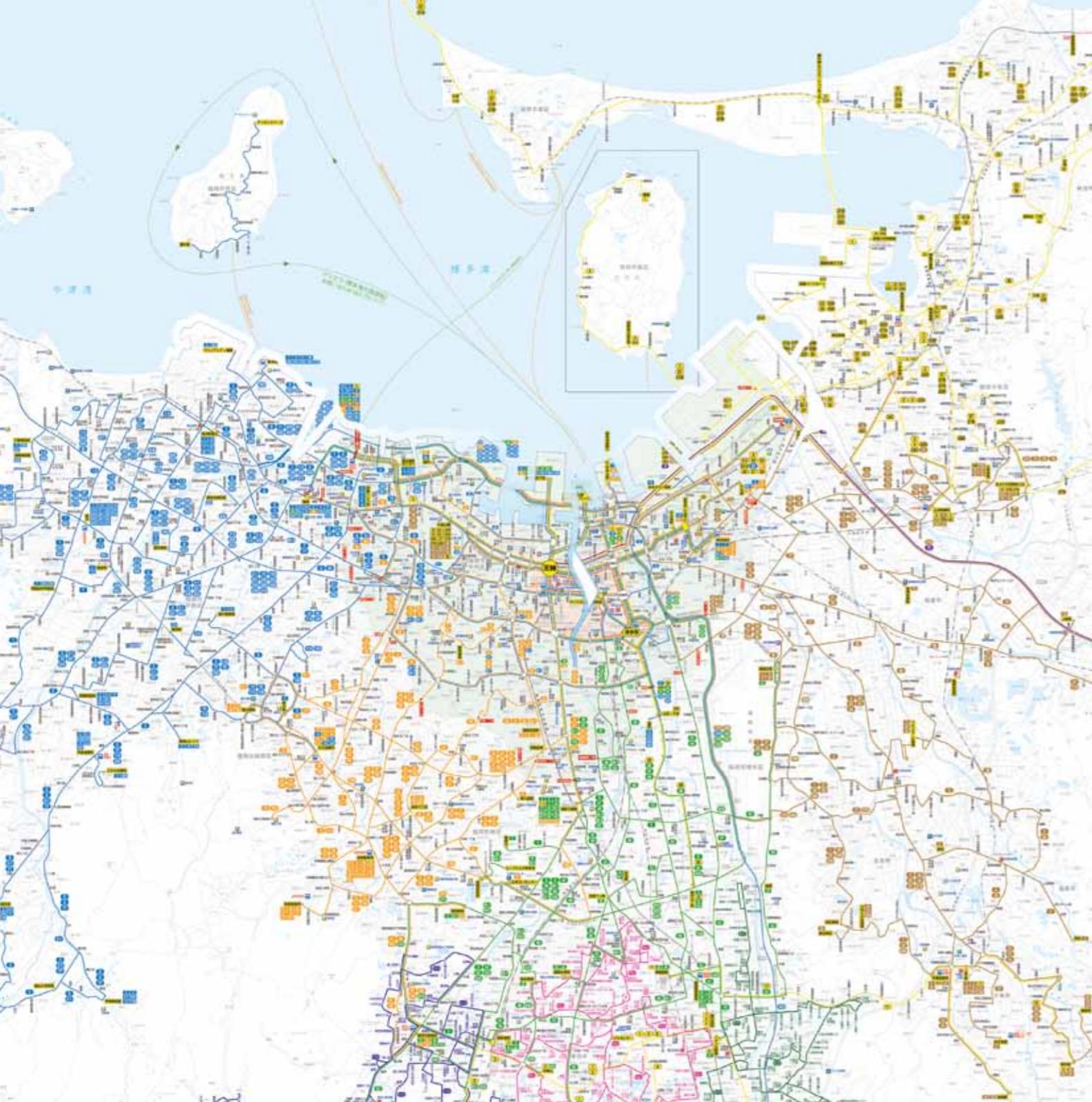
The urban metro (subway) system serves a great deal of the city. Regional railways extend and enhance this system. There are regional through services via Meinohama (west side) and transfer services at Kaizuka (east side).

Fukuoka's position in the national and super-regional railway system is excellent. The airport is close to the city. Nonetheless, the Master Class identified a potential need for a new bus service from the international terminal to Tenjin.

Public transport in Fukuoka includes local ferries and bus services along the expressways.

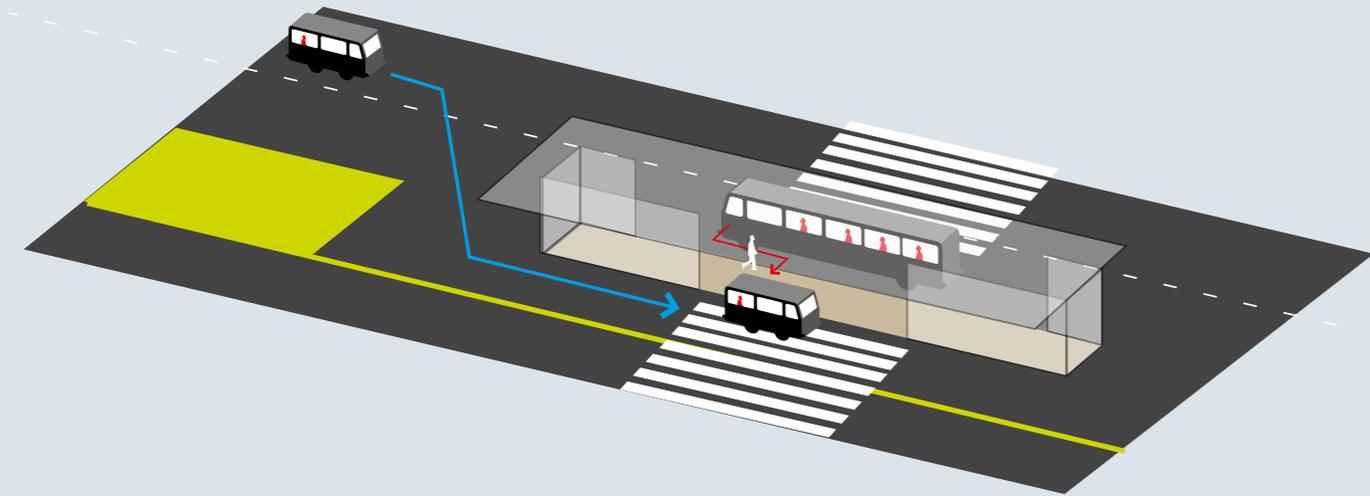
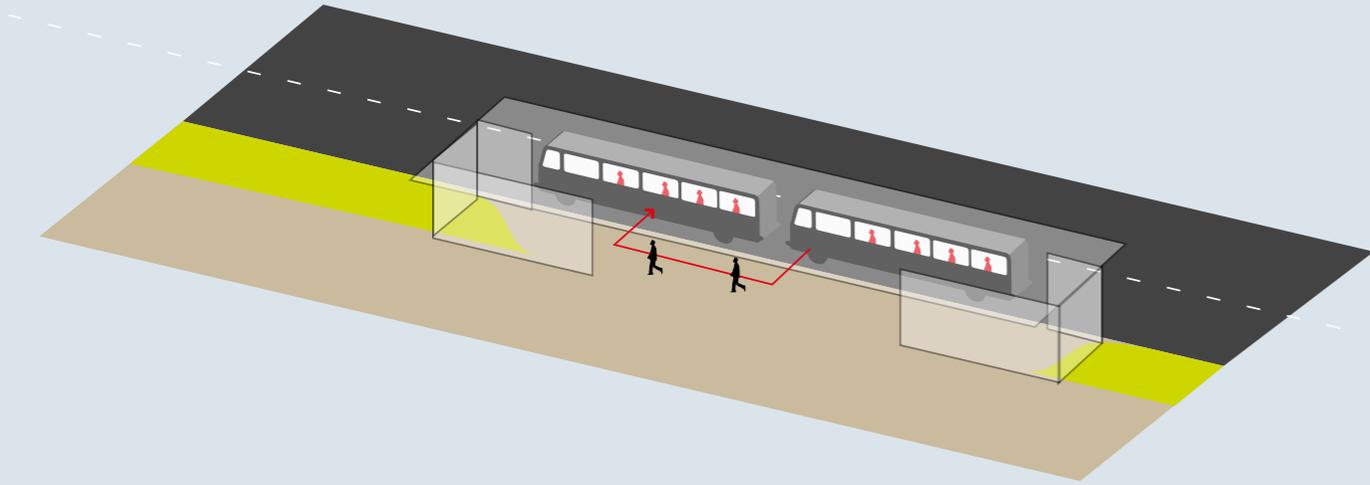
Fukuoka has an extensive bus network. The network is very dense, and the number of buses in operation is very high. Many services labelled with one line number (e.g. Line 3) are in fact sub-networks. In the city centre they are bundled into one line, but further out they branch out along various routes. As a result, the legibility of the system is poor and the reliability of service is vulnerable to interruptions. The operational costs of such a system are probably relatively high.

The public transport system is focused on the core city. Important transfer nodes are Hakata Station and the regional bus and train station in Tenjin. A third node is the ferry terminal. The Master Class proposed to move this transfer node to a new site at the base of Suzaki Wharf, the end of the wharf closest to the city center.

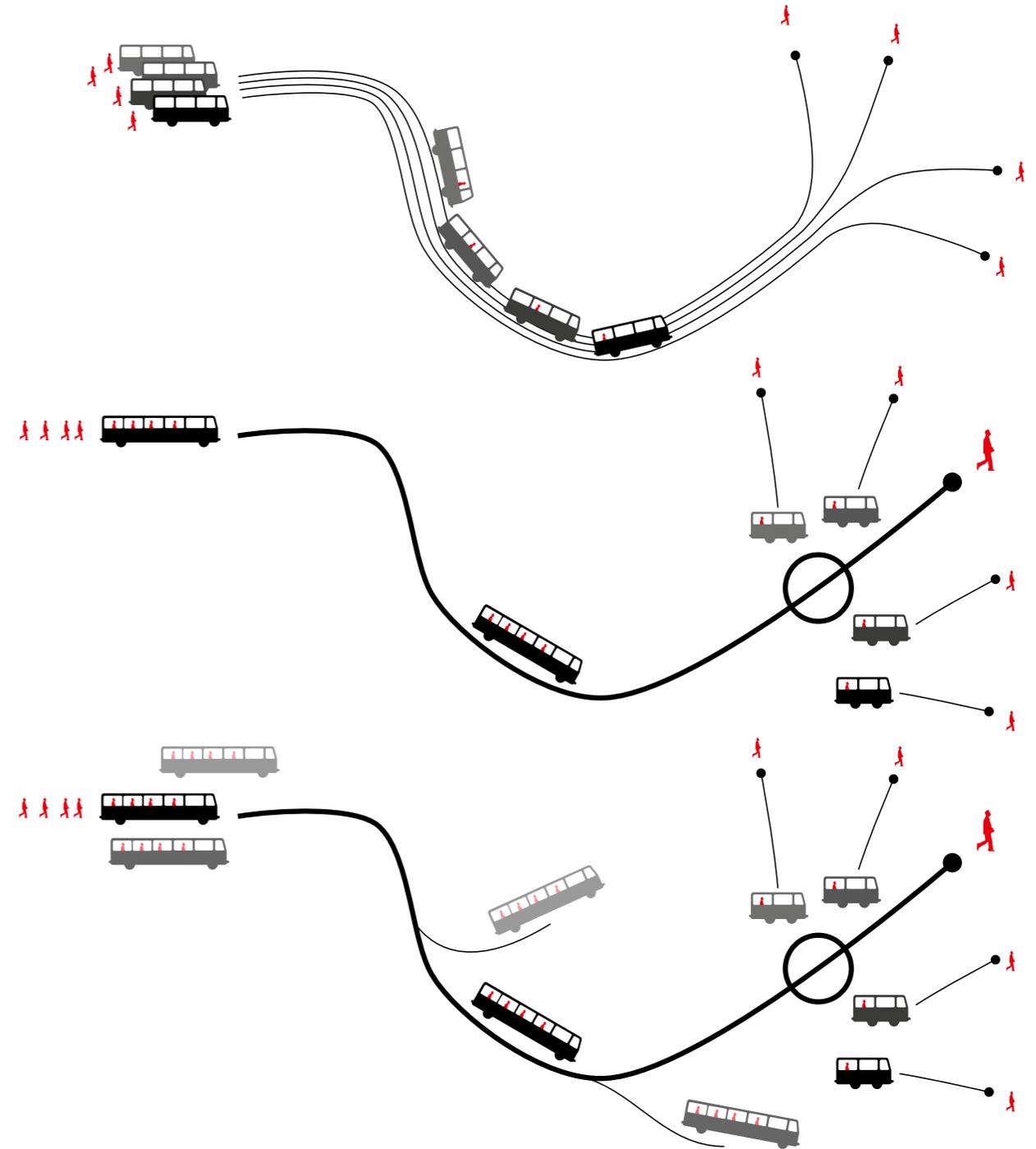


The bus network should be redesigned. The new corridor-based system is a creative concept intended to guide the transformation of the network. All in all, the legibility of the system will be improved. These two diagrams show the contrast between the

current confusing service pattern and a much easier-to-understand future network. At left is a route map from one of today's bus stops. At right, what the same network could look like tomorrow. Why not make the change?



The Master Class offered a single consistent principle to serve as a guideline in the redesign of the bus network: On the busiest sections, multiple lines should be bundled into a single trunk line. The trunk line should then be complemented by a series of feeders services, connected to trunk line service by advanced interchange facilities that allow for easy cross-platform transfers.



## Some principles

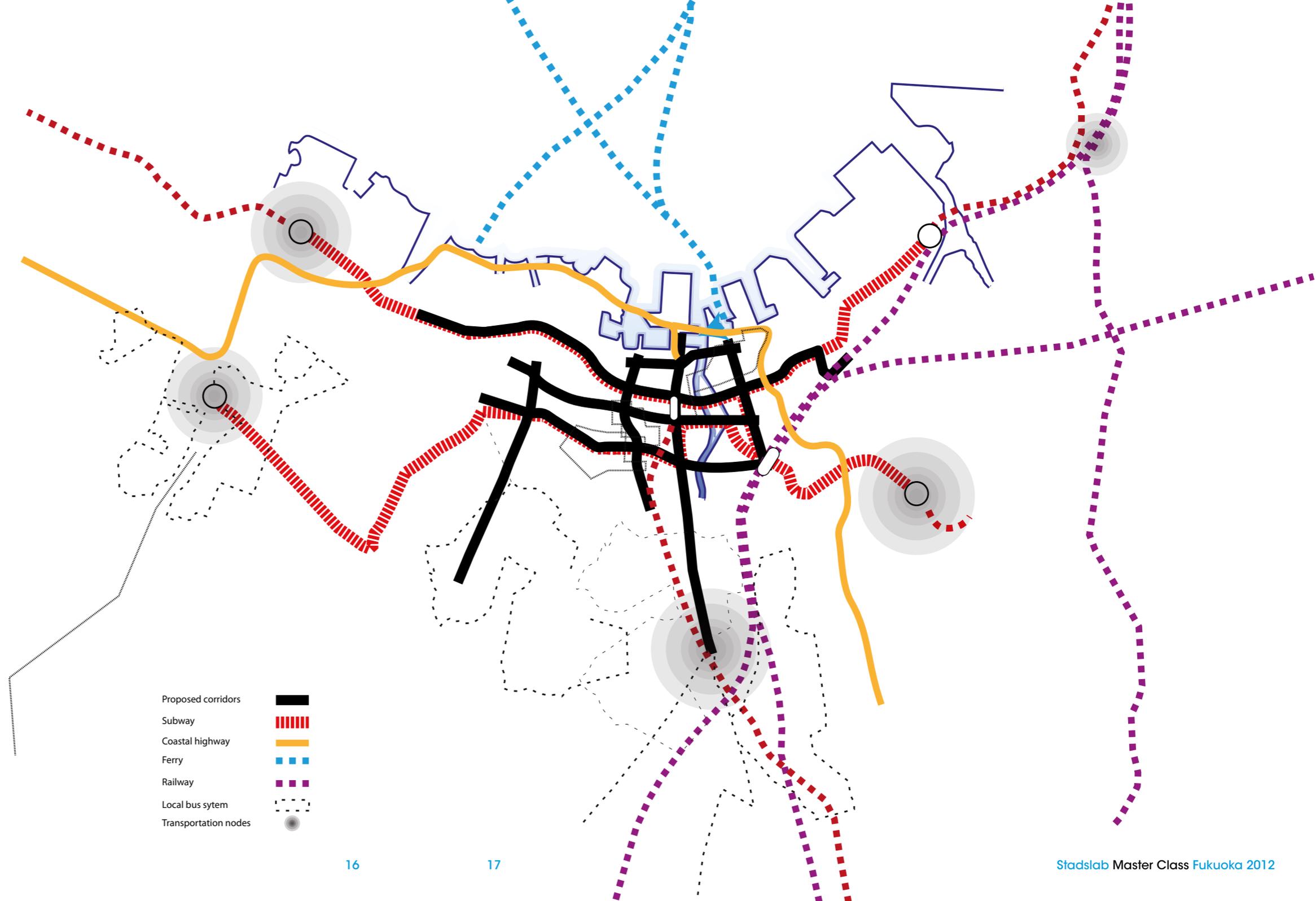
Both urban and transport planners in Fukuoka should maximize accessibility and patronage by encouraging higher density residential development and traffic generating activities to be located in areas that are easily served by high quality public transport. This means discouraging 'out of town' traffic attractors that can only be accessed by car.

The Masterclass aerial city-views of the proposed bus infrastructure in fact identified where the public transport routes meet the density of development and the location of activities; for example, medium density housing along the corridor, institutions and commercial activities clustered about stations and interchanges. The importance of existing and improved public transport corridors as a focus for the introduction of new high quality networks and associated development has clearly been addressed by the Masterclass.

In areas that are low density, or yet to be developed (e.g. harbour and waterfront area of Fukuoka), node-based development may be more relevant than corridor-based development. It can allow the more distant spacing of stops to provide the speed to compete with the private automobile. It can be used to link existing suburban growth patterns into the public transport network.

The combination of a mixed use development environment and a strategic location on the primary public transport network facilitates pedestrian access to local services and other opportunities, whilst also maximising the opportunities for access to work, school and other urban or regional scale attractors via the high quality public transport network (train and improved bus system).

The Master class proposed the development of eight, so called corridors. A corridor is a main street (or a chain of main streets) that will be provided with dedicated bus infrastructure (bus ways, or at least bus lanes). These facilities improve speed, reliability and visibility of the bus services. Several bus lines share one or more corridors. The coastal highway serves as a kind of corridor too, and is used by a series of regional bus services.



- Proposed corridors
- Subway
- Coastal highway
- Ferry
- Railway
- Local bus system
- Transportation nodes



## Accessibility

In future complementary urban design measures must be used to promote public transport usage. As a result the most successful high quality public transport services will be easy and pleasant to access. Footpaths will be generous and easy to negotiate. Streets along the public transport route may be pedestrianised in high activity areas. Parks and other public spaces will be incorporated into the overall urban design.

Public transport infrastructure that is difficult to cross forms a barrier to movement from one side of the line to the other. This can severely weaken the commercial attractiveness of locations next to main rail stations or complicated bus stations, because for half the potential customers that are nearby, the location is virtually inaccessible. The barrier can be removed by providing good, easily used crossing points. Ideally they should be grade separated by having the station below or above surrounding ground level. This is not an issue for tramways and smart busways, where on-street running can be used to avoid any severance effect.

An improved bus network combined with available railways (including the extension to Hakata Station of the Hashimoto Line) will provide Fukuoka with an excellent public transport system. This system builds on the newly renovated Hakata Station, which is well served by all modes of transport; and the airport, which is close to the city center. The Master Class recognized the laudability of these facilities. In addition, the Master Class proposed the addition of a new ferry/bus terminal, to be built at the base of Suzaki Wharf.

The Fukuoka Masterclass revealed how the city can refurbish its central streets and squares served by the bus using high standards of design. This extends to the refurbishment of facades along the route, as part of an effort to reinvent the city. Distinctive busway facility design symbolises the refurbishment, while also providing protection from the weather. Focus on careful attention has been suggested to the design of urban interchanges to ensure that these are both functional and aesthetically pleasing. The Masterclass proposals are vital for improving the accessibility of public transport. Design of improved routes for pedestrians and bicycles demonstrate the important role that they play in influencing mode choice and the future success of Fukuoka's bus system. A complementary cycle network and secure cycle parks at key stops will serve to encourage those who live beyond reasonable walking distance to cycle and will help to discourage trips that might otherwise be made by car.

This improved and extended network must be used to stimulate all future urban (re)development and as a framework for transit-oriented (re)development at a limited number of urban nodes within the network.

The bus corridors in their ultimate form will brand Fukuoka as a 'smart' and 'green' city.

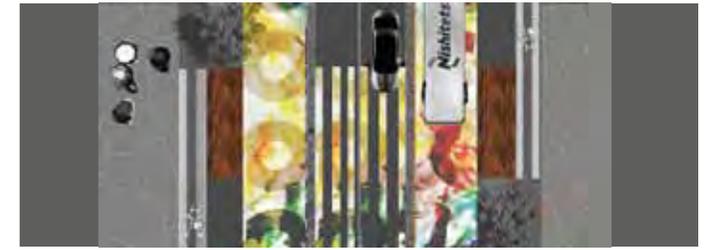
## Case study I: Meiji-dori



Meiji-dori is one of the most important corridors. Along this street the busway is in a central alignment, complemented by attractive stops and including shelters, seats, panels, vending machines, etc. The physical infrastructure will be backed up by on-line information systems.

Meiji-dori and every main street like it that is targeted to be provided with a bus corridor will be revamped. This will involve a new profile from building face to building face, renewed pedestrian zones, improved access to buildings and nearby streets, bicycle

lanes on both sides of the street, short-stay parking (if room is available), a strip for unloading freight, and a landscaped strip along both sides of the busway. Generally one set of car lanes (one lane in each direction) will make place for a double busway or set of bus lanes.



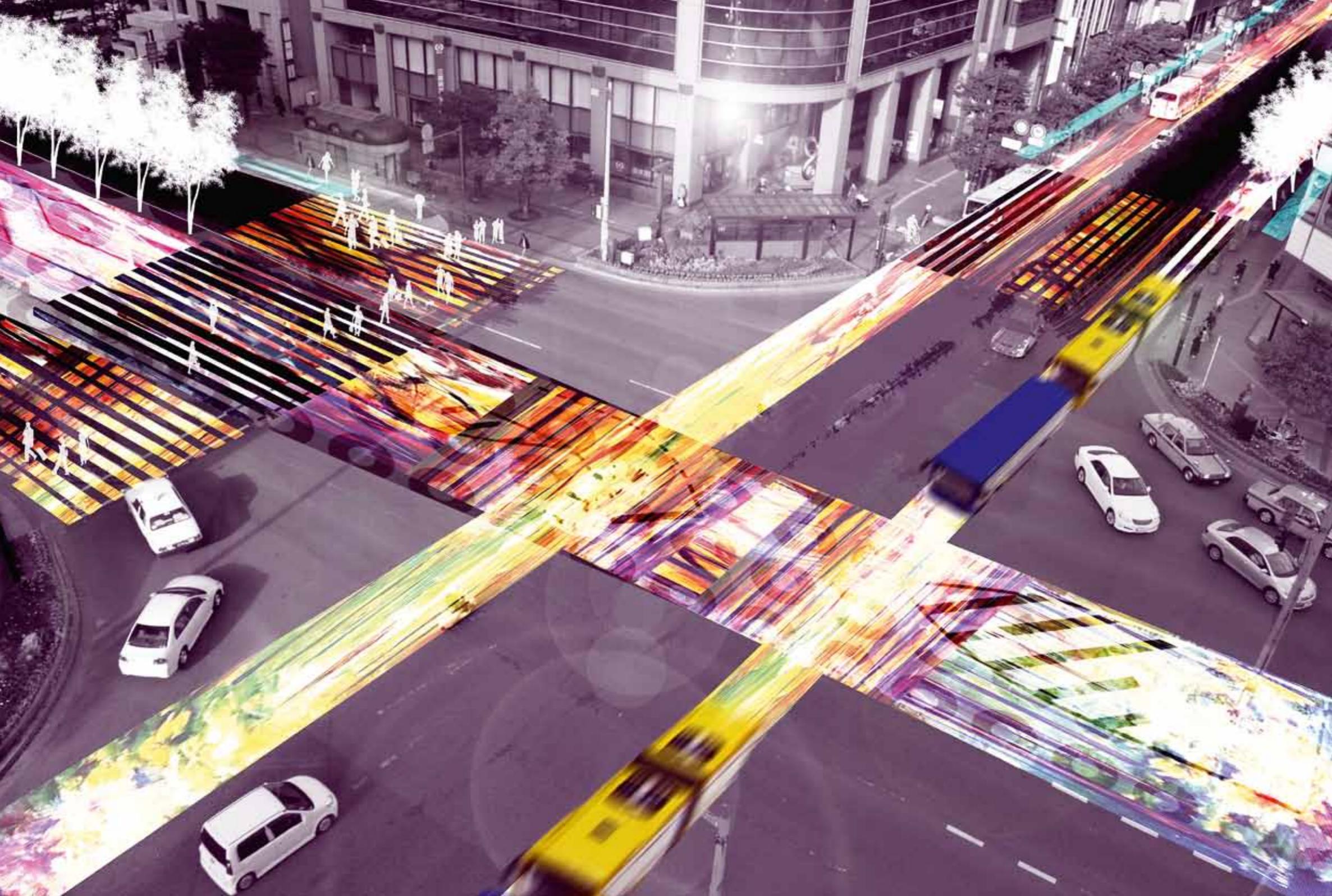
These sections show the two principal solutions for the alignment of bus corridors. The choice of which of these two solutions to apply depends on the physical conditions and constraints of the street along which buses run.

### Solution 1: central alignment

This is a very common solution. From a traffic engineering point of view this alignment is preferable. It makes it easy for buses entering from a side street or side corridor to turn 90 degrees. A disadvantage of this alignment is the fact that bus riders most cross a car lane to reach the platform where the buses stop.

### Solution 2: gutter alignment

This is a less common solution. It is difficult and sometimes impossible to make a 90-degree left turn because the turning radius is so tight. This alignment poses an additional difficulty because cars entering and exiting from parking garages below adjacent buildings must cross the bus lane or busway to get to the traffic lane. Furthermore this alignment reduces the amount of space available for parking and freight deliveries. There is, however, a major advantage to this solution: It makes possible an excellent integration of bus platforms with the neighboring pedestrian sidewalk.



Two bus corridors cross. The central alignment of the Meiji-dori busway intersects another busway that follows the gutter alignment.



Along Meiji-dori west of Akasaka metro station buses leaving the city center switch from a central-alignment busway to a special side-alignment busway running along the edge of Ohori Park.



central-alignment busway



side-alignment busway



## Case study II: Watanabe-dori



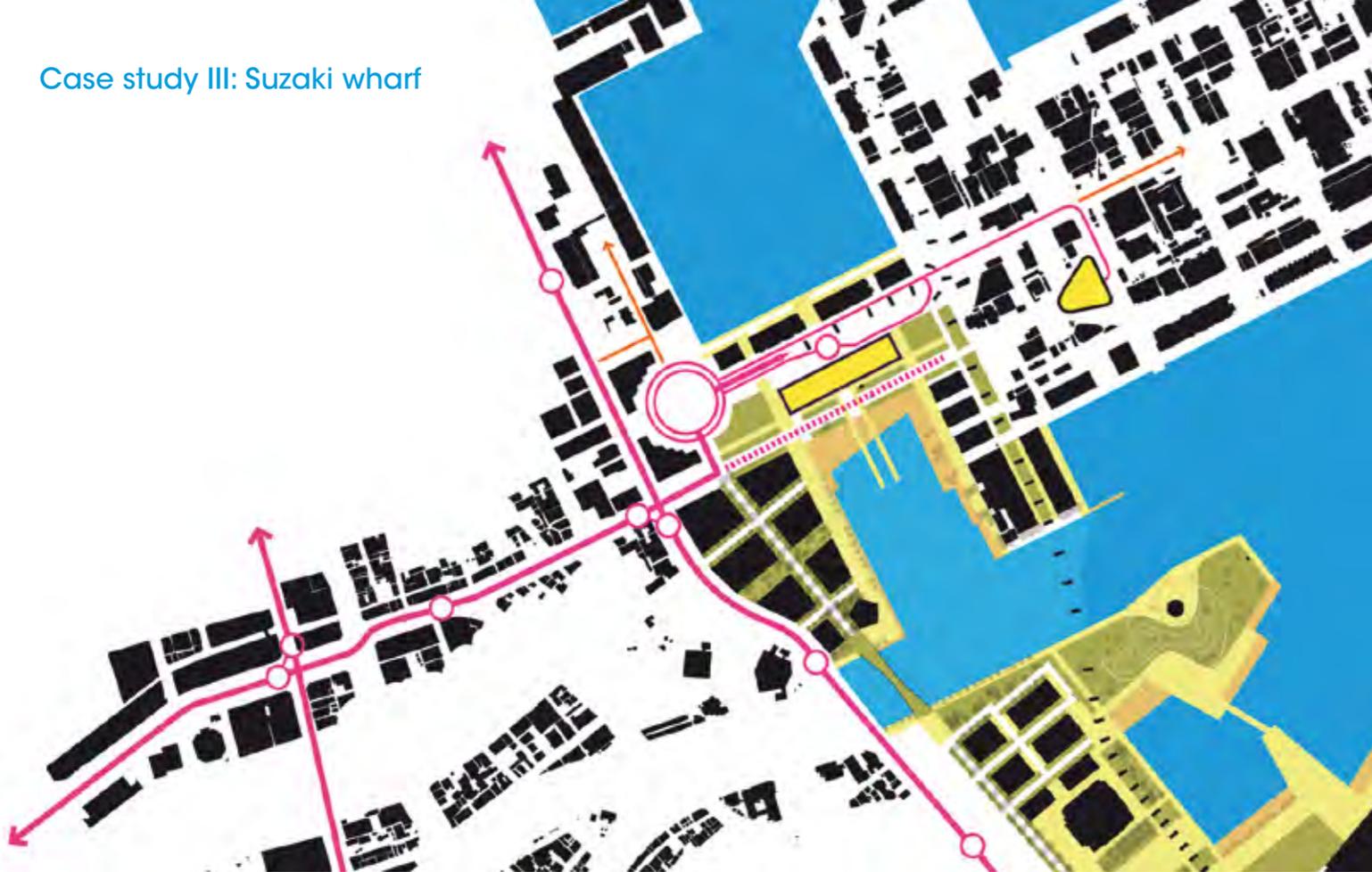
The Watanabe-dori bus corridor ends at the new transfer facilities proposed at Suzuki Wharf. Though the corridor ends here, not all buses would terminate here. Some would continue into the city on regular streets while others, notably the regional buses, would get on the expressway to continue their trip to peripheral locations in the Fukuoka metropolitan area.

Daytime: the bus infrastructure is used by one or more bus lines.

Nighttime: the bus infrastructure is used by many taxis.



## Case study III: Suzaki wharf

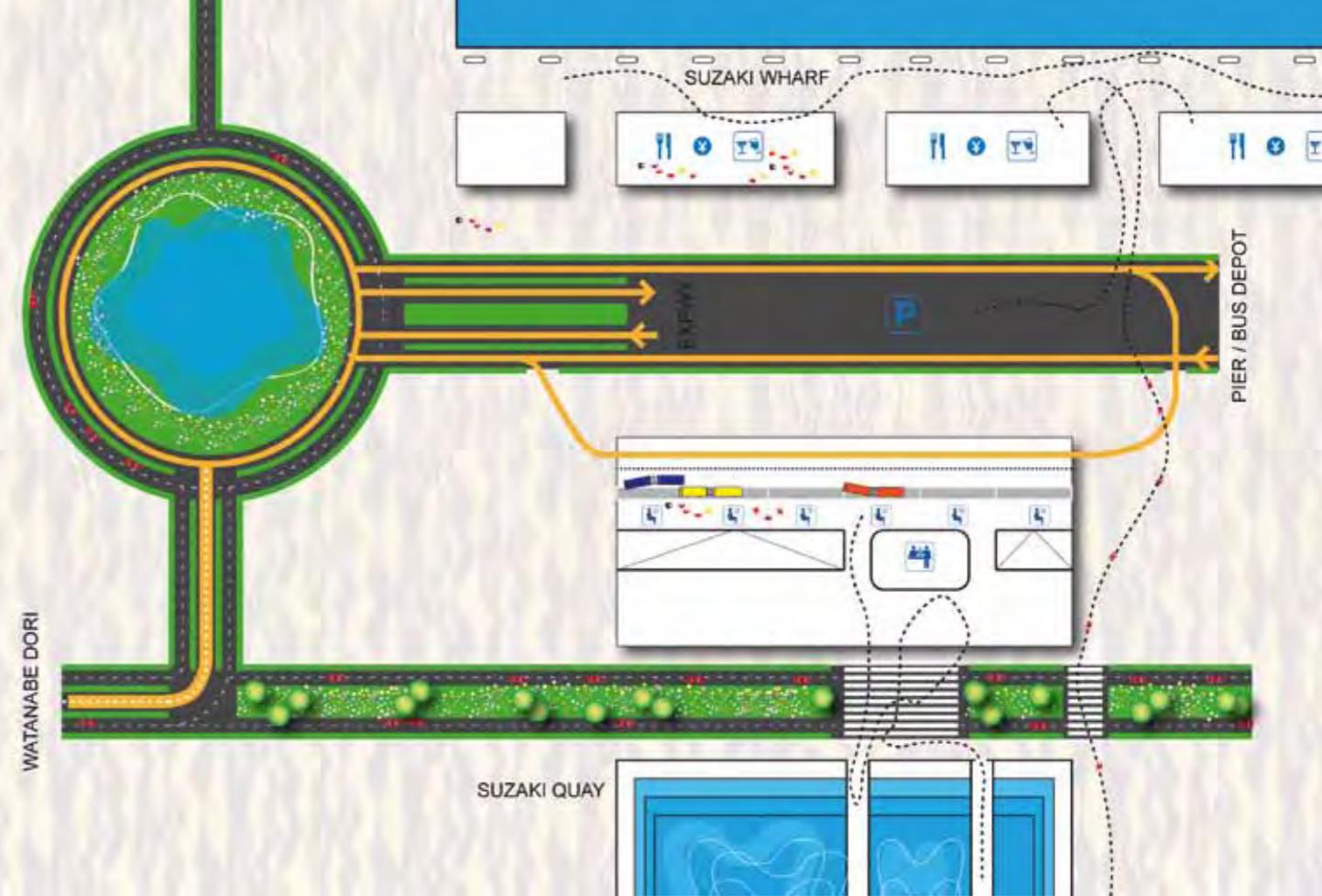


### Urban regeneration

It is perhaps not surprising that high quality public transport is being used to initiate urban regeneration. Therefore it has been one of the focus points during the Masterclass. Good public transport promotes the accessibility of a location from the rest of the city. This in turn promotes the location of employment centers there. It also promotes the location of residential uses there because good accessibility to the rest of the city makes the area more attractive to live in. In addition to creating an attractive image,

state-of-the-art public infrastructure can serve as a symbol of commitment to an area (and its development or redevelopment).

Clearly, the closer public transport service is to where people live and where they want to go for various activities, the better it will be able to serve them. Maximizing accessibility also maximizes ridership. Following this principle, transport planners should identify and link high-density residential areas and traffic-generating activities. Areas and activities to which access is required by people who are proportionally more reliant on public transport, for example students and the elderly, should be targeted in particular. Some land uses are clearly more likely to generate much higher levels of public transport use than others. Educational institutions fall into this category, as do high-density residential districts.



Public transport service that is designed as a means to stimulate urban regeneration may well be routed through areas with very low density and low levels of activity when the service is initiated. The important thing to keep in mind is the potential for densities to increase as regeneration occurs. This may seem an obvious principle, but it is not always followed. Factors that often determine a final route include topography, the availability of space, the cost of land, and politics. Too often a route follows the 'path of least resistance'—or worse, is determined based on a misunderstanding of the preferences of current users and an underestimation of the number of potential users. The Master Class investigated a number of examples, including both soundly

selected routes (where ridership is maximized) and routes that serve very low-density areas (used by few riders). Bus Line 3 was used as a primary case study.



The Master Class challenged existing thinking about the waterfront, which focuses almost entirely on the area east of the Naka River around Bayside Place and Marine Messe. Instead, the north end of the Watanabe-dori bus corridor was identified as the more promising site for a waterfront-area transport hub. For this location at the base of Suzuki Wharf, north of but not too far from the Tenjin core, a new bus/ferry terminal was proposed. This strategic transfer node could be the focus of future transit-oriented (re)development.

The creation of a transfer node at the base of Suzuki Wharf and the redevelopment of this area requires a number of traffic situations to be resolved. The Master Class proposal includes a new roundabout that allows freight traffic to get on and off the expressway and enables easy access to the bus/ferry terminal for buses.

Mixed-use development is envisioned for this area at the base of Suzuki Wharf. The new transport terminal building itself could house amenities such as restaurants both at ground level along the waterfront and, most spectacularly, on the terminal's upper floors with tremendous views. The high-rise terminal building proposed by the Master Class for this site is intended to be Fukuoka's signature landmark of the future. We love Fukuoka!





Case study IV: walkability



The potential for attractive pedestrian and bicycle routes is great, particularly along the riverfronts. Some nice routes are already available.

Some important through routes for both pedestrians and bicycles are missing, however. The Master Class designed new connections and the accompanying public realm. Particular attention was paid to direct connections between Hakata and Tenjin and between Tenjin and Suzaki, including future waterfront redevelopment further out on Suzaki Wharf.





## Potentials

Beyond physical interventions such as new infrastructure for buses, pedestrians and bicycles, complementary measures to reduce car use and improve the urban environment in Fukuoka should be taken. There was insufficient time for the Master Class to fully elaborate these measures. An example of these kinds of measures is the introduction of through-traffic management devices, for instance reducing the number of traffic lanes in key areas. Also relevant here is the prioritization of 'people oriented' measures over 'car oriented' ones. For example, a 30 km/h speed limit could be introduced on all non-arterial roads. Measures like these can be viewed as the 'sticks' that discourage car use. The sticks complement the 'carrot' of high quality public transport as part of a comprehensive strategy to promote the use of alternative (non-automobile) forms of transport. Traffic management measures to discourage car use in particular parts of a city are common in many cities, especially in Europe.

Good park-and-ride facilities can be provided to support the carrot by making the switch from the automobile to public transport quick and easy at key points along the high-quality network. These are particularly important at the ends of major lines and key collector points outside the city center, including strategic locations along the expressway network of Fukuoka.

# 5

## Remarks

### Remarks on the Proposals Presented at the Fukuoka Urban Development Strategy Forum “Mobility in Smart City FUKUOKA”

*Fumihiko Nakamura, Professor of Urban Transportation  
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Translated by John Mader*

On 12 October 2012 I was fortunate to have the opportunity to attend the public presentation of the Stadslab Master Class results in Fukuoka dealing with how to improve the city’s transport system. My purpose here is not to summarize the proposals put forth at the conference. For those I refer the reader to the publication at hand. Rather, below I offer some general remarks. After an introductory discussion of the proposals and their underlying principles, I have structured my comments largely around the question-and-answer session as a convenient way of guiding the reader.

Two things were particularly good about the 12 October presentation. First, five basic principles were enunciated clearly, and the presenters made clear that those principles were intended to guide all transport proposals—a sort of litmus test of suitability. Second, spatial trade-offs were identified as a critical factor for decision-making. In other words, in thinking about any transport problem, the issue of how to allocate space is a central concern.

The proposals related to many different aspects of Fukuoka’s transport system and how it might be improved. Perhaps the most significant proposal was the idea of reconfiguring the bus network. The core concept here was the provision of busways and other infrastructural elements on the streets where the main trunk lines run. Another key proposal was the idea of developing an easy-to-understand pedestrian link from Hakata Station to Tenjin and then on to Sugizaki. Coupled with this was the idea of creating a ferry terminal at the downtown end of Sugizaki Pier, where the boat racing facility is now located.

All the proposals put forward were intriguing to be sure, but to my mind the proposals were somewhat lacking in the kind of originality one would expect of a true breakthrough in thinking about a persistent problem. In the end, some very basic questions remained unanswered. What is the purpose of the proposals? What assumptions are they based on? What locations are worth connecting to each other?

Let me start by listing the five principles the presenters put forth as the touchstones by which to judge their proposals: Connectivity, Accessibility, Legibility, Imageability, and Walkability. It should be mentioned that these principles were enunciated for the broader purpose of revitalizing the city center and not derived from their applicability to improvements to the transport system. Nonetheless, to the extent that transport improvements can contribute to city-center revitalization, the five principles are relevant as a way of judging the suitability of changes to the bus system. The idea of refashioning the bus system as part of the implementation of these principles is an exciting prospect. Even assuming the usual goals of such changes to a bus system—increasing efficiency, increasing on-time performance, shortening trip times—certain naked truths need to be confronted squarely.

The general presentation was excellent in presenting the guiding principles. It also put on the table some tantalizing new ideas for mobility in Fukuoka. The answers to questions in the ensuing question-and-answer session, on the other hand, left me unsatisfied. Below I have listed the most salient questions that emerged. Please beware that I did not have the chance to take notes of the actual answers that were given. Therefore, the presenters’

answers, which may differ considerably from my own, have been omitted from the discussion below. Instead, I have written about how I would have answered the questions. In so doing, I hope to have put the issues in the context of the broader theoretical framework transport planners worldwide use in analyzing mobility issues.

#### Q. Might the freeway loop around the city be used for trunk-line buses?

The presenters suggested the new freeway loop could be used for trunk-line buses, perhaps out of deference to this costly new piece of infrastructure. In point of fact, a deeper understanding is required of the relationship between the recently completed freeway loop and the geographic locations generating demand for transit. As it turns out, even if buses were to circulate on the loop freeway, there are no attractive destinations along the way. The loop is just that, a way to get around the city by car; its route does not serve any significant destinations—generators of demand for mobility, in other words. If bus stations were established along the freeway, they would serve as no more than transfer stations. I do not think this is a desirable pattern.

The busways and other infrastructure that trunk-line buses run on should be closely connected with the spatial pattern of the city and the multiple types of locations that generate demand. There is little value in having buses run on the loop freeway just because the loop was recently completed. Even putting aside these reservations, the better place to look for examples of suitable infrastructure design is not Seattle but rather Ottawa or Brisbane. In both those cities a network of busways was created that uses the freeway infrastructure in part. The freeways are routed independently of major destinations, so transfer stations have been created where trunk-line passengers can change to other lines that do serve those destinations.

#### Q. Should the use of private vehicles in the city center be restricted?

During particularly congested times of day I think it is necessary to put at least some restrictions on private cars coming into the city center. The center is susceptible to congestion. The experience of Curitiba, Brazil, supports this concept. No restrictions were placed on cars in Curitiba. In fact, car use was actually promoted, leading to a distortion of transport options in Curitiba.

Eliminating traffic jams in the city center is commonly given as a reason for restricting the use of cars in the center of many cities. Thinking of the issue of cars in those terms risks overlook-

ing the more important issue, which is: Space in a city center is scarce and its use should be carefully allocated. Highest priority should go to logistics vehicles (including bicycles) that move goods and services. Next priority should be given to pedestrians, bicycles and buses that move people. Cars should be accorded lowest priority. They may be introduced into what space remains after prioritizing the movement of goods and services and people by the most space-efficient means. Incidentally, one way of funding a relatively high level of service in public transport and discouraging the use of private cars (except for high-value trips) is to levy a tax on parking.

#### Q. What should be done about the overlap of bus routes and subway lines?

A common fear is that Fukuoka’s bus system and subway system compete for the same customers, all the more so in those situations where they run along the same route. This fear is not unfounded, but a more nuanced view is required. If each system appeals in its marketing to different kinds of transit users, it should be possible for buses to run on the same roads where the subway runs. Indeed, a comprehensive transport policy might actually include an agreement about which system should serve which customers. The idea that there should be absolutely no duplication of service seems to make sense at first, but on closer examination it may be based on false premises. The same applies to the other extreme, the idea that competition should be stimulated. Perhaps, but what is more important is that the nature of the two systems and their customer bases be examined more closely and planned in concert.

#### Q. Does all this effort make sense even though the bus system is not very good?

There appears to be a general consensus Fukuoka’s bus system could use improvement. One extreme reaction is to ignore it and focus on other modes of transport. I disagree. Although the system may not be very good, it has got potential that can be worked with. If the system is not very good, there must be some reasons. The reasons should be investigated, and based on a reasoned analysis measures for improvement should be proposed.

#### Q. What about the fares?

One hears the argument that maybe there is a problem with the fare structure. But the problem is not limited to the fare structure. For example, when it comes to the base fare, Fukuoka is a lot cheaper than London yet provides much better service than

London. What is needed, I think, is a system of discounted fares that induces and stimulates demand. It may be acceptable not to discount the fares of commuters whose employers pay their commute cost. But a strategy is needed for getting people to ride the buses on those routes and at those times of day when getting more people to use the buses would be desirable. Another issue is the high cost of changing from one transport provider to another or even from one bus to another. There are many ways to solve this using fare cards with embedded IC chips. The proposals at this conference did not touch on the issue of fares, but perhaps it was good enough the presenters at least raised the issue in general terms of asking whether there is a problem with the fare structure and how the problem might be best solved.

**Q. What is the thinking about the trade-off between providing door-to-door service and having an easy-to-understand network?**

Copenhagen's strategy of A Buses is the best reference point. Another good reference is the toshi-shin-basu strategy, the new buses that were introduced in Japan around 1985. Both strategies involve making a clear distinction among bus routes. Certain routes aimed at visitors or residents not used to riding the bus are distinguished so as to give the feeling of: Wow, this bus is all I need to know in order to get around. The distinction is conveyed by a thoroughgoing approach that pays close attention to many facets including exterior paint colors, interior appearance, bus stop design, and frequency of operation. The goal is to raise awareness all around.

For the sake of argument, the term 'superbus' might be used to describe this strategy. Superbus routes and stops should be printed on all publicly available maps and outdoor signage systems so that even if a potential rider is not interested in superbuses, that person cannot help but notice them. Because the superbus routes are simple and easy to use, superbuses alone will not provide comprehensive coverage. To get some places riders will have to change to other routes. Therefore, even after introducing superbuses much of the existing conventionally planned network should be left in place. The superbus strategy works hand in hand with the regular buses. The superbus concept is similar to the system in Curitiba, Brazil, where sufficient coverage is provided by a basic network consisting of red trunk lines and green loop lines, plus some special direct bus routes. The yellow bus routes serve some special routes. That system works well in my opinion. It is not worth the money to make the entire route network easy to understand. The mere introduction of superbus-

es would probably be reflected in a much smaller workload for the customer service center, a sign the concept is working. The introduction of a limited but highly effective concept like that is what Fukuoka should aim for.

**Q. The proposal seems to be recommending bus rapid transit (BRT). Was light-rail transit (LRT) not considered as an option?**

A constant concern in transport circles and apparent in this presentation as well, is the lack of clarity about what exactly BRT is. At this conference, the participants appear to have had in mind BHLS—Buses with a High Level of Service—as defined by the UITP (International Association of Public Transport). Perhaps it is better not to fixate on the term BRT because it can be interpreted in so many different ways.

In situations such as Fukuoka's, I believe introducing LRT is a very attractive option. When introducing LRT, however, a critical consideration is always the need to continue paying sufficient attention to proposals for what to do with the existing bus system. Looking five or ten years into the future, what has been proposed for Niigata is an option Fukuoka could consider. The first step would be to establish special-purpose spaces along the trunk-line corridors that are first used by buses and then later by the LRT. Converting the trunk lines entirely to LRT from the outset precludes the possibility of providing non-stop service from the trunk lines to the branch lines in early morning, late evening or the middle of the day. If a bus route runs parallel to the LRT, the spacing of stops may also become an issue. These drawbacks notwithstanding, the possibility of running both LRT and buses side by side should not be ruled out. I personally am not particularly favorable to the point of view that introducing LRT is counterproductive in that it diverts resources from improvements to a bus system. Worldwide, almost all the cities that have great LRT systems have not neglected but rather also made significant improvements to their bus systems. The argument that buses and LRT are incompatible is unconvincing.

In closing, allow me to say that one of my aims in commenting on the questions raised was to provide not only my own views but also insight into how current approaches to transport planning can be applied to the issue of improving the bus system in Fukuoka. Approaches that have been tried elsewhere may be useable in Fukuoka, either as is or with modifications. This conference provided a forum for stimulating thinking about all aspects of the transport network in Fukuoka, and I am pleased to have had the opportunity to attend and offer my thoughts.



# Afterword

## The second Master Class Fukuoka on mobility – success now and in the future

*Taichi Goto, AICP, Director General Fukuoka Directive Council*

Mobility seems to be a subject of urban planning in any city in the world. Regardless of the size of city or location on the planet, citizens often complain about the quality of public transit, while transportation engineers discuss traffic jams in the city center. This is also the case in Fukuoka, a relatively compact metropolitan region of 2.5 million. A lot of plans for better mobility in Fukuoka have been published, but few of them have been implemented as workable solutions.

The first Master Class in Fukuoka was held in April 2012 and led to an ambitious proposal for regeneration of the waterfront. Following up on this success, Fukuoka Directive Council (FDC) established the Urban Development Working Group (UDWG), the aim of which is to further develop a strategy for regeneration of the city center.

The Fukuoka city center consists of three key areas: two central business districts, one in Tenjin and another in Hakata, each centered around a train terminal; and the urban piers, one of which accommodates the largest passenger ship terminal in Japan. A previous study by Fukuoka City identified as a key issue the fact that today these key areas are only loosely connected to each other. This led to the conclusion there is a need to better integrate these three areas by providing quality transit and pedestrian connections.

The focus of FDC's UDWG has been a study of how best to redevelop the three key areas with reference to the first Master Class proposals. Given the weakness of connections among the areas, the logical next step for FDC was to request that the second Master Class tackle "mobility" from the fresh perspective of the group of international design professionals assembled by Stadslab.

Fukuoka offers a unique opportunity for the study of mobility. The region is geographically compact. The population of 2.5 million is densely packed into a small area. The public transit network is extensive and highly developed. There are only three large service providers: Fukuoka City operates the subways, JR Kyushu commuter rail lines and the high-speed Shinkansen, and Nishitetsu buses and commuter rail lines. (Incidentally, Nishitetsu is the largest bus operator in all of Japan.) On some aspects the transit service providers cooperate, such as the electronic IC card system useable on all. On others they compete. For example, Nishitetsu buses and the City subways both provide service along several arterials, competing for riders. A small number of operators does not necessarily facilitate cooperation.

As described in detail in this publication, the Master Class team led by transportation expert Rob van der Bijl proposed a masterful solution for better mobility in Fukuoka. What impressed FDC most was the clear separation between infrastructure and service. In terms of hard infrastructure, the proposal envisioned the creation of transit corridors. In terms of service, the corridors can accommodate one or more modes—subway, bus, bus rapid transit (BRT), light rail transit (LRT), even taxis—flexibly, sometimes to the exclusion of other modes, sometimes shared with other modes. The Master Class team's final report illustrated where transit corridors should be placed, described what infrastructure should be built along them, and recommended what transit services should be provided in various locations.

Both FDC and Fukuoka City have taken the proposal into serious consideration. A series of meetings was held to discuss the proposal and to develop a scope of work for making our own mobility strategy. FDC's UDWG now plans to start developing its own mobility strategy in fiscal year 2013-2014. This action proves the second Master Class was as successful as the first one.

The Master Class was the catalyst for another small but important step. Mr. Robert Rijken, Consular Officer of the Consulate General of the Kingdom of the Netherlands in Osaka came to Fukuoka to deliver the closing remarks in the public forum at the end of the Master Class. He took this opportunity to announce the exciting news that KLM will start direct flights between Fukuoka and Amsterdam in April 2013. FDC also received a visit from the Ambassador of the Netherlands to Japan that included a discussion of future collaboration between his country and Fukuoka and Kyushu.

The Master Class program, which started as a joint venture between two organizations, Stadslab and FDC, has gone far beyond its initial intent and laid the foundations for collaboration between two gateways, one in Europe and one in Asia.

An expert meeting to be held in June 2013 will be the closing event of the two-year Master Class Fukuoka. We are all looking forward to that event and to continuing collaboration in the future.





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## Participants & Staff

### Design team:

Participants:	Nikki Mulder (Netherlands) Jantine de Munnik (Netherlands) Kevin Battarbee (Finland) Mona Hajibandeh (Iran) Bihter Almaç (Turkey)	
Local partners:	Toyohisa Tanaka (Fukuoka City) Shintaro Nakamura (Fukuoka City) Teppei Kawakami (Nishi-Nippon Railroad) So Matsuki (Nishitetsu)	
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**Jantine de Munnik** (1981) graduated in Urbanism at Delft University of Technology (2005). Jantine has worked as an urbanist at an engineering company, an architecture office and now for the municipality Westland (NL). Ranging from small scale designs for public spaces, to large transformations of industrial areas and expansions, Jantine has done it all. Primarily Jantines expertise is working on an abstract level, analysing problems but switching to concrete situations and solutions easily. Skills that proved to be very usefull during the Masterclass.

Being fascinated by Japan, its culture, its food and its architecture, Fukuoka was Jantines first experience within the borders of Japan. The overall impressions was overwhelming. After the first cultureshock, the lasting impression that Fukuoka made on Jantine was that of a human-scale city, with great food, loads of potential, and some missed opportunities.. and some more great food. Overall a very nice city, worth another visit. And with some spatial interventions, it has the potential of beeing an even a greater city to visit, pass by or settle down.

The masterclass, with its very short timeframe was a real pressurecooker, a little hectic, but with loads of opportunities to share knowledge and design views. The results looked impressive, especially bearing in mind the short amount of time. The Masterclass proved to be a nice and usefull extension of professional (and personal) knowledge and network.



**Mona Hadjibandeh** (1984) graduated as an Urban designer at the University of Tehran in 2010 and is currently working on her Phd with her proposal for sustainable development. Besides her research, Mona is teaching urbanism history to undergraduate students at the University of Tehran.

Next to her research and teaching activities, Mona is working as a consultant at Architectural and Urbanism Consulting Engineers Co. in Tehran.

Mona enjoyed her stay in Fukuoka. "It's a people friendly city": the cities proportions; Open urban spaces versus the shapes and form of the build environment and the scale of the city as a whole and the human perspective. She experienced Fukuoka as a structural, functional city with a low pollution rate.

Mona applaudes Fukuoka DC for hosting the Masterclass. It shows that the city is not afraid to gain professional experience and expertise by looking across its own, but also the national borders. Fukuoka is seeking the best solutions for its own future, and Mona is sure that this approach will get them there.

As for the Masterclass, Mona gained a lot from this international professional experience. The short amount of time to work intensively with people from all over the world fully tested her own abillities as a professional.



**Bihter Almaç** (1985) is a Phd student at Istanbul Technical University, Architectural Design Program. Also, she works as a research and teaching assistant at the same university in the Department of Architecture, since 2010.

She currently works as a team member in the 'Other Heads' group and tutors first year undergraduate students. She studied architecture (BA) in Istanbul Technical University between the years 2004 and 2009.

Her graduation Project, was awarded with an encouragement award in the Archiprix Turkey '09. She holds a Master of Science degree from ITU Architectural Design Program, with a thesis 'Mekan Kıvrımları (Folding of Places)'. Her main interests are: theory of architectural design, the idea of folding in designing, design narratives in urban complexity, otherness in designing experience and education in architectural design. Recently she was awarded as Graduate Scholar in Design Practices and Principles Conference of Common Ground. In September '13 she will be starting her Phd by Design in Bartlett, UCL, London.

Bihter is known for being a Japan enthusiast. Even though she had never been to Japan before the Masterclass, she has gone back and forward ever since. Within the Masterclass program she showed her excellent graphic skills, creativity, as well as her people skills.



**Kevin Battarbee** (1975) was born in Turku, Finland. He graduated in Architectural Engineering at Tampere Polytechnic University in 1999. Since early 2000 Kevin is a project architect at Inbo, a multidisciplinary Dutch practice active in architectural design, engineering, urbanism and consulting. Over the years Kevin has acquired an extensive experience with end-user oriented architectural design projects ranging from 200 to 40.000 sq.m. GFA.

In addition to his professional training in Finland he studied architecture and branding at the Architectural Association Summer School in London. Further, he followed the sLIM Urban Deltas curriculum on adaptive delta region development and contributed to research on climate-proof waterfront urban development strategies for the greater Rotterdam region. Kevin is most triggered by multidisciplinary assignments, mixing abstract and conceptual thinking with specific technical know-how and new fields of experience.

Fukuoka got Kevin right from the start. "It's hard to remember another city so welcoming and illegible at the same time. A vibrant foodie heaven, this seaside city is heavy on infrastructure and big on the fun factor. The scale of future development potential was immediately evident, but the complexity of exploiting it unraveled slowly".

Kevin found the assignment - to arrive at spatial solutions through traffic-oriented development - challenging and intriguing, pulling him out of his comfort zone. Working immersed in a new culture as strong as Japans means questioning pretty much everything (you think) you know. A learning experience unlike any Kevin previously experined. He valued the opportunity of meeting the challenge and extending his professional network across cities, countries and continents.



Nikki Mulder (1980) got fascinated with infrastructure during her graduation project in Architecture at the TU Delft in 2008. Part of the design was a road that would cut through the Green Heart, a cultural landscape in the center of four Dutch main cities. This recreational road curved around the landscape to show the user the beauty of its surroundings. The flow of the road and the connection with its surroundings has fascinated her ever since.

For the Fifth International Architecture Biennale Rotterdam (IABR 2012), while working for One Architecture, she did research on Infrastructural Nodes that resulted in an integral exhibition object. The main topic was the network node: a distributed network of smaller nodes that serve different means of transportation.

Currently, Nikki is working at the internationally reknown office of OMA. She is working on Forum, a mixed use building in the center of Rotterdam. The flow and connection are an integral part of the design. The different functions of the building all relate to a central void. Here the users visually connect although their paths are spread out over multiple stories.

Nikki has a fascination for infrastructure. Not only its design, but also the way it flows (or doesn't). In Fukuoka the freeway curves beautifully around the edge of the city, just on the seafront. The physical connection of two parts of the city and the visual connection from and to its users fascinated her.

"In Japan people are organized. Mostly they will follow the rules, even if the rules are not as organized as they could be. During the Masterclass we questioned these rules, the layout of the public transport, but also the way the public space is organized. We saw opportunities in pedestrian pathways and to clear connections between the city centers of Fukuoka.

Fukuoka is a diverse city that has so many potentials in terms of location, atmosphere, urbanism and architecture. It's on its way of becoming a main hub in Asia and there is even a direct flight to Holland!"



Rick de Lange (1985) is a graduating architecture student architect (MArch) at the Academy of Architecture and Urbanism (AAS) Tilburg. He holds a bachelor in architecture and construction engineering.

Since 2005 he's been working as a (junior) architect at several national and international renowned architectural and engineering offices such as Meyer & Van Schooten, [Oosterhuis\_Lènàrd] ONL and Grontmij BV. Rick has gained severe experience in designing, sketching and engineering for both small and large scale projects.

It being his second visit to Fukuoka, and his second attendance to the Masterclass, Rick shows his enthusiasm towards Fukuoka and his interest in international developments in architecture and urban strategies. This second time around he had the opportunity to strengthen his network and using his previous experience for the better during this Masterclass. Building on the results of the previous Masterclass he was in the position to provide the other participants with information about the city, contextualizing ideas and managing the proces towards a spectacular final result.

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