

SOCIALIST REPUBLIC OF VIETNAM
THE PEOPLE'S COMMITTEE OF HO CHI MINH CITY
MANAGEMENT AUTHORITY FOR URBAN RAILWAYS

SOCIALIST REPUBLIC OF VIETNAM
PREPARATORY SURVEY ON
BEN THANH CENTRAL STATION PROJECT

FINAL REPORT

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— ABBREVIATIONS TABLE —

ADB	Asian Development Bank
BTCS	Ben Thanh Central Station
C&C	Cut and Cover
CBD	Central Business District
BRT	Bus Rapid Transit
DFP	Department of Fire Fighting and Prevention
DOC	Department of Construction
DOF	Department of Finance
DONRE	Department of Natural Resources and Environment
DOSTE	Department of Natural Resources and Environment
DOT	Department of Transportation
DPA	Department of Planning and Architecture
DPI	Department of Planning and Investment
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EMoP	Environmental Monitoring Plan
EMP	Environmental Management Plan
EPC	Environmental Protection Commitments
ESC	Environmental Supervision Consultant
GDMH	General Department of Meteorology and Hydrology
HCMC	Ho Chi Minh City
HCM PC	The People's Committee of Ho Chi Minh City
HIDS	Ho Chi Minh City Institute for Development Studies
HOUTRANS	Ho Chi Minh City Transport Master Plan 2002~2004
IEE	Initial Environmental Examination
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau
LEP	Law on Environmental Protection
MARD	Ministry of Agriculture and Rural Development
MAUR	Management Authority for Urban Railways
MFA	Ministry of Foreign Affairs
MOCI	Ministry of Culture and Information, now is the Ministry of Culture, Sport and Tourism
MOF	Ministry of Fishery
MOH	Ministry of Health
MOI	Ministry of Industry
MONRE	Ministry of Natural Resources and Environment
MOST	Ministry of Sciences and Technologies

MOSTE	Ministry of Science, Technology and Environment
MOT	Ministry of Transportation
MOT	Ministry of Trade
MPI	Ministry of Planning and Investment
NEA	National Environment Agency
QCVN	national technical regulation
QCVN	national technical regulation
SEA	Strategic Environmental Assessment
STRASYA	STandard urban RAILway SYstem for Asia
TBM	Tunnel Boring Method
TCVN	Vietnamese Standard
UMRT	Urban Mass Rapid Transit
USM	Underground Shopping Mall
UNEP	United Nations Environment Programme
VNMB	Vietnam Marine Bureau
VEA	Vietnam Environment Administration
VEPA	Vietnam Environment Protection Agency

CHAPTER 1 INTRODUCTION

1.1 PURPOSE AND BACKGROUND OF THE SURVEY

1.1.1 Location of Object of the survey

Country : The Socialist Republic of Vietnam
Region : Ben Thanh Area, Ho Chi Minh City

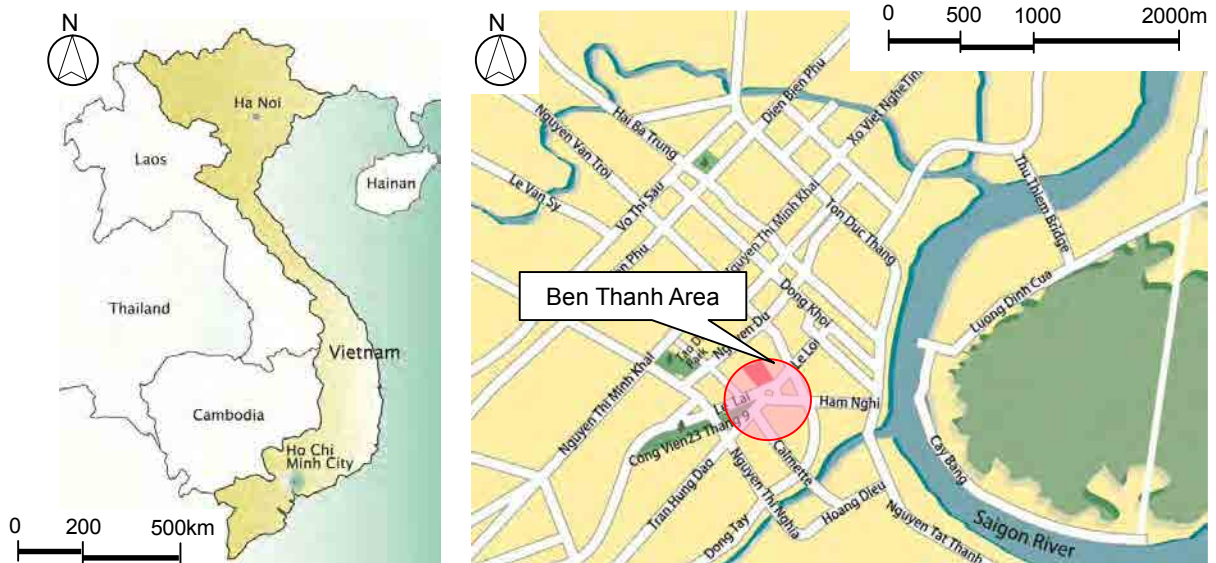


Figure 1.1 Location map of object of the survey

1.1.2 Purpose and Background of Survey

1) Background

The vicinity of Ben Thanh Station (a metro terminus) on Line 1 of the Ho Chi Minh City Urban Mass Rapid Transit (hereinafter “UMRT”), which is currently under planning of construction with an ODA loan from Japan, has long been a major urban hub centering on a market and attracting many city people. With inner-city trunk roads and a bus terminal located in close proximity, it forms a major transport terminus into which Metro Lines 2, 3a, and 4 will link, according to plans for the future. Thus, the neighborhood has high concentrations of people and urban functions, serving as a core of the economy, tourism, history, culture, and commerce. Meanwhile, it is poorly served by roads and other infrastructure, leaving the surrounding area with problems such as traffic congestion. A major issue for the neighborhood is to improve the local infrastructure.

A particular problem is the structure of traffic intersections, such as the roundabouts constructed during the days of French rule, which are unable to deal with the current surge in

vehicles and two-wheeled vehicles. Ensuring adequate separation between vehicles, two-wheeled vehicles, and pedestrians is also proving increasingly difficult. Thus the need for an improvement in transport infrastructure is evident and the neighborhood must deal with traffic-related issues including redevelopment of the road network, introduction of public transport to change travel behavior, and improvement of pedestrian spaces.

At the same time, demand is growing for infrastructure facilities associated with future metro station development, including a station plaza, access roads, and an underground pedestrian passageway. There are also calls to redevelop the bus terminal and other transport facilities. To provide visitors with a public space offering an enhanced standard of services and comfort, it is necessary to develop a quality urban space centering on the metro station and to consider the inclusion into this development project of commercial and other facilities financed using private capital.

2) Purpose

In consideration of above mentioned situation, the project which creates high-quality urban space centering around the metro station is to be performed. This project is intended to provide the city with a central interchange, improve the infrastructure (including construction of a station plaza) conducive to regeneration of the area, and establish commercial and other facilities using private finance. By increasing Ben Thanh Station's ability to attract passengers, the resulting quality urban space will increase the number of UMRT users, which will eventually lead to more stable business operations for UMRT.

The purpose of the survey described here is to conduct an investigation to verify the adequacy, effectiveness, efficiency, and other aspects of the improvement project in which private capital is used for the purpose of project implementation.

The specific approach is to investigate the current state of the area and the issues facing it, and then to elucidate the infrastructure improvement needs. A schematic infrastructure improvement plan is to be formulated in line with the opinions of the Ho Chi Minh City administration and related Vietnamese personnel and the trends they have outlined. The project is assessed in full consideration of these findings. Further, based on the proposed improvement plan, the cost of the project is estimated and a project scheme (including the anhk division and cost sharing between the public and private sectors) developed. Finally, the efficiency and effectiveness of the project is assessed and, based on the results of a project risk study, an overall assessment is delivered.

1.1.3 Necessity of Project

1) Necessity of Infrastructure

There is rising expectation that redevelopment of the area around Ben Thanh Station will accompany metro development, with people urging large-scale regeneration of the area. In response, a statutory urban plan aimed at regenerating the station area is under development. (NIKKEN SEKKEI LTD. is performing this service named as “The Formulation of Urban Construction Detailed Planning on Scale of 1/2000 and Urban Architectural Management Regulation at Level 2 for The Existing Center of Ho Chi Minh City” ordered by the Management Authority of Construction Planning Project of Ho Chi Minh City.) This plan will prioritize improvements to the area and stipulate land use and building conditions, urban design, the use of underground space, station plaza improvements, etc. In addition, since Metro Line 1 is already under tender for a contractor, an urgent issue is the formulation of a development plan that integrates surface and subsurface usage in compliance with the statutory plan and the plans for Metro Line 1. Such a plan will greatly contribute to urban regeneration in the area.

In consideration of above mentioned situation, the project which creates high-quality urban space centering on the metro station is to be performed. This project is intended to provide the city with a central interchange, improve the infrastructure (including construction of a station plaza) conducive to regeneration of the area, and establish commercial and other facilities using private finance. By increasing Ben Thanh Station’s ability to attract passengers, the resulting quality urban space will increase the number of UMRT users, which will eventually lead to more stable business operations for UMRT.

2) Consistence with Vietnam Government’s Policies

In “The Socio-Economic Development Strategy (SEDS) from 2001 to 2010”, Vietnam government officially announced the vision that the economy will become an industrial country by 2020. It is very important to provide the sufficient infrastructure for the sustainable economic development in order to enhance the economic growth and promote the industrialization and the modernization. Especially, the economic loss is huge by the chronic traffic jam in the metropolis like Hanoi City and Ho Chi Minh City, so that the infrastructure development in the metropolis has first priority among the various developments in Vietnam. Besides, from the viewpoint of the financial load reduction of the government the infrastructure development with the private finances is expected. Therefore the basic PPP infrastructure-related law came into effect in November 2010, which is however only Vietnam government trial efforts at enforcement.

3) Consistence with the Government of Japan’s Country Assistance Program

On the Japanese side, the government’s Country Assistance Program for Vietnam (July 2009) is promoting a PPP scheme that takes advantage of the expertise and technology of Japanese companies in the field of infrastructure development. In terms of project implementation, the scheme focuses on an improvement in the urban transport network as the core assistance in “urban railway, transportation and traffic, and communication network improvement”, which is categorized as a priority development area in the “promotion of economic growth and strengthening of international competitive ability.”

4) Japan's ODA for Railway Development in Ho Chi Minh City

The report "The Study on Urban Transport Master Plan and Feasibility Study in Ho Chi Minh Metropolitan Area (hereinafter HOUTRANS)" (2002-2004) produced by Japan International Cooperation Agency (hereinafter JICA) sets the target share of public transport at 45-50% for the city. This target has been adopted in the basic policy of the Ministry of Construction.

Currently, the Government of Japan is supporting in constructing Metro Line-1. JICA conducted HOUTRANS in 2002-2004, and 5 urban railway lines were proposed in Ho Chi Minh City. Based on HOUTRANS with some modifications of the alignments and added one new line, Ho Chi Minh City transport master plan was approved by the Prime Minister in 2007. Line-1 was selected for the pre-feasibility study project in HOUTRANS. Japan Bank for International Cooperation (JBIC, currently JICA) funded on the feasibility study (SAPROF) on the Line-1 in 2006, which was extended to Suoi Tien Bus Terminal. In 2007, the Vietnamese and Japanese governments agreed that the Government of Japan would provide Yen loan to invest in this project and the consultant service started in Feb 2008. This Line-1 has 19.7km long (2.2 km for underground, 17.2km for elevated, 0.3km for transition). For Line-1, it was decided by the Vietnamese Government to adopt "Standard Urban Railway System for Asia (hereinafter STRASYA)" which is a Japanese technical standard for urban railways defined by Ministry of Land, Infrastructure and Transport, Japan in 2007.

5) Other Donor Activities for Railway Development in Vietnam

Besides Line-1, Line-2 (Ben Thanh – Tham Luong) project is supported by the Government of Germany (KfW), Asian Development Bank (ADB) and European Investment Bank (EIB) among other 6 lines.

In Hanoi, the Government of Japan has committed in supporting in urban railways as well. Currently, there are two urban railways (Metro) under the support of the Government of Japan, Line-1 and Line-2, while there are 5 lines approved in the Master Plan in Hanoi, and Line-3 is under preparation of the support by the French Government. In case of Hanoi, JICA also supports the urban development surrounding the railway stations of aforesaid two metro lines by the technical assistance. However, this kind of technical assistance has not been conducted in Ho Chi Minh City.

As illustrated above, the cooperation on urban railways in Ho Chi Minh City as well as Hanoi is very important and competitive among developed countries which want to sell their advanced urban railway system strategically. In this regard, the support on Ben Thanh Central Station is very important from the view point of not only transport planning and railway network of Ho Chi Minh City but also the strategic promotion of Japanese railway and urban development system.

6) Necessity from Users' Viewpoints

Ben Thanh area, which has a high concentration of urban functions in the center of Ho Chi Minh City, is a major urban hub attracting many city people. In this area, the underground station of UMRT Line 1 is planned to be a central station receiving 4 UMRT Lines which are 1, 2, 3a, and 4. Ho Chi Minh City is planning to redevelop the road network and introduce public transport to change the travel behavior of its citizens. Therefore, in near future UMRT

Lines are expected to be the main traffic measures for city people to reach Ben Thanh area. According to above mentioned viewpoints, the visitors to the underground development around Ben Thanh Central Station are estimated to be mainly city people who arrive at this area by UMRT Lines. Especially they are the commuters to this area and the shoppers visiting the underground development commercial facilities. In addition, as the underground bus terminal is planned around the station in the statutory urban plan, it is expected that this facility shall be visited by bus passengers and passengers transferring between UMRT and bus. Thus it is very important for city people coming to this area to be able to move from the UMRT station to the destination safely and comfortably. It is necessary that the station is connected to the surrounding area seamlessly and the visitors can move without the disturbance by motorbikes and automobiles on ground.

UMRT Line 1 is currently under construction planning funded by ODA loan from Japan and it is expected to commence construction soon. With the same timing, this project, which provides the station plazas and the passageway centering on the station and establishes commercial facilities, is intended to create a high-quality urban space for visitors' safety and comfort.

1.2 OUTLINE OF THE PROJECT

1.2.1 Scope of the Project

The services comprise an investigation of the area around Ben Thanh UMRT Station, Ho Chi Minh City, Vietnam.

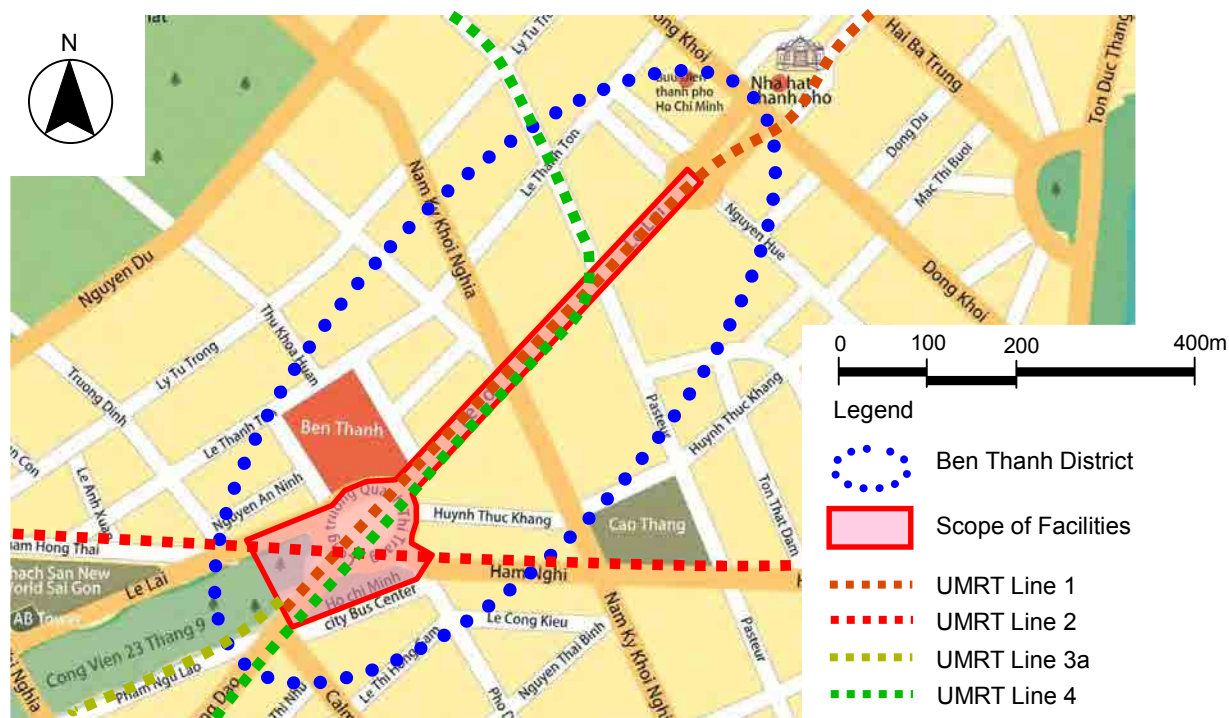


Figure 1.2 Map of project scope

1.2.2 Key Points of the Project

The key points of this project are as follows:

- The aim of the project is to establish a hub that acts as a nodal point in the transport network while developing the vicinity, taking the perspective of integrated regional development.
- While conforming with the Ho Chi Minh City master plan, the project also stresses integration between surface and subsurface development, aiming for comprehensive development that includes both above-ground and below-ground sections.
- An “underground traffic network system” will be developed, centering on the metro station and linking to underground parking and a bus terminal through connections to the underground shopping area and adjacent private buildings, thereby aiming at a comprehensive development of the entire area.

- 1) Formation of a central hub for Ho Chi Minh City (economy, tourism, history, culture, and commerce)

A public space will be created that integrates surface and subsurface developments centering on UMRT Line 1 Ben Thanh Station. Adjoining the public space, private-financed commercial and other facilities will be constructed to form an underground continuum with buildings in the neighborhood, thus establishing urban amenities offering greater convenience and more local connectivity. This quality public urban space, linked intimately with the neighborhood, will act as an urban core for economy, tourism, history, culture, and commerce.

- 2) Using private capital to establish a transport node around the metro station and an improved underground shopping area

Ben Thanh Station on UMRT Line 1 is to be a future junction with Lines 2, 3a, and 4. Inner-city trunk roads pass close by above it and there is a bus terminal in close vicinity, so the neighborhood acts as a major transport terminus. Taking advantage of these circumstances, the area is to be developed into a quality node in the urban transport network.

Work to improve public transport facilities, including the bus terminal and underground parking along with organic links between them such as an underground walkway, will be the responsibility of the public sector. Meanwhile, in the underground plaza and other areas, commercial premises will be constructed through private-sector initiative so as to create an underground space for visitors that offers improved amenity, fun, and comfort.

- 3) Coordination with surrounding developments and formulation of underground pedestrian network

The metro station, underground station plaza, and underground shopping area will be connected on a single level with the subsurface floors of adjacent buildings. As the nearby buildings are constructed, this will evolve into an underground pedestrian network connecting various transport amenities into a transport node. With its increased accessibility, the network will help to draw more visitors to the underground premises, which in turn will increase the profitability of the underground shopping area and other commercial activities. It will also add to the asset value of the nearby private properties because they also become more accessible. Thus, the project area will gain in importance as an urban core while at the same time contributing to improved local integration.

- 4) Use of underground space above metro section as public space

The underground plaza, passages, and shopping area will make use of the space above Ben Thanh Station and will be developed in conjunction with its construction. This will reduce the cost of each part as compared with developing it as an independent project, enhancing profitability for each project owner.

- 5) Integrated surface and subsurface development

To deliver a comfortable and usable underground space, it is essential to design the underground plaza and other subsurface spaces with open ceilings, hence providing integration with aboveground developments. Further, from the viewpoint of consistency with the statutory urban plan implemented by Ho Chi Minh City, the plan for development of the underground

space must include improvements to surface roads.

1.2.3 Outline of the Project

This project is a infrastructure development to make the Ben Thanh area a high quality urban space as a traffic node involving the Ben Thanh Central station intersectionally receiving 4 lines of UMRT Line 1, 2, 3a, and 4. Considering the future UMRT lines in addition to Line 1 which has already been on the tendering stage, the smooth transfer from one line to another and the high connectivity of Ben Thanh station and other traffic facilities (bus terminal, taxi bay, and parking) will be ensured. Furthermore the underground passageways can be connected to the basement of surrounding new buildings. In this project the underground plaza and passageway will be constructed on the basement 1st floor, so the comfortable urban space in the center of Ho Chi Minh City can be created and the underground shopping mall will be formed with retail stores on the both sides of the passageway in approx. 500m underground space up to Opera House station.

Scale of Project	: Area of basement 1st floor	: 52,000m ² (by estimation)
	(Including the underground shopping mall and a part of station facilities)	
	Length	: approx. 780m
	Width	: approx. 44m & 140m
Depth of facilities	: Level of basement 1st floor	: approx. GL-9m
	Excavation level	: approx. GL-12m



Figure 1.3 Overview of Ben Thanh Market and September 23rd Park

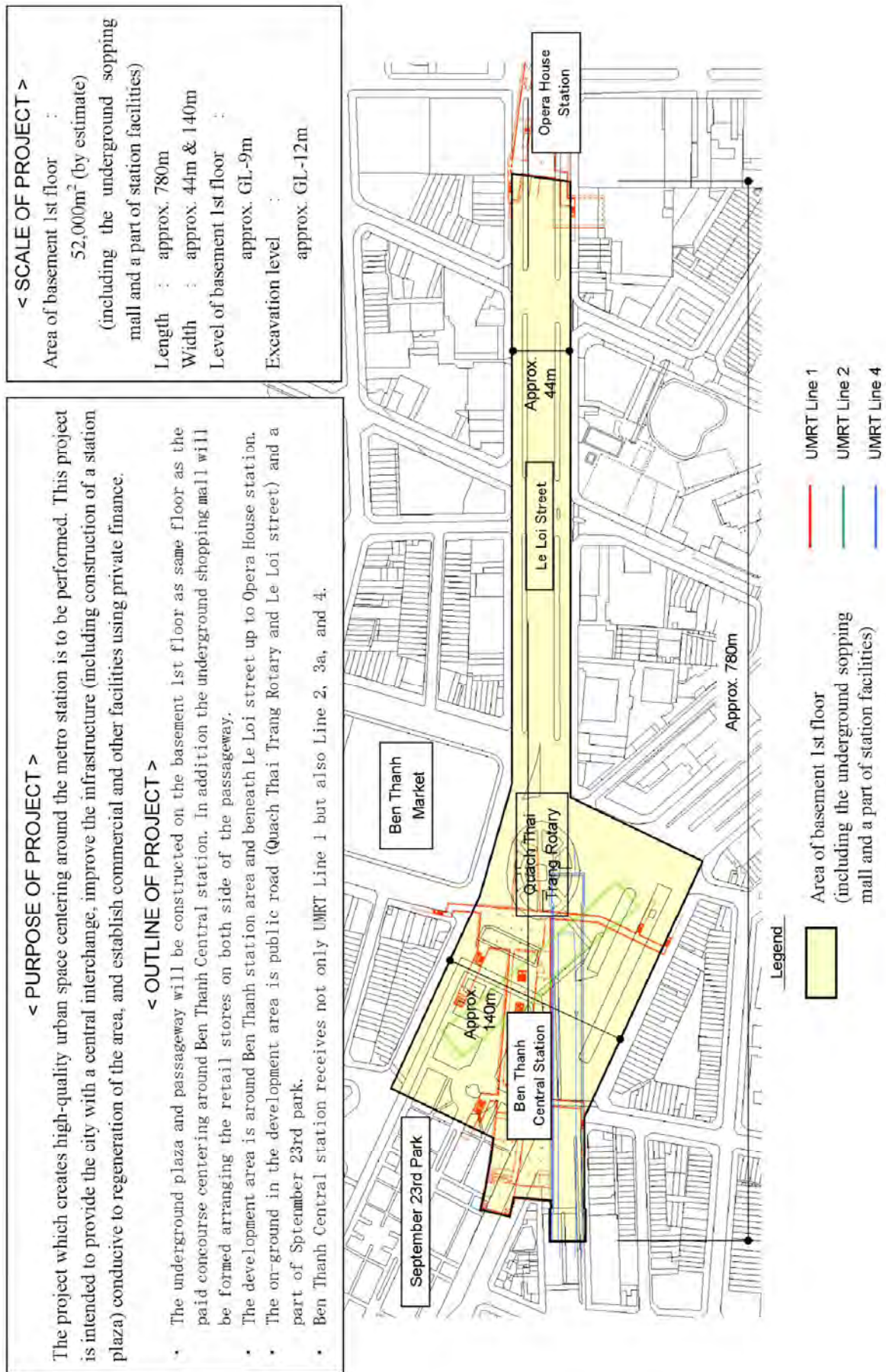


Figure 1.4 Outline of the project

1.3 SURVEY IMPLEMENTATION

1.3.1 Flowchart of the Survey

The survey is carried out according to the flowchart below.

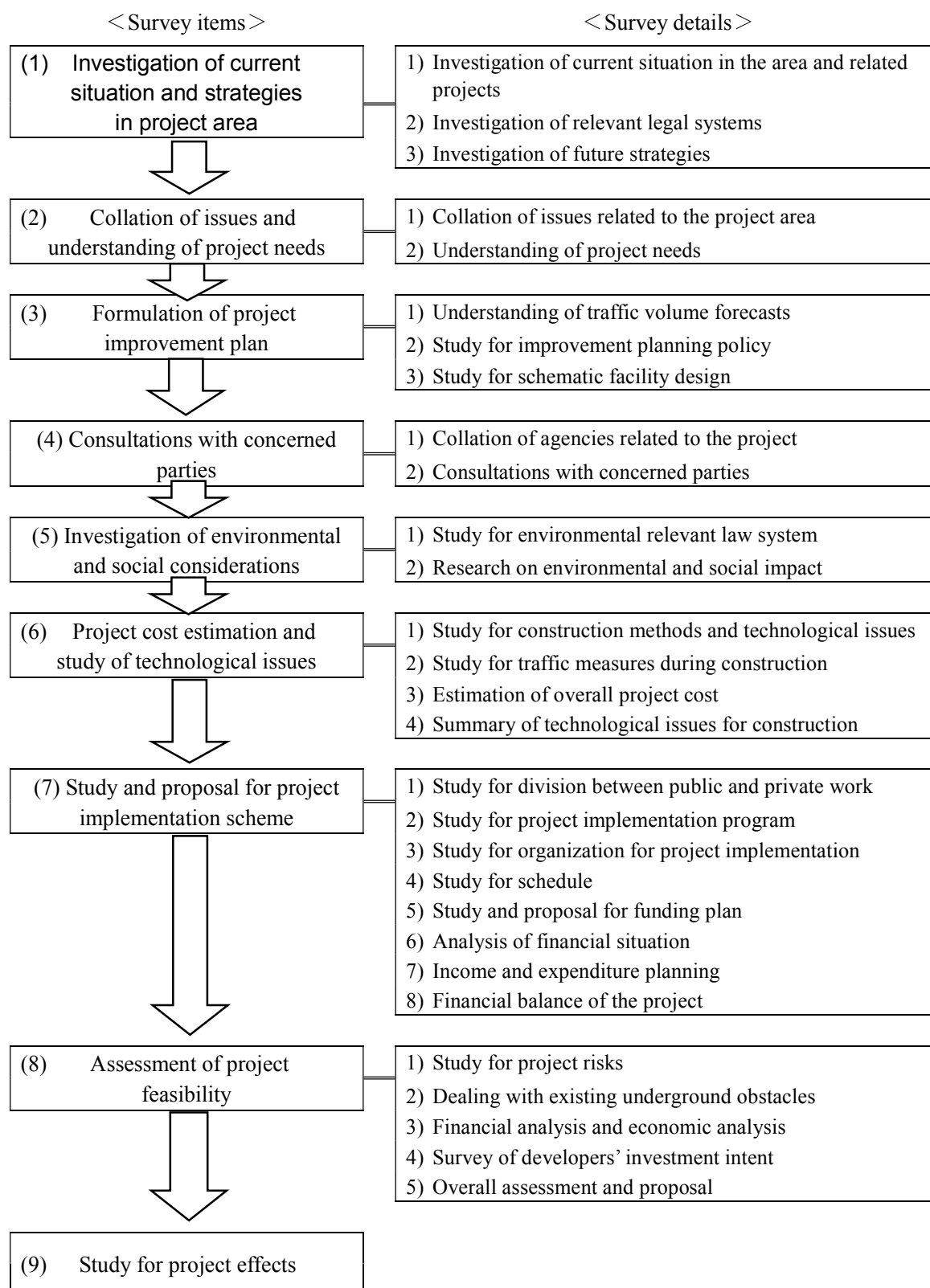


Figure 1.5 Flowchart of the survey

1.3.2 Organization of the Survey Implementation

The counter part of this survey is Management Authority for Urban Railways (MAUR). MAUR has the responsibility for the implementation of all UMRT lines. They take charge of the feasibility study, the design, and the construction. And they will also conduct the operation and the maintenance in the future.

This survey is advanced through the technical and business meetings with the Technical Unit Team which is organized by mainly staffs of Investment Preparation Project Management Unit and others in MAUR. In addition, regarding the important study content, the consensus with the Task Team for Ben Thanh Central Station Project is built through the conferences. This task team is organized in HCMC PC for the evaluation of the Preparatory Survey on Ben Thanh Central Station Project. The organization of this Task Team is shown below.

Table 1.1 Organization of the task team for Ben Thanh Central Station Project

	Department	Post
Chairman	MAUR (Management Authority for Urban Railways)	Vice Chairman
Member	DOC (Department of Construction)	Deputy Director
	DPA (Department of Planning and Architecture)	Deputy Director
	HIDS (Ho Chi Minh City Institute for Development Studies)	Vice Chairman
	DOF (Department of Finance)	Head of Investment and Repairment Office
	MAUR Investment Preparation Project Management Unit	Director
	DPI (Department of Planning and Investment)	Deputy Head of ODA Office
	DOT (Department of Transportation)	Expert of DOT

CHAPTER 2 CIRCUMSTANCES SURROUNDING THE PROJECT

2.1 SOCIOECONOMIC CIRCUMSTANCES

2.1.1 Socioeconomic Situation in Ho Chi Minh City

Ho Chi Minh City (formerly Saigon), known as the pearl of the East, is located in the southeast part of Vietnam. It borders Tay Ninh Province and Binh Duong Province on the north, Dong Nai Province and Ba Ria-Vung Tau Province on the east, and Long An Province and Tien Giang Province on the west and south. The city measures 2,095 km² in area and makes up 0.63% of the total land area of Vietnam.

Located in southern Vietnam's major economic zone, Ho Chi Minh City is a multifunctional city that drives the economic growth of both the surrounding region and the country as a whole. The city's economic growth rate was 12.6% in 2007, and its GDP was USD 14.2 billion, accounting for 20% of the total GDP of Vietnam. The value from its industrial products, exports and financial activities accounts for 1/3 of the country's total, and the city plays a major role in promoting economic growth in Vietnam. Moreover, Ho Chi Minh City is the largest industrial zone in Vietnam, with major industries that include textile manufacture, chemical manufacture, shipbuilding, machinery manufacture, rice flour milling, production of beer and other beverages, and sugar processing. Annual sales from industry in Ho Chi Minh City amount to USD 5.8 billion (2007 figures), accounting for 23% of the total nationwide. In recent years, there has been rapid growth in business, trade, finance, the telephone industry, transportation, the entertainment industry, the travel industry and other modern service industries, and these now amount to USD 74.3 billion (of which independent businesses account for USD 68.3 billion). The rapid growth of these service industries has helped to streamline of the economic structure.

Ho Chi Minh City also has the greatest population density of any city in Vietnam. In 2009, the city's population was 7,165,398. Of this figure, 5,884,241 lived in the 19 provinces within the city, while the remaining 1,281,157 live in the five suburban provinces (according to data from the Ho Chi Minh City Bureau of Statistics). By 2025, the residential population of the city is expected to reach 10 million (4 to 4.5 million in the old provinces, 2.8-2.9 in the six new provinces, and 2.6 in the suburban areas). Of this figure, the immigrant population is expected to account for 2.5 million people. As Vietnam's largest economic and financial center, Ho Chi Minh City has attracted many people from the surrounding regions of Vietnam in recent years. For this reason, the city's population has increased by 200,000 each year since 1999 (see Table 2.1-Table 2.4 and Fig. 2.1-Fig. 2.4).

Under integrated administration, Ho Chi Minh City seeks to become a cultural city that achieves harmony between economic growth and the preservation of its historical and cultural attributes, the environment and so on. Ho Chi Minh City aims to contribute to greater growth in southern Vietnam and in the country as a whole by becoming a center for industry, services, and scientific and technological research in Southeast Asia.

At the same time, however, there is increasing pollution of the urban environment, particularly as a result of the exhaust emitted from two-wheeled vehicles. The air pollution caused by increased traffic congestion is a barrier to many attractive investment activities and curtails the economic growth of the city. To achieve the goal of forming a cultural city, the problems of two-wheeled vehicular exhaust and traffic congestion must be resolved as quickly as possible.

Table2.1 Statistical Population of HCMC by 2009

	NUMBER OF DISTRICT	AREA (sq.km)	POPULATUIN (人)	DENSITY (人/sq.km)
Total	322	2,095.01	7,165,398	3,420
Urban Area	259	494.01	5,884,241	11,911
- Dist. 1	10	7.73	186,483	24,125
- Dist. 2	11	49.74	144,966	2,914
- Dist. 3	14	4.92	190,177	38,654
- Dist. 4	15	4.18	194,545	46,542
- Dist. 5	15	4.27	193,260	45,260
- Dist. 6	14	7.19	263,802	36,690
- Dist. 7	10	35.69	261,802	7,335
- Dist. 8	16	19.18	406,176	21,177
- Dist. 9	13	114.00	247,612	2,172
- Dist. 10	15	5.72	230,386	40,277
- Dist. 11	16	5.14	230,946	44,931
- Dist. 12	11	52.78	373,499	7,077
- Go Vap	16	19.74	535,188	27,112
- Tan Binh	15	22.38	416,225	18,598
- Tan Phu	11	16.06	395,188	24,607
- Binh Thanh	20	20.76	463,516	22,327
- Phu Nhuan	15	4.88	183,235	37,548
- Thu Duc	12	47.76	411,945	8,625
- Binh Tan	10	51.89	555,290	10,701
Rural Area	63	1,601.00	1,281,157	800
- Cu Chi	21	434.50	340,112	783
- Hoc Mon	12	109.18	344,054	3,151
- Binh Chanh	16	252.69	421,529	1,668
- Nha Be	7	100.41	102,488	1,020
- Can Gio	7	704.22	73,014	104

Source : Statistical Office in Ho Chi Minh City <http://www.pso.hochiminhcity.gov.vn/>

Table2.2 Demographic Statics of HCMC

	2005	2006	2007	2008	2009
1. Mean Population					
Total	6,230,926	6,483,033	6,725,864	6,945,854	7,165,398
Urban Area	5,232,947	5,436,405	5,627,664	5,778,354	5,884,241
Rural Area	997,979	1,046,628	1,098,200	1,167,500	1,281,157
2. Birthrate (‰)					
Total	15,71	14,78	14,97	14,35	14,33
Urban Area	15,34	14,40	14,65	13,92	13,91
Rural Area	17,68	16,73	16,62	16,44	16,43
3. Mortality (‰)					
Total	4,20	4,12	4,13	3,97	3,96
Urban Area	4,16	4,11	4,12	4,02	3,85
Rural Area	4,41	4,17	4,17	4,41	4,47
4. Population Growth Rate(‰)					
Total	11,51	10,66	10,84	10,38	10,37
Urban Area	11,18	10,29	10,53	9,91	10,06
Rural Area	13,27	12,56	12,45	12,03	11,96
5. Population Influx Rate (‰)					
	19,97	19,92	21,46	21,71	21,76

Source : Statistical Office in Ho Chi Minh City <http://www.pso.hochiminhcity.gov.vn/>

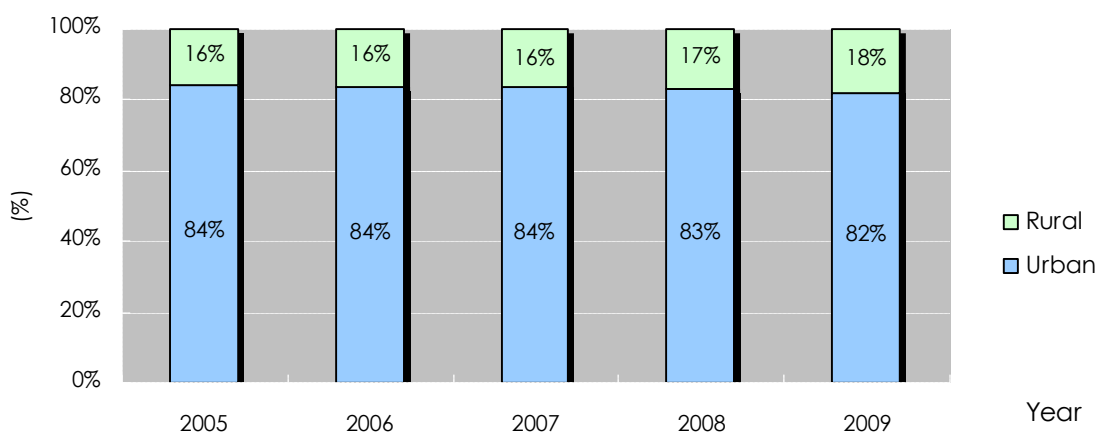


Figure2.1 Population Ratio

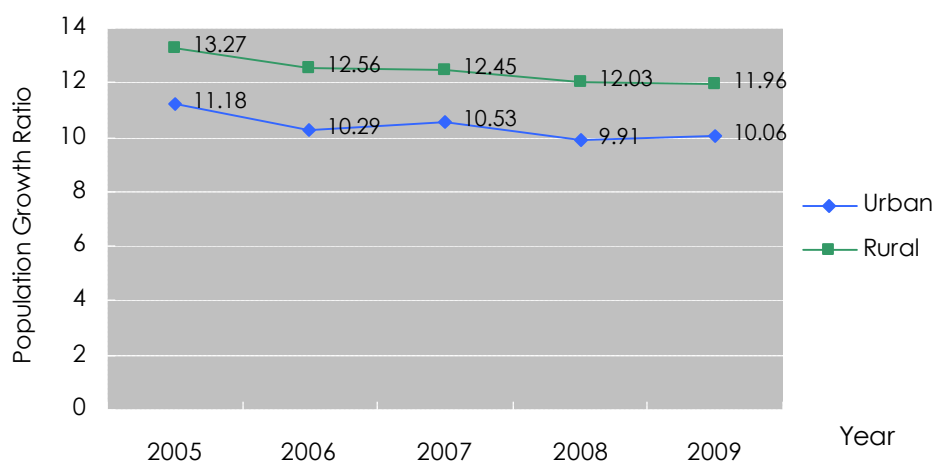


Figure2.2 Population Growth Ratio

Table2.3 Demographic Statics of HCMC

Year	Total	Investment			
		Domestic	Domestic Investment		Foreign
			Government managed	Non-government managed	
1995	100.0	84.0	60.7	23.4	16.0
2000	100.0	67.5	42.2	25.3	32.5
2001	100.0	67.2	39.1	28.1	32.8
2002	100.0	65.6	36.5	29.0	34.4
2003	100.0	66.0	32.6	33.4	34.0
2004	100.0	66.5	31.2	35.2	33.5
2005	100.0	65.2	29.1	36.1	34.8
2006	100.0	63.4	24.8	38.6	36.6
2007	100.0	63.1	18.8	44.2	36.9
2008	100.0	60.2	18.5	42.0	39.8
2009	100.0	61.4	17.1	44.4	38.6

Source : Statistical Office in Ho Chi Minh City <http://www.pso.hochiminhcity.gov.vn/>

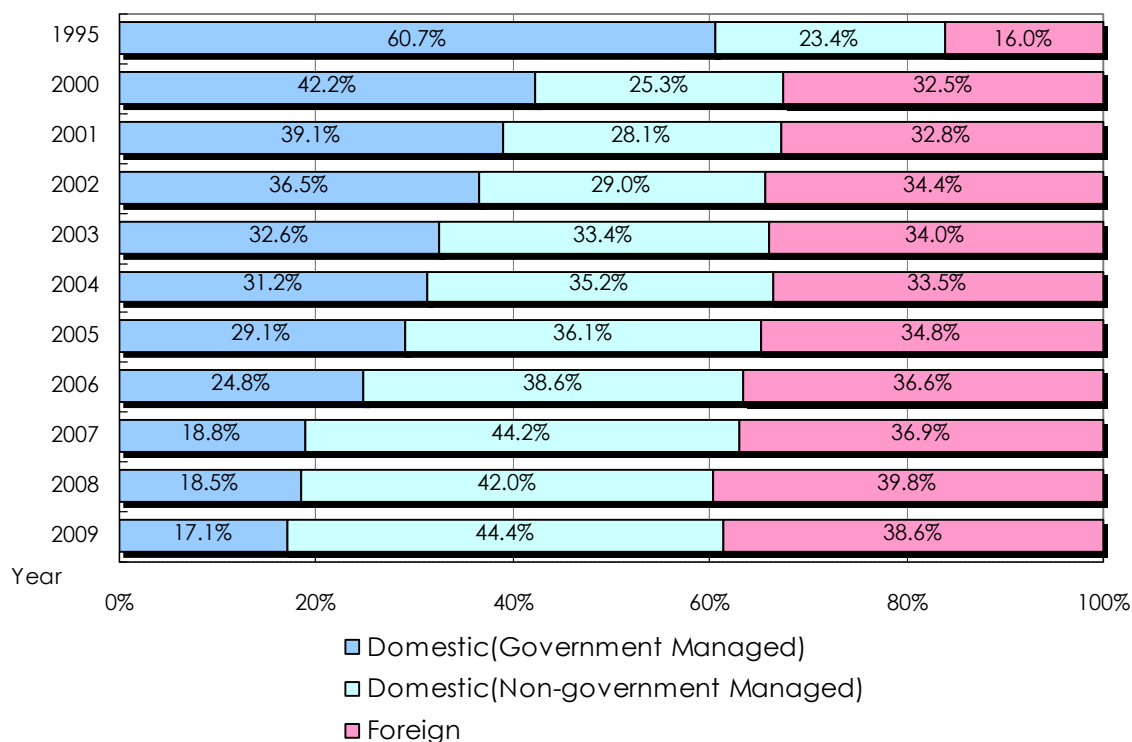


Figure2.3 Investment Ratio of Domestic and Foreign

Table 2.4 Economic Indicator of Vietnamese Major Cities

	Unit	Whole Country	Hà Nội	HCM City	Hải Phòng	Đà Nẵng
- Population	1000person	86,025	6,472	7,168	1,842	890
- Working Population of State Sector	1000person	4,031	598	437	150	...
- GDP (1994 price)	1BillionVND	516,609	65,747	134,776	21,634	9,191
- GDP Growth Rate	%	5.3	6.7	8.5	7.6	10.7
- Contribution for the Treasury	1BillionVND	...	73,500	135,362	28,483	10,244
- Industrial Output (1994 price)	1BillionVND	696,577	91,540	181,904	38,482	11,179
- Investment Value (Current Price)	1BillionVND	708,800	109,348	143,504	27,408	15,333
- Outward Direct Investment	1MillionUSD	21,482	216	1,035	46	173
- Amount of Trade	1BillionVND	1,197,400	157,494	291,780	27,530	21,888
- Export Value	1MillionUSD	57,096	6,328	18,306	1,679	476
- Agricultural Output (1994 price)	1BillionVND	410,100	7,412	3,210	3,680	574
- Cereal Production	1000 tons	43,300	1,229	106	498	50
- Diffusion of Telephone	unit/ 100person	22.1	34	18	...	24
- High School Attendance Rate	/10 thousand	1,744	1,536	1,364	1,547	1,674

S Source : Statistical Office in Ho Chi Minh City <http://www.pso.hochiminhcity.gov.vn/>

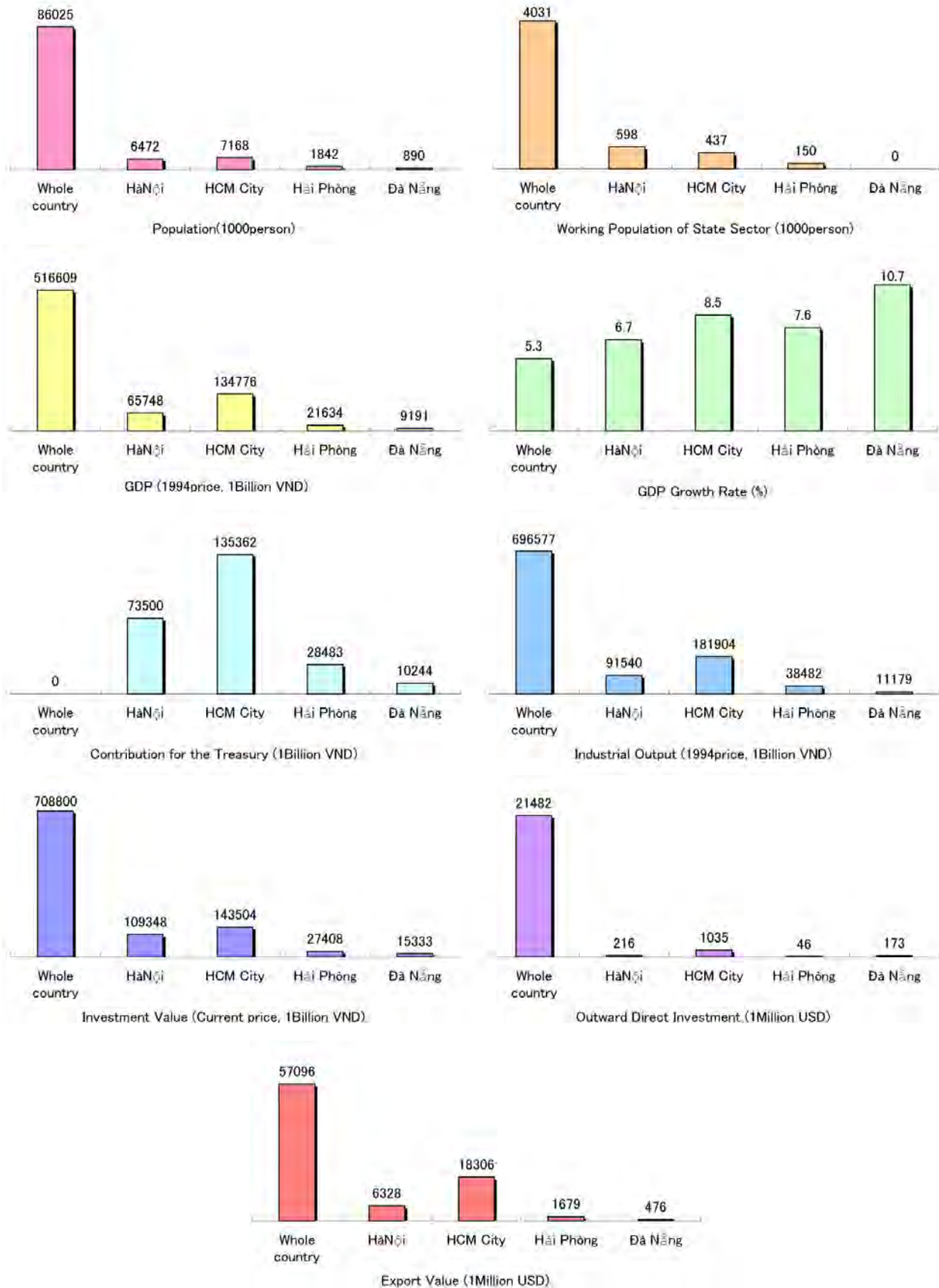


Figure 2.4 Economic Indicator of Vietnamese Major Cities

2.1.2 Socioeconomic Situation in Ben Thanh Commune

District 1 of Ho Chi Minh City is made up of ten communes (Phuong). The project site is located in one of these communes, Ben Thanh. Figure 2.5 shows a map of Ben Thanh and the location of the project site.

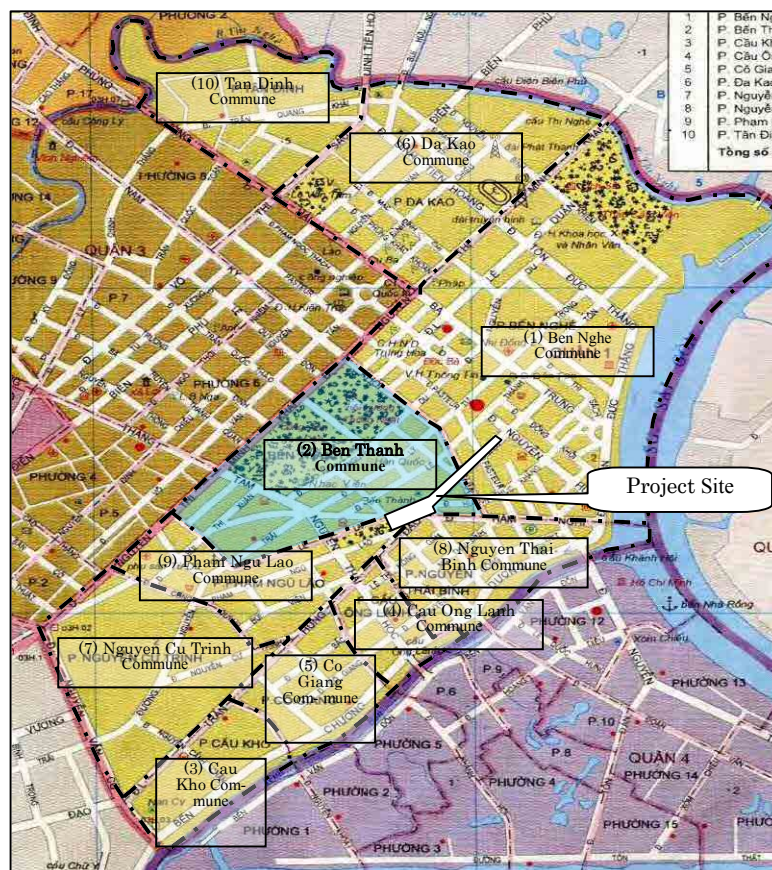


Figure 2.5 Map of Phuong Ben Thanh and location of project site

It has not yet been confirmed whether or not detailed survey data exists for the socioeconomic status of the area around the project site. However, the following overview of Ben Thanh commune is posted on the Ho Chi Minh City website.

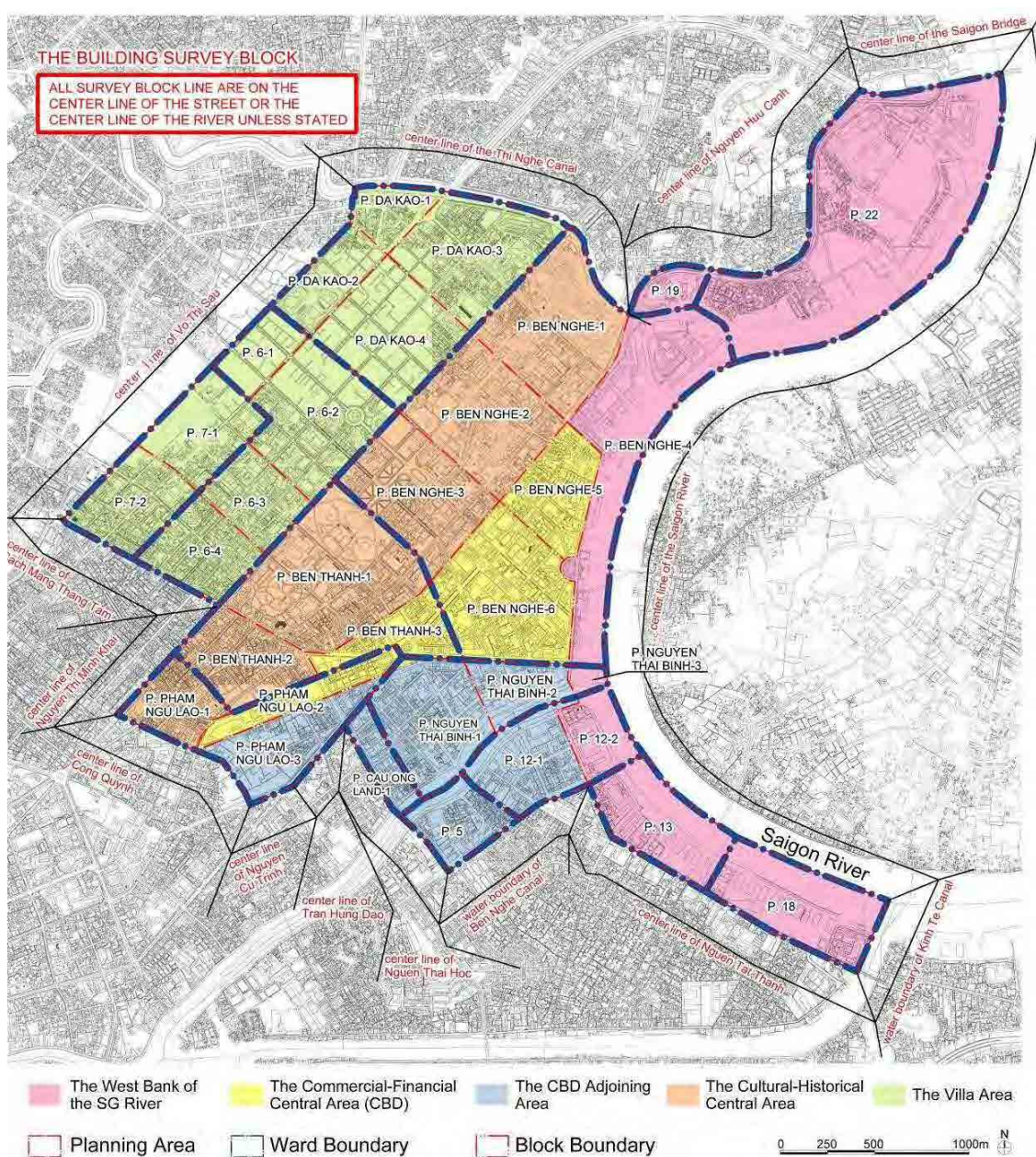
Overview of Phuong Ben Thanh

- Total area: 0.9297 km²
- Population: 17,688 (population density 19,025 people / km²)
- Working population: 10,967 (of which 6,580 are women)

2.2 CURRENT SITUATION IN THE REGION

2.2.1 Situation in Cities in the Region

According to the Ho Chi Minh City Department of Planning and Architecture (DPA), a "Study to Conduct Detailed Planning and Establish Architectural Guidelines for Central Ho Chi Minh City" is being conducted in the central business district in downtown Ho Chi Minh City, which includes the area around Ben Thanh Station. For this study, central Ho Chi Minh City has been divided into five areas (see Figure. 2.6) and a study is being conducted of land use, roads, building use, structural forms and so on in each area. Below is an overview of the current land use, traffic situation and buildings in central Ho Chi Minh City based on this study.



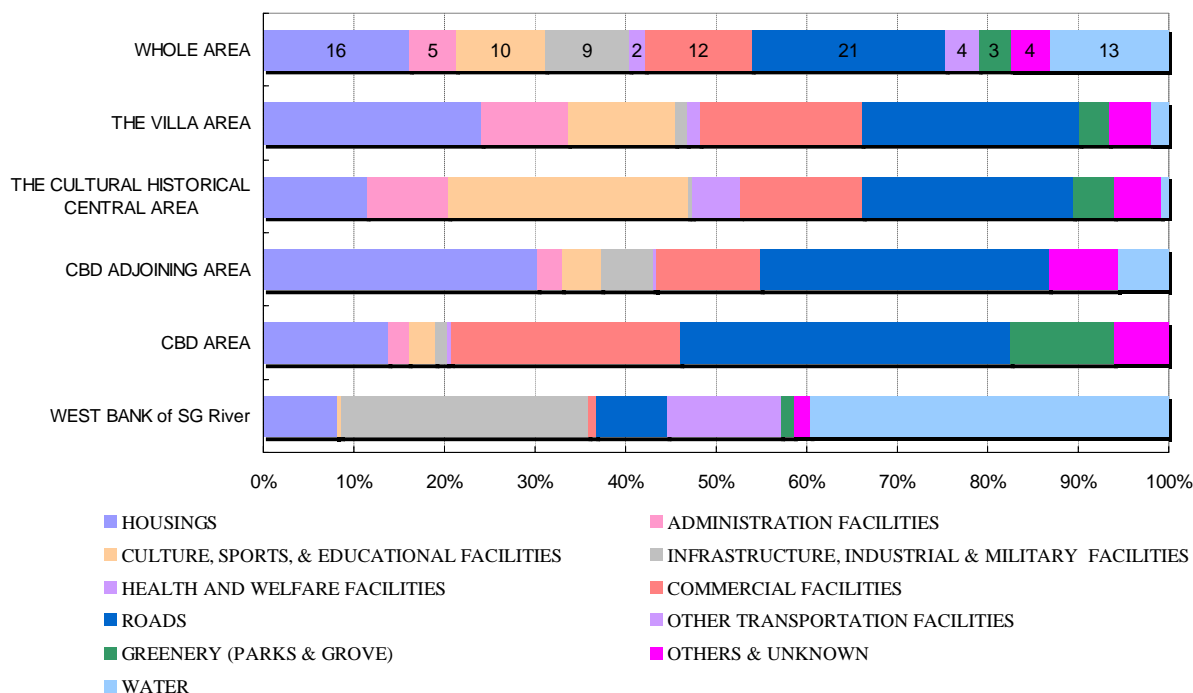
Source: The Report on the Detailed Planning Study of the Existing Center, 2011

Figure 2.6 Land Classification of the Existing Center of Ho Chi Minh City

1) Land use

Figure 2.7 shows the land use ratio in central Ho Chi Minh City. In the central business district, in which the project area is located, commercial establishments account for the largest proportion (25%) of land use. In addition to historical commercial establishments such as the Ben Thanh Market, commercial facilities are being planned one after another by means of large-scale redevelopment projects, so this proportion is expected to increase in the future. In addition, parks and other open spaces account for 10% of land use, and the high proportion of open spaces is also another characteristic of the area. The high proportion of open spaces is due to the presence within the area of the Twenty-Three September Park, which is used by the citizens of Ho Chi Minh City as an open space.

With regard to the commercial establishments and parks and other open spaces that characterize land use in the central business district, Figure. 2.8 and Table 2.5 show the location and area of the major facilities in the project area.



Source: The Report on the Detailed Planning Study of the Existing Center, 2011

Figure 2.7 Land Use Proportion of the Existing Center of Ho Chi Minh City

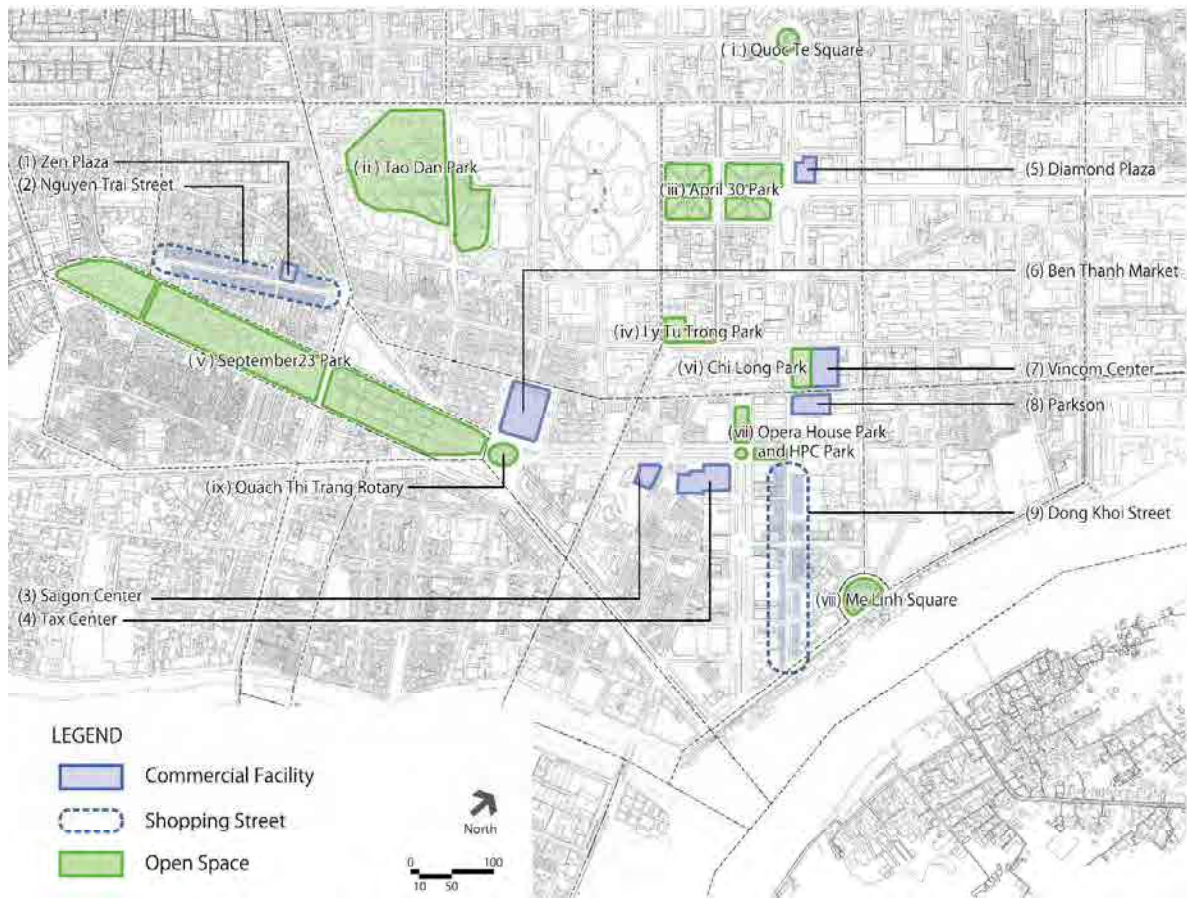


Figure 2.8 Major Commercial Facility and Open Space

Table 2.5 Area of Major Commercial Facility and Open Space

No	Commercial are name	area (m ²)	No	Open space name	area (m ²)
1	Zen Plaza	8,300	i	Quoc Te Square	2,500
2	Nguyen Trai Street	15,600	ii	Tao Dan Park	74,400
3	Saigon Center	10,800	iii	April 30 Park	35,300
4	Tax Center	16,900	iv	Ly Tu Trong Park	5,400
5	Diamond Plaza	14,700	v	September23 Park	112,500
6	Ben Thanh Market	14,400	vi	Chi Long Park	3,500
7	Vincom Center	37,700	vii	Opera House Park and HPC Park	5,900
8	Parkson	21,800	viii	Me Linh Square	11,400
9	Dong Khoi Street	25,100	ix	Quach Thi Trang Rotary	3,200

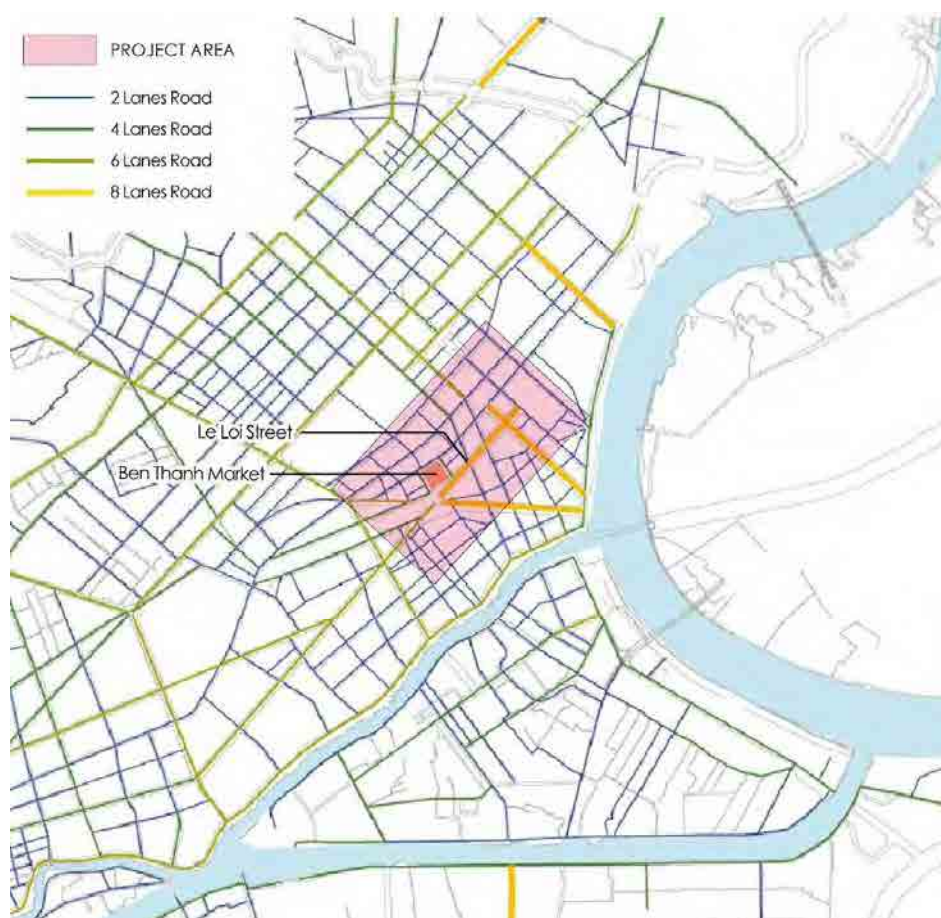
2) Traffic situation

(1) Roads

The total length of expressways and ordinary roads in Ho Chi Minh City is 3,000 km. These roads are not distributed evenly throughout the region. The road area per population of one million is 0.31 km² in Districts 1, 3, and 5, while it is 0.84 km² in District 2, 7, 9, and 12 and in the suburban areas, and 0.24 km² in the other districts. The road density in Ho Chi Minh City overall (2,095 km²) is only 1.5-1.6%. (In industrialized countries, the road area needed for comfortable transit is said to be 10-15%)

With respect to road width, 14% of the roads are 12 meters or more; 51% are 7 to 12 meters, wide enough to accommodate small buses, and the remaining roads are 7 meters or less and are passable only by motorcycles and bicycles. The narrow roads are clogged with many vehicles, and many intersections do not fulfill their traffic functions adequately and are dangerous as a result.

Figure 2.9 shows a road map of central Ho Chi Minh City. The project area is located in the center of the city in which main streets such as Le Loi are located. Figure 2.10 shows a diagram of the current traffic flow in the project area. The following sections present an overview of each of the main roads in the project area.



Source: The Report on the Detailed Planning Study of the Existing Center, 2011

Figure 2.9 Road Capacity of the Existing Center of Ho Chi Minh City

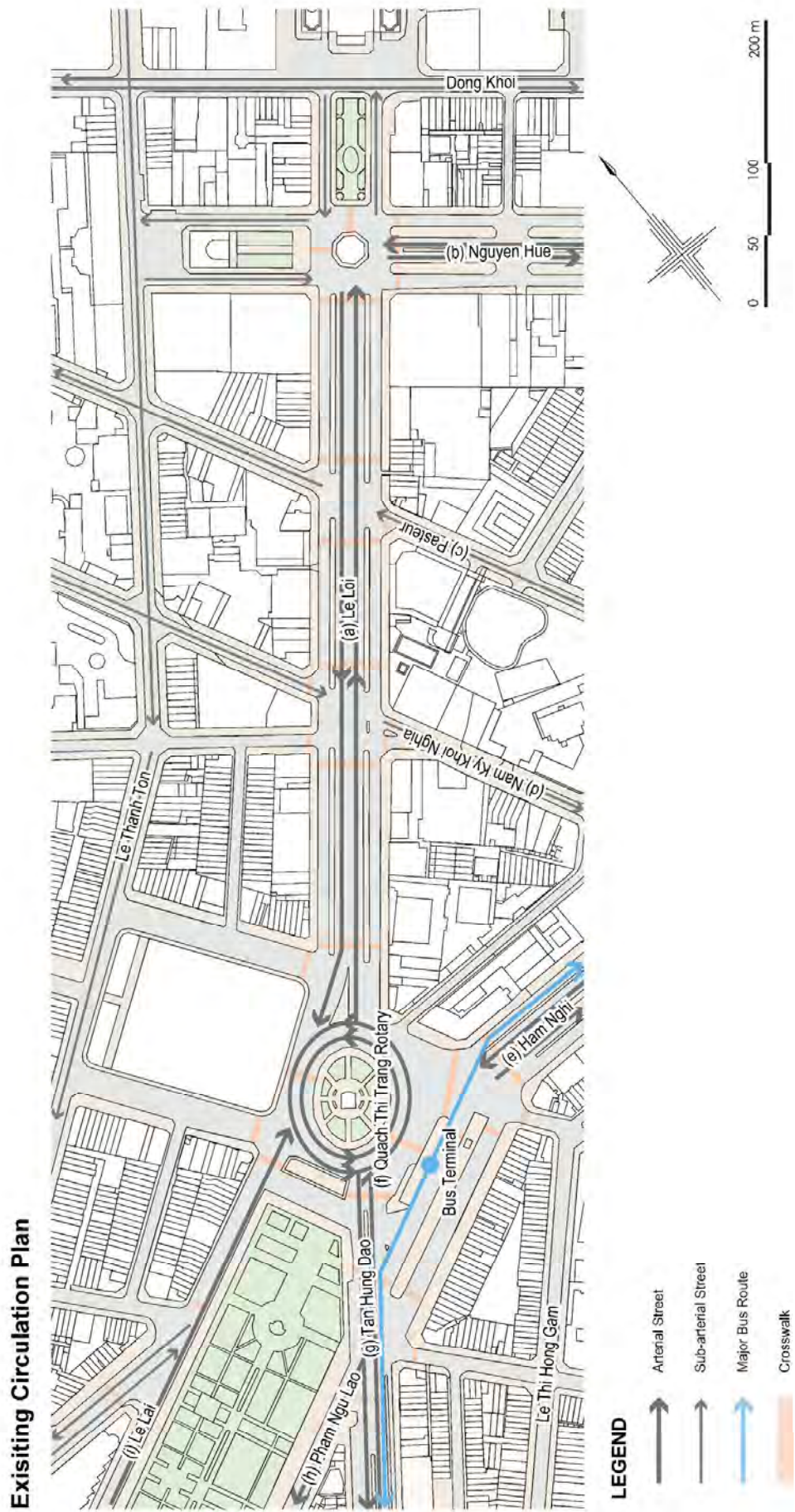


Figure 2.10 Existing Circulation Plan

(a) Le Loi

Le Loi is located above the underground passageway that connects Ben Thanh Station (in the project area) and Opera House station. This is one of the oldest streets in Ho Chi Minh City, and at the same time it is also one of the city's main streets supporting municipal transport. Le Loi is also known as a commercial area. Throughout the city's history, four and five-story commercial establishments have lined up on both sides of the street, forming an arcade-like setting. The first floors of these buildings are used primarily as retail outlets, and the upper floors are used as residences. Most of these are of French colonial architecture, but since the beginning of the 21st century redevelopment projects have been conducted by means of large-scale land consolidation, with the result that the street environment and the urban scale of the surrounding area is being destroyed.

Le Loi has three lanes going in each direction, with motorcycle lanes on the sides and a median strip. As one of the three lanes is used as a parking lane, in actuality there are only two lanes for traffic in each direction. The sidewalks are comparatively wide at 6 meters. The motorcycle lanes on each side are extremely congested with large numbers of motorcycles, but the volume of traffic in the vehicle lanes in the center is not so great. Almost every intersection has traffic lights and crosswalks, making it comparatively easy for pedestrians to cross while observing the traffic rules. Figure 2.11 shows the current state of Le Loi

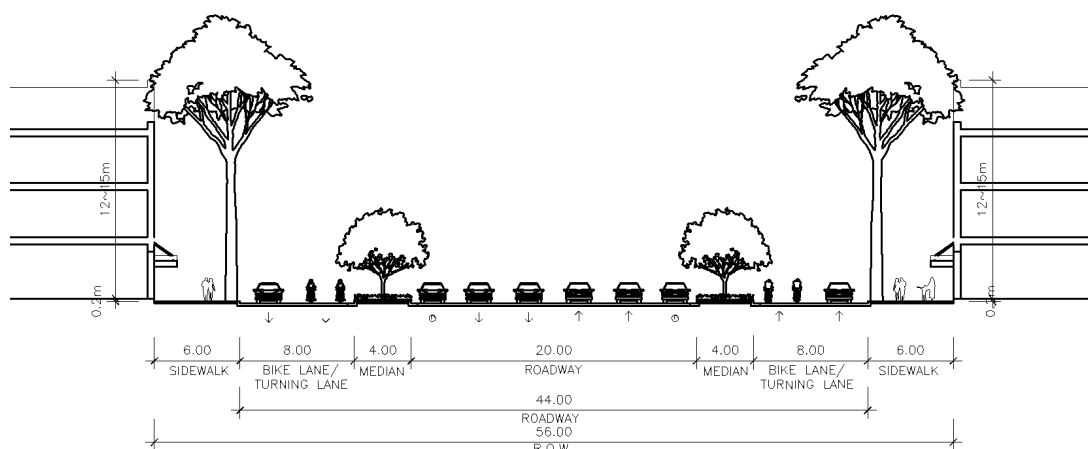


Figure 2.11 Current State of Le Loi

(b) Nguyen Hue

Nguyen Hue is another of the historical main streets in the project area. It stretches from the Saigon River to the front of the People's Committee Building (Ho Chi Minh City Hall). Like Le Loi, it is one of the oldest streets in the city. Nguyen Hue is a street that was created by filling in a canal. In old photographs taken in Ho Chi Minh City, both sides of the canal are lined with low-rise retail shops. At present, due in part to its location in the center of the city, large-scale redevelopment is underway, and this redevelopment is changing the skyline in the area. The main use of the buildings on this street is mixed use that includes commercial establishments, residences, offices and so on. The first floor of each building is used mainly for retail outlets and restaurants that seek to attract pedestrians from Le Loi. As one gets closer to the riverbank, commercial activity diminishes and pedestrian traffic is reduced, as there is considerable traffic congestion at Ton Duc Thang (street).

Nguyen Hue has two lanes going in each direction, and there are comparatively wide motorcycle lanes on the sides and a median strip. As in the case of Le Loi, one of the lanes in each direction is used for parking. There is not as much traffic on Nguyen Hue as on Le Loi, with little motorcycle traffic in particular. The major intersections have traffic lights and crosswalks, enabling pedestrians to cross while observing the traffic rules. Figure 2.12 shows the current state of Nguyen Hue.

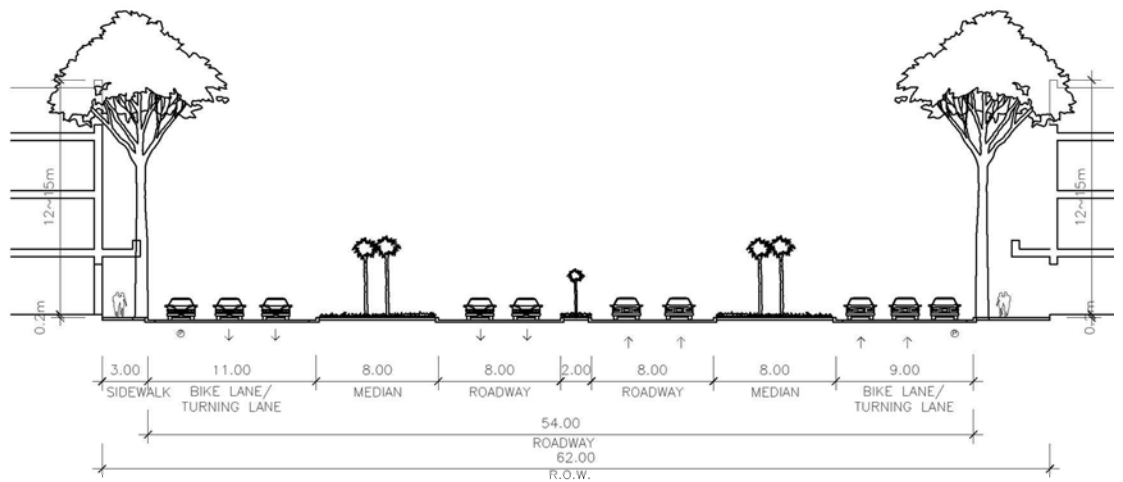


Figure 2.12 Current State of Nguyen Hue

(c) Pasteur

Pasteur is a one-way street that goes straight to Le Loi. This street is said to have been completed in 1865 during the French Colonial period, making it the oldest street in Ho Chi Minh City. A canal was filled up to create the street, and at the time it was known by a different name. In 1955, it was given the name Pasteur. Beginning in 1975, it was known by a different name (Nguyen Thi Minh Khai), but in 1991 it was once again given the name Pasteur by the Ho Chi Minh People's Committee, and the name is retained to this day.

The one-way flow of traffic goes from Le Loi to Le Thanh Ton (street). The street has two lanes, but as the road width is narrow, automobiles and motorcycles travel in the same lanes. The volume of traffic is particularly great in the section from the intersection with Le Loi going in the direction of Le Thanh Ton. Figure 2.13 shows the current state of Pasteur (street).



Figure 2.13 Current State of Pasteur

(d) Nam Ky Khoi Nghia

Nam Ky Khoi Nghia is a one-way street with two lanes of traffic going in the opposite direction from Pasteur. As in the case of Pasteur, the road width is narrow and automobiles and motorcycles travel in the same lanes. The volume of traffic is particularly great in the section south of Le Loi beginning from the intersection with Le Thanh Ton. Figure 2.14 shows the current state of Nam Ky Khoi Nghia.



Figure 2.14 Current State of Nam Ky Khoi Nghia

(e) Ham Nghi

Ham Nghi is one of the oldest main streets in the project area. It links Quach Thi Trang Plaza with Ton Duc Thang. The road is extremely wide (more than 50 meters), including six-meter-wide sidewalks on both sides. Along the road are historical buildings that include the customs office, the national railway building, and the maritime commerce building. As a result of the redevelopment that is currently underway by means of large-scale land consolidation, the road is now lined with new high-rise office buildings.

Although the volume of traffic is not as great as that on Le Loi, the road is crowded with many automobiles and motorcycles. The road has three lanes going in each direction, with comparatively wide motorcycle lanes on each side and a median strip. One of the major characteristics of this road is on-street parking for buses. Due to the lack of adequate parking spaces in the bus terminal in front of the Ben Thanh Roundabout, there is a line of many buses parked along Ham Nghi, and this is the cause of traffic jams. Figure 2.15 shows the current state of Ham Nghi.

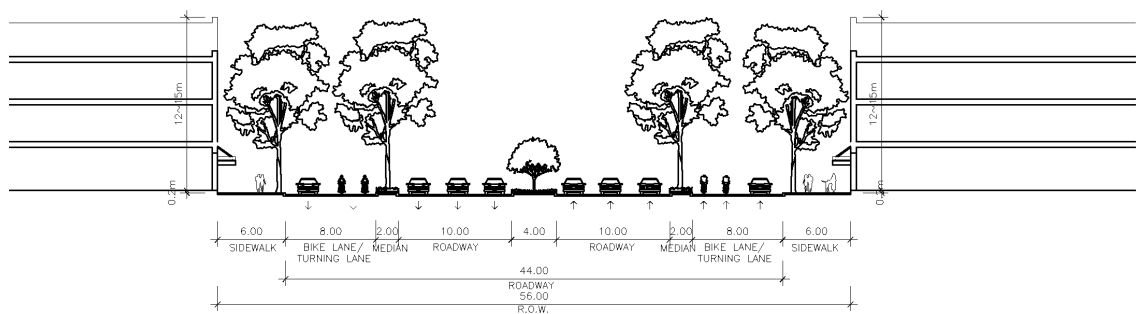


Figure 2.15 Current State of Ham Nghi

(f) Quach Thi Trang Roundabout

The roundabout in front of the Ben Thanh Market is beloved by the citizens of Ho Chi Minh City. It is named after a young girl, Quach Thi Trang, who died at this location.

The roundabout previously bore a different name, but since 1963 when Quach Thi Trang was killed at this location, it has been called by this name. It is located in the center of the city where four main roads come together. The Quach Thi Trang Roundabout is always crowded with many automobiles and motorcycles. It has an extremely large number of motorcycles in particular during the hours of 5:00 p.m. to 7:00 p.m. when people are going home from work. There are crosswalks centering on the roundabout, but due to the large volume of traffic, it is difficult to cross safely. As a result, the pedestrian network is divided by the roundabout in both the north-south direction and the east-west direction. Figure 2.16 shows the current state of the Quach Thi Trang Roundabout.



Figure 2.16 Current State of Quach Thi Trang Rotary

(g) Pham Ngu Lao

Pham Ngu Lao is a street adjacent to September 23rd Park. The sidewalk on the parking side is extremely wide (13 meters), enabling pedestrians to walk in comfort along the park. Conversely, the sidewalk on the other side of the street is lined with low-rise buildings. The first floor of these buildings is used as retail shops. Trees are planted along the sidewalks to provide shade in order to make it easy for pedestrians to walk in comfort.

The street is a one-way street with three lanes, one of which is used as parking space. The volume of traffic is great, and the number of parked taxis becomes more and more noticeable as one approaches the Ben Thanh Roundabout, and this impedes the smooth flow of traffic. Figure 2.17 shows the current state of Pham Ngu Lao.

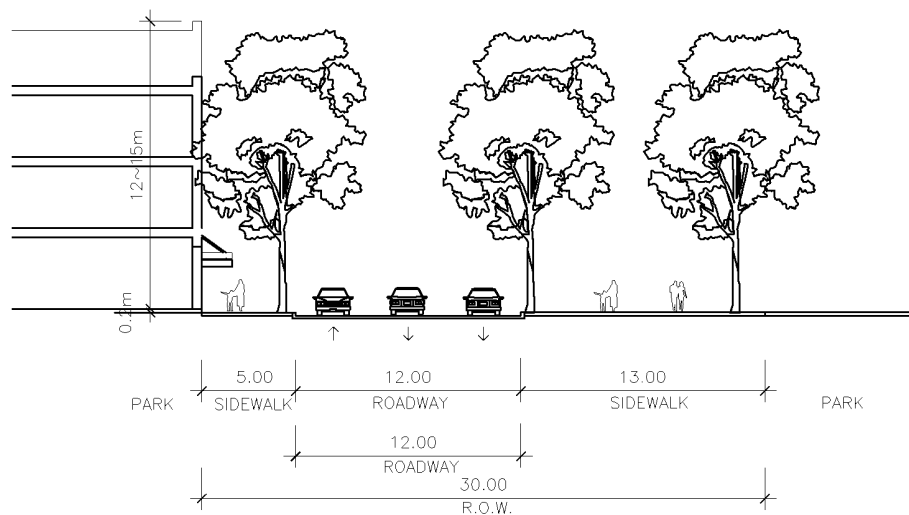


Figure 2.17 Current State of Pham Ngu Lao

(h) Le Lai

Le Lai is a street that is adjacent to September 23rd Park. The sidewalk on the park side is wide (8.5 meters) and is lined with benches, and thus it is integrated with the park for recreation and relaxation by the city's residents. The sidewalk on the other side of the street is about five meters wide and is lined with small-scale commercial establishments that are not set back from the sidewalk. There are rows of motorcycles parked along the sidewalk, and in addition the sidewalk is in disrepair with many uneven places, so it is not a comfortable route for pedestrians to use.

The street is crowded with a large number of both automobiles and motorcycles. As there are no traffic lights, it is difficult for pedestrians to cross the street, and so the park is cut off from the surrounding pedestrian network. Figure 2.18 shows the current state of Le Lai.

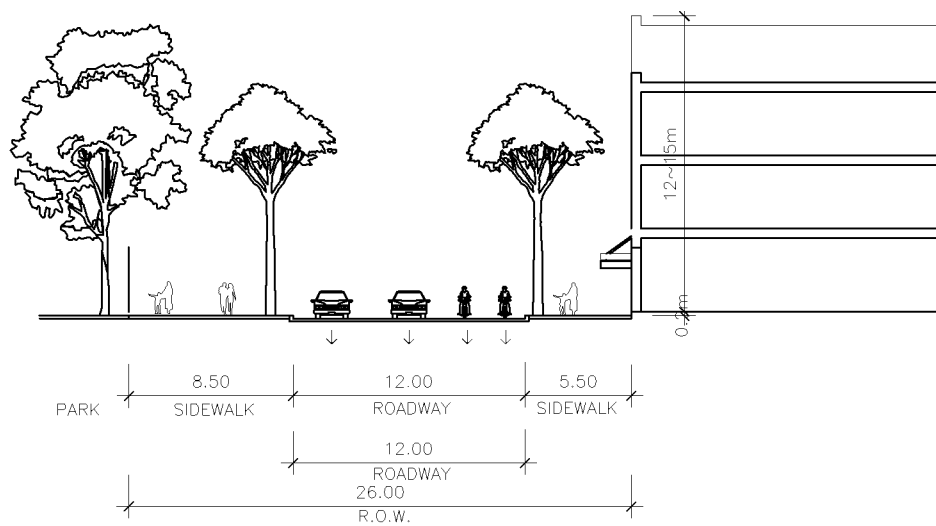


Figure 2.18 Current State of Le Lai

(2) Railways

Ho Chi Minh City has only one railway line that leads to Saigon Station. This is a single-gauge railway line of 1,000 mm gauge track. The railway crosses roads on the same level, and this produces considerable traffic congestion. There is no railway line within the project area.

(3) Public buses

Currently, the Center for Executive and the Department of Transportation (DOT) are in charge of the management and operation of the bus system in Ho Chi Minh City. In 2007, there were 153 bus routes: 114 that receive government assistance, 36 that receive no government assistance, and three school bus routes.

The bus terminal is currently located on the east side of the roundabout and serves 30 bus routes. In FY 2011, the bus terminal is scheduled to be moved to one section of the September 23rd Park.

(4) Motorcycles and privately owned automobiles

The use of motorcycles by the residents of Ho Chi Minh City has increased rapidly along with the economic growth of the city. Compared to other cities in Asia, transport in Ho Chi Minh City is characterized by the use of motorcycles. In comparison to GDP and income, a large proportion of the population (492 out of 1,000) rides motorcycles (see Table 2.6). In 2007 alone, 300,000 vehicles were registered, and the total number of vehicles came to 3.6 million (3,096,000 two-wheeled vehicles, 202,000 privately owned automobiles and 399,000 other vehicles).

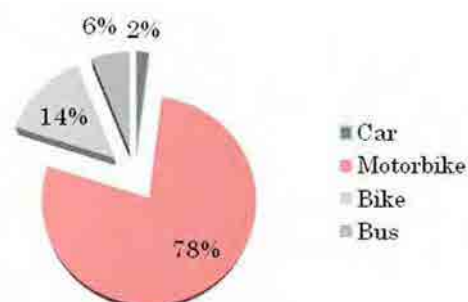
In 2000, the total number of vehicles in the city came to 1.7 million (131,000 automobiles and 1,569,000 two-wheeled vehicles), but this figure has now doubled. On average, 1,300 new two-wheeled vehicles and 100 new automobiles are registered each day. As these figures show, the number of vehicles in the city is increasing dramatically. In contrast, the speed of road, railway and other infrastructure construction is extremely slow.

Table 2.6 Number of Motorbike Users per 1000 person

City	HCMC	Hanoi	Singapore	Bankok	Manila	Jakarta
Motorbike/1.000 thousand people	492	260	41	136	8	118

Source: Metro Line2 FS Final Report

Figure 2.19 shows the status of vehicle use by people in Ho Chi Minh City. Two-wheeled vehicles are used by 78% and automobile, by 14%. Nearly 94% use private means of transportation. The proportion that uses public transport is less than 10%. More than 90% of households own a vehicle, and of these nearly 53% of households own two or more vehicles.



Source: Metro Line2 FS Final Report

Figure 2.19 Percentage of Transportation

Furthermore, automobile ownership by households was 1.6% in 2002, and this figure is expected to increase to 18.6% by 2020. This is expected to bring about great changes in the traffic situation in Ho Chi Minh City.

With regard to the current state of transit in Ho Chi Minh City, there are many traffic accidents and a considerable amount of traffic congestion. According to the Center for Management and Operation of Public Transportation, annual economic losses resulting from traffic congestion and traffic accidents caused by vehicle transit was USD 1.25 billion as of 2005, and this figure was predicted to be USD 5 billion in 2010.

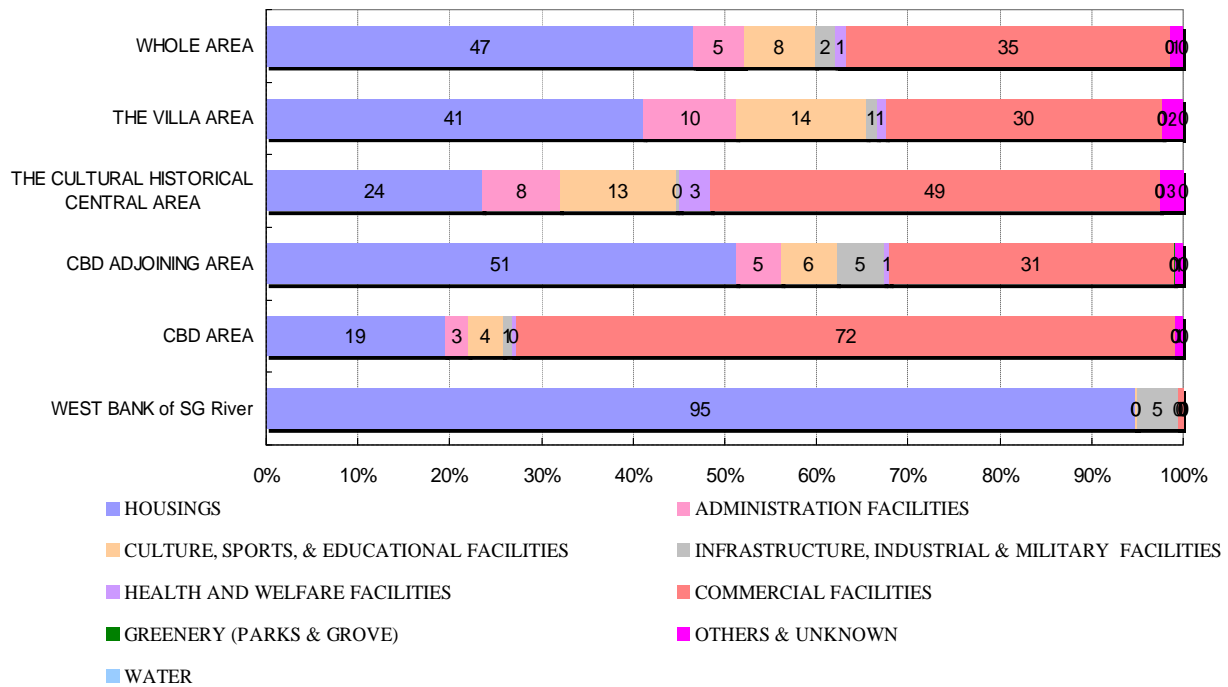
2) Building use

(1) Summary

Figure 2.20 shows the proportion of building use in central Ho Chi Minh City. In the central business district, in which the project area is located, nearly 72% of the buildings are used as retail shops. The commercial establishments can be generally divided into two types: small-scale historical buildings remaining from the French Colonial period, with integrated retail shops and residences, and high-rise buildings created through large-scale redevelopment.

Most of the commercial establishments that were built many years ago and remain to this day have first floor sections that are used as commercial establishments and upper floors that are used as residences. The commercial establishments are used for a variety of enterprises, including retailers (selling clothing, gifts, motorcycle's helmets and so on) together with eating and drinking establishments. Many of the eating and drinking establishments use the area up through the sidewalk in front for customer seating. While this provides vitality to the urban environment, the seating and the rows of customer's motorcycles take up a great deal of the sidewalk area and inhibit pedestrian transit. This type of building is usually three to four stories in height and constructed in the French Colonial style, providing pedestrians with a human scale urban environment.

On the other hand, the skyscrapers constructed as a result of a number of redevelopment projects that have been underway through large-scale land consolidation are complexes that include commercial stores, offices and other functions. The Saigon Center on the south side of Le Loi, which was completed in 1997, is a skyscraper approximately 110 meters in height. The lower floors are devoted to commercial establishments, while the upper floors are used as office space. Redevelopment projects are being promoted successively, and the SJC Tower skyscraper, expected to be approximately 200 meters in height, is currently under construction in the area enclosed by the Le Loi, Nam Ky Khoi Nghia and Le Thanh Ton streets. Moreover, even in the Saigon Center area, there are plans to construct the Saigon Center II towers (88 floors and 66 floors) on an adjacent site, as well as to construct two 220-meter-high skyscraper buildings (the Benthanh Twins) on the south side of the Ben Thanh Roundabout. These types of redevelopment projects involving skyscraper construction are expected to increase, and as a result the urban scale, the skyline and the human scale urban environment are expected to undergo a dramatic transformation in the future.



Source: The Report on the Detailed Planning Study of the Existing Center, 2011
Figure 2.20 Building USE (GFA) Proportion

(2) Historical buildings and structures

Ho Chi Minh City has been called the Paris of the Orient. The cityscape and buildings of the city are strongly influenced by the French control of the country as part of French Indochina from 1887 through 1954. This influence created both the historical cityscape of rows of small-scale retail shops and the symbolic buildings of Ho Chi Minh City that were constructed in the French Colonial period such as the Ben Thanh Market and the Opera House (many of which are located in the project area). Here and there in the city there are also bronze statues of Ho Chi Minh and other revolutionaries and leaders of the Vietnamese Revolution. These are placed in front of important buildings in the city and at traffic intersections and so on, and they communicate the history of the city to the present day.

Figure 2.21 shows a layout diagram with the locations of the major historical buildings and structures located in the project area. An overview is presented below.



Figure 2.21 Existing Architectural Resources

(a) Ben Thanh Market

The Ben Thanh Market is one of the most famous landmarks in Ho Chi Minh City. It is located in front of the roundabout at which four main roads intersect: Le Loi, Ham Nghi, Pham Ngu Lao and Le Lai (see Figure2.22). The market was constructed in 1914 by filling up marshland during expansion of the urban area. It was designed by the architects Brassard and Maupin, who designed many of the buildings in Indochina.



Figure2.22 Ben Thanh Market

The market has a symmetrical design centering on the clock tower. It is the symbol not only of Ho Chi Minh City but also of the whole of southern Vietnam. The market is surrounded by rows of many commercial establishments constructed during the French Colonial period, and it serves as a center for the activities of both residents and tourists.

(b) Opera House

The Opera House is a theater that was constructed in 1895. This building, located at the end of Le Loi, is carefully crafted in the Neoclassical style and has a mansard roof. Although it has been restored several times, the original building façade still remains to this day (see Figure2.23).



Figure2.23 Opera House

The days on which the building can be used as a theatre are restricted, and it is not possible to gain admittance every day. However, the area is bustling with many tourists who come to view it as one of the major historical buildings of Ho Chi Minh City.

(c) Statue of Ho Chi Minh in front of the Headquarters of the People's Committee

Ho Chi Minh, from whom the city gets its name, was the leader of the Vietnamese Revolution, a politician and the first president of what was then known as the Democratic Republic of Vietnam. This statue is located in the most famous location in the city, in front of the People's Committee Headquarters (see Figure2.24). Ho Chi Minh is depicted



Figure2.24 Statue of Ho Chi Minh

standing on a podium with his arms around a small girl, gazing at the Saigon River. The statue bears an inscription saying that Diep Minh Chau especially created the statue in 1990.

(d) Bust of Quach Thi Trang

At the roundabout in front of Ben Thanh Market, crowded with many automobiles and motorcycles, there is a bust of a young girl (see Figure2.25). Quach Thi Trang was a young girl who was shot dead by police in 1963 while participating together with 5,000 students in a protest demonstration against martial law in the Republic of Vietnam, held



Figure2.25 Bust of Quach Thi Trang

in the plaza in front of Ben Thanh Market. The bust was constructed in 1964 with contributions collected by student organizations as a symbol of the young girl's courage and patriotism. Following Vietnam's independence in 1975, the plaza was officially named after Quach Thi Trang by the Vietnamese government.

(e) Equestrian Statue of General Tran Nguyen Han

Like the bust of Quach Thi Trang, the bronze status of General Tran Nguyen Han mounted on a horse is constructed on a tall podium in the center of the roundabout in front of Ben Thanh Market (see Figure2.26). When the Ming Dynasty invaded Vietnam in the 15th century, General Tran Nguyen Han commanded the forces serving King Le Loi that repelled the invasion. The bronze statue was built to commemorate his bravery and loyalty and his contributions to the establishment of the Kingdom of Vietnam.



Figure2.26 Statue of General Tran Nguyen Han

(3) Survey of surrounding buildings

In order to determine the buildings (see Figure2.27) that are expected to be affected in some way by the construction of the subway station and underground shopping mall as a result of this project, a study was conducted to determine the use, number of floors and structural form of the buildings in the area. The area was divided into a north area and a south area (separated by the underground shopping mall) and the buildings examined in the study were assigned numbers.

(a) Usage (See Figure2.28)

The most common usage for the buildings in the area was mixed usage (shops and residences). If the buildings devoted solely to commercial establishments (such as Ben Thanh Market) and the complexes with commercial establishments and offices and so on are included, almost all of the buildings are used for commercial establishments, and it is clear that this district is a center of commercial activity. Although the upper floors of the Saigon Center are used as office space, overall only a tiny number of buildings are used as offices.

(b) Number of floors (See Figure2.29)

Most of the mixed-use buildings with both shops and residences were constructed during the French Colonial period, and many are between four and six stories in height. These buildings are constructed in a continuous row along a single block, forming a historical cityscape. Currently the only large-scale building higher than 10 stories is the Saigon Center, but many redevelopment projects are in progress and the city skyline is expected to change dramatically in the future.

(c) Structural form (See Figure2.30)

Almost all of the buildings are of reinforced concrete or brick construction. The buildings in Ho Chi Minh City that include the Saigon Center and other skyscrapers currently under construction are characterized by reinforced concrete construction. There are very few buildings of steel construction.



Figure 2.27 Plot Plan of Building Survey

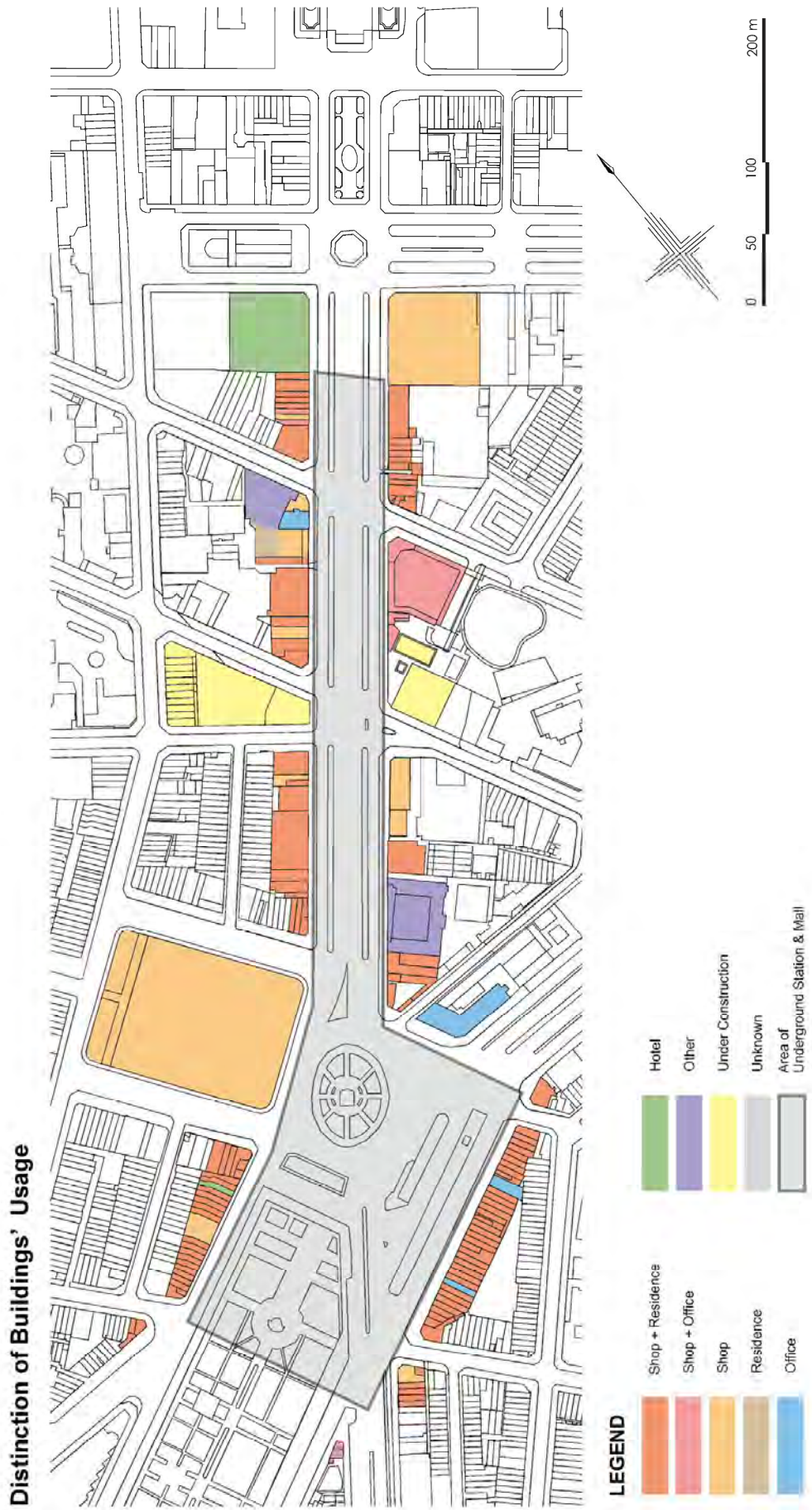


Figure2.28 Distinction of Buildings' Usage

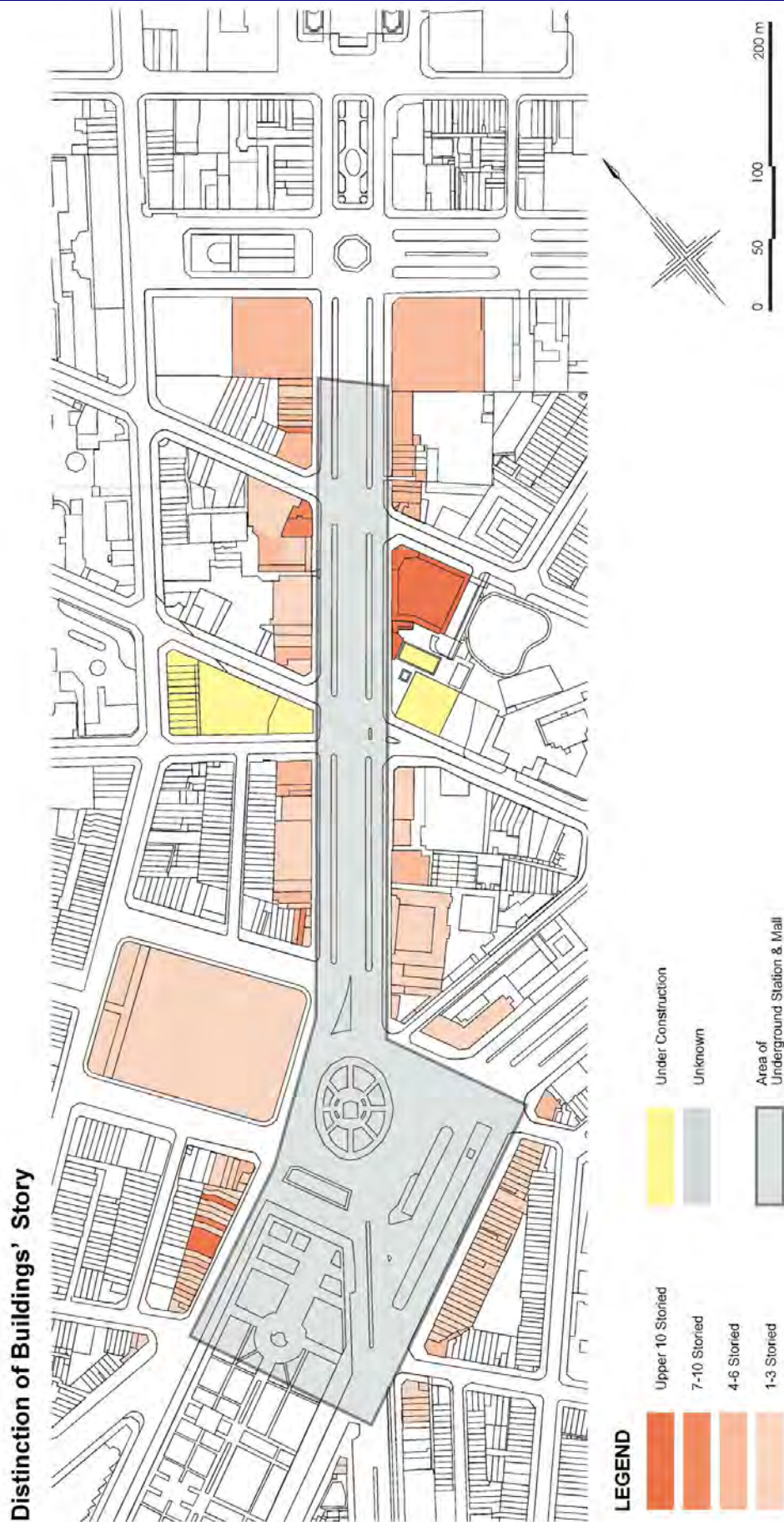


Figure2.29 Distinction of Buildings' Story

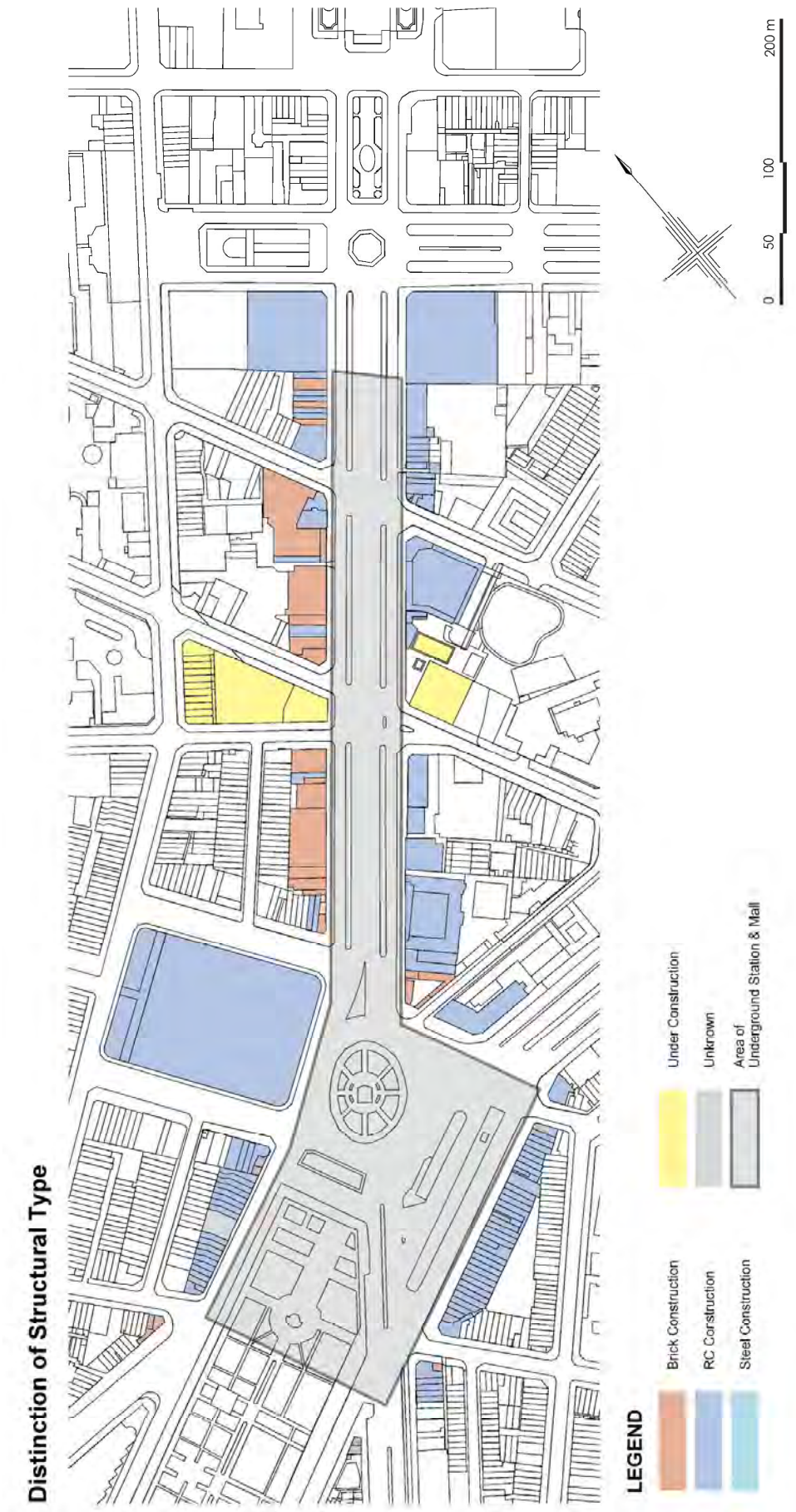


Figure2.30 Distinction of Structural Type