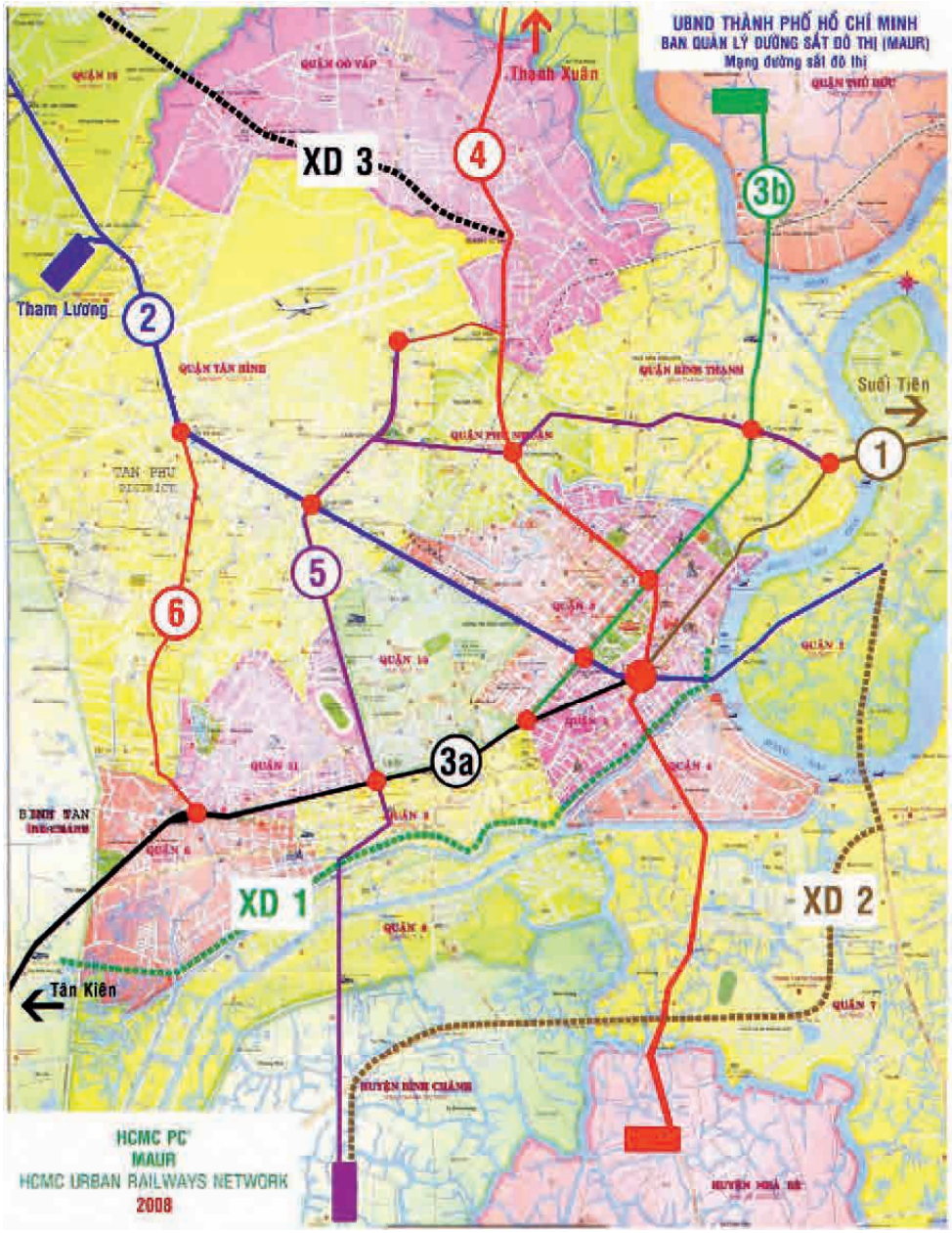
2.2.2 Railways and Underground Use

1) Overview of planning for Ho Chi Minh City Subway

Based on the municipal railway master plan approved by the prime minister in the decision No.6/2002/QD-TTg, planning is underway for a mixed transport network in Ho Chi Minh City that includes subway, streetcars, monorail and so on (see Figure2.31). The planning for these rail lines is expected to not only resolve the problems of increased traffic congestion, traffic accidents, degradation of the urban environment, etc..resulting from the rapid growth of the city, but also stimulate new growth in the areas along the rail lines and achieve the modernization specified in the city's master plan.

According to the announcement by the government, the completion year of the plan is 2025. However, at this point, none of the rail lines has begun service. The Table2.7 shows the state of progress in the planning of each rail line.



Source: Management Authority of Urban Railways (MAUR)

Figure2.31 Urban Railway Master Plan in HCMC

Table2.7 Progress of the Development of Urban Railway in HCMC

Line			Terminal Station		Length	Total Investment Cost (million USD)	Date of commencement and completion	Investment source	Implementation Progress
UMRT (Metro Line)	Line 1		Ben Thanh	Suoi Tien	19.7km Underground and elevated train	2,491	2007-2018	Already have doners ODA (Japan)	・Investment Project has been approved by HCM PC through the following Decisions 1453/QD-UBND (2007/04/06), 2721/QD-UBND (2008/06/26), 4480/QD-UBN (2011/09/21)
	Line 2	Stage-1	Ben Thanh	Tham Luong	11.3km Underground and elevated train	1,374	2010-2017	Already have doners Co-finance (KfW, ADB, EIB)	・Investment Project has been approved by HCM PC through the following Decisions 4474/QD-UBND (2010/10/11)
		Stage-2	Ben Thanh & Tham Luong	Thu Thiem & An Suong	8.7km Underground and elevated train	900	after 2014	Underpreparation for Investment ODA (Germany)	・MPI has submitted the project checklist of grant German ODA project to Prime Minister
	Line 3	3a	Ben Thanh	Tan Kien	16.2km Underground and elevated train	2,420 (expected)	2014-2020 (expected)	Underpreparation for Investment ODA	・HCM PC has submitted a proposal to MPI regarding the registration for Country Development Program of ADB 3354/UBND-DTMT (2011/07/08)
		3b	Cong Hoa Roundabout	Hiep Binh Phuoc	12.1km Underground and elevated train	1,866 (expected)	2013-2019 (expected)	Underpreparation for Investment ODA	・HCM PC has suggested MPI to support PC in submitting the proposal to JICA for JICA to consider a loan agreement 3440/UBND-DTMT (2011/07/12)
	Line 4		Ben Cat Bridige	Nguyen Van Linh	36.0km Underground and elevated train	2,500 (expected)	2014-2020 (expected)	Underpreparation for Investment ODA	・MAUR has signed a Memorandum with Italian – Thai Development Public Cooperation (Thailand) regarding the investment cooperation
	Line 5	Stage-1	Bay Hien Roundabout	Sai Gon Bridige	8.89km Underground and elevated train	1,180	2012-2018 (expected)	Already have doners ODA(Spain)	・PM has approved the check list of project
		Stage-2	District8	Bay Hien Roundabout	14.5km Underground and elevated train	1,120 (expected)	after 2013	Underpreparation for Investment ODA	・Preparatory Survey has been completed for whole line by Spanish consultant ・Local consultant is understudying the investment project implementation
	Line 6		Ba Queo	Phu Lam Roundabout	6.0km Underground and elevated train	1,280 (expected)	2014-2020 (expected)	Underpreparation for Investment ODA	・Spanish consultant has finished the feasibility study report ・Local consultant is understudying the investment project implementation which expects to be finished in 2011
Tram	Line XD1		Sai Gon	Western Bus Terminal	12.5km Streetcar	250 (expected)	after 2014	Underpreparation for Investment BOT, BT, PPP	・Procedures for selecting consultants for implementing investment project are on-going
Monorail	Line XD2		Nguyen Van Linh	District2	14.0km Elevated train	350 (expected)	after 2014	Underpreparation for Investment BOT, BT, PPP	・ Similar to Line 4, Italian-Thai Development Public Corporation is understudying the feasibility of BOT scheme ・In the case of Line XD2, Marubeni Corp. of Japan has completed the preparatory survey under PPP scheme
	Line XD3		Go Vap Roundabout	Quang Trung Software Park	8.5km Elevated train	200 (expected)	after 2014	Underpreparation for Investment BOT, BT, PPP	

Source: Management Authority of Urban Railways (MAUR)

(1) Line 1

Line 1 was the first railway line approved in Ho Chi Minh City. It is currently at the planning stage as a result of official development assistance (ODA) from Japan. The line is 19.7 km in length and connects Ben Thanh Station with Suoi Tien Station in the northeastern suburbs area of Ho Chi Minh City. The line will travel underground in the central area of Ho Chi Minh City covering 2.6 km that includes its starting point: Ben Thanh Station; in the remaining length of 17.1 km, train will travel elevated. The line will have three underground stations and 11 elevated stations, and a 27.4-hectare depot is planned for construction at Long Binh Ward (in the District 9). In terms of the state of planning, currently the Line 1 project is at the stage of receiving bids from construction companies.

(2) Line 2

Line 2 is the main line running east to west in the municipal railway network. Planning is currently progressing with the work divided into two phases. Phase 1 will be an 11.3 km section running between Ben Thanh Station and Tham Luong Station in the northwestern part of Ho Chi Minh City. Phase 2 will consist of two extensions from Ben Thanh to Thu Thiem and from Tham Luong to An Suong in the eastern and northwestern parts of the city, respectively. Ultimately, Line 2 will have a total length of 20.0 km. In the first phase of construction, all stations will be underground stations with the exception of Tan Binh Station, the terminus in the northwest part of the city for Phase 1.

Route planning is being co-financed by official development assistance from Germany in addition to the Asian Development Bank, the European Bank for Reconstruction and Development (EBRD) and KfW and the banking group of the German government. However, this project scope which has been approved by HCM PC does not include the Ben Thanh Station. In the case of second phase, the project checklist of grant German ODA project has been submitted by MPI to Prime Minister.

(3) Line 3

Project Line 3 is divided into following two projects. Line 3a is the extension project of Line 1, and Line 3b is planned to be running north to south. Line 3a is a 16.2 km route connecting Ben Thanh Station with Tan Kien Station in the southwest part of Ho Chi Minh City. The line is being planned to run southwest from Ben Thanh Station along Pham Ngu Lao (street) and Ben Thanh Station for Line 3a line will be a shared station with Line 1. HCM PC has submitted a proposal to MPI regarding the registration for Country Development Program of ADB

Line 3b is planned to branch off from Line 3a at Cong Hoa Roundabout station and lead to Hiep Binh Phuoc station in the north part of Ho Chi Minh City. The total length is 12.1 km. HCM PC has suggested MPI to support PC in submitting the proposal to JICA for JICA to consider a loan agreement on July, 2011.

(4) Line 4

In the municipal railway network, Line 4 is thought of as the main line running north to south. The initial planning called for a route with a total length of 24.0 km running from the Ben Cat Bridge to Nguyen Van Linh. However, changes to the plan are currently being debated, including the idea of extending the total length to 36.0 km to align it with urbanization in Ho Chi Minh City and the city's development policy. A 30-hectare depot is planned for construction in Thanh Xuan (in the 12th Commune), but in the event that the route is extended, two other depots will be needed, at the Port of Hiep Phuoc and in the metropolitan area (at Nha Be). MAUR has signed a Memorandum with Italian – Thai Development Public Cooperation (Thailand) regarding the investment cooperation. Currently, Italian – Thai Development Public Corporation has submitted the proposal for Line 4 Project to district level Departments and agencies on October, 2011.

(5) Line 5

Line 5 project is currently progressing with the work divided into two phases. Phase 1 is 9.0 km section running between Bay Hien Roundabout station and Saigon bridige. And prime minister has approved the check list of Spanish ODA project. Phase 2 is 14.5 km section running between district 8 and Bay Lam Roundabout station. Preparatory Survey has been completed for this section by Spanish consultant and local consultant is understudying the investment project implementation.

(6) Line 6

Line 6 is a 6.0 km route connecting Ba Queo station with Phu Lam Roundabout station. Spanish consultant has finished the feasibility study report and local consultant is understudying the investment project implementation which expects to be finished in 2011.

(7) Streetcars and monorail

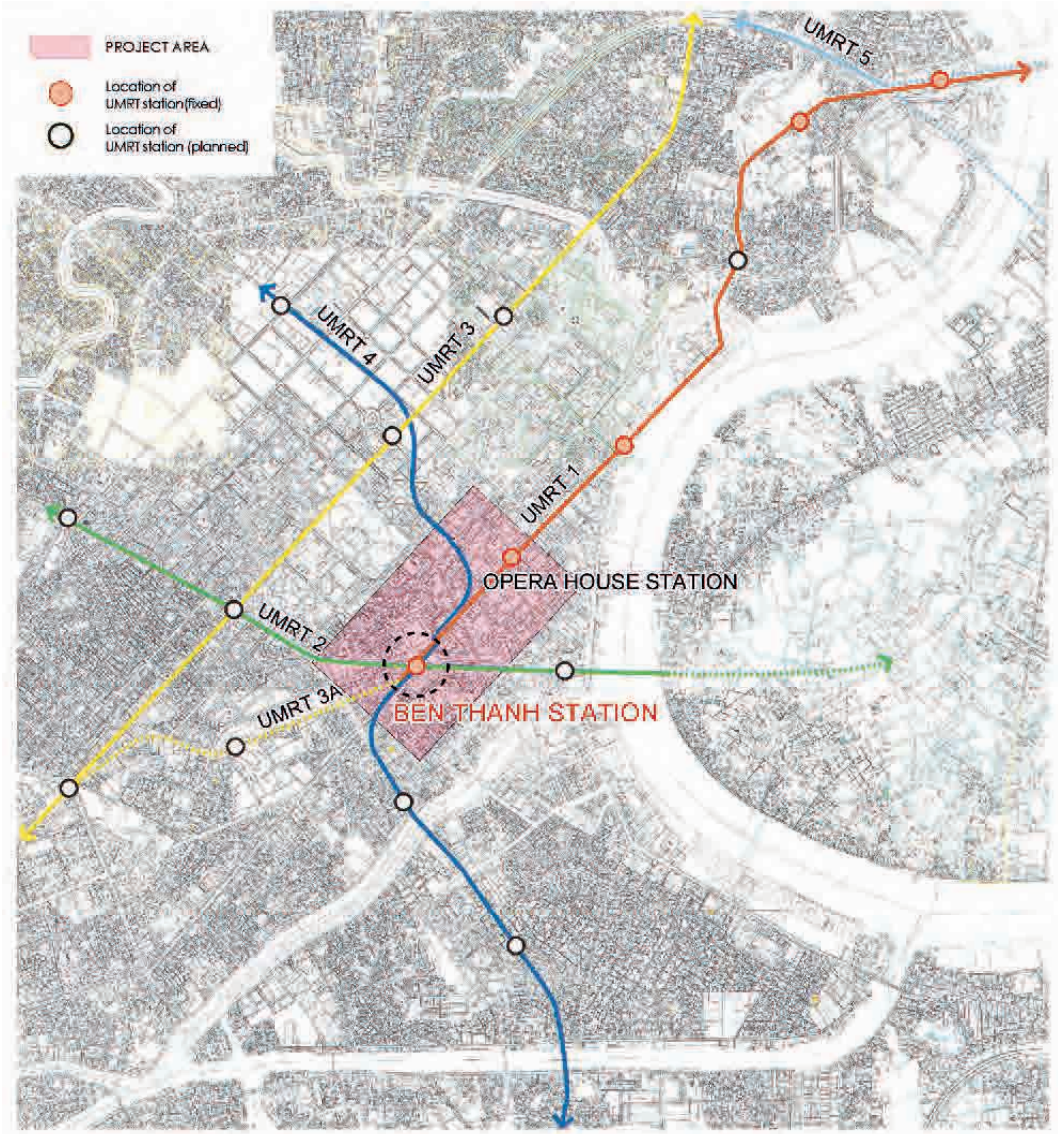
Streetcar Line XD1 is a 12.5 km route connecting river side of Saigon River with Bus terminal in the western side of the city. Procedures for selecting consultants for implementing investment project are now on-going.

In the case of two monorail lines, XD2 and XD3, similar to Line 4, Italian-Thai Development Public Corporation is understudying the feasibility of BOT scheme. And Marubeni Corp. of Japan has completed the preparatory survey under PPP scheme for Line XD2.

2) Overview of underground development in project area

Figure 2.32 shows the subway plan for central Ho Chi Minh City. Ben Thanh Station will be a transfer station for not only the UMRT Line 1, Line 2, Line 3a, and Line 4 but also for the light rail transit (LRT) and bus rapid transit (BRT) routes. Thus it plays a crucial role in the city's railway master plan.

Figure 2.33 shows the underground planning in the project area. Line 1 is planned to run northeast from Ben Thanh Station along Le Loi. The distance from the center of that station to the center of the next station, Opera House, will be 715 meters. Line 4 will go south along Pasteur (street) and will pass beneath the Line 1 tunnel and intersect Le Loi, from which point it will travel parallel to Line 1 on the southeast side of that line until it reaches Ben Thanh Station. Of the lines running into Ben Thanh Station, Line 2 will have the station constructed at the lowest depth. In addition to the railway planning, two bus underground terminals are planned for construction adjacent to Ben Thanh Station, making this station a center for municipal transit in Ho Chi Minh City.



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

Figure2.32 Urban Railways Network of the Existing Center of HCMC

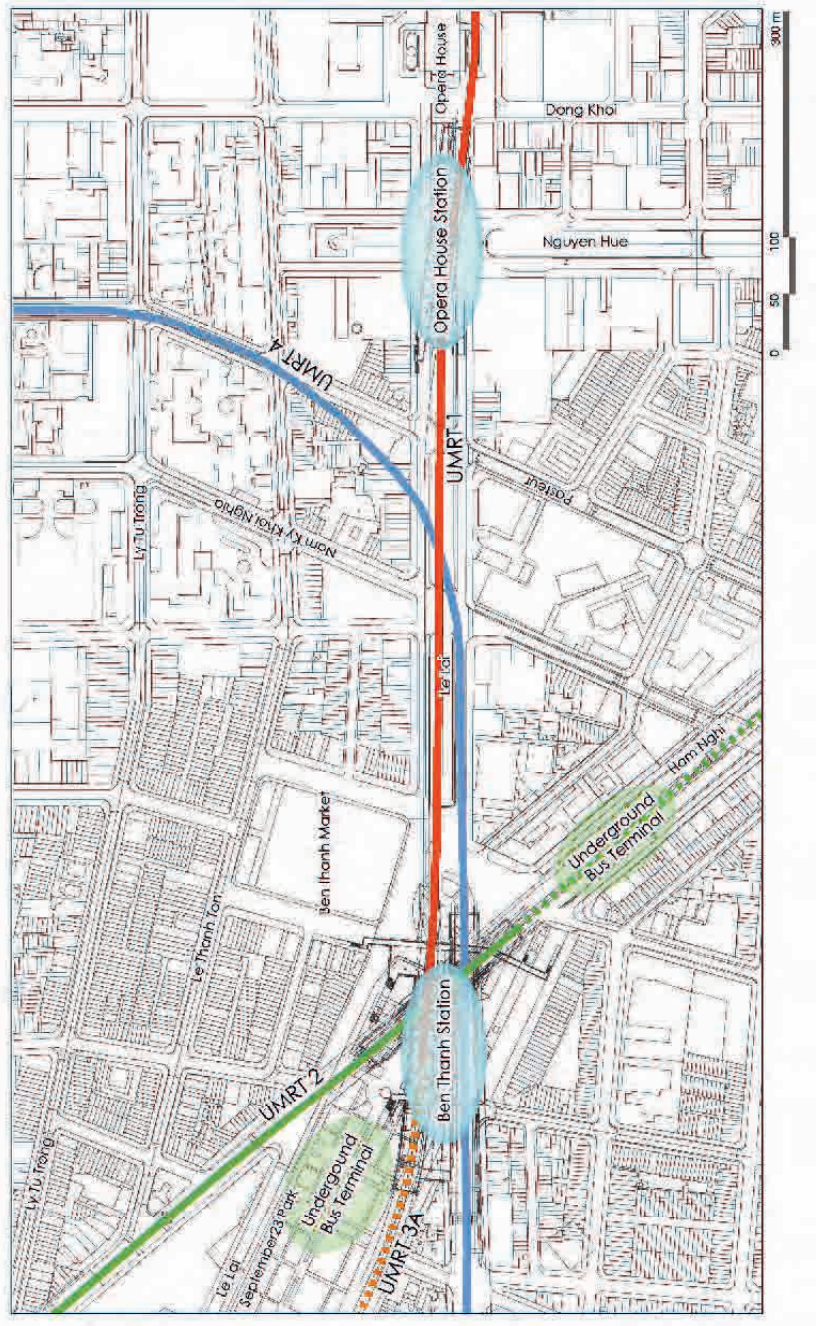


Figure2.33 Underground Development Plan

2) Overview of buried pipes in project area

Figures 2.34 and 2.35 show the current state of underground buried pipes in the project area. There are many buried pipes underground in the project area, including water pipes, sewer pipes, telephone cable and electrical cable conduits and so on. As a rule, it is the responsibility of Ho Chi Minh City to move these outside the site prior to the construction of underground stations and underground shopping malls. However, in the case of sewer pipes and other buried pipes that are difficult to move, the pipes need to be run around the site or hanging barriers must be put in place at the time that the underground station or underground shopping mall is constructed. See Section 3 in Chapter 4 regarding the study of buried pipes that must be conducted at the time of construction.

Figure2.34 Underground Facilities (1)

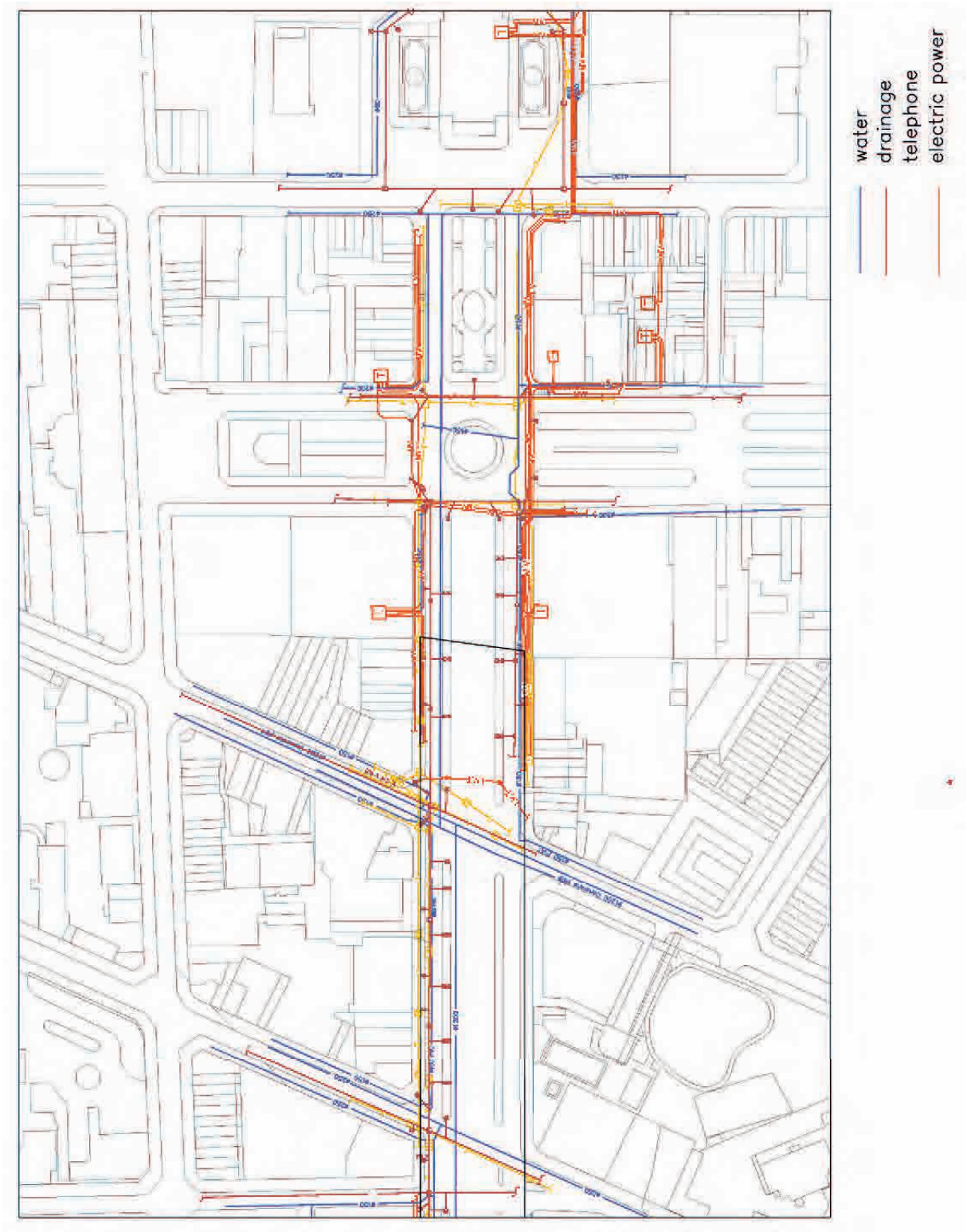
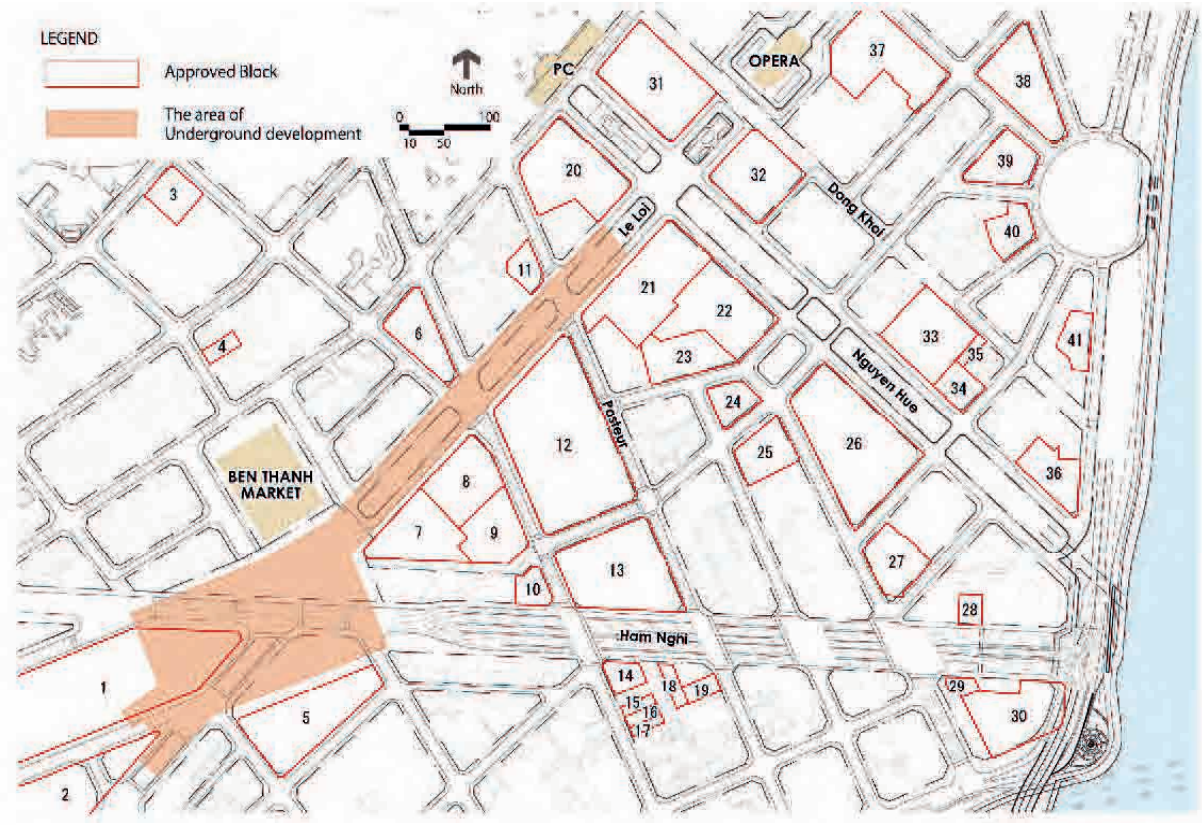


Figure2.35 Underground Facilities (2)

2.2.3 Development in the Surrounding Area

The area around Ben Thanh Station in the project site, centering on the Ben Thanh Market, is an important city center in which many residents gather. At the same time, it is also a transit terminal district at which main roads and bus terminals converge, and high-density development is already in progress. As the project area is in the center of Ho Chi Minh City, high-volume redevelopment projects are being pursued in many areas, and the project area is expected to become an even higher density area in the future. Figure 2.36 and Table 2.7 show the redevelopment projects in area around the project area. As Figure 2.36 shows, many redevelopment projects are planned in the area around the scope of the underground planning area. Moreover, compared to the redevelopment in the surrounding region, there are many skyscraper redevelopment projects with a height of 200 meters in the area adjacent to the scope of the underground planning area.

At ground level, it is difficult to create a comfortable pedestrian environment that links these redeveloped areas. Public underground passages are expected to be constructed in order to form a network of passages integrating these redeveloped areas.



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

Figure2.36 Approved Development of the Existing Center of HCMC

Table2.7 Approved Development of the Exisiting Center of HCMC (1)

NO	Name	Address	Landuse	Area (sqm)	FAR	BCR(%)			Setback	Height (m)	Story		Note
							podium	tower			(floor)	Note	
1	9/23 Park	Le Lai - Pham Ngu Lao - Quach Thi Trang - Nguyen Trai, Pham Ngu Lao Ward, Dist 1		28,400									
2		Tran Hung Dao - Pham Ngu Lao - Nguyen Thai Hoc, Pham Ngu Lao Ward, Dist 1		13,000	16		50	30		224	55		
3		39-39A Nguyen Trung Truc, Ben Thanh Ward, Dist 1		966.5	6.6	55			Nguyen Trung Truc (20m), Nguyen Du (20m): Podium 3m Tower 6-7m other boundaries: Podium 3m Tower 3m	50	10-12		Corner cut of intersection: 5m x 5m
4		26 Thu Khoa Huan, Ben Thanh Ward, Dist 1	Office	709.5	6.5	60			Thu Khoa Huan (20m): 6m Alley 24 Thu Khoa Huan (<12m): 2m adjoining boundaries: 2.5m	50	12		
5		Pham Ngu Lao - Le Thi Hong Gam - Calmette - Pho Duc Chinh, Nguyen Thai Binh Ward, Dist 1	Office, commercial, service, apartment	8,500	16		60	40		220	50-55		
6	SJC Tower	Le Loi - Nam Ky Khoi Nghia - Le Thanh Ton - Nguyen Trung Truc, Ben Nghe Ward, Dist 1	Office – Apartment for lease – Department store	3,805	15.75	62			Podium Le Loi: 10m Le Thanh Ton, Nam Ky Khoi Nghia, Nguyen Trung Truc: 5m	175	45	46 floors excluding 6 basements	Total floor area: 82,633 m2 including tower and podium (59,838 m2) + 8 basements (22,975 m2)
7	Saigon Hospital	117-121 Le Loi, Ben Nghe Ward, Dist 1	Luxury Hotel, Commercial, service and office	5,600	15		55	35	all boundaries: 4m (podium)	200	49		
8			Office, commercial and 5-star hotel	5,400	14-15		60-65	30-35		160-180	40-45		
9		61-71 Nam Ky Khoi Nghia, Ben Thanh Ward, Dist 1	Commercial, service and office	4,000	11		55	35	all boundaries: 4m (podium)	110	26		
10	Golden Saigon Plaza	130 Ham Nghi, Ben Thanh Ward, Dist 1		1,338	12	60			Ham Nghi (55m): Ground floor: 3m Upper floors: no setback Huynh Thuc Khang (20m), Nam Ky Khoi Nghia (20m): 3m 132 Ham Nghi: 6m	87.6	21		corner cut of intersection between Ham Nghi and Nam Ky Khoi Nghia: 9.5m x 9.5m corner cut of intersection between Huynh Thuc Khang and Nam Ky Koi Nghia: 7m x 7m
11		59 – 61 Pasteur, Ben Nghe Ward, Dist 1	department store, office for lease, cinema, hotel etc	around 902	9	75			Pasteur: Ground floor: minimum 4m Floor 2 – 6: no setback Floor 7 or higher: 3m	56	12 – 14	excluding basements, terrace roof floor	
12	Saigon Center	Nam Ky Khoi Nghia - Le Loi - Pasteur - Huynh Thuc Khang, Ben Nghe Ward, Dist 1	Office – Apartment – Department store	19,706	12		65	30	Podium: no setback (ground floor: 3m)	192	48	112m with 28 floors (front building near Le Loi) 192m with 48 floors (back building near	
13		Huynh Thuc Khang - Pasteur - Ham Nghi - Nam Ky Khoi Nghia, Ben Nghe Ward, Dist 1		10,075	3.4	50.5			Huynh Thuc Khang (20m), Pasteur (20m): 3m existing 7-floor building: 10m	30.4	7	excluding basement, mezzanine, rooftop and technical floor on the roof	coverage area: 1,505 sqm corner cut of intersection: 3m x 3m
14		93-95 Ham Nghi, Nguyen Thai Binh Ward, Dist 1	Headquarter of IncomBank	1,187	14		75	50	Nam Ky Khoi Nghia (20m), Ham Nghi (55m): Podium: no setback (Ground floor 3m) Tower: 6m other boundaries: 3m	95	24 (tower) 6 (podium)		
15		70-72 Nam Ky Khoi Nghia, Nguyen Thai Binh Ward, Dist 1		641	6.5	55			Nam Ky Khoi Nghia (20m): 6m other boundaries: 2.5m	47.4	12		
16		66 - 66B - 68 Nam Ky Khoi Nghia, Nguyen Thai Binh Ward, Dist 1	Office – Apartment	582.2	6.5	55			Nam Ky Khoi Nghia (20m): 6m adjoining boundaries: no setback	55	14		
17	BIDV												
18		87A, 89/9-89/11-89/13-89/15 Ham Nghi, Nguyen Thai Binh, Dist 1	Office	883.5	9	75			Ham Nghi (55m): Floor 1-2: 3m Floor 3-10: no setback Floor 11-14: 5m 89A Ham Nghi: 2m alley: 1m rear site: 2m	51	14		
19		48 Pasteur, Nguyen Thai Binh Ward, Dist 1	Office	748	9	7			Pasteur (20m): Floor 1: minimum 3m Floor 2 -9: no setback Floor 10 -12: minimum 5m northwest boundary: no setback other boundaries: minimum 3m	51	12	including technical floors, rooftop floor and semi-basement floor	
20	Rex Hotel									32	8		
21	TAX	135 Nguyen Hue, 39-59 Le Loi, 122A-124 Pasteur, Ben Nghe Ward, Dist 1	Commercial, service, office and hotel	9,208.6	15	65			Pasteur: Podium (H=30m) 4m Le Loi: Tower 10m Nguyen Hue: Tower 50m northeast boundary: Podium (H=30m) 8-16m Tower setback from podium: minimum 6m	152	40	excluding basement	

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

Table2.7 Approved Development of the Exisiting Center of HCMC (2)

NO.	Name	Address	Landuse	Area (sqm)	FAR	BCR(%)			Setback	Height (m)	Story		Note
							podium	tower			(floor)	Note	
22		TAX CENTER: 133 Nguyen Hue KIM DO HOTEL: 123-131 Nguyen Hue BIDV: 117 Nguyen Hue Ben Nghe Ward, Dist 1			15	40			Nguyen Hue: Podium (H=25m) 4m Tower 20m Ton That Thiep: Podium (H=25m) no setback Tower 4m adjoining boundaries: 6m, 8m	152 (tower) 25 (podium)	40 (tower) 6 (podium)		
23		18-64 Ton That Thiep, Ben Nghe Ward, Dist 1							Ton That Thiep St: Podium: no setback Tower: 4m northeast and northwest boundaries: 6m southwest boundary: 10m	108	30		
24		Ho Tung Mau - Huynh Thuc Khang - Ton That Dam - Ton That Thiep, Ben Nghe Ward, Dist 1			10	60				88	22		
25		Huynh Thuc Khang - Ton That Dam - Ho Tung Mau - 115-117 Ho Tung Mau, Ben Nghe, Dist 1	Department store – Hotel	3,055	around 12	65			Podium (5-storey): Ground floor: minimum 4m Storey 1 – 5: no setback from Huynh Thuc Khang (20m), Ton That Dam (20m), Ho Tung Mau (20m). For the land area behind the construction site: minimum 10m	86	22	excluding basements, mezzanines and technical floor podium (5 floors) + tower (17 floors)	
26		Nguyen Hue - Ngo Duc Ke - Ho Tung Mau - Huynh Thuc Khang, Ben Nghe Ward, Dist 1	Hotel, commercial and service	11,000	12 or 15	60			Nguyen Hue: Ground floor: 4m Tower: 20m other boundaries: Ground floor: 4m Tower: 10m	160	40		20% of land area shall be remained as local circulation and walkway
27	BITEXCO	45 Ngo Duc Ke, Ben Nghe Ward, Dist 1	Office, commercial, service, financial	2,874.22	15.8		55.3	30	all boundaries: 8m	270	61	60 floor, 1 ground floor	
28		12 Ham Nghi, Ben Nghe Ward, Dist 1		848	8.7	70			Ham Nghi (56m): Ground floor: 3m Upper floors: no setback other boundaries: 3m	51	12		
29		27-29 Ham Nghi, Nguyen Thai Binh Ward, Dist 1			9	70			Ham Nghi (56m): Ground floor: 3m Floor 2-14: no setback other boundaries: 3m	56	14		
30		34 Ton Duc Thang, Nguyen Thai Binh Ward, Dist 1	Office,commercial,apartment for rent	6,672.2	15	46			Ham Nghi: 21.5m Ton Duc Thang: 6m Ben Chuong Duong (combined with Khanh Hoi Bridge) : 22m noth boundary: 6m southwest boundary: 5.2m	186	41	excluding 5 basement floors and 3 technical floors	
31	Eden area	Nguyen Hue - Le Thanh Ton - Dong Khoi - Le Loi, Ben Nghe Ward, Dist 1	Office, hotel and commercial	8,600	6	80			Nguyen Hue, Dong Khoi, Le Loi: Ground floor: 3m 1st floor-22m: no setback 22m-30m: 6m Le Thanh Ton St: Ground floor: 3m 1st floor-12m: no setback 12m-30m: 16m Le Than Ton for 40m distance from Nguyen Hue: Ground floor-22m: 10m Dong Khoi for 22m distance from Le Loi: Ground floor-30m: 3m Le Loi for 40m distance from Dong Khoi: Ground floor-30m: 3m	30			
32	Saigon Tourist	Le Loi - Nguyen Hue - Dong Khoi - Nguyen Thiep, Ben Nghe Ward, Dist 1	Department store, office, and hotel	6,000	8	80			Nguyen Hue (64m), Nguyen Thiep (10m), Le Loi (56m), Dong Khoi (20m): Ground floor: 3m 1st floor-22m: no setback 22m-30m: 6m Le Loi for 40m distance from Dong Khoi: Ground floor-30m: 3m Dong Khoi for 25m distance from Le Loi: Ground floor-30m: 3m	30	8		
33	Times Square	22-36 Nguyen Hue, 57-69F Dong Khoi, Ben Nghe Ward, Dist 1	Office, hotel, service apartment, commercial and service		16.4	68			Dong Khoi: Podium (H=24.9m): no setback Ground floor 5.5m Tower 12.5m Nguyen Hue St: Podium (H=24.9m) 5m Tower 5m southeast boundary: 4-7m northwest boundary: 4.5m-6.4m	163.8	35	excluding 3 basement floors, mezzanine and 3 technical floors	
34		14-20 Nguyen Hue, Ben Nghe Ward, Dist 1	Commercial and Office		15		70	40		180			
35		51-53 Dong Khoi, Ben Nghe Ward,	Commercial and		15		70	40		180			

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

Table2.7 Approved Development of the Exisiting Center of HCMC (3)

NO.	Name	Address	Landuse	Area (sqm)	FAR	BCR(%)			Setback	Height (m)	Story		Note
							podium	tower			(floor)	Note	
36		2A-4-6 Nguyen Hue, 27-30A Ton Duc Thang, Ben Nghe Ward, Dist 1		4,916	11.6	61.4			Ton Duc Thang (25m): no setback Nguyen Hue (64m): 5m other boundaries: 4.5m	110	30		
37	Park Hyatt	Lam Son - Hai Ba Trung - Dong Du, Ben Nghe Ward, Dist 1		8,180	13		70	55-60 (to floor 20) 25 (to floor 26)	Lam Son: to Floor 7: 4m to Floor 26: 30m Hai Ba Trung: Ground floor: 4m to Floor 7: no setback to Floor 20: 10m to Floor 26: 16m Dong Du: Ground floor: 4m to Floor 7: no setback to Floor 20: 10m to Floor 26: 65m other boundaries: 6m	104	26		
38	Sabeco Tower	2-4-6 Hai Ba Trung, Ben Nghe Ward, Dist 1		6,044	15	60			all boundaries: 4m	170	40		
39	Vietcombank Tower	5 Cong Truong Me Linh, Ben Nghe Ward, Dist 1	Office & commercial	3,232	16	67			From the right of way (Hai Ba Trung 20m, Mac Thi Buoi 20m, Phan Van Dat 20m): 4m	171	35		
40		11 Cong Me Linh, Ben Nghe Ward, Dist 1		2,208	12		60	35	Me Linh Square (25m), Phan Van Dat (20m), Ho Huan Nghiep (20m): Tower: 6m Podium of 4 floors: 3m other boundaries: 3m	124	30		
41		17-20 Ton Duc Thang, Ben Nghe Ward, Dist 1			10		70	45	Ton Duc Thang: Podium: no setback Tower: 3m Riverside Hotel: Ground floor and tower: 3m 1st floor-podium: no setback boundary with 18-19-20 Ton Duc Thang: no setback	75	16-18 (tower) 6 (podium)	Equivalent height to Renaissance Riverside Hotel (22 floors)	

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

2.3 URBAN PLANNING OF HO CHI MINH CITY

As for the existing city center (930ha in total) including Ben Thanh Station and its vicinity, the Department of Planning and Architecture of Ho Chi Minh City is now under formulation of the legal detailed urban planning in the Study on the Formation 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 (hereinafter called the Detailed Planning Study of the Existing Center). The Detailed Planning Study of the Existing Center purposes to formulate zoning plans of 1/2000, and urban design plans of 1/500 for the area surrounded by Ham Nghi, Nguyen Hue and Le Loi Streets, and architectural guidelines. On November 2011, the Assessment Committee was organized to discuss the draft zoning plans and urban design plans, and the final coordinating process for the approval by the People's Committee of Ho Chi Minh City is being taken place as of November 2011. Based on what have been attained by the Detailed Planning Study of the Existing Center so far, urban planning of Ben Thanh Station and its vicinity is as outlined below, provided that part of the details is subject to change because it has not entered the administrative approval stage yet.

2.3.1 Principles of Area Development

1) The Existing City Center

The existing city center has the development principle that urban functions required for the core city of the Southern Vietnam are to be enhanced in harmony with the townscape valuably stocked during the French colonial era. Concretely,

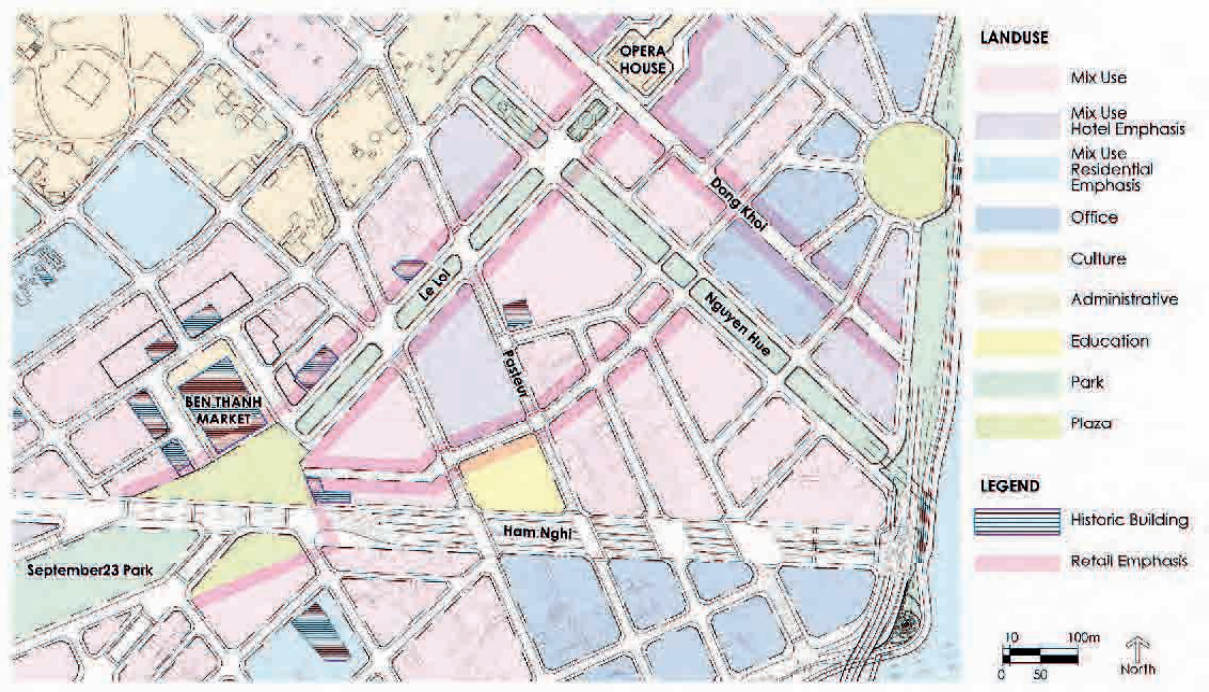
(a) Urban functions: To reinforce pivotal functions for business, commerce, administration, culture and tourism in the Southern Vietnam.
(b) Transport: To form pedestrian priority zones by placing a special emphasis on public transport in order to hold back the present flood of motorcycles and cars.
(c) Underground development: To form the network of underground urban space through construction of UMRT stations.

2) Vicinity of Ben Thanh Station

The area around Ben Thanh Station, which is positioned as part of the core of commerce, business and tourism in the existing city center, is planned to produce a mixture of the Ben Thanh Market and other historically valuable buildings and the redevelopment area with high-rise buildings together with a new public space comprising a pedestrianized market-front plaza and Le Loi Street as a transit mall.

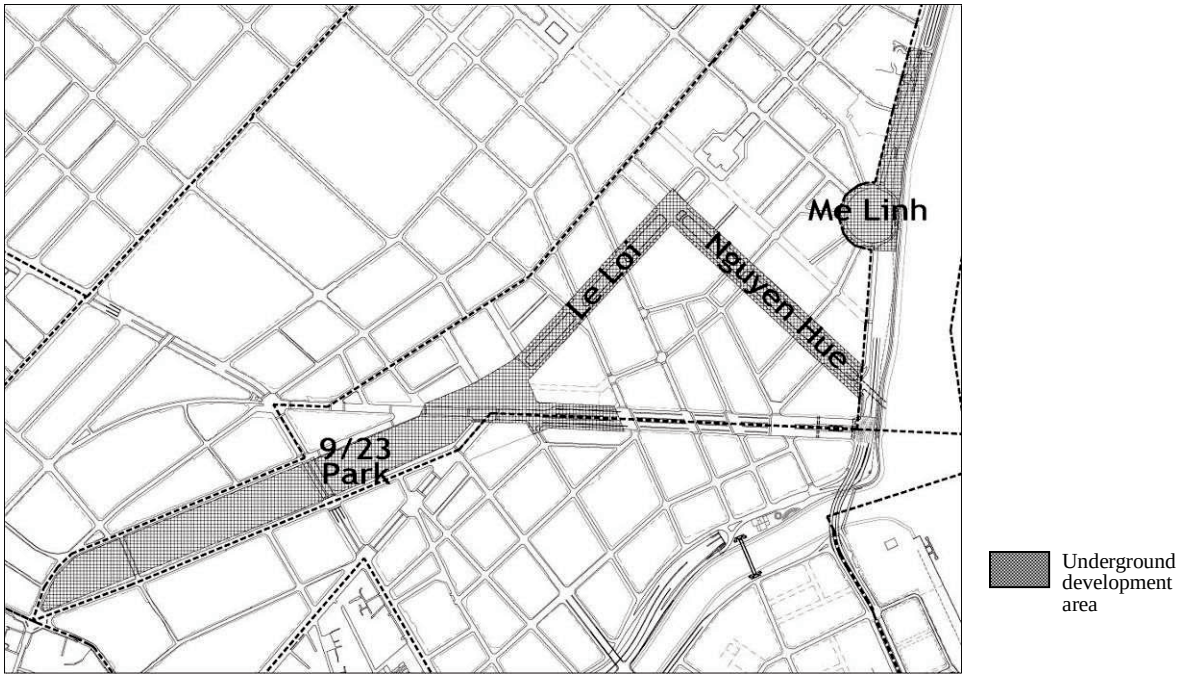
2.3.2 Land Use and Spatial Formation

Land use of the area around Ben Thanh Station is set up as mixed use with rather higher architectural indicators of FAR and height limitations, as shown in Figure 2.37. Therefore, this area will be redeveloped with many skyscrapers of large mass used for offices, shops, hotels, etc. The lower floors of buildings will be limited to commercial use so that Le Loi Street and the area around Ben Thanh Station can be provided with more vibrant dignity.



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

Figure 2.37 Land Use Plan of the Existing Center of Ho Chi Minh City



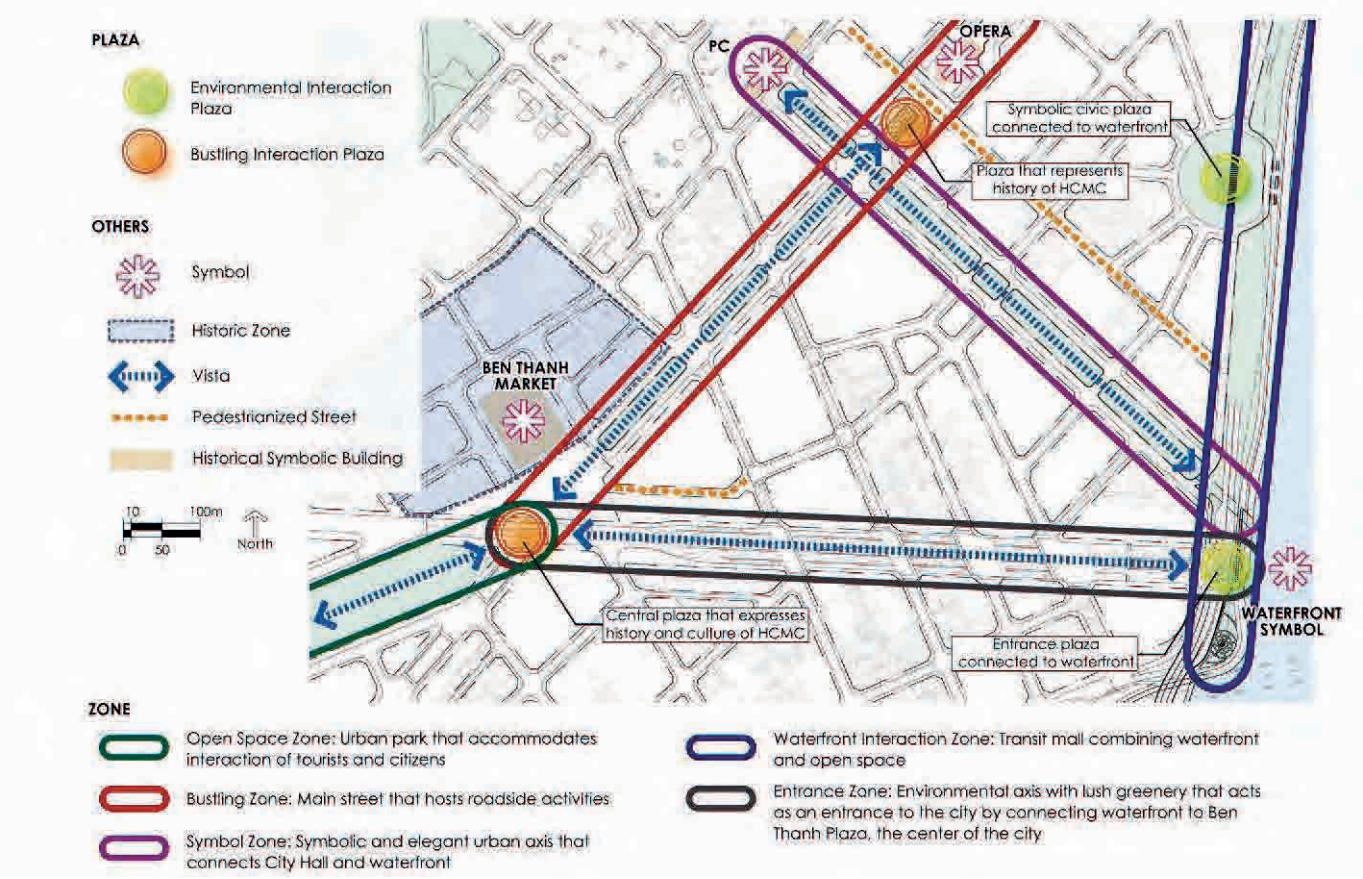
Source: The Report on the Detailed Planning Study of the Existing Center, 2011

Figure 2.38 Underground Development Plan of the Existing Center of Ho Chi Minh City

Underground urban space consisting of passages, shopping mall and car parking will be developed by using the occasion when Ben Thanh Station is constructed underground for two or more UMRT lines. Figure 2.38 shows the underground development plan of the existing city center. 9/23 Park, Nguyen Hue Street and Me Linh Plaza with a riverside park will have

underground car parking and shopping malls and Le Loi Street, an underground shopping mall.

The linear area from Ben Thanh Station to Le Loi Street is planned to be filled densely with commercial and business functions as shown in Figure 2.38. Particularly, it is expected that more pedestrians will be able to enjoy higher urban amenity through re-arranged commercial or retail function. In this line, traffic of motorcycles and cars on the ground will be minimized so as to ensure safe and comfortable walk. As a result, Le Loi Street will be transformed to a transit mall limited to public transport, as stated in the next section of transport. In addition, the rotary in front of Ben Thanh Market will be pedestrianized and Opera House will have a plaza in front by pedestrianization of Dong Khoi Street. These plazas will become pedestrian and landscape nodes of the existing city center (See Figure 2.39).

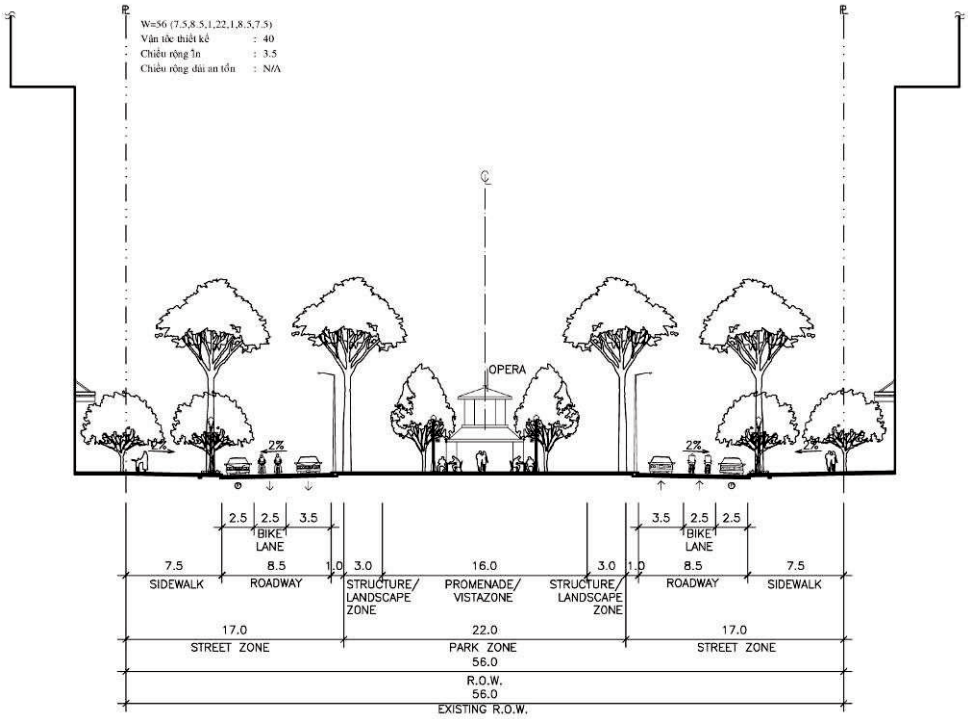


Source: The Report on the Detailed Planning Study of the Existing Center, 2011

Figure 2.39 Open Space and Landscape Plan of the Existing Center of Ho Chi Minh City

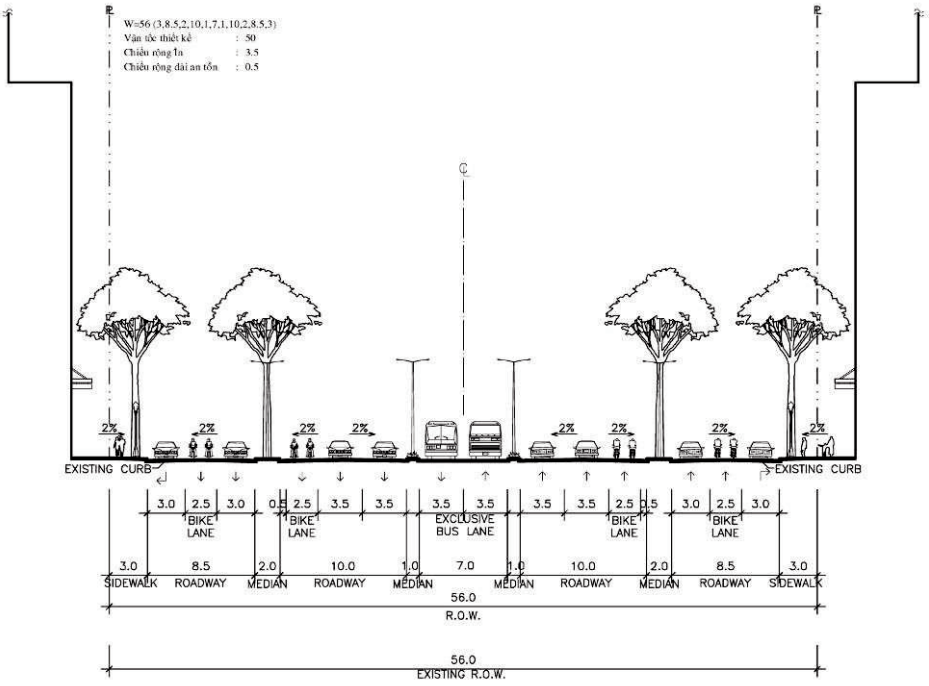
2.3.3 Transport

Roads/streets, public transport and pedestrian network around Ben Thanh Station are planned according to the above-mentioned development principles and land use. Principal streets of Le Loi, Han Nghi and Nguyen Hue will have the cross-sections as shown in Figures 2.40, 41 and 42. Particularly, Le Loi Street and Nguyen Hue Street will have a maximum width of sidewalk so as to form a pedestrian priority zone and serve as a transit mall with emphasis on public transport by reducing through-traffic and widening the median as green.



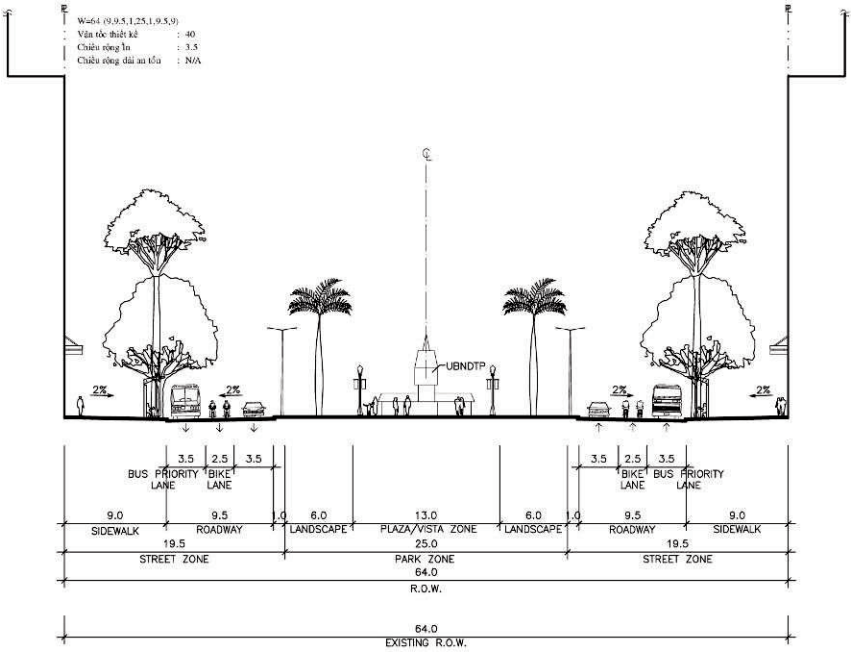
Source: The Report on the Detailed Planning Study of the Existing Center, 2011

Figure 2.40 Cross-section of Le Loi Street



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

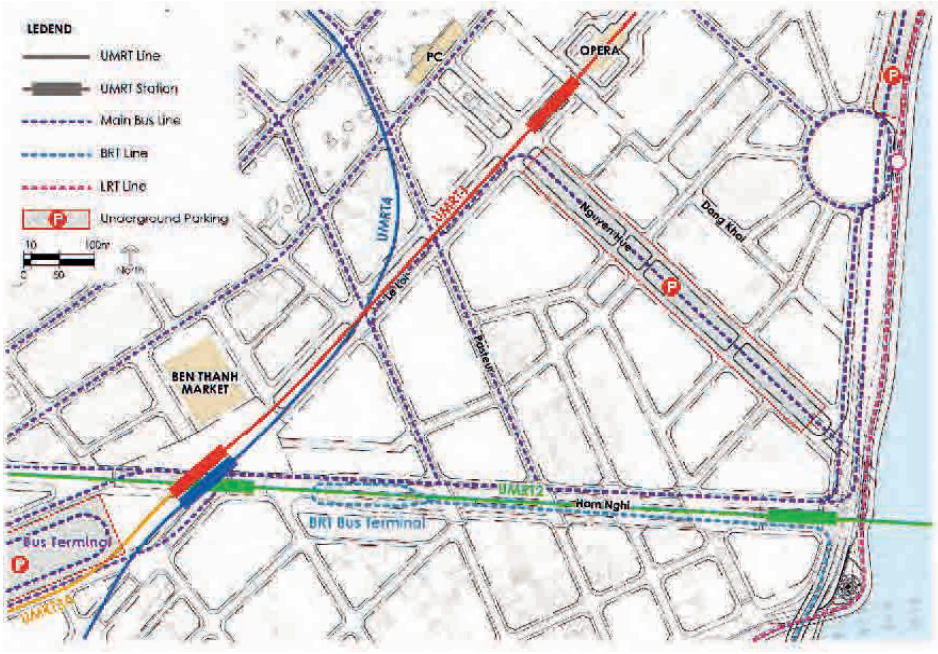
Figure 2.41 Cross-section of Ham Ghi Street



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

Figure 2.42 Cross-section of Nguyen Hue Street

Figure 2.43 shows the public transport plan. Ben Thanh Station is a crucial traffic node to be used for four UMRT lines. Le Loi to Nguyen Hue Streets and Pasteur to Nam Ky Khoi Nghia Streets positioned as a transit mall will be used for bus services. Ham Nghi Street will receive an exclusive lane for BRT (Bus Rapid Transit) service which covers the southern area of the city. In lieu of the present one, a bus terminal will be newly constructed under 9/23 park and Ham Nghi Street.

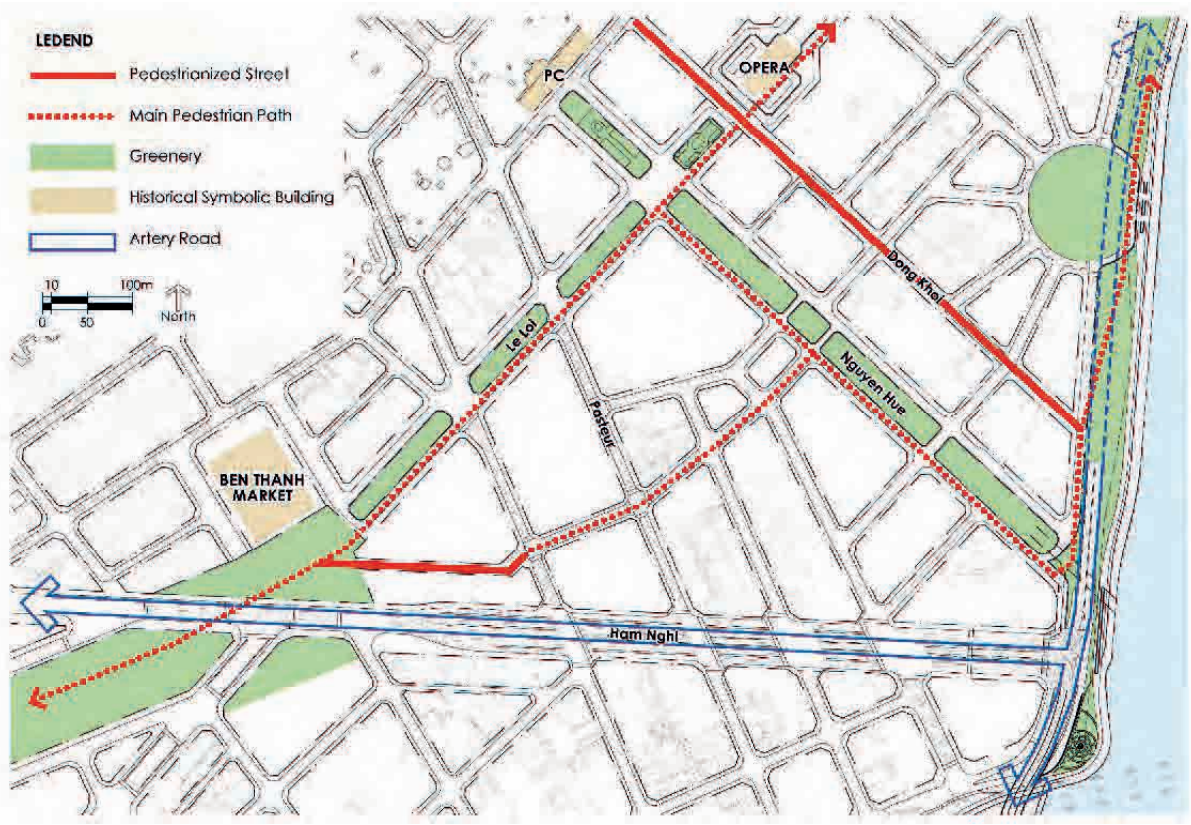


Source: The Report on the Detailed Planning Study of the Existing Center, 2011

Figure 2.43 Public Transport Plan of the Existing Center of Ho Chi Minh City

Since the Ho Chi Minh City government has a policy to restrict *xe oms* (motorbike-style taxi) and *cyclos* (small light vehicle with two wheels like *rickshaw*) in the CBD area, the major access measures to the area surrounding Ben Thanh Central Station are busses, motorbikes and taxies. In a transport plan of this detailed planning study, therefore, accessibility to the CBD area by the UMRT and convenience of transfer between UMRT stations and busses and taxies are being examined as the important issues.

Figure 2.43 shows the principal pedestrian network around Ben Thanh Station. Le Loi Street and Nguyen Hue Street will be refurbished as pedestrian priority street and transit mall, and Huynh Thuc Khang Street (in part) and Dong Khoi Street will be pedestrianized. Consequently, an area surrounded by Le Loi Street, the Saigon River and Ham Nghi Street is intended to be designated as a pedestrian priority zone.



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

Figure 2.44 Pedestrian Network Plan of the Existing Center of Ho Chi Minh City

To examine the above transport schemes in this detailed planning study, the traffic volumes and network simulation results obtained from "The Urban Transport Study for the Ho Chi Minh Metropolitan Area (called HOUTRANS)" were utilized, which was conducted during 2002 and 2004 funded by JICA and the data and information of which were updated by the latest planning conditions. In Ho Chi Minh City, the large-scale traffic study covering the entire city has not been conducted since HOUTRANS. The current transport master plan for Ho Chi Minh City approved by the Prime Minister was also formulated based on the HOUTRANS results.

2.4 RELATED LAWS AND REGULATIONS

2.4.1 PPP Related Laws and Regulations

1) BOT Law and PPP Regulation

Regarding legal framework about BOT/PPP schemes, Decree 78 was promulgated in 2007 and the BOT Law (Decree No.108/2009/ND-CP) has been in effect on January 15th, 2010. Furthermore, its detailed implementing regulation (Circular No.03-2011-TT-BKHDT) has been in effect on April 1st, 2011 which was followed by a minor revision of Decree No.108 done by Decree No.24 including four items such as preparation and assessment of feasibility study. In terms of PPP project, preparation of a legal framework has just been started by promulgating on November 9th, 2010, a Pilot PPP regulation (Decision No.71/2010/QD-TTg) as a Prime Minister Decision which is subordinated to Decree as legal action.

Nevertheless, there is no significant difference between the two in viewpoint that both are promulgated in order to facilitate private sector participation in provision of public services (infrastructure). The following are the distinguished difference of the newly created Pilot PPP regulation as compared to the BOT Law:

- One Stop Shopping: Integration of coordination process and entities: Concept of one stop shopping was adopted for coordination and adjustment of project/ concession conditions among the government agencies through inter-ministries committee mechanism chaired by MPI.
- Dead line is set for finalization of PPP contract within 30 business days from the selection of concessionaire
- Equity ratio by private investor must be over 30% of total project cost
- Amount of completion bond must be more than 2% of the total project cost
- Concessionaire must always be selected on the basis of competitive tender and the cost of preparing a feasibility study must be assumed by the government
- Overseas regulations may be adopted in case there is no appropriate rule in Vietnam
- Participation portion by the government must be less than 30% of the total project cost

2) Implementing Procedures stipulated in the BOT Law

In Decree No.108, authorized state agency in subject infrastructure sector (for example, MOT in case of expressway sector) is totally responsible for implementing procedures from project formulation to finalization of contract as illustrated in the following figure. At the time of FS approval, if the project cost exceeds over VND 1.5trillion, Prime Minister's approval is necessary. MPI issues an investment certificate to either the investor or the project company. Implementing procedures are further detailed in Circular No.3.

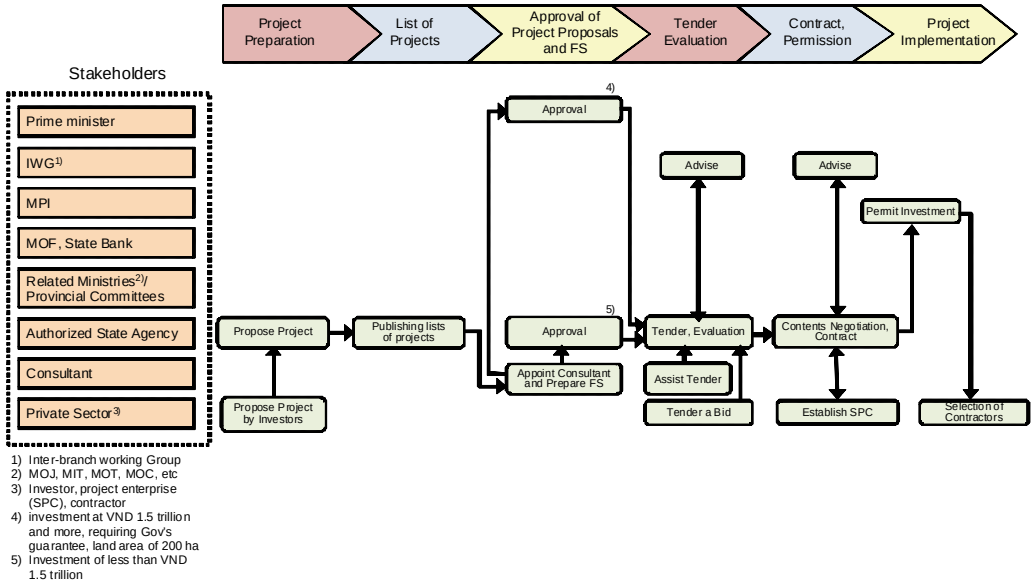


Figure 2.45 Implementing Procedure (Decree No. 108)

3) Implementing Procedures stipulated in the Pilot PPP Regulations

Preparation of PPP legal framework has just started in Vietnam and as previously mentioned Prime Minister Decision No.71 (the Pilot PPP Regulations) which is subordinated to Decree as legal action was promulgated in 2010. This Decision is positioned as Regulations for implementing Pilot PPP projects. This Decision No.71 basically follows the Decree No.108 in terms of procedures and contents as illustrated in the following figure and is composed of the following sections: i) General Provisions, ii) Public Participation, iii) Project Preparation, iv) Selection of Private Partners, v) Project Contract, vi) Investment Certificate and Project Implementation, vii) Financial Statement and Transfer of Project Work, viii) Incentives and Guarantee of Investments, xv) Organization of Implementation.

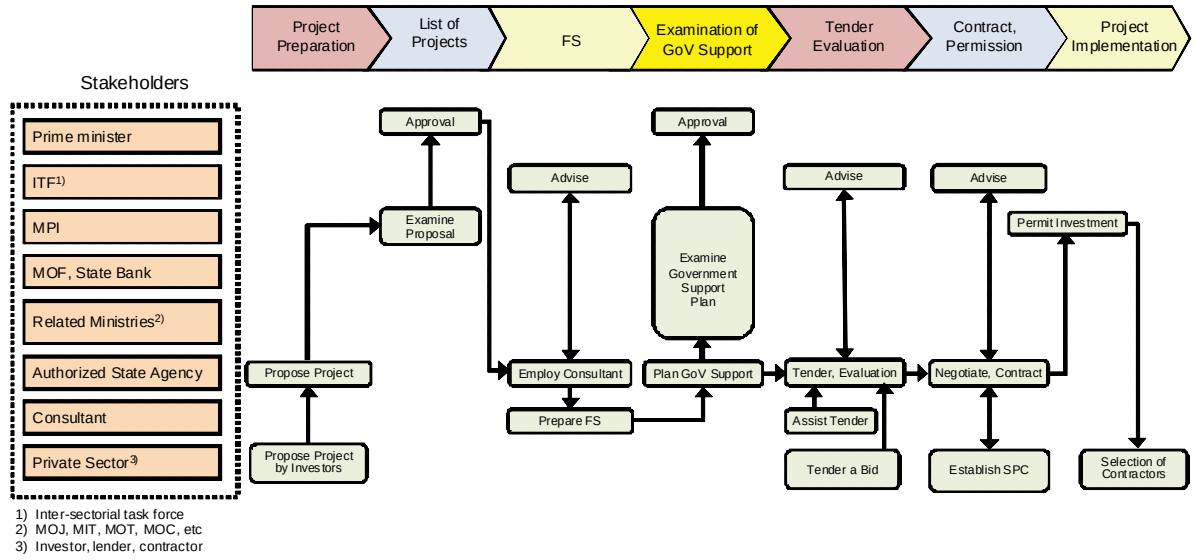


Figure 2.46 Implementing Procedure (Decision No. 71)

Decision No.71 gives MPI an initiative and leading role in implementing PPP project, for example MPI has authority to approve PPP project list before PM's approval for specific PPP project and advisory function of inter-sector task force which MPI is supposed to chair, on the procedures such as FS approval, selection of concessionaire and finalization of PPP contract. In the Decision, a new section for government support is created which clarifies the range of maximum government support to be within 30% of the total project cost. Decision No.71 has been effective from January 15th, 2011 and as being regulations for pilot PPP project, the Decision is supposed to be reviewed based on the result and experiences of the pilot PPP projects.

2.4.2 Related Laws and Regulations for Urban Development Project

1) Relates Laws and Regulations

The following are the related laws and regulation for implementing urban development project:

- Law on investment 2005 and its guiding documents
- Law on enterprise 2005 and its guiding documents
- Law on land 2003 as amended and its guiding documents
- Law on construction 2003 as amended and its guiding documents
- Law on urban planning and its guiding documents
- Law on real estate business and its guiding documents
- Decree No. 39/2010/ND-CP dated 7 April 2010 of the Government guiding on management of urban underground space ("Decree 39")

2) Proposed Implementing Procedure for PPP based Urban Development Project

Based on examination of the above listed laws and regulations, possible implementing procedures for PPP based urban development project is proposed in the following figure.

Considering the importance of this project, the first step to be required is for the potential concessionaire (a consortium composed of several investors) to obtain consent (Letter of Intent for In-principle Consent for Investigation) from both the Vietnamese Government (Prime Minister/Government Office) and the subject local government (People's Committee of Ho Chi Minh City), and on the basis of the consent, to implement a Pre F/S of the project.

Next step would be that the potential concessionaire summarizes the contents of the Pre FS and submit it to the above mentioned Governments as their proposal (General Proposal[1]) for obtaining a consent for implementing a F/S of the project (In-principle Approval/Acceptance of GOV/PC for the investors to make F/S).

After the implementation of the F/S, the procedure would be similar to those of large scale urban development project such as obtaining an investment certificate on the basis of the F/S, certificate of the land use right, although it is special land use right for the use of the underground space, and other necessary permits and approvals for development and construction, then to proceed to the start of construction.

[1] Tentative scope/scale of the Project, underground land to be used for the Project, capital level and structure, term of the Project and schedule for implementation, tentative technical and technological methods/solution for construction of project, proposed treatments for the Project, etc.

Regarding the acquisition and securing of the necessary rights and approvals for the use of the underground space, either the public side nor the private side have sufficient experiences thus far, therefore required procedures should be clarified in the investigation to be conducted from now on.

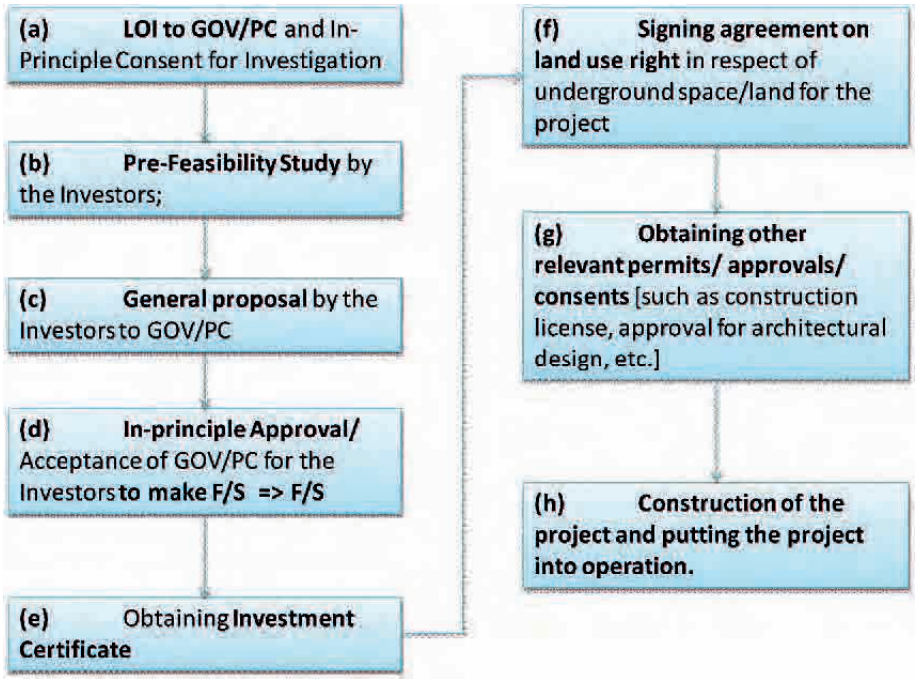


Figure 2.47 Proposed Implementing Procedure for PPP based Urban Development Project

2.4.3 Related Laws and Regulations for Underground Development

Regarding related laws and regulations for underground development, Decree No.39/2010/ND-CP "Decree on Management of Urban Underground Construction Space[2]" was promulgated on April 7th, 2010. Contents of this regulation are summarized as follows:

- Subject of regulation: As the subject of this regulation, underground railway transport facilities, underground parking and underground tunnels are clearly stipulated, however, treatment of commercial facilities are not defined clearly;
- Land use right: purpose of land use right is classified into Public Purpose and Business Purpose. However, what kind of usage is classified as public or business is not clearly stipulated. Details of how to set the level of land use fee is not stipulated either;
- Ownership of underground assets and facilities: Not clearly stipulated;

[2] Revised version of previous regulation "Decree No. 41/2007/ND-CP (First regulation regarding underground construction)

- Technical standards for underground construction: While Circular No.28/2009/TT-BXD, August 28 2009 promulgating the national construction code for urban works (Part 1.Subway; Part 2.Garage) exists, Decree No.39 allows adoption of foreign standards and rules when rules do not exist or are not sufficient domestically;
- Roles of local government PC: Local government PC plays an important role in Urban Planning, Urban Underground Development Planning, Land Use Planning, Approval of Land Use Right, Supervision of Underground Construction, Maintenance and Management of Facilities Developed Underground.

It is difficult to determine at a moment whether it is possible to set mortgage charge on immovable assets and facilities developed underground or not, as Decree No.39 does not clearly stipulate about the ownership right of those immovable assets and facilities (for example, how to approve land use right and how to issue land use certificate, etc). However, it is worthwhile to note that there is a legal opinion from a concerned local lawyer that setting mortgage charge on the immovable underground assets and facilities would work in similar manner as that of land use right on ground. Namely, if the land use right above the underground development is secured on the basis of leasing agreement, it is not possible to set mortgage charge on the immovable assets and facilities, while such land use right is based on permanent ownership (such as the land use right based on full payment of 50 year land use fee), it is assumed possible to set mortgage charge on the immovable assets and facilities developed underground.

2.4.4 Underground Construction Technology Standars

1) Construction technology standards in Vietnam

Table 2.8 shows the technical standards for the construction of buildings and other structures in Vietnam. With regard to the disaster planning standards for the buildings that are integrally related to this project, comparatively detailed regulations are contained in the Building Code of Vietnam-Volume 2 (issued in conjunction with Decision No. 439/BXD-CSXD, 25 Sep 1997), however, the content does not deal specifically with underground shopping malls.

As technical standards relating to underground structures, there is also the Vietnam Building Code for Urban Underground Structures (Part 1. The Underground/Part 2. The Parkings) (QCVN 08:2009/BXD, 14 Aug 2009). However, these standards are published by the Ministry of Construction (MOC) of Vietnam, and as there are some deficiencies with regard to the technical content and the procedures for publication, the standards are currently being revised, so at present they cannot be called useful technical standards.

Figure 2.8 Construction technology standards in Vietnam

Laws and Regulations	Number	Date
Construction Law	No. 16/2003/QH	26 Nov 2003
Decree on management of urban underground construction space	No.39/2010/ND-CP	7 Apr 2010
Circular on stipulating the application of foreign standards in construction activities in Vietnam	No. 40/2009/TT-BXD	09 Dec 2009
Building Code of Vietnam - Volume 1	Issued in conjunction with Decision No. 682/BXD-CSXD	14 Nov 1996
Building Code of Vietnam - Volume 2	Issued in conjunction with Decision No. 439/BXD-CSXD	25 Sep 1997
Building Code of Vietnam - Volume 3	Issued in conjunction with Decision No. 439/BXD-CSXD	25 Sep 1997
Vietnam Building Code on Regional and Urban Planning and Rural Residential Planning	Decision No.04/2008/QD-BXD	3 Apr 2008
Vietnam building standards design requirements for fire caution and prevention for houses and buildings	TCXDVN 2622	1995

2) Technical standards for municipal railway Line 1

In the related UMRT Line 1 project, the STandard urban RAilway SYstem for Asia (STRASYA) urban railway system prepared in 2007 by the Japanese Ministry of Land, Infrastructure, Transport and Tourism based on Japanese technical standards relating to urban railways is being used. STRASYA is a standard system for urban railways created based on Japanese railway technology and expertise. The introduction of this system is expected to enable highly safe, punctual, energy-efficient and low-maintenance railway operation.

With regard to disaster prevention planning for underground train stations, there are no disaster prevention standards in Vietnam. For this reason, following approval by the Ho Chi Minh City Fire Department of the disaster prevention plan based on Article 29 in the Ministerial Ordinance for Establishing Technical Standards Relating to Railways" established by Japan's Ministry of Land, Infrastructure, Transport and Tourism (MLITT Ministerial Ordinance No. 151, December 2001), this plan was used for the design of the UMRT Line 1 subway station.

3) Construction technology standards relating to underground shopping malls in Japan

Disaster planning for underground shopping malls in Japan is done primarily in accordance with the provisions of the Building Standards Law and its related laws and regulations and the Fire Defense Law and its related laws and regulations.

In the Building Standards Law, the provisions relating to underground shopping malls are established in Article 128, Section 3 of the Building Standards Law enforcement regulations. The standards for building equipment are established in the "Establishment of construction methods for emergency lighting equipment, smoke control equipment and drainage equipment constructed in underground passageways that connect to the structures in underground shopping malls" (Ministry of Construction Notification No. 1730). These documents will be used as the basis for the design of underground shopping malls as buildings, in accordance with the various regulations in the Building Standards Law and relevant laws and regulations. Moreover, although it was abolished in 2001, the "Basic Policy Relating to Underground Shopping Malls," which up to that time was the basic policy regarding safety in underground shopping malls, established detailed disaster technology standards relating to the construction of underground shopping malls. Some local governments, at their own discretion, continue to use this basic policy to regulate the safety of underground shopping malls. This is the policy used as a reference when studying disaster planning for underground shopping malls.

The Fire Defense Law and related laws and regulations establish standards for fire prevention management and firefighting equipment. According to the Fire Defense Law, underground shopping malls are defined as "stores, offices and other similar facilities constructed continuously along an underground passageway within an underground structure in an integrated manner with said passageway" (Fire Defense Law, Article 8, Section 2), and as fire prevention structures they are required to have firefighting equipment, etc. (Fire Defense Law, Article 17). The Fire Defense Law enforcement regulations contain the details of firefighting equipment, etc., and specify the equipment standards for fire extinguishers, sprinkler equipment and other fire extinguishing equipment, automatic fire alarm equipment and other alarm equipment, and guide lights and other evacuation equipment.

The regulations relating to underground shopping malls in the Building Standards Law (Article 128, Section 3) are as follows.

THE BUILDING STANDARD LAW ENFORCEMENT ORDER

(Underground Shopping Malls)

Article 128-3. All business establishments of underground shopping malls shall abut on underground passages as described in each of the following items for 2 m or more. Provided, that public lavatories, public telephone boxes and the like may abut on underground passages for less than 2 m:

(1) The walls, columns, floors, beams and floor slabs used shall have the fire-resistive performance specified by the Minister of Land, Infrastructure, Transport and Tourism.

(2) Underground passages shall be 5 m or more in width and 3 m or more in height to the ceiling and provided with no steps nor slope-way with a gradient exceeding 1/8.

(3) The interior ceiling and walls shall be finished with noncombustible materials and the beds thereof shall be made of noncombustible materials.

(4) Underground passages exceeding 60 m in length shall be provided with through stairs leading to the ground which are safe for evacuation and which conform to item (2) of the table of Article 23 paragraph 1 so that the travel distance from any part abutting on each business establishment to one of the said through stairs does not exceed 30 m.

(5) The end shall open onto a roadway at an entrance/exit not narrower than the width of the underground passage. Provided, that when it has two or more entrances/exits at the end, the total width of the entrances/exits shall be not narrower than that of the underground passage.

(6) Underground passages shall be provided with the lighting apparatus for emergency use, smoke exhaust assembly and drainage assembly which is constructed by a method specified by the Minister of Land, Infrastructure, Transport and Tourism.

2. In cases where business establishments of underground shopping malls abut on each other, the said business establishments shall be separated by floors and walls of fire-resistive construction and by specified opening protective assembly which is constructed as specified in Article 112 paragraph 14 item (2).

3. Each business establishment of underground shopping malls shall be separated from the underground passages concerned by floors and walls of fire-resistive construction and by specified opening protective assembly which is constructed as specified in Article 112 paragraph 14 item (2).

4. The travel distance from any part of the habitable rooms of each business establishment of underground shopping malls to one of the entrances/exits of the underground passages concerned (including passageways leading from any part of the habitable rooms directly to the ground) shall not exceed 30 m.

5. The provisions of Article 112 paragraphs 5 through 11, paragraphs 14 through 16, and Article 129-2-5 paragraph 1 item (7) (limited to the part pertaining to the provisions of Article 112 paragraph 15) shall apply mutatis mutandis to each business establishment of underground shopping malls. In this case, the phrase of “those parts of buildings

which are on the eleventh or higher floors thereof and have an aggregate of floor areas of each floor" in Article 112 paragraph 5 shall be replaced with "those parts of each business establishment of underground shopping malls which have an aggregate floor areas", the word of "buildings" in paragraphs 6 and 7 of the same Article with "each business establishment of underground shopping malls", the phrase of "those buildings whose principal building parts are of quasi-fire-resistive construction and have habitable rooms on basement levels or on the third or higher floors" in paragraph 9 of the same Article with "each business establishment of underground shopping malls" the phrase of "parts of buildings" in the said paragraph with "parts of each business establishment of underground shopping malls" and the phrase "quasi-fire-resistive construction" in the same paragraph with "fire-resistive construction," and the phrase "quasi-fire-resistive construction" in paragraph 10 of the same Article with "fire-resistive construction" and the phrase "quasi-fire-resistive construction which conforms to the technical criteria mentioned in Article 115-2-2 paragraph 1 item (1)" in Article 129-2-5 paragraph 1 item (7) with "fire-resistive construction."

6. Regarding the matters mentioned in the preceding paragraphs, local public organizations may change, by ordinances, the provisions of the said paragraphs, when such changes are deemed necessary due to relations to other structures or other circumstances.

4) Proposed applicable standards for this study

(1) Proposed applicable standards for Planning of Ben Thanh Central Station

Ben Thanh Central Station receives 4 UMRT Lines which are 1, 2, 3a, and 4. As the procedure of each project is different, the station's construction timing of each line shall be different. Nonetheless, Ben Thanh Central Station should be planned based on only one standard for the unified planning and design as a central station. On the other hand, the progress of UMRT Line 1 project is most expedited and the preliminary design has been already completed, Line 1's station shall presumably be constructed first. Therefore it is most suitable that the standards of UMRT Line 1 is adopted.

According to the above mentioned viewpoints, the following standards applied to UMRT Line 1 project are adopted as the standards for the planning of Ben Thanh Central Station:

- STandard urban RAilway SYstem for Asia (STRASYA) urban railway system
- Disaster plan standards based on Article 29 in "Ministerial Ordinance for Establishing Technical Standards Relating to Railways" established by Japan's Ministry of Land, Infrastructure, Transport and Tourism

(2) Proposed applicable standards for Planning of Underground Shopping Mall

No technical standards dealing specifically with disaster planning for underground shopping malls have been established in Vietnam. However, technical standards have been established for buildings. In Ho Chi Minh City, there are private sector buildings with underground floors that are used for commercial establishments, and these are thought to be in conformance with the construction technology standards of Vietnam. For this reason, the construction technology

standards of Vietnam can be said to be the basis for disaster planning standards for underground shopping malls.

On the other hand, the underground shopping mall plan in this study that concerns primarily subway stations is a plan that is not limited to a single private sector building site but deals with wide-area development of public spaces beneath roads. Moreover, in comparison with private sector buildings, the users are expected to be many members of the general public including subway passengers, pedestrians traveling through underground passages and people accessing buses and other types of transport. As a result, a disaster plan that deals more specifically with underground shopping malls is needed for use in the event of a fire, one that considers how to prevent the spread of the fire and evacuate passengers. In this respect, it would be good to apply the construction technology standards for underground shopping malls prepared by Japan, a country that has a wealth of experience in the development of underground shopping malls and has technical standards developed especially for underground shopping malls.

Considering all of these factors, the technical standards for disaster plan planning used for this study were based on the construction standards in Vietnam, with Japanese construction technology standards used as specialized technical standards for underground shopping malls beneath roads to supplement areas of insufficiency. The major items applied as disaster planning standards were as follows.

Table 2.9 Comparison and Proposal for applicable standards

Item		Standards in Vietnam	Standards in Japan	Applicable standards
Fire Compart-ment	Area of Compart-ment (in general)	4,400 m^2 (with Fire-resistive construction and automatic fire extinguishing equipment)	3,000 m^2 (with Fire-resistive construction and automatic fire extinguishing equipment)	3,000 m^2 (with Fire-resistive construction and automatic fire extinguishing equipment)
	Between store and passage-ways	No specification	Stores to be separated from passageways	Stores to be separated from passageways
	Between store and store	No specification	Stores to be separated from adjacent stores	Stores to be separated from adjacent stores
Smoke Exhaust and Separation		Natural smoke ventilation or Smoke ventilation by fans and duct No specification for smoke separation	300 m^2 : Passageways 500 m^2 : Others Stores and Passageways: Smoke ventilation by fans and duct Underground Plaza: Natural smoke ventilation	300 m^2 : Passageways 500 m^2 : Others Stores and Passageways: Smoke ventilation by fans and duct Underground Plaza: Natural smoke ventilation
Underground Plaza (Safety Plaza for fire disaster)		No specification	Underground Plaza to be constructed with natural smoke ventilation, natural lighting, and more than two escape stairs	Underground Plaza to be constructed with natural smoke ventilation, natural lighting, and more than two escape stairs

Travel Distance	From any part to escape stairs	40 m	40 m (with Fire-resistive construction and noncombustible interior in stores)	40 m (with Fire-resistive construction and noncombustible interior in stores)
	to under-ground plaza	No specification	50 m (form any passageway part to underground plaza)	50 m (form any passageway part to underground plaza)
Escape Stairs	Width	more than 1.05 m	more than 1.5 m	more than 1.5 m
	End of USM	No specification (more than two escape stairs)	The end shall open onto a roadway at an exit not narrower than the width of the underground passage Underground Plaza to be constructed at the end with more than two escape stairs	The end shall open onto a roadway at an exit not narrower than the width of the underground passage Underground Plaza to be constructed at the end with more than two escape stairs
Fire Protection Equipment		・Emergency lighting ・Fire extinguisher ・Indoor fire hydrant systems ・Sprinkler systems ・Automatic fire alarm systems ・Emergency alarm systems ・Guiding lamps ・Smoke exhaust equipment ・sprinkler systems with FD connections ・FD indoor fire hydrant systems	・Emergency lighting ・Water drainage ・Fire extinguisher ・Indoor fire hydrant systems ・Sprinkler systems ・Water spray extinguishing systems ・Automatic fire alarm systems ・Gas leakage and fire alarm systems ・Emergency gas valve close device ・electric leakage and fire alarm devices ・Emergency alarm systems ・Guiding lamps ・Smoke exhaust equipment ・sprinkler systems with FD connections ・FD indoor fire hydrant systems ・Emergency power outlets ・Auxiliary facilities for radio communication systems	・Emergency lighting ・Water drainage ・Fire extinguisher ・Indoor fire hydrant systems ・Sprinkler systems ・Water spray extinguishing systems ・Automatic fire alarm systems ・Gas leakage and fire alarm systems ・Emergency gas valve close device ・electric leakage and fire alarm devices ・Emergency alarm systems ・Guiding lamps ・Smoke exhaust equipment ・sprinkler systems with FD connections ・FD indoor fire hydrant systems ・Emergency power outlets

Note) 1. The standards in Vietnam follow “Building Code of Vietnam - Volume 2” (Issued in conjunction with Decision No. 439/BXD-CSXD, 25 Sep 1997). In this case the building classification is assumed to be the commercial building, and the fire resistance level of the building is assumed to be Ⅰ.

2. The standards in Japan follow “The Building Standard Law”, “Fire Service Law”, and these relative laws and regulations. Further, "Basic Policy Relating to Underground Shopping Malls" (abolished in 2001) is referred to.

2.5 OTHER ACTIVITIES

2.5.1 Joint Ben Thanh Station proposal submitted by Belgium

An advance proposal for implementing a formal aid project was submitted in June 2009 by the government of Belgium through bilateral discussions. The content of this proposal was the planning of a joint Ben Thanh Station to serve UMRT Line 1, Line 2, and Line 4. Subsequently, however, there has been no movement toward starting the actual project.

The content of the proposal featured a large-scale atrium extending from the subway platforms to the ground level, forming the nucleus of an open space in order to create an open environment on the floors below ground level.

The content of the proposal was illustrated only through computer-designed image perspective drawings (see Figure2.48 and Figure2.49). Specific proposals for achieving the proposed space in the form of drawings and the like have not been provided.

Source: Department of Planning and Architecture

Figure2.48 Ben Thanh Station Proposal submitted by Belgium (1)

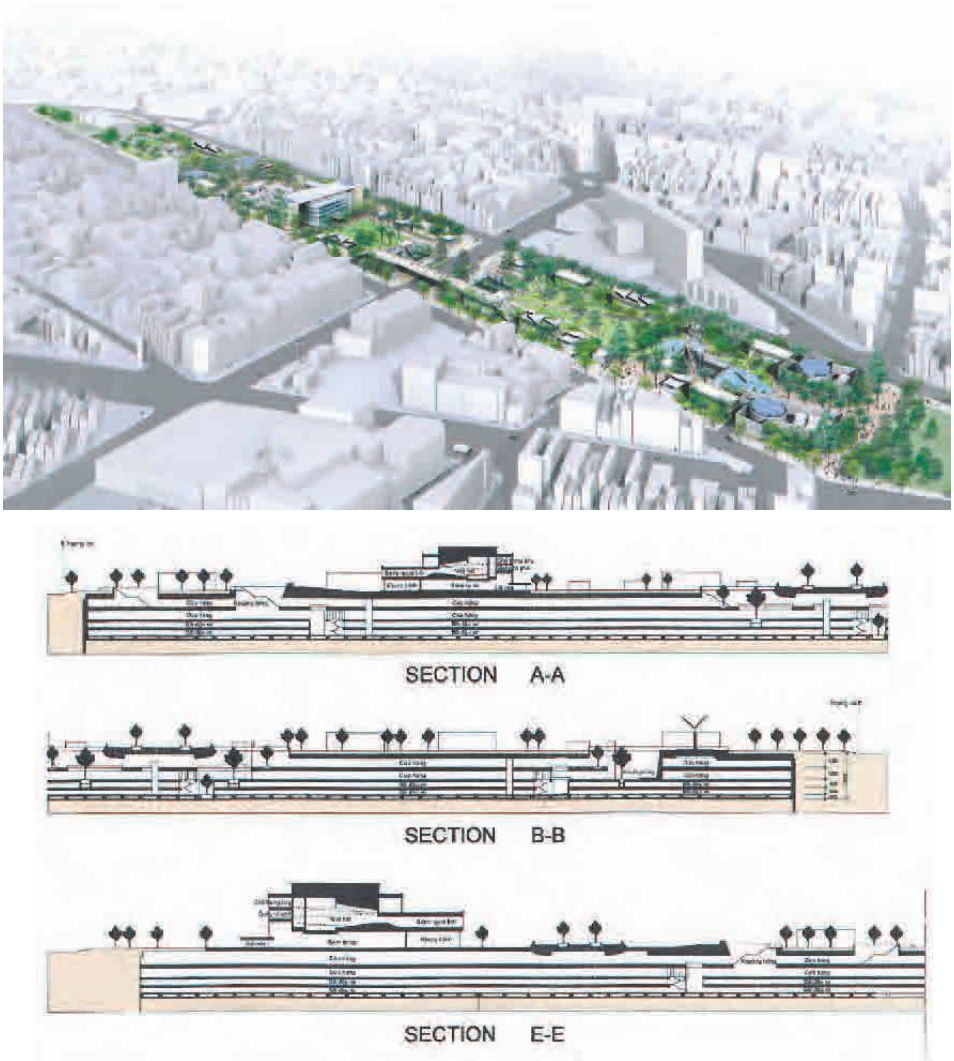
Source: Department of Planning and Architecture

Figure2.49 Ben Thanh Station Proposal submitted by Belgium (2)

2.5.2 23 September Park Proposal Submitted by Taiwan

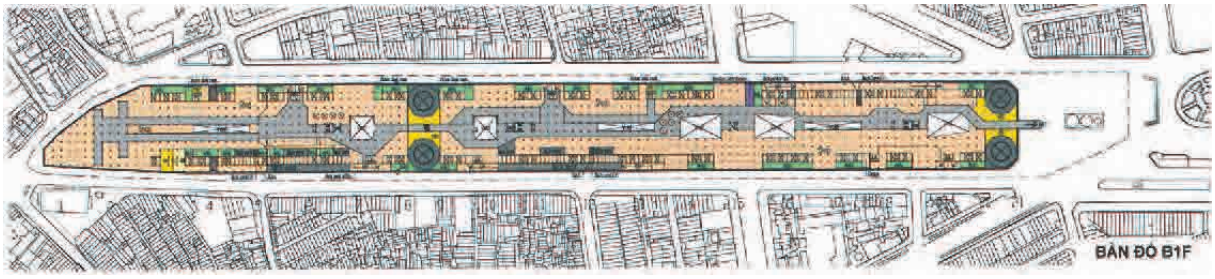
A Taiwanese investor has submitted a proposal for the Twenty-Three September Park. The content of the proposal involves park planning for the Twenty-Three September Park and the planning of an underground space. As the Department of Planning and Architecture (DPA) for Ho Chi Minh City has not approved the "Study for Detailed Planning and the Establishment of Guidelines for Central Ho Chi Minh City," the specific planning conditions have not been established and there has been no progress on the project.

The proposal involves the creation of a pedestrian network throughout the entire park, through the construction of pedestrian bridges over the roads that cut through the park at ground level (see Figure2.50). It also calls for the construction of a building with a height of approximately 20 meters in the center of the park. The plan calls for four underground floors, with commercial establishments on the first and second basement floors and parking on the third and fourth basement floors (see Figure2.51). The content of the proposal includes perspective views as well as drawings, equipment plans, environmental plans and other items.

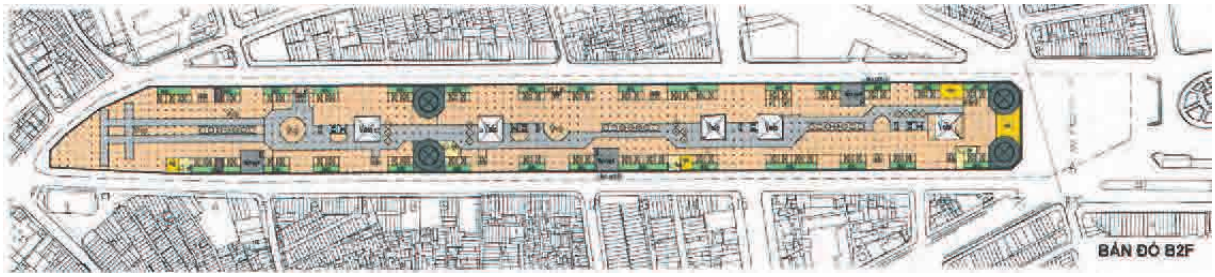


Source: Department of Planning and Architecture

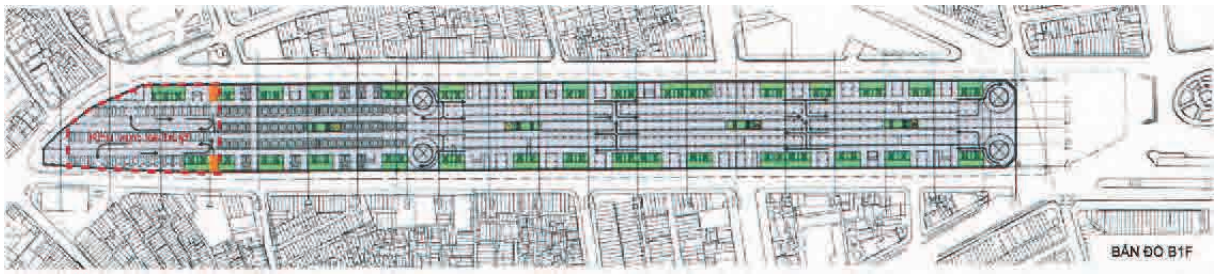
Figure2.50 23 September Park Proposal submitted by Taiwan (1)



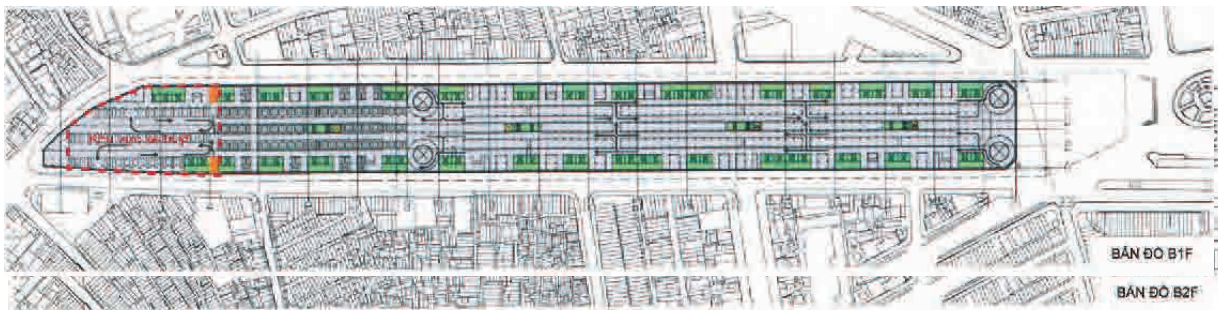
B1 Floor (Commercial Area)



B2 Floor (Commercial Area)



B3 Floor (Parking Area)



B4 Floor (Parking Area)

Source: Department of Planning and Architecture

Figure2.50 23 September Park Proposal submitted by Taiwan (2)

CHAPTER 3 CURRENT ISSUES AND SOLUTIONS OF THE PROJECT AREA

3.1 CURRENT ISSUES OF THE PROJECT AREA

The area around Ben Thanh Station has issues as itemized below.

1) Functional Enhancement as the CBD Core

Ho Chi Minh City is nationally required and internationally expected to heighten urban functions for serving as a central city for business, commerce, administration, culture and tourism in the Southern Vietnam and strengthen attractiveness for competing with big cities in Southeast Asia and other world cities. Since the area around Ben Thanh Station is located at the core of the CBD in which the said principal urban functions accumulate, the project area is destined to respond to higher functional requirements.

2) Appropriate Control for Development Pressure

The project area is the object of a lot of worldwide developers' or investors' attention. Proposals for high-density, high-rise buildings to be constructed in that area are taken into the concerned city authorities one after another. It is necessary to suitably control this sort of development needs so as to provide ordered townscape in harmony with the infrastructure facilities.

3) Disappearance of Historical Townscape

Under the aforesaid development pressure, many historical buildings around Ben Thanh Market and along Le Loi have disappeared from the public eye day by day.

4) Traffic Congestion and Air Pollution due to the Flood of Motorbikes and Cars

Roads in the CBD including the project area are filled with motorbikes and cars. So, traffic congestion and air pollution are at all times found. This results in damaging daily life and activities in the CBD and deteriorating the culturally and touristically attractive atmosphere.

5) Ineffective Road Network

In general, the road network, road cross-sections and roundabouts of the CBD including the project area are used almost originally as constructed during the French colonial era. This results in ineffective traffic treatment irrespective of the remarkably increasing motorbikes and cars.

6) Shortage of Parking Area

In addition to 4) and 5) above, the shortage of parking area causes cars to park on streets and motorbikes to park on streets and sidewalks, and it makes traffic congestion worse and reduces pedestrian space.

7) Rearrangement and Integration of Public Transport

Under the municipal policy of positively shifting to the public transport, construction of four lines of UMRT and relocation of the bus terminal are planned in the project area. However, these plans are carried out separately from each other, without unitary decision making.

8) Lack of Attractive Public Space giving Comfort to Citizens or Visitors

The project area to function as the core of CBD is densely built up with less orderly spatial arrangement. This results in lack of open or public space which citizens or visitors can use at ease or with comfort. Attractive urban space has to be produced on the basis of the historical, cultural and natural conditions characteristic of the city so that Ho Chi Minh City can rank with the world cities.

9) Lack of Pedestrian Space

A number of people visit the project area for shopping, tourism, business, etc. However, since part of road space is occupied by motorbikes and cars as stated already, there are few spaces where pedestrians can safely walk with comfort.

3.2 SOLUTIONS OF THE PROJECT AREA

3.2.1 Solutions of the Project Area

To solve the issues pointed out in Section 3.1, the following countermeasures have been worked out so far.

(a) Promulgation of detailed city planning and architectural design guideline for the city center (See Section 2.3) and urban management based thereon (Related to Issues 1), 2) and 3) in Section 3.1)
(b) Rearrangement of public transport including construction of four lines of UMRT, rearrangement of bus service lines, and arrangement of BRT (Bus Rapid Transit) service (Related to Issues 4))
(c) Rearrangement of roads in the CBD including reformation of Le Loi and Nguyen Hue to pedestrian priority street and transit mall and that of the roundabout in front of Ben Thanh Market to a pedestrian plaza (Related to Issues 4), 5), 8) and 9))
(d) Construction of underground car parking (See Section 2.3) in Nguyen Hue, 9/23 Park and the riverside park (Related to Issues 6))

These countermeasures will be able to achieve more integrated effects by implementing the following complementary solutions.

1) Construction of Overall Underground Terminal to ensure Smooth Connection of Public Transport (Related to Issue 7) in Section 3.1)

UMRT stations and bus/BRT terminals are to be constructed in the project area. An overall terminal has to be constructed mainly on the underground level to ensure the public transport passengers' smooth travel.

2) Creation of Attractive Underground Space (Related to Issue 8))

The project area is in the densely built-up CBD and anticipated to face more massive redevelopment in future. In consideration of the said future development tendency, it is necessary to create new urban space for peoples' comfort and enjoyment. Underground space is effective not only in drastic underground development at the densely built-up area, but in birth of physically comfortable space resisting the local hot and wet climate.

3) Formation of Underground Pedestrian Network connecting New Buildings and Traffic Nodes (Related to Issue 9))

Comfortable underground pedestrian network can be formed by constructing a public passage under arterial roads instead of an on-ground sidewalk which is difficult to construct with sufficient space at present. This underground pedestrian network can be directly connected to new business or commercial buildings adjacent to there, traffic nodes or several tourist spots.

These three complementary solutions are considered equivalent to the principal requirements for the Ben Thanh Central Station Project. Figure 3.1 shows interrelation of the current issues and solutions of the project area stated in Sections 3.1 and 3.2, including the requirements for the Ben Thanh Central Station Project.

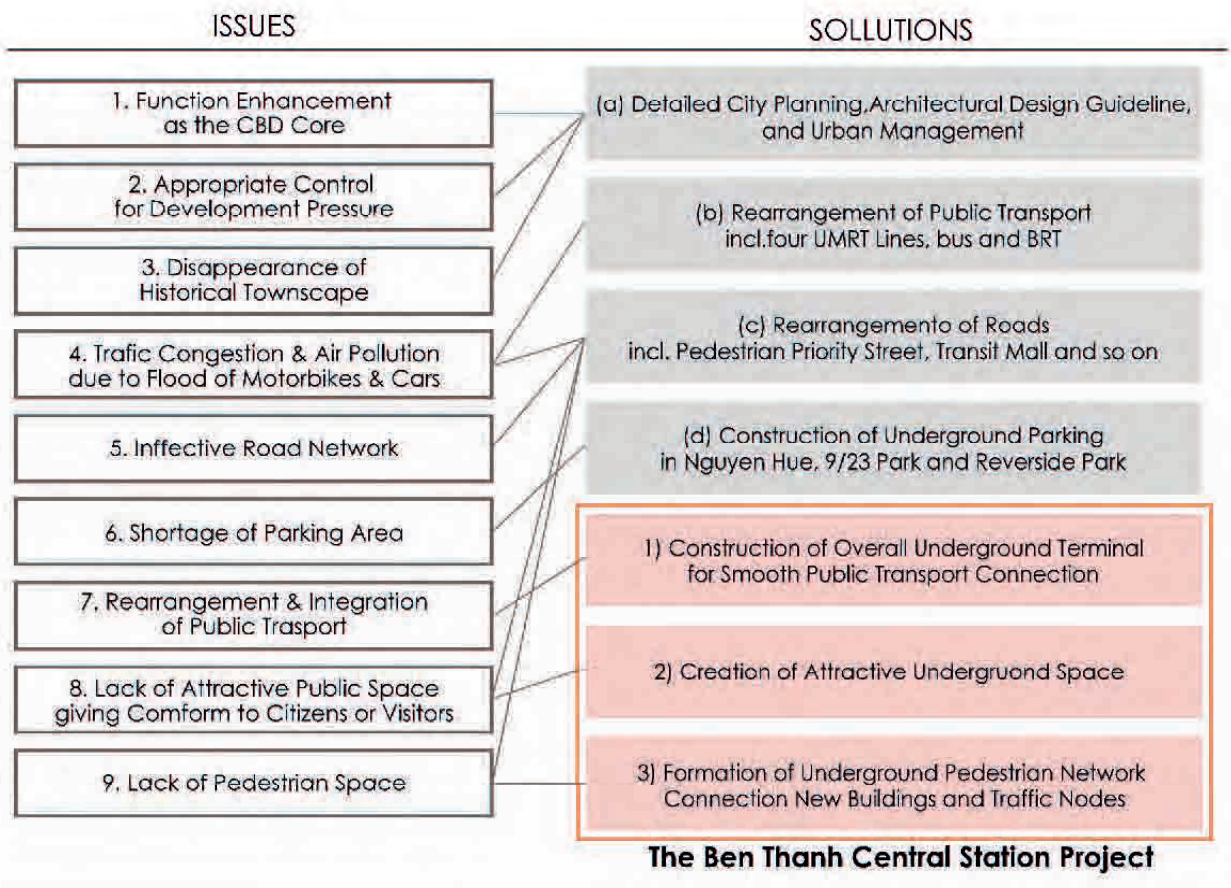


Figure 3.1 Issues and Solutions of the Project Area

3.2.2 Project Effect and the Impact on City Competitiveness

As shown in Section 3.1 and 3.2, specific countermeasures against current issues are revealed. The implementation of Ben Thanh Central Station Project based on these countermeasures is expected to bring various project effects in Ho Chi Minh City. In this section, these project effects and impacts on the improvement of the city competitiveness of Ho Chi Minh City are studied and introduced. These project effects corresponded to each countermeasure are itemized below. On the other hand, the effectiveness indicators for the evaluation of the project effect are mentioned in Chapter 8.

1) Construction of Overall Underground Terminal to ensure Smooth Connection of Public Transport

Smooth transfer between UMRT station and the bus terminal will enhance the convenience of these public transportation. Therefore, the construction of overall underground terminal will result in increasing the number of passenger of the public transportation including UMRT.

2) Creation of Attractive Underground Space

The comfortable underground space will attract many visitors for this area since it protects visitors from a sudden shower or muggy weather. Therefore, the creation of the attractive underground space will result in vitalization of the economic activities and passenger increase of public transportation.

Moreover, the project site will become the core area of Vietnamese cultural in collaboration to Ben Thanh Market which has been a symbol of Ho Chi Minh City for a long time. Consequently, the attractive urban space will contribute to the cultural interaction.

3) Formation of Underground Pedestrian Network connecting New Buildings and Traffic Nodes

The number of passenger of public transportation is expected to increase because of high accessibility from the underground terminal to surrounding buildings. In addition, expanded underground network will enhance the circulation of visitors and the economic activities in the project area.

Moreover, this high accessibility is expected to increase users of surrounding buildings and raise the value of these assets.

Accordingly, formation of the underground pedestrian network will contribute to improve the business environment in the center area of Ho Chi Minh City.

These project effects mentioned above will affect the improvement of city competitiveness of Ho Chi Minh City. Regarding the global city competitiveness, some institutes have published the ranking of global cities. According to the Global Power City Index published by The Institute for Urban Strategies, this ranking is estimated based on six overall categories with 69 individual indicators. These categories and indicators are shown in Table 3.1.

Table 3.1 Function and Indicator for Comprehensive Ranking

Function	Indicator Group	Number of Indicator
Economy	Market Attractiveness Economic Vitality Business Environment Regulations and Risks	14
Research & Development	Research Background Readiness for Accepting & Supporting Researchers Research Achievement	8
Cultural Interaction	Trendsetting Potential Accommodation Environment Resources of Attaching Visitors Shopping & Dining Volume of Interaction	16
Livability	Working Environment Cost of Living Security and Safety Life Support Functions	16
Environment	Ecology Pollution Natural Environment	10
Accessibility	Infrastructure of Int'l Transportation Infrastructure of Inner-city Transportation	8

Source: Global Power City Index 2011
Institute for Urban Strategies at the Mori Memorial Foundation, October 2011

Figure 3.2 shows interrelation of the project effects and functions stated in Table3.1. As shown in this figure, project effects are supposed to affect on many functions of city competitiveness. Thus, the city competitiveness of Ho Chi Minh City will be enhanced obviously. In particular, Ben Thanh Central Station Project will contribute to directly "Function.1: Economy" and "Function.6: Accessibility". These effects are estimated to be significant. Furthermore, the indirect contribution for "Function.3: Cultural Interaction", "Function.4: Livability " and "Function. 5: Environment " will be expected also.

Besides, Ho Chi Minh City is the largest commercial city in Vietnam and this project will be conducted in the center area of this city. This high potentiality will emphasize these project effects much more.

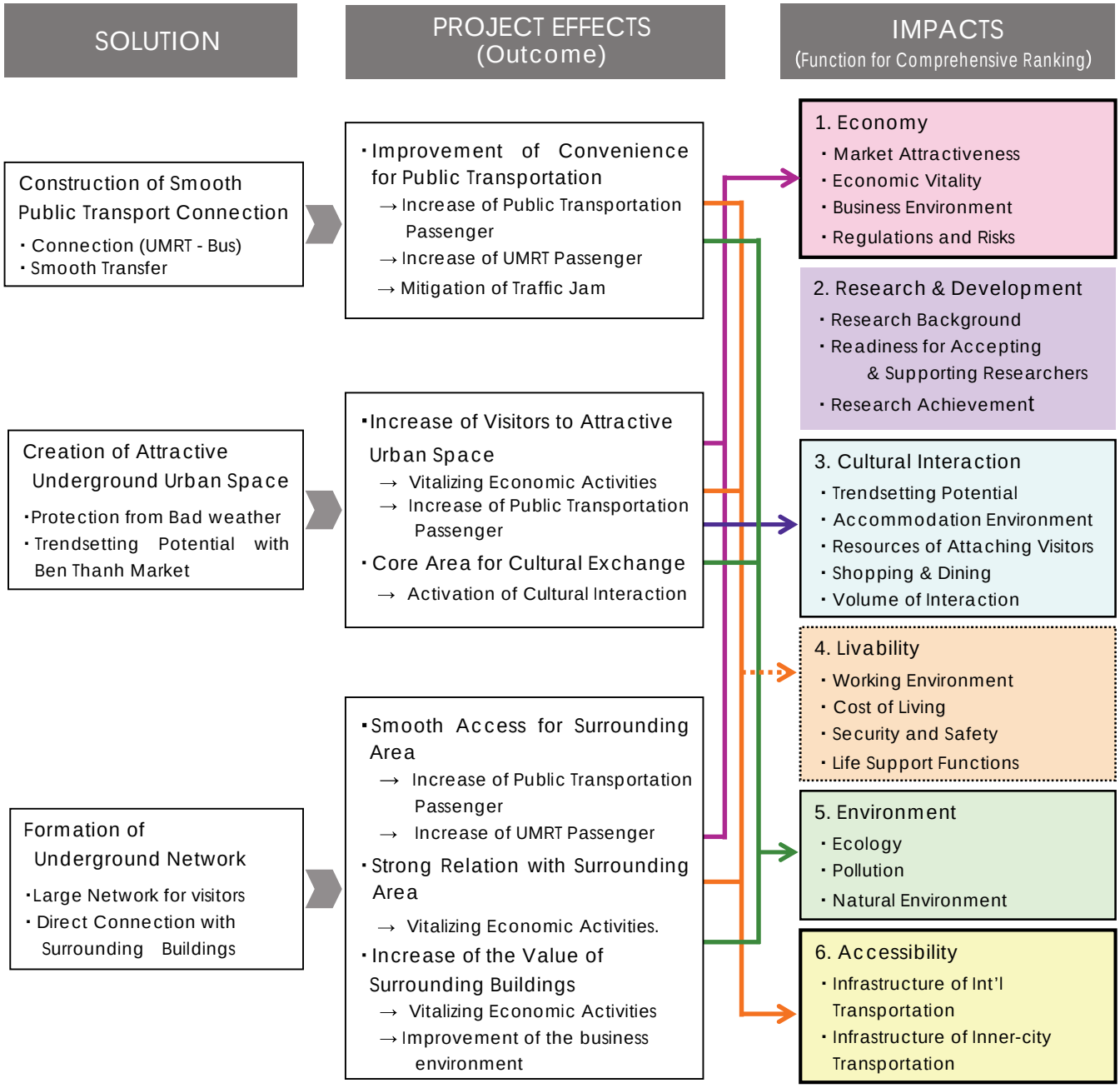


Figure 3.2 Project Effects and Impacts