Hanoi at Cross-Roads: Streets for People or for Cars?

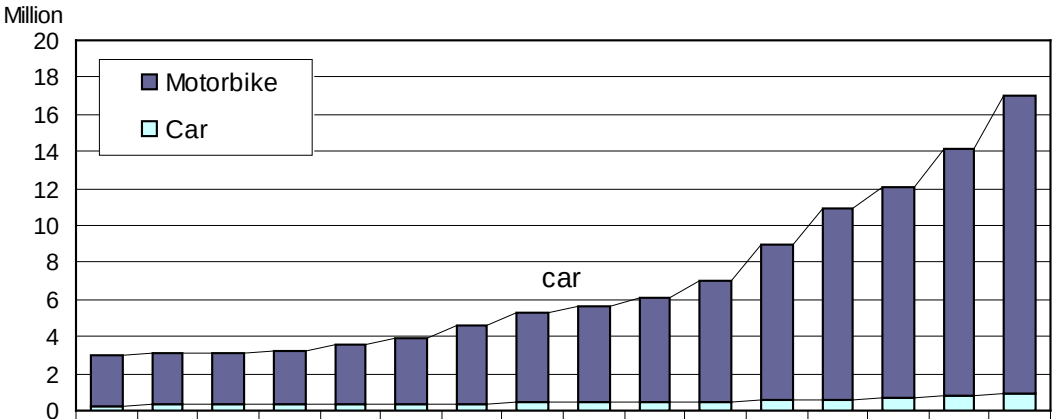
An introduction to a practical framework to support healthy public transit which can be adopted for Hanoi: the 3D approach – Summary

Author: Stephanie Geertman, consultant for HealthBridge Canada in Vietnam

Presented at Workshop "Walkability in large Vietnamese cities and international experiences"
Published in Vietnamese Urban Planning Journal (*Tap Chi Xay Dung)* 2010

I) HEALTH, WELL-BEING & URBAN TRANSPORT AND URBAN DESIGN

Today in many newly developing countries the trend is to build car-based cities, which is a mayor concern for public health, and general well-being of citizens. Car-based cities first developed in the USA in the 1930s, and by the 1950s and 1960s most cities around the world transformed their urban fabric from people-based to car-based. This resulted in more pollution, more traffic injuries and death, and far less purposive physical activity (travel by foot or bicycle) which in turn led to an increase in obesity to epidemic levels, and to resultant high rates of non-communicable diseases such as diabetes, stroke, cancer and heart disease. Car-based infrastructure is also far more expensive to operate and maintain (for road building and repair, provision of car parking, fuelling and repairing of vehicles, and so on). The vast space requirements of the cars meant significantly less space for playgrounds, parks, and other amenities. Car-based infrastructure also contributed to social isolation, which is in turn associated with perceived and actual danger, so that fewer people spend time outdoors or know their neighbours, which in turn has negative effects on people's physical and mental health, especially for children and the elderly.



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Motorbike	2.77	2.81	2.85	2.90	3.28	3.58	4.21	4.83	5.20	5.60	6.48	8.36	10.27	11.38	13.38	16.09
Car	0.25	0.30	0.29	0.30	0.32	0.34	0.39	0.42	0.44	0.47	0.49	0.56	0.61	0.68	0.77	0.89

Table 1: Growth in motorized traffic in Vietnam, 1990-2005.
Source: Kenichi Ohno – Vietnam Development Forum, March 2007

The serious negative effects of car-based infrastructure eventually led to a reaction in which many cities have reclaimed space from cars to benefits people. Since the 1980s, many previous car-based cities (among others, Melbourne, Bogotá (Box 1), Curibita (Box 2) and Copenhagen) have reconquered space for people, and largely banned cars from their inner city cores. At the same time, however, in many countries where the process of development started later, such as Vietnam, city development, or modernization, is again based on building cities for cars and not for people. As such, in Vietnam all negative implications on health, well-being of citizens and negative economic impacts which accompany a car-based city are today repeated in Vietnamese cities. And as such, the problems that Vietnamese

cities face are not new. They belong to the most critical issues and problems that cities around the globe face today and will face in the future due to automobile use. Table 1 shows the dramatic increase in motorized traffic in Vietnam from the 1990s to 2005.

	
EUROPE 1970S	HANOI 2010

Issues including traffic congestion, air pollution, climate change, lack of social interaction, injury and death due to motor vehicle collisions, physical inactivity levels, noise, inefficient use of money and space, and poor quality of life, all of which are strongly associated with automobile and motorbike use; traffic injury and death alone are a major issue (Box 1). In Vietnamese cities, and in particular Hanoi, the car/motorbike based urban development is greatly affecting quality of life, public health and the sense of well-being in the city.

Simply stated, greater levels of automobile and motorbike use decrease the liveability of a city. Cities that put people first, not cars, are healthier, safer, more prosperous, and happier places for everyone. How we design our cities is the first step in achieving this goal.

HealthBridge recommends the 3 D approach to be adopted for Vietnamese cities. This approach has proven in several other cities in the world that it can improve the conditions for walking, cycling and transit use in cities: density (of jobs as well as residences), diversity (mixed use areas, increasing access rather than trying to focus on mobility), and design (considering such issues as connectivity, safety and attractiveness).

This approach gives a good alternative to some other approaches used in Vietnamese cities at present, such as requiring motorcycle helmets or using speed bumps to slow traffic on some roads. While these approaches are only focussed on safety, the 3D approach has multiple benefits. It will move people from cars and motorbikes to public transit and it will increase the amount of pedestrians in the cities. And more pedestrians means less congestion, less noise, less air pollution, fewer traffic injuries, and livelier, more vibrant, more sociable streets and thus more liveable communities.

There are now numerous documents, videos, websites and other resources available to make the work easier; perhaps best of all, more and more cities around the world are adopting these principles to make themselves more attractive to their residents. With so many positive changes possible, and the great popularity of more liveable cities, why not start the work now?

II) DENSITY, DIVERSITY AND DESIGN (3DS) – AN APROACH FOR HEALTHY CITIES

Density refers to the number of households and jobs per hectare. Diversity refers to land use mix,

housing diversity, and the presence and variety of retail and service opportunities in neighbourhoods. Design refers to street design, street connectivity for pedestrians and cyclists, and the quality of the pedestrian environment.

The 3Ds operate together; it is not possible to create a good environment for walking, cycling and public transit by focusing on one or two and ignoring the other factors.

DENSITY: "Liveability is density done well"

Density affects travel behaviour through its impact on the distance between destinations as well as on the number of destinations that can be reached by active modes (walking/cycling) and transit. When there are many jobs and households in a given area, transit becomes more viable and provides the "critical mass" needed to support retail development. Research has shown that as density increases, time spent travelling and vehicle kilometres travelled (VKT) decline, while walking, bicycle, and transit use increase. For instance, a doubling of residential density can lead to a 20-30% reduction in VKT; a 25% increase in residential density has been show to lead to a 23% increase in the odds of walking for travel to places other than work (Holtzclaw et al., 2002).

How does density decrease VKT? One major way is through increasing the opportunities for nearby destinations and for quality transit service. The more people, jobs, retail and services in a given area, the more likely that people will be able to take transit or use active transport to reach their needed destinations.

Cities with high density, as Hanoi, often consider the density a problem rather than a benefit. Many planners seek to reduce rather than maximize density. While certainly too much density—as tends to occur in urban slums, and which characterizes many of Hanoi's older urban fabrics—can detract considerably from quality of life, too little density can as well. The low levels of density in many North American and Australian cities leads to sprawl and all the resulting problems of high expenditure on transport, frequent injuries and deaths on roads, pollution, social isolation, and lack of outdoor play opportunities for children and recreational opportunities for adults.

For Hanoi it is vital to examine the densities in the inner city and in the new areas developing in the suburbs. Our assumption is that the inner city needs lower densities than at present, and the new areas need more density to be Livable and encourage walking.

But density is not enough. Density can only work to make cities more liveable when areas are characterized by diversity.

DIVERSITY: the benefits of mixed-use areas

Diversity is commonly called "mixed use", referring to the degree to which different activities (residential, commercial, retail/service) are located near each other. Thus a mixed-use neighbourhood would have a variety of homes, workplaces and services that people can easily reach by walking, cycling or public transit. Mixed-use refers both to the existence of an activity (does the store exist?) and to how close that activity is to residents (how close is the store?).

As with higher density, research consistently shows that people walk and cycle more in mixed-use areas. Mixed land use is important both for residences and employment areas. When people walk or cycle to work, they are more likely to walk and cycle to errands as well. But if services are not near their place of employment, they will not be able to walk or cycle to reach them during the day, thereby limiting their use of active transport. It is thus important to ensure that residential and employment areas are mixed-use and have services and amenities close by.

What is important to note is that there should be a mix of activities regardless of the type of neighbourhood. It is also importance to note that public space is encouraged even in the more commercial neighbourhood centre. People generally reside and often work in buildings, but much of life occurs outdoors, and cities do not thrive without high quality open spaces available to a full mix of urban residents. Residents need access to public space in every part of the city, not just in a few selected places.

The new areas in Hanoi are not mixed-use. Housing areas only have residences, without any services nearby. For Hanoi it is important to start developing new neighborhoods which have *housing diversity, more services (many destinations nearby), neighbourhood schools*, a*ccess to public transit, neighbourhood parks and open spaces. This requires strategic planning, new policies supporting mixed-use in neighborhoods, and thus it requires a different approach to urban design.*

DESIGN: respecting pedestrians

Density gives the city enough people to ensure diversity. Diversity focuses on creating a city that is interesting and stimulating to live in and that allows people to walk and cycle to their destinations by ensuring that there are places within a reasonable distance. The “design” aspect of the built environment focuses on creating functional, attractive and safe places for everyone in the community. Design of the built environment is too large a subject to address in depth for our purpose, which is to design cities which invite people to walk and cycle and use public transit instead of the motorbike and the car. We thus focus mainly on street design. It is proven that good design makes walking and cycling more enjoyable and thus attracts more people to these urban-friendly modes of transport.

When the quality of the pedestrian, cycling and transit environment is very poor with regard to security, comfort, convenience and prestige, people are likely to purchase a private automobile as soon as they are able (Wright and Fulton, 2005).

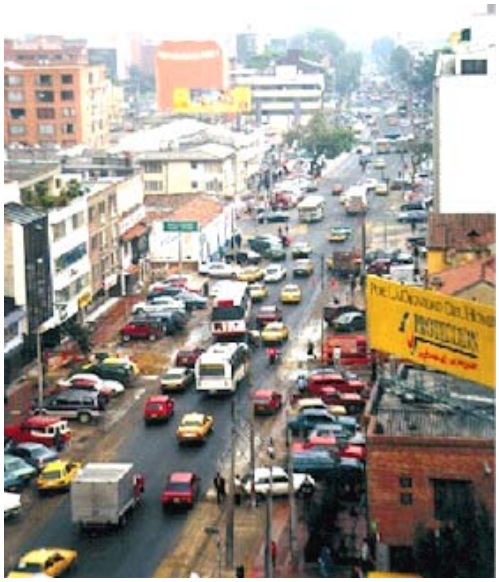
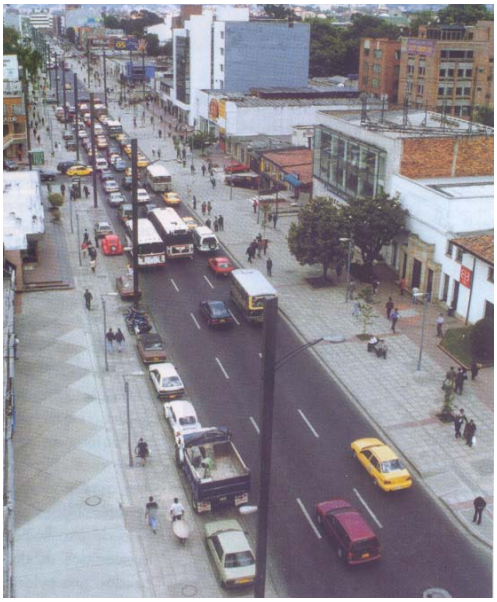
Streets should be safe as well as attractive. The needs or desires of some to move quickly need to be balanced by the rights of others to move safely. Safety encompasses crime as well as road injury. Desolate streets full of vehicles but lacking pedestrians and “street life” in terms of vendors, sidewalk cafés, and social activities are more likely to be unsafe in terms of crime as well as road injury.

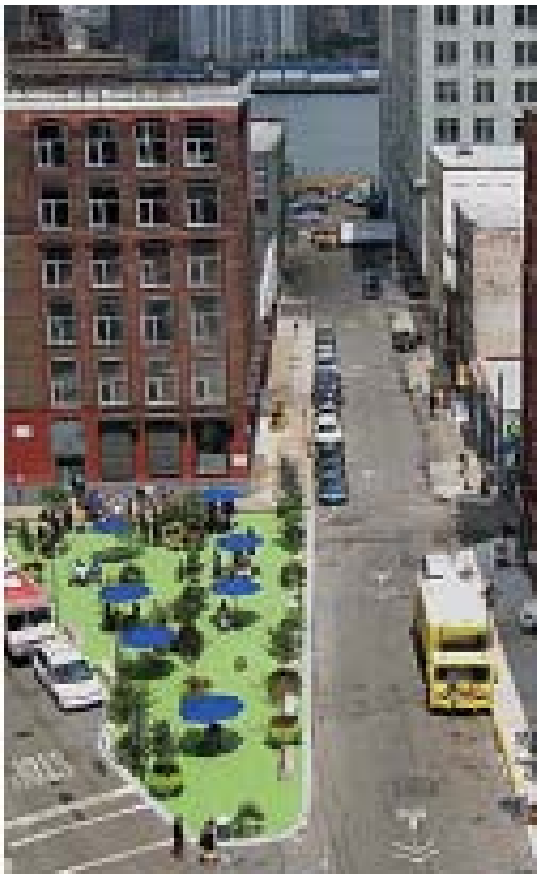
There is a contradiction between the goals of movement and access. When movement is maximized, higher speeds and fewer intersections and signals are desirable. As a result, there is less access to the facilities along streets. Streets that provide better access to a number of destinations, meanwhile, tend to involve slower movement. This contradiction can be greatly diminished or even disappear if the emphasis changes from movement (mobility) to access: from a focus on traveling longer distances to reach destinations, to a focus on ensuring that destinations are close to residences. Aspects to address in design are *Street connectivity for pedestrians, enabling cycling, good quality of the pedestrian and cycling environment.*

Good urban design is the foundation upon which we can build liveable cities. But urban design alone is not enough. Transportation policies must encourage and support people to walk, cycle and take public transit to meet their travel needs, or the benefits of good planning will be partly lost. Similarly, automobile and motorbike reduction and restriction policies are vital in order to lessen the negative impacts that automobiles and motorbikes have on society. Whatever loss there may be in terms of convenience will be more than compensated for in improvements of health, safety, living environment and quality of life.

The 3D approach requires a strategic planning approach supported by new policies among others: support pedestrians right of way, forbid motorbikes to drive on sidewalks and in parks, and new policies that support the design of a Livable City, a city for people not cars.

III) LEARNING FROM OTHER CITIES

	
BOGOTA	**BOGOTA – CICLOVIA**
	
BOGOTA ‘BEFORE’	**BOGOTA ‘AFTER’**



NEW YORK 2007	NEW YORK 2008

CURIBITA BTS	AMSTERDAM

<table>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td>AMSTERDAM</td><td colspan="2">COPENHAGEN</td></tr>
<tr><td>  </td><td colspan="2">  </td></tr>
<tr><td>COPENHAGEN</td><td colspan="2">COPENHAGEN</td></tr>
</table>

Box 1: Learning from Bogotá

Bogotá designs transportation for people, not cars

"In Bogotá, where 85 percent of the people do not use cars for their daily transport, is it fair that cars occupy most of the space on the streets?" Enrique Peñalosa mayor of Bogotá, Colombia 1998.

In just a short time, Bogotá, home to 7 million people, was reshaped into a city so easy to negotiate by public transportation that people actually voted in favor of outlawing cars in the city during rush hour by 2015. In just a few short years, the city has become a success story that cities around the world – from Mexico City to Shanghai – are aiming to copy.

For decades Bogotá had been inundated by urban problems typical of a major city in a developing country. Pollution from cars and buses shrouded the city, much of it trapped by the surrounding mountains. The city's population has boomed—more than 140,000 people move to Bogotá each year. About half of them immigrate from the countryside, many displaced by Colombia's civil strife. Rampant crime and corruption have hampered past reform efforts. Rising incomes have lead to more cars and more gridlock. About 70,000 new cars hit the roads in this old colonial city every year.

"Once everyone could afford to have a car, no one could get anywhere because of the traffic," said Peñalosa.

After taking office, Peñalosa implemented a number of simple measures designed to make living in the city easier. He built schools, paved roads, ran sewers to poor neighborhoods, repaired parks, and instituted policies to restrict automobiles. "At first, I was almost impeached for getting cars off sidewalks," he remarked.

But Peñalosa pressed ahead with his transportation reforms. And as the city became easier to navigate, support for his efforts grew. The city built 70 miles of bicycle routes and closed several streets to cars, converting them into pedestrian malls. More drastically, the city began to restrict car use during rush hour, banning each car in the city from the downtown area 2 days a week, based on the license plate number. The results were dramatic: the average commute time dropped by 21 minutes, and pollution was reduced significantly.

The city had been debating a multi-billion dollar subway system for decades. But Peñalosa decided to copy the significantly cheaper rapid transit bus system that had turned Curitiba, Brazil into a model city for effective public transportation.

The initial $350 million, 38 kilometer TransMilenio system was up and running in less than two years. The buses, running in separate lanes down the center of the city's main arteries, are able to carry 780,000 people a day at an average speed of 26 kilometers per hour — considerably outpacing cars and private buses. Estimates have found that the system saves people an average of 300 hours of commuting time annually.

Unlike expensive subways or elevated trains, the TransMilenio actually runs at a profit. And the city plans to add a number of new lines to the system by 2015, so that 85 percent of residents will live within 500 meters of a bus station.

Not only is Bogotá now easier to travel around in, Peñalosa's reforms have helped make the city considerably safer. Since 1998, crime rates have dropped dramatically. For instance, seven years ago there were 84 homicides per 100,000 people; today the rate has dropped to 30. In comparison, Washington, DC had 52 homicides per 100,000 people in 2002.

Peñalosa attributes his success in Bogotá to focusing on improving the lot of people, not their cars. "All over the developing world resources are used to help the affluent avoid traffic jams rather than mobilizing the entire population," he says. People ask him why this is not done everywhere, if it is so simple and inexpensive. "I tell them the only issue is a political one. They don't want to take space from cars and give it to buses, bicyclists, and pedestrians," Peñalosa explained.

(summarized from http://archive.wri.org/page.cfm?id=880&)

Box 2: Learning from Curibita

The bus system of Curitiba, Brazil, exemplifies a model Bus Rapid Transit (BRT) system, and plays a large part in making this a livable city. The buses run frequently—some as often as every 90 seconds—and reliably, and the stations are convenient, well-designed, comfortable, and attractive. Consequently, Curitiba has one of the most heavily used, yet low-cost, transit systems in the world. It offers many of the features of a subway system—vehicle movements unimpeded by traffic signals and congestion, fare collection prior to boarding, quick passenger loading and unloading—but it is above ground and visible. Around 70 percent of Curitiba's commuters use the BRT to travel to work, resulting in congestion-free streets and fairly unpolluted air for the 2.2 million inhabitants of greater Curitiba.

A Hierarchical System of Bus Services
Curitiba's bus system is composed of a hierarchical system of services. Minibuses routed through residential neighborhoods feed passengers to conventional buses on circumferential routes around the central city and on inter-district routes. The backbone of the system is composed of the Bus Rapid Transit, operating on the five main arteries leading into the center of the city like spokes on a wheel hub.

Buses running in the dedicated lanes stop at cylindrical, clear-walled tube stations with turnstiles, steps, and wheelchair lifts. Passengers pay their fares as they enter the stations, and wait for buses on raised platforms. Instead of steps, buses have extra wide doors and ramps that extend out to the station platform when the doors open. The tube stations serve the dual purpose of providing shelter from the elements and facilitating the simultaneous loading and unloading of passengers, including wheelchairs, efficiently. This system of same-level bus boarding, plus the pre-boarding fare payment, results in a typical time of no more than 15 to 19 seconds at each bus stop.

The Intersection of Transit and Land Use Planning
Curitiba's Master Plan integrated transportation with land use planning, calling for a cultural, social, and economic transformation of the city. It limited central area growth while encouraging commercial growth along the transport arteries radiating out from the city center. The city center was partly closed to vehicular traffic, and pedestrian streets were created. Linear development along the arteries reduced the traditional importance of the downtown area as the primary focus of day-to-day transport activity, thereby minimizing congestion and the typical morning and afternoon flows of traffic. Instead, rush hour in Curitiba has heavy commuter movements in both directions along the public transportation arteries.

Other policies have also contributed to the success of the transit system. Land within two blocks of the transit arteries is zoned for high density, since it generates more transit ridership per square foot. Beyond the two blocks, zoned residential densities taper in proportion to distance from transitways. Planners discourage auto-oriented centers and channel new retail growth to transit corridors. Very limited public parking is available in the downtown area, and most employers offer transportation subsidies, especially to low-skilled and low-paid employees.

The BRT—A Success Story
The popularity of Curitiba's BRT has effected a modal shift from automobile travel to bus travel. Based on 1991 traveler survey results, it was estimated that the introduction of the BRT had caused a reduction of about 27 million auto trips per year, saving about 27 million liters of fuel annually. In particular, 28 percent of BRT riders previously traveled by car. Compared to eight other Brazilian cities of its size, Curitiba uses about 30 percent less fuel per capita, resulting in one of the lowest rates of ambient air pollution in the country. Today about 1,100 buses make 12,500 trips every day, serving more than 1.3 million passengers—50 times the number from 20 years ago. Eighty percent of travelers use the express or direct bus services. Best of all, Curitibanos spend only about 10 percent of their income on travel—much below the national average.

summerized from: http://www.urbanhabitat.org/node/344

Box 3: Amsterdam: Bikes have overtaken cars

The City of Amsterdam has made great efforts to promote greener means of transport, and successfully. The citizens now prefer bicycles over cars.

With roughly 750,000 residents, Amsterdam is the biggest city of Holland and part of the great metropolitan area 'Randstad'. The Dutch are fond of biking, and Amsterdam has always been a popular city for cycling. And now bikes have overtaken cars! Studies show that in the period 2005 to 2007 residents used their bicycle an average of 0.87 times a day and their car 0.84 times. Approximately three out of four of Amsterdam residents own a bicycle, and bicycles are the most commonly used means of transport.

The city provided the framework
Over the last thirty years, the municipal authority of Amsterdam has worked hard on encouraging bicycle use by providing cycle paths and lanes, bicycle and pedestrian friendly roads and an extensive network of parking facilities for bicycles. The main bicycle routes through the city are part of the 'Hoofdnet Fiets' bicycle network, a complex network of bicycle routes through the entire city which ensures all of Amsterdam is safely and comfortably accessible by bicycle. These trends show that even in a wealthy city with high car ownership, good urban planning can ensure higher rates of bicycle than car use – and a far more liveable city as a result.

(http://ec.europa.eu/environment/europeangreencapital/green_cities_submenu/amsterdam_2010.html)

IV SUMMARY OF PRACTICAL DESIGN GUIDELINES FOR A LIVEABLE CITY

(FROM FULL PAPER)

Key recommendations include:

- Maintain high density in cities to make walking, cycling and public transit use feasible; density should be at least 200 residents and jobs per gross hectare;
- Create diversity in housing in all neighbourhoods to address different family sizes, income groups and personal preferences;
- Ensure that most or all residents live within 400 metres of six diverse uses and within 800 metres of 17 diverse uses, including but not limited to markets selling fresh produce and other food within those uses;
- Ensure that residents live within 1,500 metres of elementary (primary) schools and 3,000 metres of secondary schools, with the latter also readily accessible by public transit;
- Ensure that residents are within 400 metres of a transit stop;
- Have a city-wide parks and open spaces system that allows residents to live within 400 metres of a "pocket park" (small park) and within 800 metres of a neighbourhood park, with larger parks also scattered throughout the city and easily accessible by foot, bicycle and public transit;
- Recognize in transport plans that most travel occurs by non-motorized means and give priority in all such plans to walking, cycling and public transit;
- Consider "sense of place" when designing road systems;
- Improve the situation for those traveling by walking and cycling, including through the

following measures:

  - Maintain continuous sidewalks of sufficient width: at least 1.5 metres in mainly residential areas and 4.0 metres in commercial areas;
  - Have short block lengths (no more than 250 metres);
  - Have a linked open space system;
  - Provide other connectors where streets do not allow direct routes.

- Improve conditions for walking and cycling through other measures as well, including:
  - Slowing down traffic, especially in the newly developed urban edges;
  - Giving priority to cyclists and pedestrians at intersections;
  - Providing safe bicycle parking;
  - Planting roadside trees;
  - Keeping cycle lanes and paths clear of obstruction.
- Make the pedestrian and cycling environment appealing, for example by:
  - Ensuring that sidewalks are well-maintained: smooth and properly paved;
  - Keeping sidewalks clear of cars and motorbikes, construction waste, and other garbage and obstructions;
  - Actively reducing car and motorbike use to increase safety and pleasantness of walking and cycling;
  - Providing shade and shelter from rain;
  - Ensuring active ground floor uses and avoiding blank walls;
  - Providing sheltered transit stops with benches that do not block the footpaths;
  - Allowing limited streetside parking to create a barrier between pedestrians and traffic;
  - Placing entrances at the front of buildings for people not cars.

For the full paper contact: Stephanie@healthbridge.org.vn / hatran@healthbridge.org.vn