

5 CONCEPT PLAN FOR UMRT LINE 1 AND LINE 2

5.1 Planning Framework

5.1.1 Contents of Concept Plan

501 Concept plan is aimed to propose overall development orientation of station and station area development, including short-term plan and long-term plan. Integrated development should be achieved in several levels and phases. In the concept plan, (a) Short-term plan and (b) Long-term plan are proposed for 31 stations.

- (i) Physical development and improvement to secure accessibility to station and smooth transfer between stations
- (ii) Urban development and improvement to improve living condition and promote potential for socio-economic development and cultural preservation
- (iii) Management and operation to integrate with other UMRT lines and public transport services and operation systems
- (iv) Zoning regulation to manage urban growth

Table 5.1.1 Components of Integration Development of Station Area Development

Category	Component	Example of facility and service
(i) Physical Development and Improvement	Access Road Improvement and Development	Access road development around station (for bus, taxi, car, MC), Distribution road and community road improvement (ex. pavement, lighting, signboard, etc.)
	Inter-modal Transfer Facilities Development	Large/medium multi-facilities, Inter-city bus terminal, City Air Terminal, Stop station only (bus, taxi, xe-om)
	Parking Development	Ground parking area, Parking building, Underground parking
	Walkway Network Development	Sidewalk, Pedestrian mall, Footbridge, Pedestrian deck, Pedestrian underground, Underpass
(ii) Urban Development and Improvement	Public Amenities Development	Open Space for resting, waiting, Toilet, Police Box, Information Booth, Town Symbol / Landmark Facilities
	Urban Activity Core Development	New business & commercial, Cultural amenity node, Public/administration service provision
	Commercial and Business Encouragement	New retail shops, civic service business, New hotel and amusement facilities, Office building including public services
	Housing and Residential Area Development	High-rise housing and condominium, Medium and low-rise housing area
(iii) Management & Operation	Living Condition Area Improvement	Urban renewal by road and infrastructure, Area infrastructure and utilities improvement
	Transport Management	Major feeder bus route service and bus stop, Area feeder (para-transit) vehicle service, Area traffic control and management
(iv) Zoning Regulations to Manage Urban Growth	Service Improvement	Common ticket system, Design code of signboard
	Development Control Restriction	Natural hazard protection, Historical conservation, High-rise building construction, Underground development opportunity
	Consistency of Land Use Plan	Commercial & business, Residential / mixed use, Other uses (public, education, utility), Desirable density
	Urban Design Consideration	Urban Landmark opportunities, Descent/harmonized design with existing area

Source: JICA Project Team

502 After approval of the concept plans by the Steering Committee in May 2010 (see Table 5.1.2), technical study has been continued by the Detailed Design of UMRT Line 1- Phase 1 Construction Project. Some readjustments by the Detailed Design and response of the HAIMUD project are as follows:

- i) In November 2010, It was concluded that Phung Hung Station (V7) was removed because it is too near to Nam Cau Long Bien Station (V6). The concept plan is kept as a reference in this report.
- ii) In December 2010, the railway alignment of UMRT Line 1 from Nam Cau Long Bien Station to Ngoc Hoi was readjusted based on technical study of Detailed Design. It is noted that technical design including railway alignment should be referred the Detailed Design of UMRT Construction Project.

Table 5.1.2 List of Station Area Concept Plans

Type	ID	Station	Line1	Line2
Interchange station	V4	Gia Lam and Extension of Line1/ bus terminal	X	
	V6/ C8	Nam Cau Long Bien and Hang Dau	X	X
	V8	Hanoi and Line3 station	X	
	V9/ C12	C.V. Thong Nhat and Bach Khoa	X	X
	V12	Giap Bat	X	
	C3	Tay Ho Tay and Line4/ CAT/ bus terminal		X
	C5	Quan Ngua and Line5 station		X
	C10	Tran Hung Dao and Line3 station		X
	C16	Thuong Dinh and Line2A/ BRT station		X
Phase1 station	V5	Bac Cau Long Bien	X	
	V7	Phung Hung	X	
	V10	B.V. Bach Mai	X	
	V11	Phuong Liet	X	
	V16	Ngoc Hoi	X	
	C1	Nam Thang Long		X
	C2	Nguoi Giao Doan		X
	C4	Buoi		X
	C6	Bach Thao		X
C7	Ho Tay		X	
C9	Hoan Kiem Lake		X	
Phase2 station	V1	Yen Vien	X	
	V2	Cau Duong	X	
	V3	Duc Giang	X	
	V13	Hoang Liet	X	
	V14	Van Dien	X	
	V15	Vinh Quynh	X	
	C11	Cau Den		X
	C13	Kim Lien		X
	C14	Chua Boc		X
C15	Nga Tu So		X	
			16	16

Source: JICA Project Team

5.1.2 Contents of Concept Plan

503 Concept plans are divided into: a) development character, b) long-term development strategy and c) short-term projects/ actions.

(1) Development Character

504 The development character presents the role, function, and main objective of the station and its adjoining area. It sketches the present and future image of an area loosely defined within a 1-km radius of the station.

(2) Long-term Plan

505 Objective of long-term plan is to transform the catchment area (within 500m – 1km) of UMRT station to transit oriented community/urban area through integrated urban development/redevelopment. Long-term plan is covered around the station area within 1km radius of a station. Target year is 2020 - 2030.

506 Planning scope and components are as follows (see Table 5.1.3).

- Improvement of living environment and basic services to an adequate level
- Identification of development opportunities and constraints
- Formulation of plans
- Preparation of implementation plans and mechanisms
- Mechanism to involve private sector

Figure 5.1.3 Main Long-term Plan Components

Proposed Road and Transportation Development		Proposed Urban Development
<i>Key Station Area Facilities</i>	<i>Traffic Control and Management</i>	<i>Public Facilities Provision</i>
ITF Inter-modal Transfer Facilities	Traffic Management and Control Area Designation (oneway, parking, pedestrianization, etc)	Park and Open Space
Access road provision		<i>Promotion Area for Urban Development</i>
Footbridge /Uderpass /Walkway		New Urban Development
P Park & Ride Parking Area		Urban Redevelopment
<i>Future Provision including planned in District Plan and Current Project)</i>		Voluntary Renovation with Control
New Road Development (including proposed and planned roads)		Living Environment Improvement
Road Widening/Improving (pavement, traffic lanes, sidewalk, etc)		
Main Pesestrian Way (pavement, improvement for disabled users)		Land Use (CB / R / MX)
Foot Bridge/ Uderpass Ext.ension (connecting to buildings and others)		Density (H / M / L)
		Phase (S / SM / M / L)

Note: Land Use: CB – Commercial and Business, R – Residential, MX- Mixed use
 Density: H – High, M – Medium, L – Low
 Phase: S – Short, SM – Short and Medium, M – Medium, L – Long

Source: JICA Project Team

(3) Short-term Projects and Actions

507 Short-term projects and actions are covered around the station area within 500m radius of a station. Target year is when UMRT services commence (2016 for Phase1). The specific objectives are as follows:

- i) To ensure smooth and safe access of passengers between the station and their origins (home) and destinations (main facilities) throughout the day (morning till night) and under different conditions (rain, shine, hot, cold...) for everybody (children, disabled, aged...).
- ii) To improve living environment of affected areas

508 Planning scope and components are as follows (see Table 5.1.4).

- Facilities and environment for pedestrians
- Public transport access (bus, taxi, xe om...)
- Private transport access (car, motorcycle, bicycle)
- Traffic control/management
- Barrier free measures
- Related infrastructure/facilities improvement
- Role-sharing (government, community, other stakeholders)

Table 5.1.4 Main Short-term Project Components

Category	Component	Facility
Station related facility	Pedestrian facility	<ul style="list-style-type: none"> • Station entrance with elevator/escalator • Station access space/ plaza • Pedestrian underground/deck / footpath
	Intermodal transfer facility	<ul style="list-style-type: none"> • Bus terminal • Bus/ taxi Bay • Bus stop with shelter
	Parking facility	<ul style="list-style-type: none"> • Car parking space (Park& Ride/ Kiss& Ride facility) • Two-wheel vehicle parking space
Access road improvement	Physical Improvement	<ul style="list-style-type: none"> • Pavement • Drainage system • Lighting system • Pedestrian crossing • Sidewalk • Parking space development
	Traffic Management	<ul style="list-style-type: none"> • Community road traffic calming • Pedestrian prioritized street • Gateway control • Parking control
	Amenity Improvement	<ul style="list-style-type: none"> • Design of pavement, signboard, bench, etc. • Open space/green development • Rule and guideline of usage of street

Source: JICA Project Team

(4) Project List

509 Project List is summarized including short-term and long-term projects. To clarify priority of these projects, implementation stage is categorized into four phases.

A: Minimum development till opening: To secure safe and comfortable accessibility from main facilities to station, necessary station-related facilities and access roads need to be developed till opening of UMRT station.

B: Short-term (opening ~ 3years after opening): Though these projects are also significant to improve accessibility, priority is lower than A group.

C: Medium-term (3years ~ 5years after opening): To improve traffic and road condition and to develop commercial and business activities around station, road development and urban redevelopment projects will be promoted.

D: Long-term (5years ~ 10years after opening): To promote UMRT utilization and urban development activities around station area, various urban and transport development projects will be promoted.

510 To implement these projects, necessary inputs are as follows:

- (i) adjustment of approved District Plan and related plans: At present, road development and urban development activities are implemented based on approved District Plan under Construction Law. But approved District Plans which was mostly approved in 2000 are not reflected UMRT station and railway development. It is necessary to reflect UMRT and integrated urban development into these District Plans for revision procedure of District Plans. Especially to implement group A projects, though most of projects are reflected approved alignment of road and landuse, it is necessary to adjust approved plans by HAUPA and District PC.
- (ii) establishment and amendment of legal and institutional system: Basically, Group A and B projects can be implemented under present legal system, while it is necessary to develop new legal system to implement group C and D projects, such as land readjustment and urban redevelopment, etc.
- (iii) preparation of implementation mechanism initiated by HPC and VNR to facilitate the participation of private sector developers and investors so as

to control the direction of each urban development and to lessen the financial burden of public sector for necessary infrastructure development.

- (iv) facilitating on-site resettlement policy by providing residence and business premise in the same development area based on utilization of land readjustment and urban redevelopment system, thereby enhancing variety of social mix in the residential area and facilitating necessary land clearance for the development.

511 In addition, for proposed priority station areas for Detailed Planning in Chapter 8 of this report, project implementation mechanism is proposed preliminary, to propose project implementation procedure, main stakeholders, finance, etc.

5.2 Gia Lam (V4) and Extension of Line1/ Gia Lam Bus Terminal Station Area

5.2.1 Development Character

1) Existing Condition and Issues

512 Gia Lam area is a strategic point of transport network in north-east of Hanoi City. There is an intersection between NH-1 (to Bac Ninh, Lang Son) and NH-5 (to Hai Phong). Bypass of NH-1 is already developed in south of Gia Lam station area. At present, Gia Lam Station is located in a residential area, but it is app. 500m far from NH-1A. On south of the railway, commercial and educational facilities are clustered along NH-1. In north of the railway, except for small rural villages, most of lands are used for agriculture. There is the Ngoc Thuy New Town Plan on the north-west side of the station.

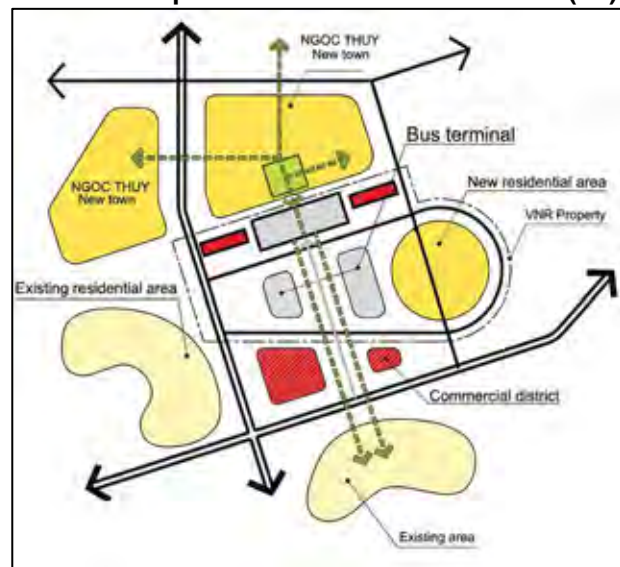
513 There is the Gia Lam Railway Factory of VNR (app. 19ha) between NH-1 and the station. In terms of effective landuse around the station in future, the land around the station should be used for other purposes. The access road from NH-1 to the station is narrow, and many small shops and vendors are gathered along this access road. There is a railway hospital and a park in front of a lake, but walking environment is not so safe. App. 500m far from the station, Gia Lam Bus Terminal is located. This bus terminal is one of the major ones in Hanoi City, and buses of cross-border to China, interprovincial of northern Vietnam, etc. Many inner-city buses depart from this station.

2) Development Objectives

514 Gia Lam station is important in two ways. (i) It will function as a gateway to Hanoi for interprovincial passenger train, and (ii) it will be a centre of fast growing Gia Lam urban areas. This implies that the station will be heavily used by intercity and urban travel passengers and urban development potentials at and around the station will significantly increase.

515 In order to play a role of a city centre, the station and its surrounding areas need to be planned from more comprehensive viewpoint. To fulfill this dual role, the Gia Lam inter-city bus terminal should be relocated nearer to the station area, and the corresponding local road network built so as to integrate surrounding urban development of Ngoc Thuy New Town Project.

Figure 5.2.1 Conceptual Diagram for Station Area Development of Gia Lam Station Area (V4)



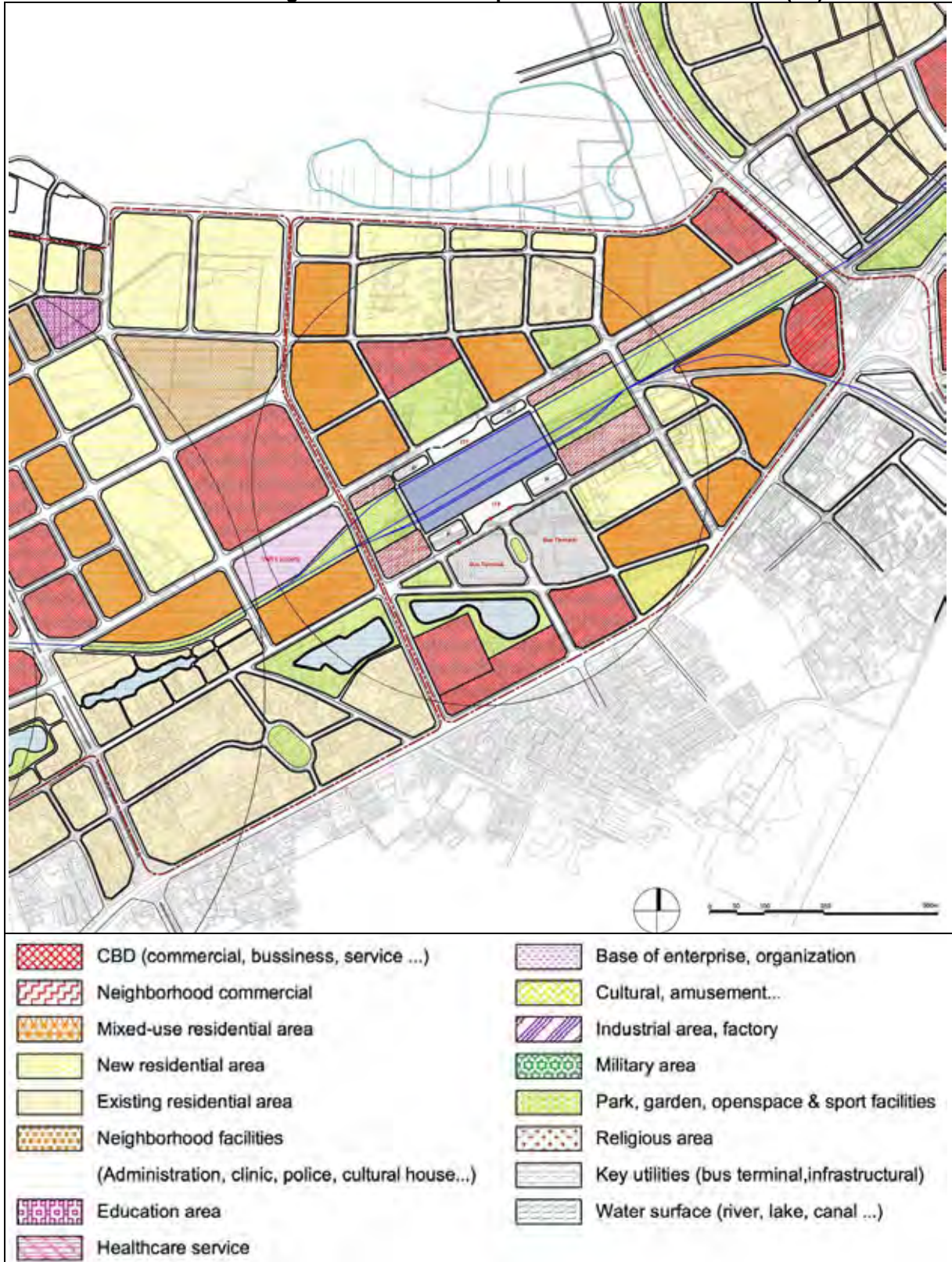
Source: JICA Project Team

Table 5.2.1 Demand Outlook for Gia Lam Station Area (V4)

		Present	UMRT with integrated Urban Development	
			Without	With
Population of Station Area of radius 500m (persons)	Population	5,974	8,800	9,600
	Employment	4,414	4,400	38,800
	Student	1,908	1,600	1,700
Ridership (persons/day)		-	42,000	50,900

Source: JICA Project Team

Figure 5.2.2 Landuse plan of Gia Lam Station Area (V4)



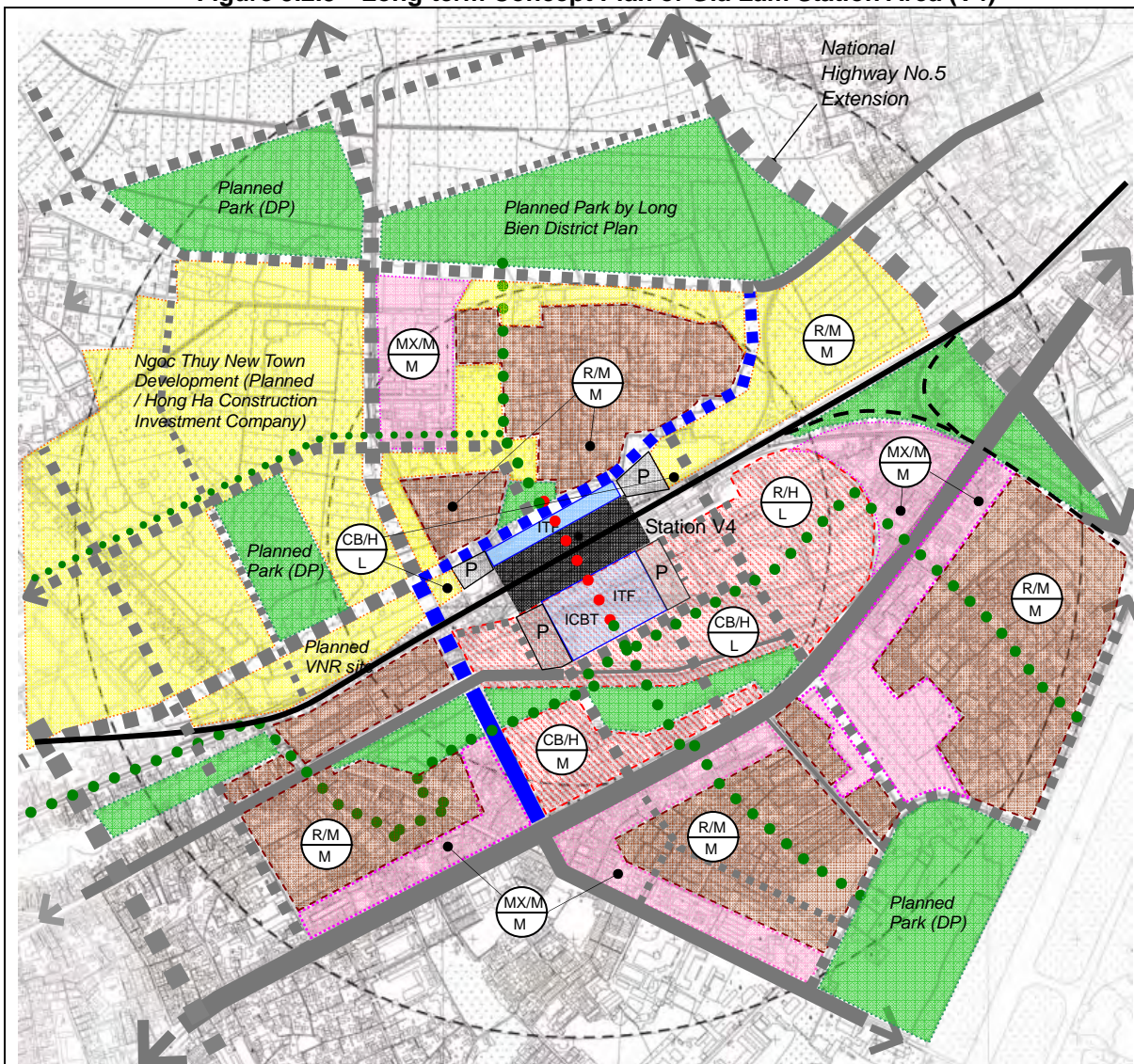
Source: JICA Project Team

5.2.2 Long-Term Plan

516 The development of the Gia Lam Station Area can be characterized as a “Transportation Hub with Commercial & Business Center in Long Bien and Gia Lam districts”. Accordingly, it can have such facilities as hotel, shopping center, business offices, and entertainment venues appropriate in scale to a suburban urban sub-center.

517 There are alternative development scenarios for Gia Lam station area development, since there are large-scale VNR yard and factory area and Gia Lam Bus terminal between station and NH-1. At present, the north-west station area will be developed as a new town for residential use mostly. If these lands will be used for urban development, socio-economic development potential to create commercial and business floors will be drastically increased as a gateway of north-west of Hanoi city. In addition, bus terminal will be relocated in front of Gia Lam station which enable smooth interchange from/ to UMRT and inter-city bus.

Figure 5.2.3 Long-term Concept Plan of Gia Lam Station Area (V4)



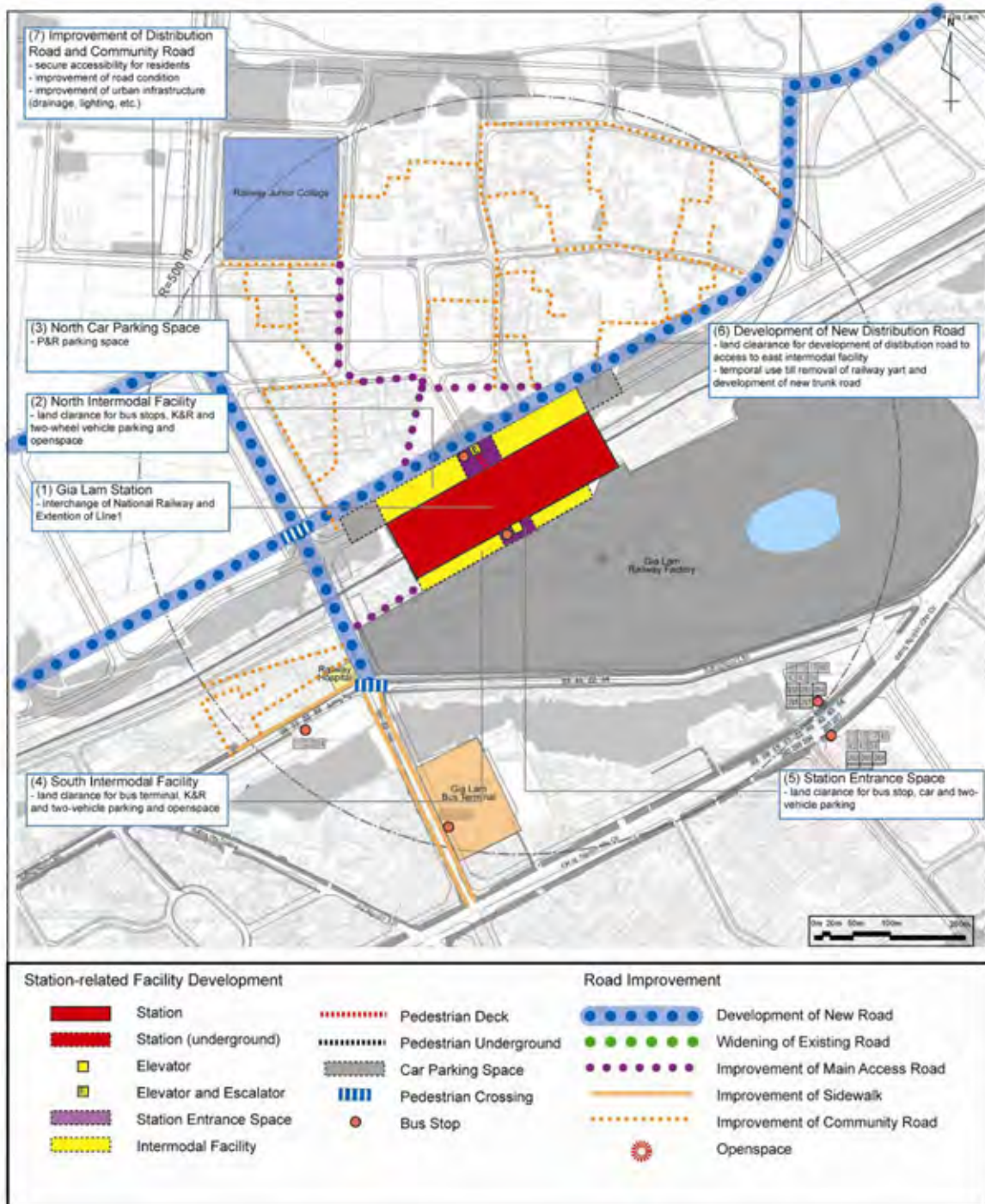
Source: JICA Project Team

5.2.3 Short-Term Projects and Actions

518 In south, there is a narrow road from Ngoc Lam Street to station at present. It should be widened to receive station users from NH-1 (Nguyen Van Cu Street) and Gia Lam Bus Terminal. In north, there are existing villages, so main access roads should be widened and improved.

519 In short-term, it is difficult to relocate railway factory of VNR, so main station access is from north side. IT is necessary to develop the intermodal transfer facility and the station entrance space of north, and a new trunk road of north of station will be developed as a main access road to station.

Figure 5.2.4 Short-term Concept Plan of Gia Lam Station Area (V4)



Source: JICA Project Team

5.2.4 Project List and Implementation Mechanism

1) General

520 As far as operating body of the UMRT lines are concerned, VNR is considering to establish a separate company body for the operation of the Line 1, whereas HPC is contemplating an establishment of Public Transport Authority (PTA) for the UMRT Line 2 and other Lines with an operation body of each UMRT line to be established under the management umbrella of this Authority whether it is public or private.

521 Based on the above assumption, leading stakeholders for the Gia Lam Station Area Development, would be HPC, VNR, the operation body of the Line 1 and the developer of the Ngoc Thuy New Town project being planned in the northern area of the station.

522 For the Short-Term Development strong involvement of VNR and HPC will be expected as main elements are railway related facilities, basic access and infrastructure directly related with the railway activities. On the other hand, when it comes to the Long-Term Development, more dynamic role sharing among HPC, VNR, the operation body and the private sectors could be expected. The details of the development are summarized in Table 5.2.4.

2) Minimum and Short-term Development Projects

523 One of the major issues in the Minimum Development Project is role sharing between HPC and VNR in terms of: i) How to share and acquire the land required for the development of station related facilities such as the ITF project, entrance space, car parking and distribution roads, and ii) How to share the cost of these development. VNR may need to expand its right of way (ROW) for the development of Line 1 to include the land required for the development of minimum railway related facilities. For the development of distributor roads, HPC is basically the leading entity for both acquisition of the land and its development except where VNR has its own land, then sharing of the land could be discussed and negotiated.

3) Medium-term and Long-term Development Projects

524 Medium-term Development Project covers the core elements of the Gia Lam Station Area Development which are the redevelopment of VNR factories area, the redevelopment of Gia Lam Inter-city bus terminal and the Ngoc Thuy New Town development (Phase 1). Since the UMRT Line 1 and Line 2 would be functioning as urban railways by the start of these developments, the market potential of these developments would have been enhanced to a great extent. Thus value capturing methods such as developer contribution, land readjustment and land banking could be utilized for the redevelopment of both the VNR factories area and the Ngoc Thuy New Town development. Main players of the development are VNR and the developer of the New Town development with HPC acting as a facilitator of the Public Private Partnership (PPP) type projects to develop necessary infrastructure of the area at maximum value for money.

525 Specially for the integrated development in the south of the station, the land readjustment method could be applied to reconsolidate the land use rights of both the VNR factories area and the Gia Lam inter-city bus terminal area, then based on the consolidated land tracts, PPP type tenders for large commercial property development could be prepared with either HPC and/or VNR as a project owner of the development.

- 526 Remaining Issues for the implementing the above development are as follows:
- Development elements must be clearly delineated into the railway side (subject to the ODA funding for the Line 1 project) including ROW and the urban development side;
 - Examining the possibility of PPP type tenders for the commercial property development as proposed
 - Land readjustment system should be institutionalized in the Vietnamese legal system;
 - Examining the possibility of implementing the land banking in the current Vietnamese legal system.

5.2.5 Issues to be clarified

527 Adjustment of approved road alignment of north (minimum): To improve accessibility to station from north, it is proposed to develop north ITF. It is necessary HAUPA and Long Bien District PC to readjust the road alignment of north, which has been already approved by Long Bien District Plan, on the north side.

528 Relocation of VNR property (long-term): For this area to emerge as one of the urban cores of Hanoi city on the fringes, VNR must decide on the conversion of this property and to relocate its current activities (mainly rolling stock factories and marshalling yard) elsewhere.

529 Landuse conversion (long-term): The predominant land use in the area surrounding Gia Lam Station has to be converted from “Industry” (under the Long Bien District Plan) to “Commercial and Business”.

Table 5.2.2 Project List of Gia Lam Station Area (V4)

Project		Scale		Construction Cost (000US\$)	Land acquisition		Implementation Body	Financial resource		
					Scale	Measure				
A Minimum development till opening	SF-IM-1	North Intermodal transfer facility	14,100	m2	761	9,731	14,100 m2	Land acquisition	VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-IM-2*	South Intermodal transfer facility	2,700	m2	146		2,700 m2		VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-SE-1	Station entrance space	6,900	m2	552		6,900 m2		VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-PD-1	North pedestrian deck	300	m2	780		-	-	VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-EV-1*	Elevator	2	No.	200		-	-	VNR	VNR
	SF-ES-1*	Escalator	1	No.	300		-	-	VNR	VNR
	PT-BS-1	Bus stop	2	No.	10		-	-	TRAMOC	HPC
	SF-PC-1	Pedestrian crossing	1	No.	10		-	-	HDOT	HPC
	SF-PC-2	Pedestrian crossing	1	No.	10		-	-	HDOT	HPC
	RD-NR-1	Distribution road development (w=36.0m) ²⁾	1,370	m	3,151		64,800 m2	Land acquisition	HDOT	HPC
	RD-NR-2*	Distribution road development (w=26.0m)	330	m	561		8,600 m2		HDOT	HPC
	RD-SW-1	Improvement of Sidewalk	820	m	221		-	-	HDOT	HPC
	RD-MA-1	Improvement of main access road	1,960	m	2,156		-	-	HDOT	HPC
	RD-MA-2	Improvement of main access road	320	m	352		-	-	HDOT	HPC
B Short-term (opening~3 years)	SF-CP-1	North car parking space	6,200	m2	248	1,214	6,200 m2	Land acquisition	HPC	HPC
	RD-NR-3	Distribution road development (w=36.0m) ²⁾	420	m	966		700 m2		HDOT	HPC
C Medium-term (3~5years)	UR-1	Redevelopment of VNR factories area ³⁾	20	ha	To be estimated	-	-	HPC/Private	VNR/Private	
	SF-IM-3	South Intermodal transfer facility	8,000	m2		640	8,000 m2	Land acquisition from SOE land	VNR	VNR/HPC/Private
	SF-SE-2	South Station entrance space	6,500	m2		520	6,500 m2		VNR	VNR/HPC/Private
	SF-CP-2	South car parking space	5,000	m2		200	5,000 m2		HDOT	VNR/HPC/Private
	BT-1	New bus terminal development ⁴⁾	1.5	ha		15,000 m2	TRAMOC		HPC/Private	
	ND-1	Ngoc Thuy New Town development (Phase1) ⁵⁾	41	ha		41ha	LA/LR	Private	Private	
D Long-term (5~10 years)	UR-2	Redevelopment of existing settlement of Gia Thuy Commune	9	ha	To be estimated	9ha	LA/LR	HPC/Private	HPC/Private	
	UR-3	Redevelopment of Gia Lam Inter-city bus terminal	1.8	ha		-	-	TRAMOC/Private	HPC/Private	
	UR-4	Redevelopment of existing settlement	8	ha		8ha	LA/LR	HPC/Private	HPC/Private	
	ND-2	Ngoc Thuy New Town development (Phase2) ⁵⁾	73	ha		73ha	LA/LR	Private	Private	

Source: JICA Project Team

Note:

SOE = State owned enterprise, La = Land Acquisition, LR = Land Readjustment

Minimum projects with * are prioritized to develop together with station facilities, since land acquisition is not so difficult.

1) It has not been discussed and agreed between VNR and HPC which will be an implementation body and a financial resource for ITF development. JICA Project Team recommends VNR will develop ITF as a station related facility development.

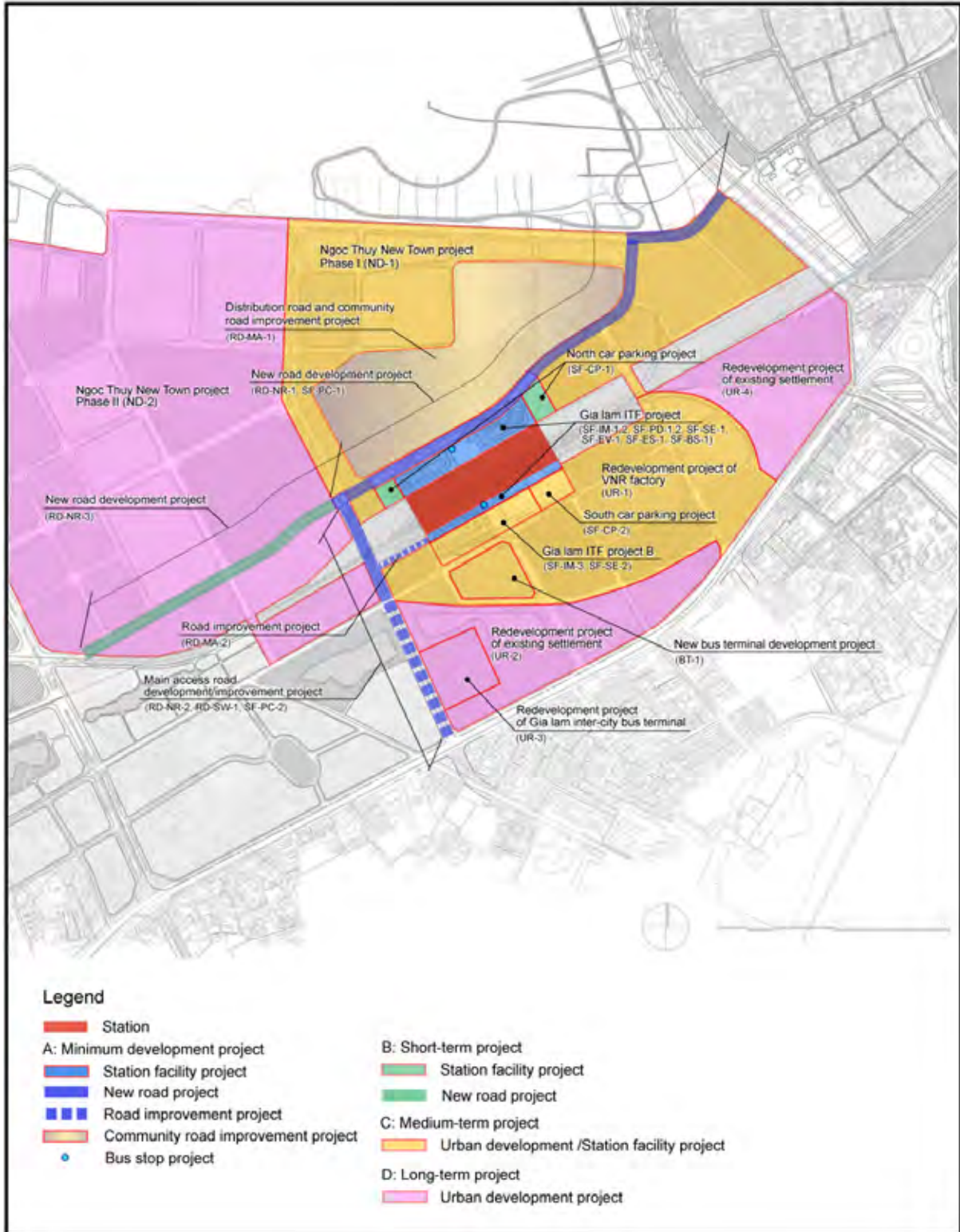
2) It is necessary to readjust the road alignment of District Plan with HAUPA.

3) It is necessary to consult with VNR for technical aspects and HAUPA for readjustment of District Plan.

4) It is necessary to consult with TRAMOC for relocation of bus terminal.

5) It is necessary to consult with HAUPA and developer to adjust road network and landuse of new town area.

Figure 5.2.5 Project Location Map of Gia Lam Station Area (V4)



Source: JICA Project Team

5.3 Nam Cau Long Bien (V6) and Hang Dau (C8) Station Area

5.3.1 Development Character

1) Existing Condition and Issues

530 Nam Cau Long Bien (V6) and Hang Dau (C8) Station Area covers the Ancient Quarter and Thang Long Citadel as a historical center of Vietnam, and the station will be near to Hang Dau Garden as a precious open space next to high-dense Ancient Quarter.

531 The Ancient Quarter is called “a heart of Hanoi”, with vibrant traditional commercial activities called “36 streets”, unique urban structure with many alleys and houses in backyard, traditional living style with relatives, intangible cultural values, etc. The land use of the station area consists mainly of a mixed land use of residential and commercial. Many tourists visit to the AQ so commercial potential is very large.

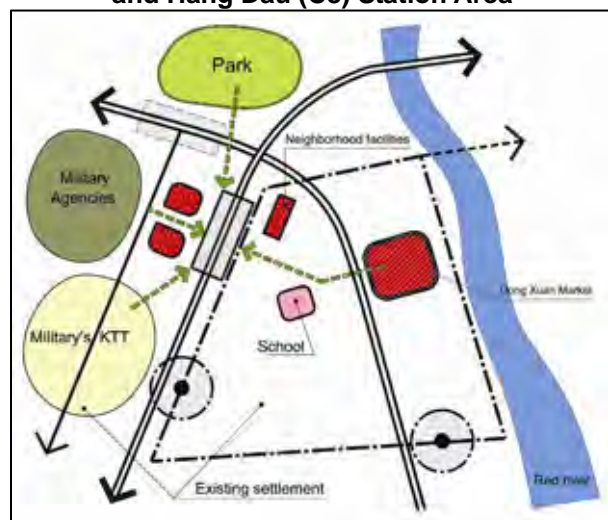
532 The south-west of AQ is a military and political area and Thang Long Citadel is located. Long Bien Bridge is a historical heritage of Vietnam. Nearby this bridge, Long Bien bus terminal is located in Hong Ha Street, in front of Long Bien Market. More than 80% of HH engage service industry, and there are high opportunities to do business in this area, since the AQ is a regional commercial center of Vietnam. In addition, many tourists visit to the AQ so commercial potential is very large. Traffic flow from many directions concentrates in this area to come to the center of Hanoi. There are two big wholesale markets (Long Bien and Dong Xuan), and many shops in AQ, so many motorbikes, buses and cars are gathered to AQ. Carriageways are always overcrowded. Pedestrian cannot walk safe since most of sidewalks are occupied by parking and vendors. Living condition of the AQ and out of dyke areas (Phuc Xa Commune and Phuc Tan Commune) is poor in terms of sanitation, flood danger and security.

2) Development Objectives

533 The station area of two stations is expected to formulate common gateway development as the northern gateway of the Historical Center of Hanoi, where convenient transfer facilities and attractive open space is proposed to be equipped.

534 The role of these two stations is “the northern gateway to Ancient Quarter”. Historically there was a gate named “O Quan Chuong” which is remained at eastern side of Hang Chieu Street in Ancient Quarter. These stations should be a new symbol of gateway of this area.

Figure 5.3.1 Conceptual Diagram for Station Area Development of Nam Cau Long Bien (V6) and Hang Dau (C8) Station Area



Source: JICA Project Team

535 On the other hand, utilizing opportunities for proposed arterial road development as a fringe road of Ancient Quarter in conjunction with Line1 trackage construction, urban redevelopment can be promoted along proposed new fringe road. This urban redevelopment is expected to encourage socio-economic activities by new urban services in Ancient Quarter, taking account of harmonized development with Ancient

Quarter in terms of landscape and urban design. In addition, accessibility to Long Bien Bus Terminal needs to be improved for passengers' convenience and safety.

536 Planning issues are summarized as follows:

- To ensure smooth transfer between two stations
- To integrate two station areas
- To improve of walking condition in Ancient Quarter
- To improve access to bus terminal
- To promote economic development

Table 5.3.1 Demand Outlook for Nam Cau Long Bien Station Area (V6)

		Present	UMRT with integrated Urban Development	
			Without	With
Population of Station Area of radius 500m (persons)	Population	33,563	28,500	28,500
	Employment	19,753	32,400	34,700
	Student	7,032	6,700	6,700
Ridership (persons/day)		-	48,200	53,300

Source: JICA Project Team

Table 5.3.2 Demand Outlook of Hang Dau Station Area (C8)

		Present	UMRT with integrated Urban Development	
			Without	With
Population of Station Area of radius 500m (persons)	Population	31,374	24,000	24,400
	Employment	22,350	25,000	27,000
	Student	10,175	7,000	7,000
Ridership (persons/day)		-	57,000	71,700

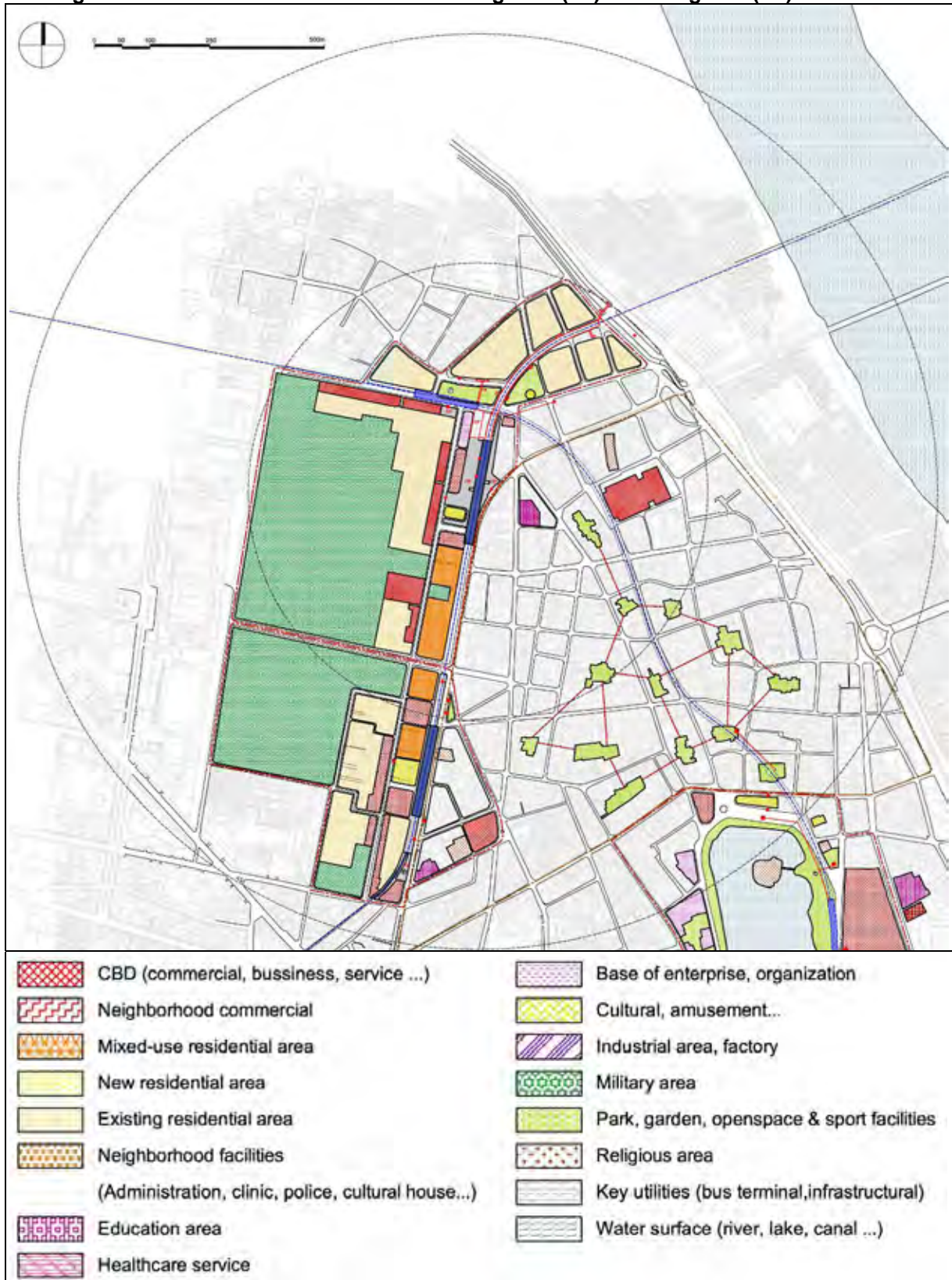
Source: JICA Project Team

537 Though comprehensive improvement of Ancient Quarter (in terms of traffic management, urban redevelopment, living condition improvement as well as preservation of traditional values) is a significant issue, it might take time to achieve them. When UMRT station will be developed, this is an opportunity to conduct an urban redevelopment project as a pilot case.

- (i) Development of access road and feeder bus service (short-term)
- (ii) Relocation of factories in medium-term
- (iii) Development of new intermodal facilities including inter-city bus terminal, commercial/business development using relocate factory land (medium- to long-term)

538 Some of major urban development projects such as: (a) urban redevelopment project for station entrance space development, (b) intermodal transfer facility and underground car parking development project of Hang Dao Park, (c) skywalk and pedestrian deck development with improvement and extension of Phung Hung Street, are core projects in short-term to secure accessibility to station.

Figure 5.3.2 Landuse Plan of Nam Cau Long Bien (V6) and Hang Dau (C8) Station Area

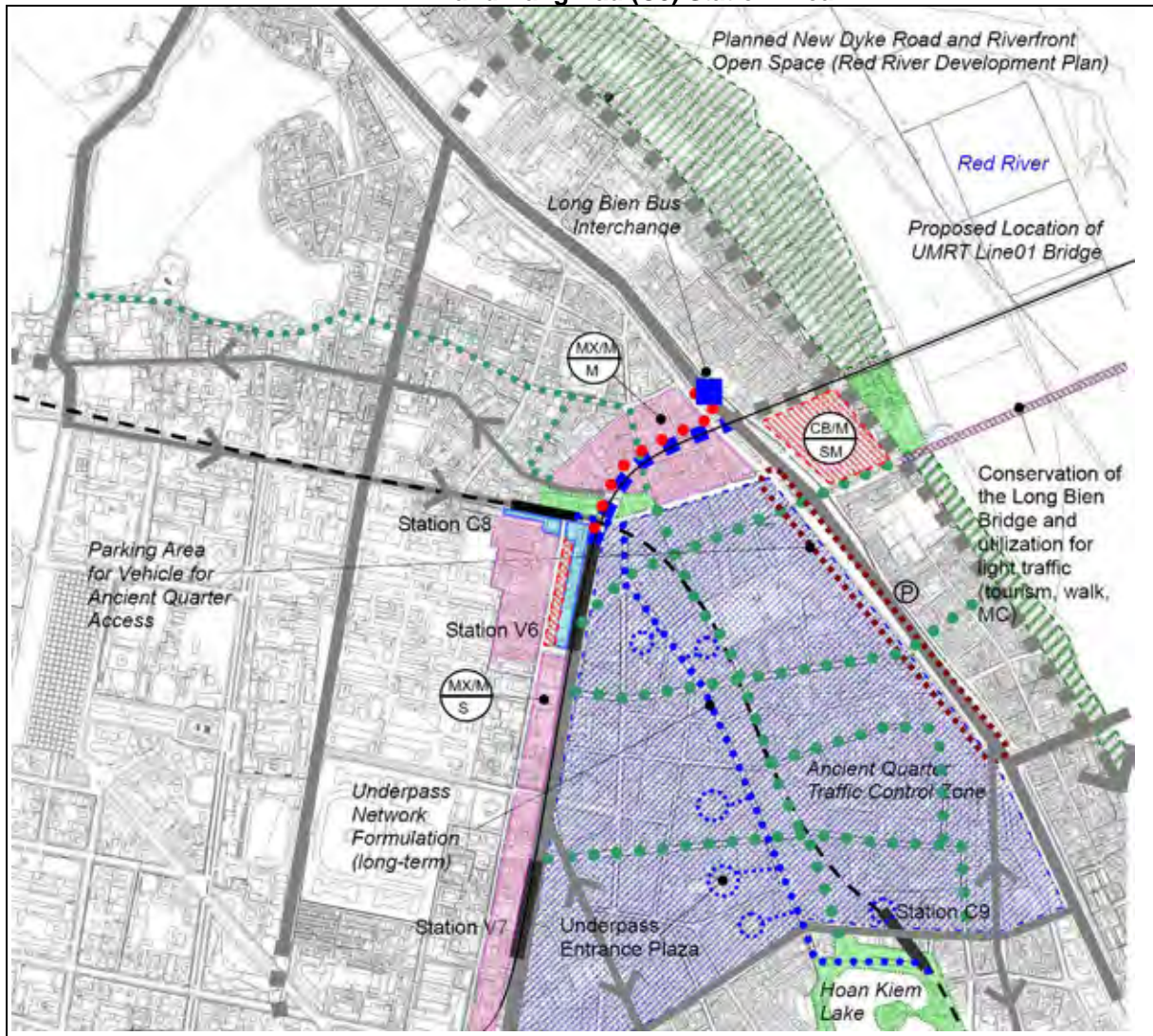


Source: JICA Project Team

5.3.2 Long-Term plan

539 In long-term, comprehensive improvement of Ancient Quarter should be achieved together with UMRT development and promotion. Voluntary urban renovation of AQ needs to be promoted to improve living condition as well as to preserve traditional values of this area. Commercial development along railway will provide economic competitiveness and attractiveness of AQ. Underground pedestrian network development is one of measures to achieve comprehensive urban redevelopment of AQ.

Figure 5.3.3 Long-term Concept Plan of Nam Cau Long Bien (V6) and Hang Dau (C8) Station Area



Source: JICA Project Team

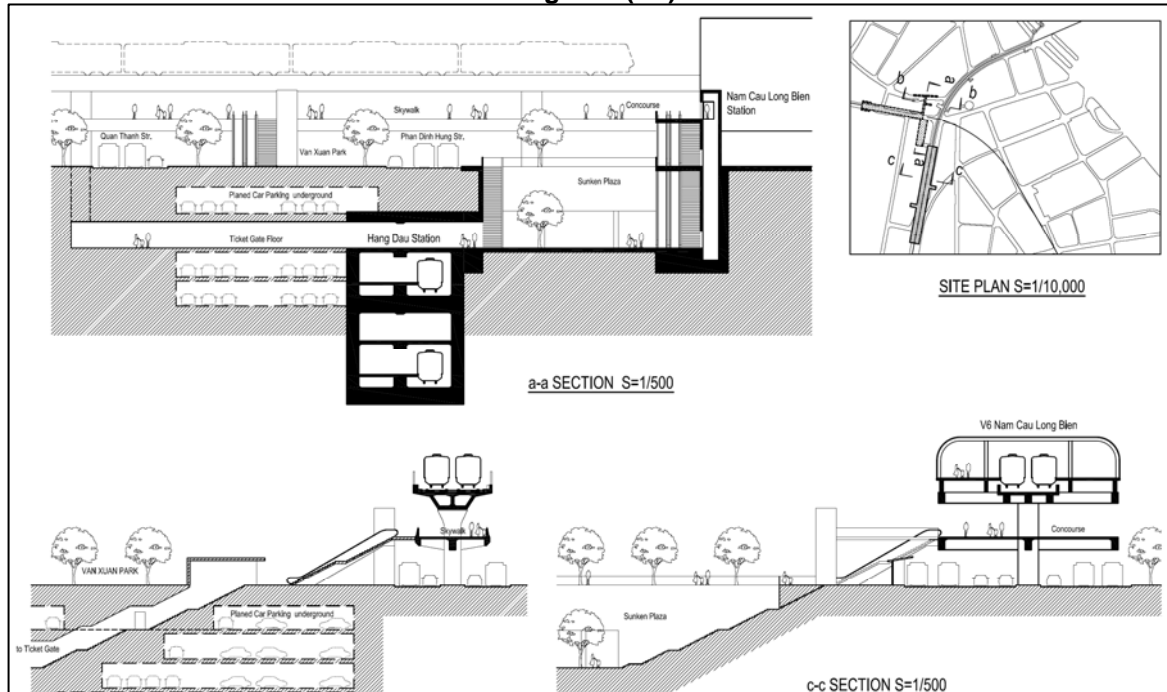
5.3.3 Short-term Projects and Actions

540 In north of stations, there are some schools and a hospital. To secure accessibility for these facility users, distribution roads will be improved to secure sidewalk. For connection to Long Bien Bus Terminal, skywalk under elevated railway is convenient and safe for users.

541 To secure connectivity between Nam Cau Long Bien Station and Hang Dau Station, station entrance space is significant to connect two stations underground. This plaza will become a gateway to Ancient Quarter from north. In addition, when elevated

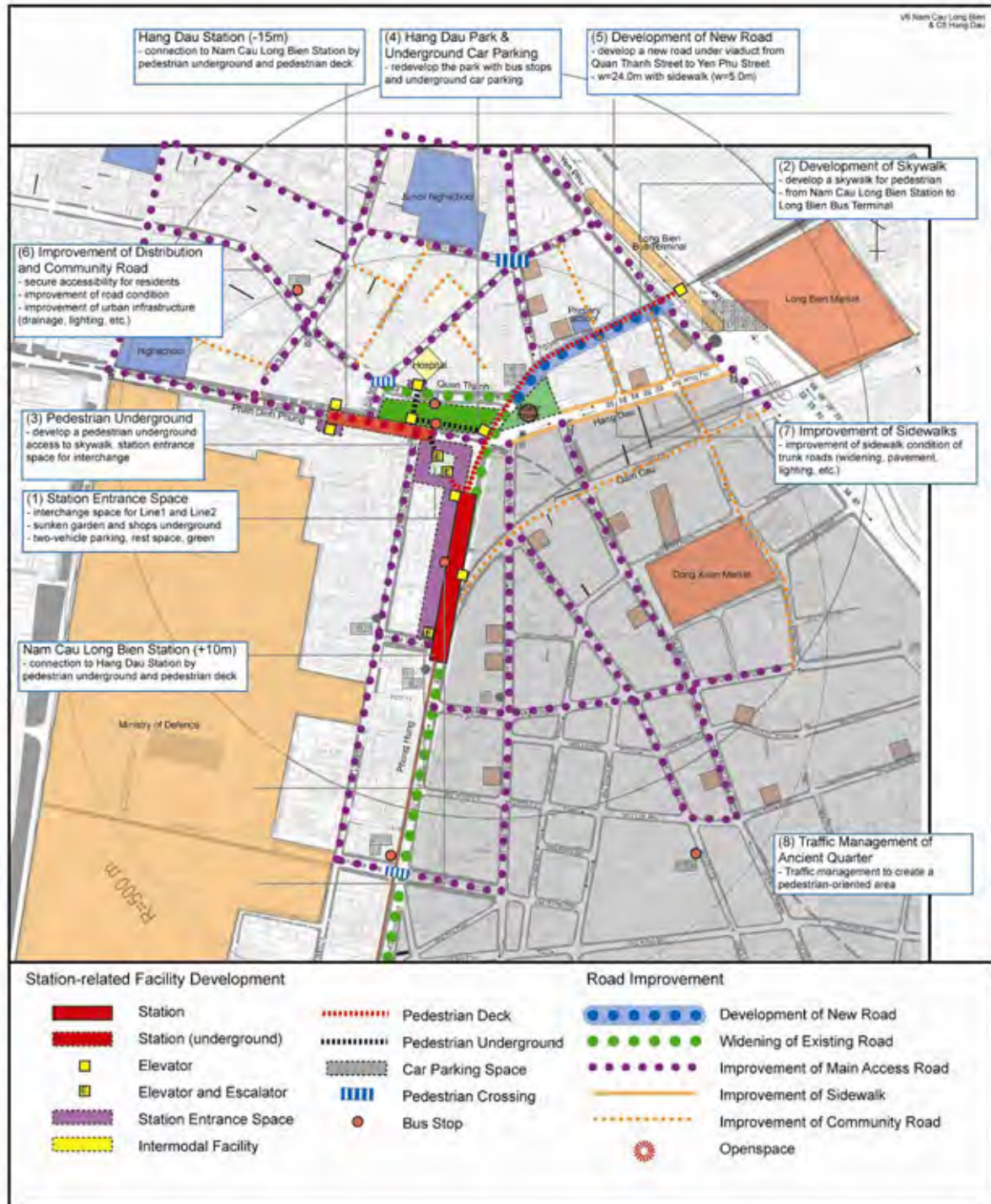
railway is constructed, carriageway under elevated railway should be developed. Phung Hung Street which is one-way at present will be widened for 4lanes both north-south directions. This street will be an outer distribution road of AQ.

Figure 5.3.5 Images of Section of Nam Cau Long Bien (V6) and Hang Dau (C8) Station Area



Source: JICA Project Team

Figure 5.3.4 Short-term Concept Plan of Nam Cau Long Bien (V6) and Hang Dau (C8) Station Area



Source: JICA Project Team

5.3.4 Project List and Implementation Mechanism

1) General

542 Since there is not much commercial development elements in the Nam Cau Long Bien and Hang Dau Station Area development, the leading implementation bodies for the development are VNR and HPC and the main activities could be conducted on the basis of adjustments between the two entities.

543 As described in Table 5.3.5 most projects are targeted at the Minimum Development and the Short-term implementation. Therefore, the projects are expected to implement with the framework of existing implementation measures such as land acquisition and conventional public funding.

2) Minimum and Short-term Development Projects

544 One of the major issues in this development is to secure transfer and inter-modal connectivity between the stations and with the bus terminal. For doing so good coordination among VNR/HRB, the operation bodies of the both lines, HDOT and TRAMOC would be essential by developing underground pedestrian paths and the skywalk. Result of this coordination should be reflected in the design and construction of the both lines, and at the same time clear consensus should be formed for role/cost sharing for implementation.

545 Another issue is integration of two stations on different ground levels. For this the development of both Station entrance space projects would be important. These projects could be implemented by conventional method with a combination of land acquisition and public funding. However, since there may be an possibility for commercial property development in the development of the Hang Dau Station entrance space project (underground sunken garden) and also in the neighboring area of the Nam Cau Long Bien Station entrance space project, a PPP format could be an possible option for implementation with HPC as a project owner to conduct a PPP tender for the private sector participation. Necessary land acquisition and development, especially for the Nam Cau Long Bien Station entrance space project should go ahead of the development by HPC, but other commercial development elements such as the Hang Dau Station entrance space project and the neighboring area of the Nam Cau Long Bien Station entrance space project could be phased based on the conditions of the PPP tender and also on the timing of the Minimum Development project.

546 Remaining Issue for the implementing the above development is as follows:

- Framework and implementation method including legal issues should be examined for conducting the PPP tender.

Table 5.3.3 Project List of Nam Cau Long Bien (V6) and Hang Dau (C8) Station Area

Project		Scale		Construction Cost (000US\$)		Land acquisition		Implementation Body	Financial resource
						Scale	Measure		
A Minimum development till opening	SF-PD-1*	Pedestrian deck ²⁾	3,900	m	10,140	-	-	VNR/HRB ¹⁾	VNR/HPC ¹⁾
	SF-PU-1*	Pedestrian underground	1,500	m	9,000	-	-	HRB	HPC
	SF-EV-1*	Elevator	9	No.	900	-	-	VNR/HRB	VNR/HPC
	SF-ES-1*	Escalator	1	No.	300	-	-	VNR/HRB	VNR/HPC
	SF-BS-1	Bus Stop	5	No.	25	-	-	TRAMOC	HPC
	SF-PC-3	Improvement of crossing of Hang Thanh Str.	1	No.	10	-	-	TRAMOC	HPC
	SF-CP-1*	Underground parking development (planned)	32,800	m2	32,800	-	-	HDOT	Private
	RD-NR-1*	Development of new road under viaduct ³⁾	270	m	432	-	-	HDOT	HPC
	RD-WR-1*	Widening of Phung Hung Street	680	m	476	2,100 m2	Land acquisition	HDOT	HPC
	RD-MA-1	Improvement of main access road	10	m	1,000	-	-	HDOT	HPC
B Short-term (opening-3years)	SF-SE-2	Station entrance space with sunkun garden	4,200	m2	25,200	4,200 m2	Land acquisition	HPC	HPC/Private
	SF-PC-1	Improvement of crossing of Quan Thanh Str.	1	No.	10	-	-	HDOT	HPC
	SF-PC-2	Improvement of crossing of Phung Hung Str.	1	No.	10	-	-	HDOT	HPC
	SF-EV-2	Elevator inside station entrance space	2	No.	200	-	-	HRB	HPC ³⁾
	SF-ES-2	Escalator inside station entrance space	2	No.	600	-	-	HRB	HPC ³⁾
	RD-MA-2	Improvement distribution road	500	m	550	-	-	HDOT	HPC
	RD-SW-1	Improvement of Sidewalk	9,800	m	2,646	-	-	HDOT	HPC
	RD-SW-2	Improvement of Sidewalk	850	m	230	-	-	HDOT	HPC
	RD-CR-1	Improvement of community road	15,900	m	6,678	-	-	HDOT	HPC
	LEI-1	Water Tower Park	4,000	m2		800 m2	Land acquisition	HPC	HPC
C Medium-term (3-5years)	SF-SE-1	Station entrance space of east of Nam Cau Long Bien Station	5,000	m2	30,000	5,000 m2	Land acquisition	HPC	HPC
	TM-1	Pedestrian network development	1,200	m		-	-	HDOT	HPC

Source: JICA Project Team

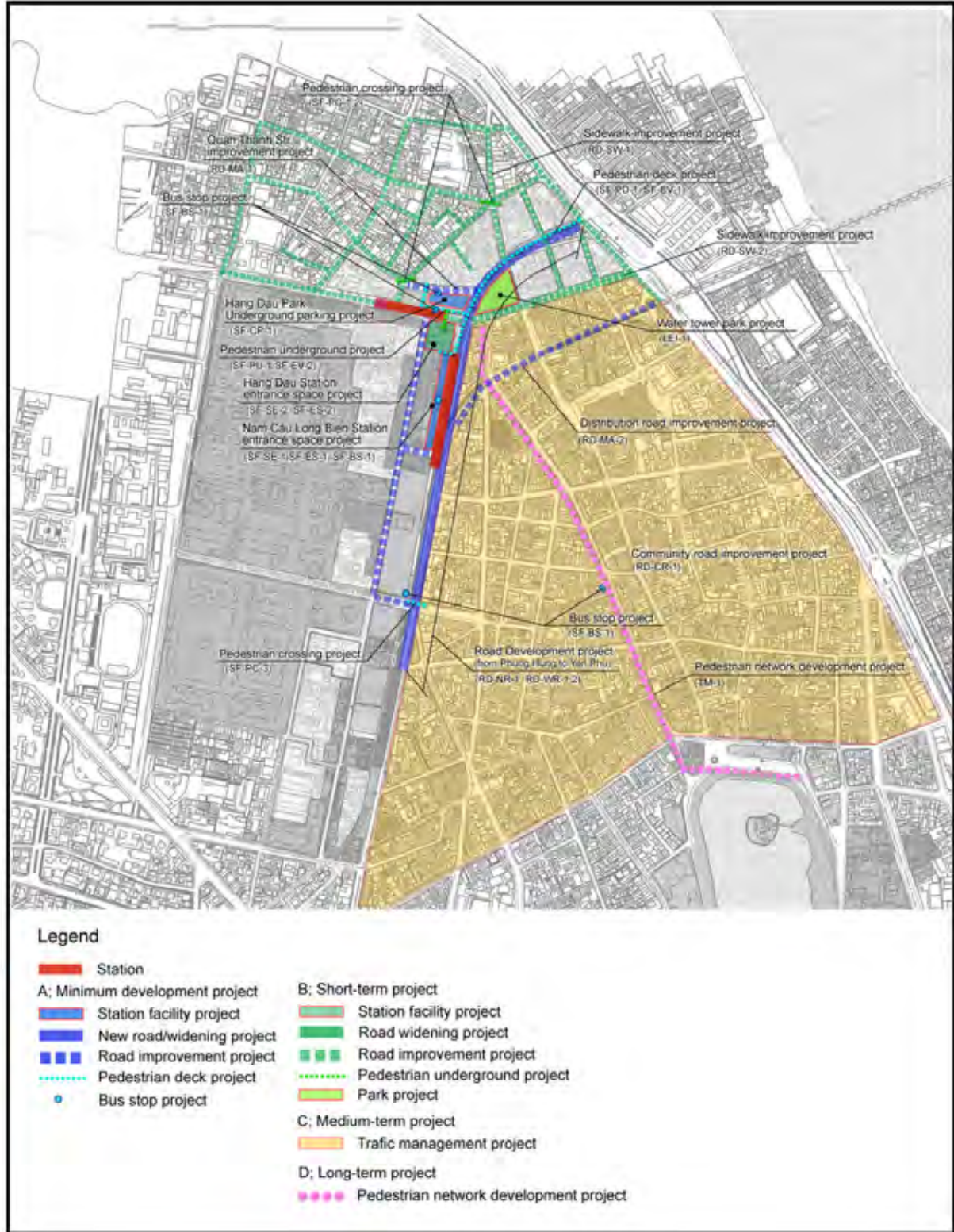
Minimum projects with * are prioritized to develop together with station facilities, since land acquisition is not so difficult.

1) It has not been discussed and agreed between VNR and HPC which will be an implementation body and a financial resource for ITF development. JICA Project Team recommends VNR will develop ITF as a station related facility development.

2) It is proposed to develop pedestrian deck under the viaduct from Nam Cau Long Bien Station to Long Bien Bus Terminal.

3) It is proposed to develop a new road under the viaduct from Quan Thanh Street to Yen Phu Street

Figure 5.3.5 Project Location Map of Nam Cau Long Bien (V6) and Hang Dau (C8) Station Area



Source: JICA Project Team

5.3.5 Issues to be clarified

547 Adjustment of Red River alignment and station location (minimum): The proposed alignment and location which the railway bridge is 200m-north from Long Bien Bridge is differed from the ones of F/S (30m-north from Long Bien Bridge). It is necessary to make a consensus among stakeholders especially MOT and VNR and get an official approval of Prime Minister.

548 Road development under/along the elevated railway (minimum): When the elevated railway will be constructed, the space under the viaduct can be utilized to develop a trunk road. Phung Hung Street will be widened, and new road from the Water Tower to Yen Phu Street will be developed. The construction schedule of these roads should be the same as UMRT development, so it is necessary to coordinate with HAUPA and HDOT to get an approval of new road development.

549 Adjustment of plans of underground parking development and water tower redevelopment (minimum): To develop UMRT railway and stations (elevated and underground), it is necessary to adjust neighboring development plans. In case of underground parking development plan, it is necessary to readjust location of entrance, and plan pedestrian underground facility to access Hang Dau Station. In case of Water Tower, it is planned to redevelop it as a museum. Since road network around the tower will be reformed, surround space around the tower should be planned to secure safe access.

550 Urban redevelopment of Army related facilities (short & mid-term): The urban block of proposed station entrance space mostly belong to Army. It is necessary to discuss land owners and study its feasibility for urban redevelopment project related to station area development.

551 Traffic management of Ancient Quarter (long-term): To create safe and conformable accessibility around the station, through traffic and parking should be strictly controlled or restricted. It is necessary to develop a traffic management plan of Ancient Quarter and Hoan Kiem Lake area of a city planning level.

5.4 Hanoi (V8) and Line3 Station Area

5.4.1 Development Character

1) Existing Condition and Issues

552 Hanoi station area covers French Quarter of Hoan Kiem and Hai Ba Trung District in east side of station and high-dense residential area of Dong Da District in west side. The local condition is quite different in terms of physical, economical, social and cultural characteristics.

553 The French Quarter is characterized with villa-style detached houses. Most of the actual French villas there were constructed during the French colonial period, occupy large plots, and have gardens. Because of their good location these French villas are usually used as public facilities, such as government offices and embassies, or commercial facilities, such as restaurants and retail shops with smart designs. Except for those renovated for commercial or public use, most of the housing facilities are degraded. Commercial facilities, including high-rise offices, hotels are clustered in this area.

554 In the west side of the station, Van Chuong Commune, there are many poor resident groups with low income. There are a number of industries in this area and Hanoi Station and related facilities of Vietnam Railways (about 11ha) are occupied, and it is difficult to clarify land title of each plot and property ownership of houses and entities. In the west of Linh Quang Lake, which has been stagnant, there is Van Chuong Public Apartment area, with 20 apartment buildings of 3-5 stories, built in 1960s. There is no direct approach to the major road from the apartment area, and there are no collector roads but only alleys. Drainage and waste from a market and housings and a polluted lake make the living environment worse. Gaps of social, economical and physical conditions between east side (business and cultural areas of French Quarter) and west side (residential areas of Dong Da District) of the railway are big.

555 There are many urban facilities, including popular places for tourists. In French Quarter, there are many mid or high class hotels such as Melia Hotel, Movenpick Hotel, Hanoi Tower, etc. Embassies and ministries (Ministry of Police, Ministry of Transport) are also located in this area. Vietnam-Russia Friendship Cultural Palace is a popular facility for exhibition, performance, and various types of events. In the north-west side of Hanoi Station, Van Mieu (the Temple of Literature) is located as a historical vestige. Next to it, the Quoc Tu Giam, the temple of the first university in Vietnam is one of the popular sightseeing places in Hanoi.

556 Road network of French Quarter (east of the station) is well developed with grid of trunk roads and greens. But there is no trunk road network of the west side of the station, but only many alleys in high-dense residential area. There are only two cross-points to connect from east to west, and these are about than 500m far from Hanoi Station. The railroad crossings of these roads are always crowded.

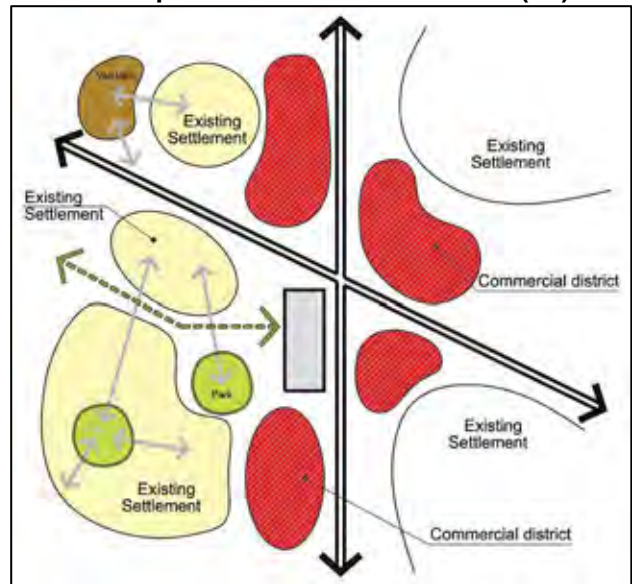
2) Development Objectives

557 Hanoi station is proposed to be located on the middle of the old marshalling yard of VNR to ensure connectivity to UMRT Line 03 station. The configuration of the station area shall follow the main urban axis of Le Duan Street (NH-1) and provide two gateways for both stations of Line1 and Line3. Ancillary roads, bus transfer facilities, and feeder bus services shall also be provided for smooth traffic flow in the area, aside from

improved access to the station. The mixed-use non-rail urban re-development component would create a new urban node for Hanoi that is also in harmony with the historic French Quarter in terms of landscape and urban design. Station area development will promote urban redevelopment projects and living condition improvement projects of Dong Da District where high-dense residential areas are clustered.

558 The prioritized potential area for urban development is a property of VNR (app. 11ha). Extension of Tran Hung Dao Street is also a core project in short-term to achieve integration between east and west of railway. The main entrance of Hanoi Station will be developed both east of French Quarter and west of Dong Da District, which face different types of urban area. Intermodal facilities and station-related facilities should be developed inside of VNR owned land in short-term. Gradually, high-dense residential areas of Dong Da District will be improved and urban redevelopment projects will be promoted to develop commercial and business facilities and new residential areas with mid and high rise buildings.

Figure 5.4.1 Conceptual Diagram for Station Area Development of Hanoi Station Area (V8)



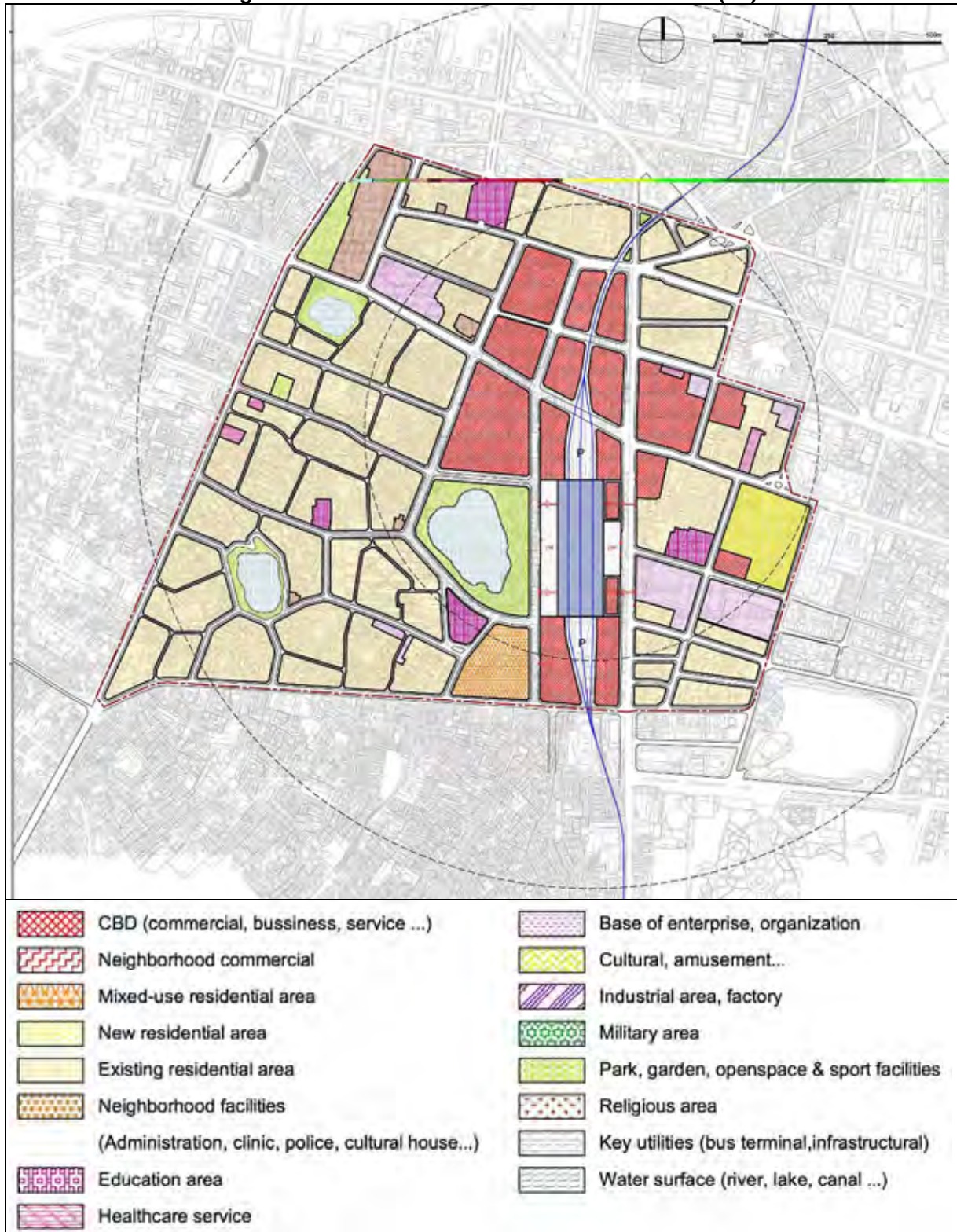
Source: JICA Project Team

Table 5.4.1 Demand Outlook for Hanoi Station Area (V8)

		Present	UMRT with integrated Urban Development	
			Without	With
Population of Station Area of radius 500m (persons)	Population	31,561	23,600	23,600
	Employment	21,161	24,800	49,100
	Student	7,464	5,100	5,100
Ridership (persons/day)		-	44,100	57,100

Source: JICA Project Team

Figure 5.4.2 Landuse Plan of Hanoi Station Area (V8)



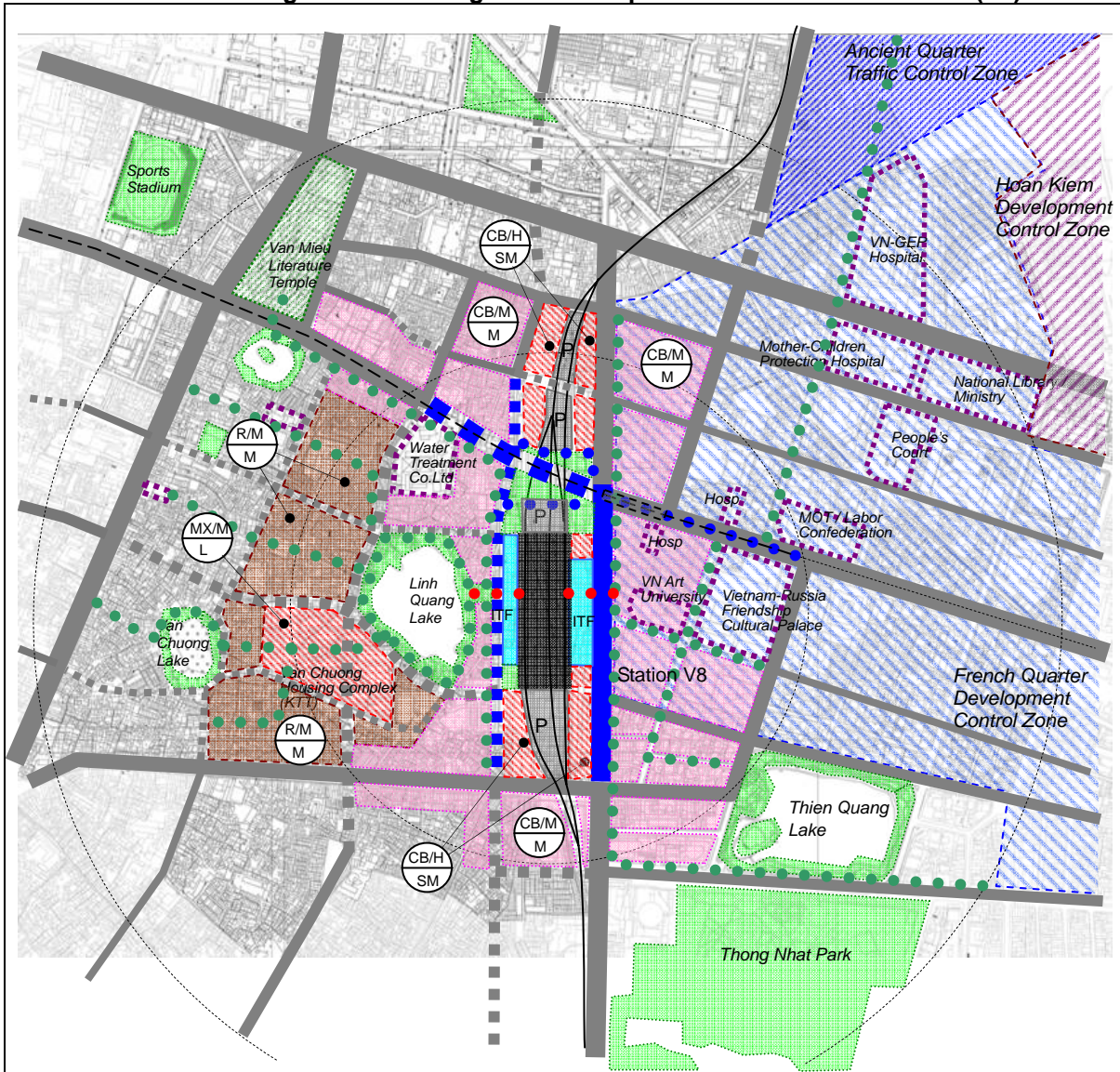
Source: JICA Project Team

4.4.2 Long-term Plan

559 Development of Hanoi Station Area can be characterized as a “Main Gateway to Hanoi Metropolitan City in harmony with tradition and modern”.

560 Accordingly, it can have such facilities as hotel, shopping center, business offices, and entertainment venues appropriate in scale to an urban center. New urban center of west will be harmonized with lakes, greens and culture of Van Mieu.

Figure 5.4.3 Long-term Concept Plan of Hanoi Station Area (V8)



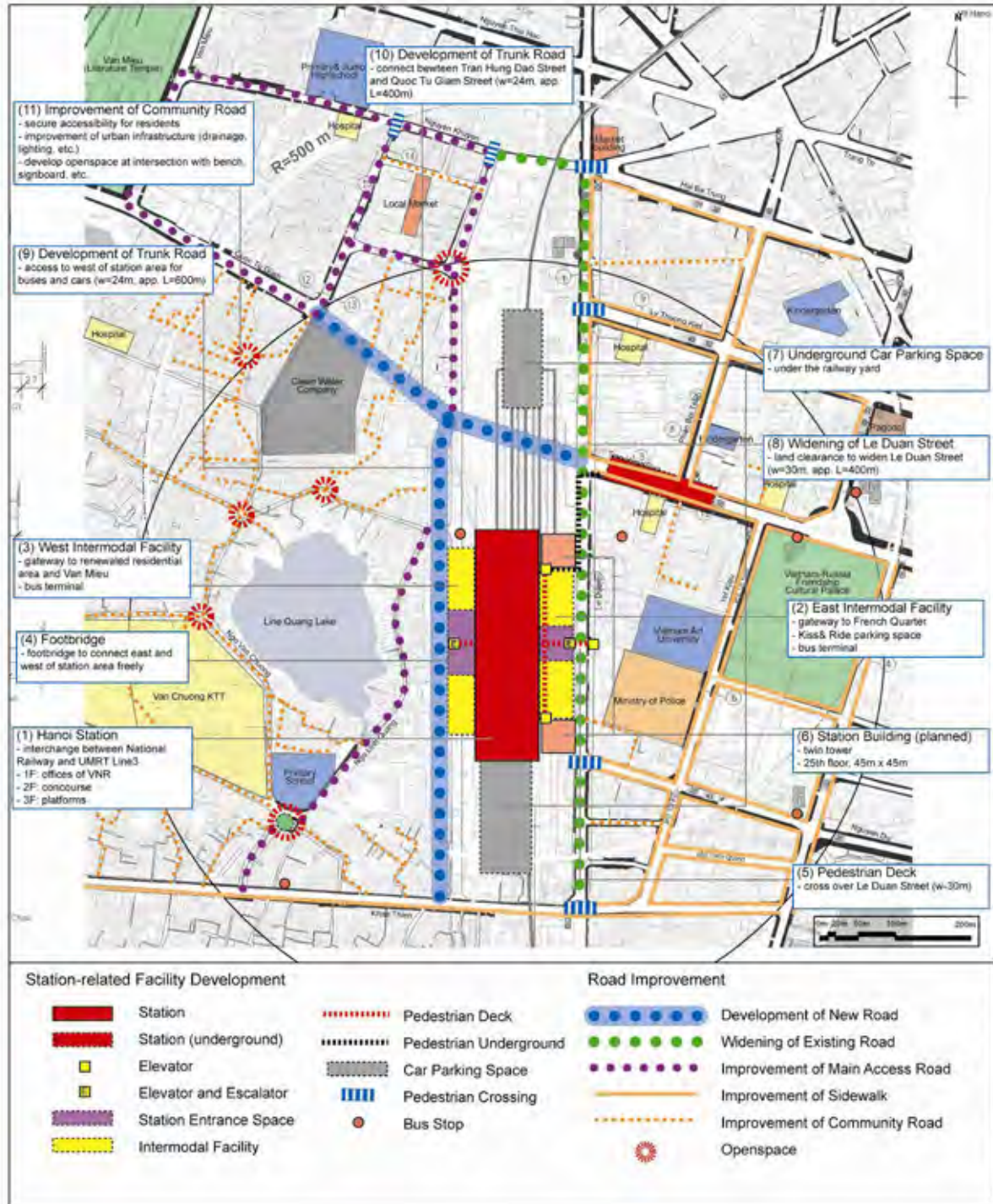
Source: JICA Project Team

5.4.3 Short-term Projects and Actions

561 Improving Accessibility from/to Station: New trunk roads around Hanoi Station need to be developed to formulate circulation of vehicles (bus, taxi, private vehicle, etc.) and to secure convenient access. While road network of French Quarter is secured, the network of Dong Da District is very weak, and most of community roads are narrow. In short-term, it is necessary to improve condition of sidewalk and community roads for safe access to schools, hospitals and KTTs. In such high-dense area, to develop openspace with landmark (signboard, bench, etc.) is significant to guide station users to station.

562 Station-related Facility Development: Inside Hanoi Station, concourse is open to public to pass through west and east gate. Interchange facility from Hanoi Station to Tran Hung Dao Station of UMRT Line3 and national railway need to be carefully planned. Intermodal facilities (bus terminals) of west and east are indispensable to promote sustainable development and integration of west and east of Hanoi.

Figure 5.4.4 Short-term Concept Plan of Hanoi Station Area (V8)



Source: JICA Project Team

5.4.4 Project List and Implementation Mechanism

1) General

563 There are the following critical development issues for the Hanoi Station Area Development:

- The land area of some 11 ha around the Hanoi Station is owned and used by VNR and VNR related entities totaling about 30 organizations (20 major owners of land right) with ownership and related rights are not recorded officially, which would need clarification and adjustment.
- To utilize this land tract, relocation of these organizations and conversion of rights with regards to the occupied land tracts may be needed, together with preparation of land for relocation elsewhere.
- The total land area must be delineated into the ROW of the railway and the land for urban development and relevant ownership and the rights attached to specific land tract must be clarified.
- Large land area, which is very expensive and with resettlement problem, must be acquired for the development of new road/widening which determine the area of urban development in the Hanoi Station Area Development.
- Large scale urban development projects in the area are being planned. Thus careful preparation and coordination between VNR and HPC for its implementation is essential for facilitating participation of private sector players including foreign investors.

2) Minimum and Short-term Development Projects

564 Largest issue in the Minimum development is the development of the new roads surrounding the Hanoi Station which are essential for effective access and circulation of traffic to and around the station. Land acquisition and development especially of Tran Hung Dao Street and the west side frontage road could be very expensive.

565 HPC could lessen the financial burden of such road development by including these road developments in a PPP type tender for urban development of the area immediately surrounding the station. Development of the roads and ITF projects should be lead by HPC but a part of the development cost could be shouldered as developer's contribution by the private sector developer. The development could be tendered separately based on several development blocks such as the twin towers with ITF projects, VNR yard development with North and South parking, etc. Resettlement issue of the local residents in the road development area may be dealt with by providing resettlement places within the development.

566 A special purpose company or other form of entity could be established as a joint venture between VNR and HPC's subsidized development company as illustrated in Figure 5.4.5, to facilitate, manage and control the total development which may include the Medium-term and the Long-term projects.

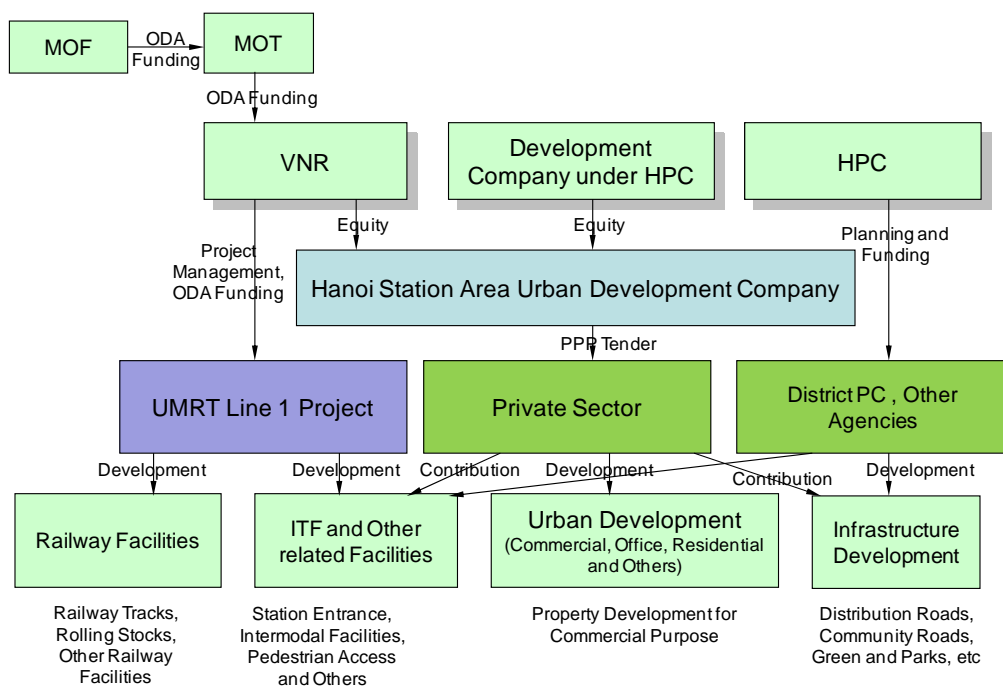
567 Another major issue is the adjustment of land related rights for the owners occupying the VNR land. The following steps could be taken: i) Survey on the owners of land related rights, ii) Delineation of ROW (a) for the railway activity, iii) Delineation for the development area for the Hanoi Station Area Development exclusive of ROW(b) and iii)

Planning of negotiation procedure for the land owners in the VNR area. After delineating the ROW, ownership of the land (b) must be clarified.

3) Medium-term and Long-term Development Projects

568 Major elements of Medium and Long-term Development are large scale urban development which would require initiative of the leading agencies such as VNR in case of UR-3 and HPC in LEI-2, UD-5 and UR-4 to solicit the active participation of private sector developers. It is essential to institutionalize the urban redevelopment and right conversion system to facilitate relocation of the local residents in the area and land clearance for implementation. These large scale urban development could be designed and managed under the same scheme as described in the above section.

Figure 5.4.5 Proposed Development Scheme of Hanoi Station Area Development



Source: JICA Project Team

Table 5.4.4 Project List of Hanoi Station Area

Project		Scale		Construction Cost (000US\$)		Land acquisition		Implementati on Body	Financial resource	
						Scale	Measure			
A Minimum development till opening	SF-IM-1	West intermodal transfer facility	6,400	m2	346	11,472	-	-	VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-IM-2*	East intermodal transfer facility	8,000	m2	432		-	-	VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-SE-1	West station entrance space	3,600	m2	288		-	-	VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-SE-2*	East station entrance space	2,500	m2	200		-	-	VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-PD-1	West pedestrian deck	400	m2	1,040		-	-	VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-PD-2*	East pedestrian deck	1,700	m2	4,420		-	-	VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-EV-1*	Elevator	5	No.	500		-	-	VNR	VNR
	SF-ES-1*	Escalator	2	No.	600		-	-	VNR	VNR
	SF-BS-1	Bus Stop	6	No.	30		-	-	TRAMOC	HPC
	RD-NR-1	Development of new road (w=24m) ²⁾	830	m	1,328		19,900 m2	LA from SOE land and private	HDOT/ VNR	HPC/Private
	RD-NR-2	Development of new road (w=24m) ³⁾	430	m	688		10,300 m2		HDOT/ VNR	HPC/Private
	RD-WR-1	Widening of Le Duan Street (w=30m) ⁴⁾	950	m	665		11,400 m2		HDOT	HPC/Private
	RD-MA-1	Improvement of main access road	850	m	935		-	-	HDOT	HPC/Private
	B Short-term (opening~3y ears)	SF-CP-1	North car parking space	8,000	m2		320	2,725	8,000 m2	(utilization of ROW)
SF-CP-2		South car parking space	13,300	m2	532	13,300 m2	VNR/Private		VNR/Private	
SF-PC-1		Improvement of crossing of Nguyen Khuyen Street	1	No.	10	-	-		HDOT	HPC/Private
SF-PC-2		Improvement of crossing of Nguyen Khuyen Street	1	No.	10	-	-		HDOT	HPC/Private
SF-PC-3		Improvement of crossing of Le Duan Street	1	No.	10	-	-		HDOT	HPC/Private
SF-PC-4		Improvement of crossing of Le Duan Street	1	No.	10	-	-		HDOT	HPC/Private
SF-PC-5		Improvement of crossing of Le Duan Street	1	No.	10	-	-		HDOT	HPC/Private
SF-PC-6		Improvement of crossing of Le Duan Street	1	No.	10	-	-		HDOT	HPC/Private
RD-WR-2		Widening of Nguyen Khuyen Street	120	m	84	-	-		HDOT	HPC
RD-SW-1		Improvement of Sidewalk	4,600	m	1,242	-	-		HDOT	HPC
RD-CR-1		Improvement of Community Road	800	m	336	-	-		HDOT	HPC
SF-OS-1		Openspace for community road	400	m2	22	-	-		HDOT	HPC/Private
SF-OS-2		Openspace for community road	400	m2	22	-	-		HDOT	HPC/Private
SF-OS-3		Openspace for community road	2,000	m2	108	-	-		HDOT	HPC/Private
UR-1		Urban redevelopment	4,100	m2		-	-		VNR	VNR/Private

		of VNR yard land (Phase1: twin tower construction) ⁵⁾								
	UR-2	Urban redevelopment of VNR yard land (Phase2)	3.5	ha			3.5ha	LR/UR	VNR/HPC/private	VNR/Private
C Medium-term (3-5years)	SF-PU-1	Pedestrian underground ⁶⁾	2,100	m2	12,600		-	-	HRB/HDOT	HPC/Private
	RD-NR-3	Development of new road around Linh Quang Lake (w=24m)	580	m	928		11,000 m2	LA	HDOT	HPC/Private
	UR-3	Urban redevelopment of existing residential area	7.7	ha		-	7.8ha	LR/UR	VNR/HPC/private	Private
	LEI-1	Green and park development around Linh Quang Lake	5.8	ha			-	-	HPC	HPC/Private
	LEI-2	Redevelopment of Van Chuong KTT	4.4	ha			-	-	HPC/HUD	Private
D Long-term (5~10 years)	UR-4	Urban redevelopment of existing residential area	4.5	Ha			4.5ha	LR/UR	HPC/private	Private
	UR-5	Urban redevelopment of existing residential area	2.8	ha			2.8ha	LR/UR	HPC/private	Private

Source: JICA Project Team

Note: SOE = State owned enterprise, La = Land Acquisition, LR = Land Readjustment

Minimum projects with * are prioritized to develop together with station facilities, since land acquisition is not so difficult.

1) It has not been discussed and agreed between VNR and HPC which will be an implementation body and a financial resource for ITF development. JICA Project Team recommends VNR will develop ITF as a station related facility development.

2) It is proposed to utilize a land with no necessity of resettlement of local residents such as current VNR owned land for development of new west road.

3) It is proposed to develop a new road to connect between Tran Hung Dao Street and Quoc Tu Giam Street

4) It is proposed to widen Le Duan Street with using VNR owned land.

5) In the Feasibility Study, It is planned to construct twin towers, which VNR Head Quarter will be located from 1F to 4F. The total floor will be 21st floor.

6) It is proposed to develop a pedestrian underground to connect to Line3 station underground.

5.4.5 Issues to be Clarified

569 Adjustment of location of Tran Hung Dao Station of Line3 (short-term): The station of UMRT Line3 has been planned to locate at a place 300 meter away from the Hanoi station. As already mentioned, it is proposed that this station be relocated nearer to Line1 station with due consideration to technical aspects.

570 Extension of Tran Hung Dao Street to west (short-term): At present, connecting roads between west and east of National Railway are only two points: i) Hai Ba Trung Street – Nguyen Khuyen Street (400m north from station) and ii) Khan Thien Street (600m-south from station). Extension of Tran Hung Dao Street will contribute not only to improve traffic congestion around railway crossing, but also to integrate isolated areas from city center into one.

571 Preservation of architecture of existing Hanoi Station (short-term): Since the architecture of existing Hanoi Station is one of the historical heritages of Hanoi, which the design are combination of Russian and French styles, it is proposed to relocate it and reform as a public facility such as museum. This issue should be discussed and agreed among various stakeholders including HPC, VNR, related organizations including history, architecture, etc. It is also recommended to ask for opinions from citizens.

5.5 C.V. Thong Nhat (V9) and Bach Khoa (C12) Station Area

5.5.1 Development Character

1) Existing Condition and Issues

572 C.V. Thong Nhat Station locates south-west side of Le Nin Park, near the intersection of Le Duan Street (NH-1) and Dai Co Viet Street. This Station will be an interchange station between Bach Khoa Station of UMRT Line 2, which will locate south of the park. This intersection is very congested which two trunk roads cross at the edge of center of Hanoi. But recently, the underpass and pedestrian tunnel of Dai Co Viet Street was developed, so congestion of this intersection will be relieved.

573 Land use of this area is diversified, and various types of urban facilities are clustered. Thong Nhat Park is one of the biggest parks in Hanoi City, and many citizens visit to enjoy running, fishing, playing in children's playground in harmonization with green and Bay Mau Lake. Ba Mau Lake is located west side of NH-1. Though sidewalks and trees are developed around this lake, it has few attractions, because landscape of surrounding residential areas is not controlled well.

574 In south-east of the station, Bach Khoa University and Civil Engineering are famous and excellent, and there are dormitories nearby. Bach Mai Hospitals and several hospitals are clustered in Phuong Mai Commune, west side of Giai Phong Street (NH-1). Ocean Tower, a modern business and commercial building locates at the corner of intersection.

575 As for residential area, Bach Khoa area around universities has been developed rapidly and modern buildings are clustered in front of Tran Dai Nghia Street, which is recently developed. On the contrary, the residential areas of west – south west to the station (Phuong Liet and Phuong Mai Communes) are high-dense with amazing alleys. Kim Lien KTT is one of typical public apartment area in Hanoi. There is a big income gap between this old residential area and new residential area in Bach Khoa.

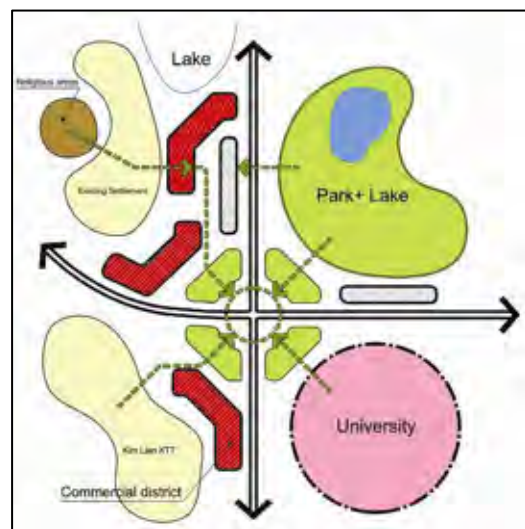
2) Development Objectives

576 This station area aims to be “a high-class educational and medical service area in harmony with natural environment”.

577 Thanks to clustered urban facilities, especially universities, hospitals and parks, these two stations will be highly expected by not only potential railway users but also facility users including hospitals and universities and parks. In addition, this area is a south gateway of center of city, and major intersection with underpass is located. The image of two stations will affect visitors from south.

578 Key development issues are 1) to secure connectivity between two stations, and 2) to formulate attractive urban node

Figure 5.5.1 Conceptual Diagram for Station Area Development of C.V. Thong Nhat (V9) and Bach Khoa (C12) Station



Source: JICA Project Team

with convenient walkway and open space, taking account of discreet urban design as one of the most important urban node with famous urban park and university.

579 For convenient accessibility to stations and urban facilities located south of Dai Co Viet Street, interchange facilities elevated and underground are significant. To attract railway users, facility users as well as residents, living condition improvement projects and urban redevelopment projects of hospitals and universities will contribute to improve image of station area with educational and medical service promotion area with nature.

Table 5.5.1 Demand Outlook for C.V. Thong Nhat Station Area (V9)

		Present	UMRT with integrated Urban Development	
			Without	With
Population of Station Area of radius 500m (persons)	Population	13,352	12,400	12,600
	Employment	5,226	7,500	8,300
	Student	9,279	11,000	11,200
Ridership (persons/day)		-	30,700	32,800

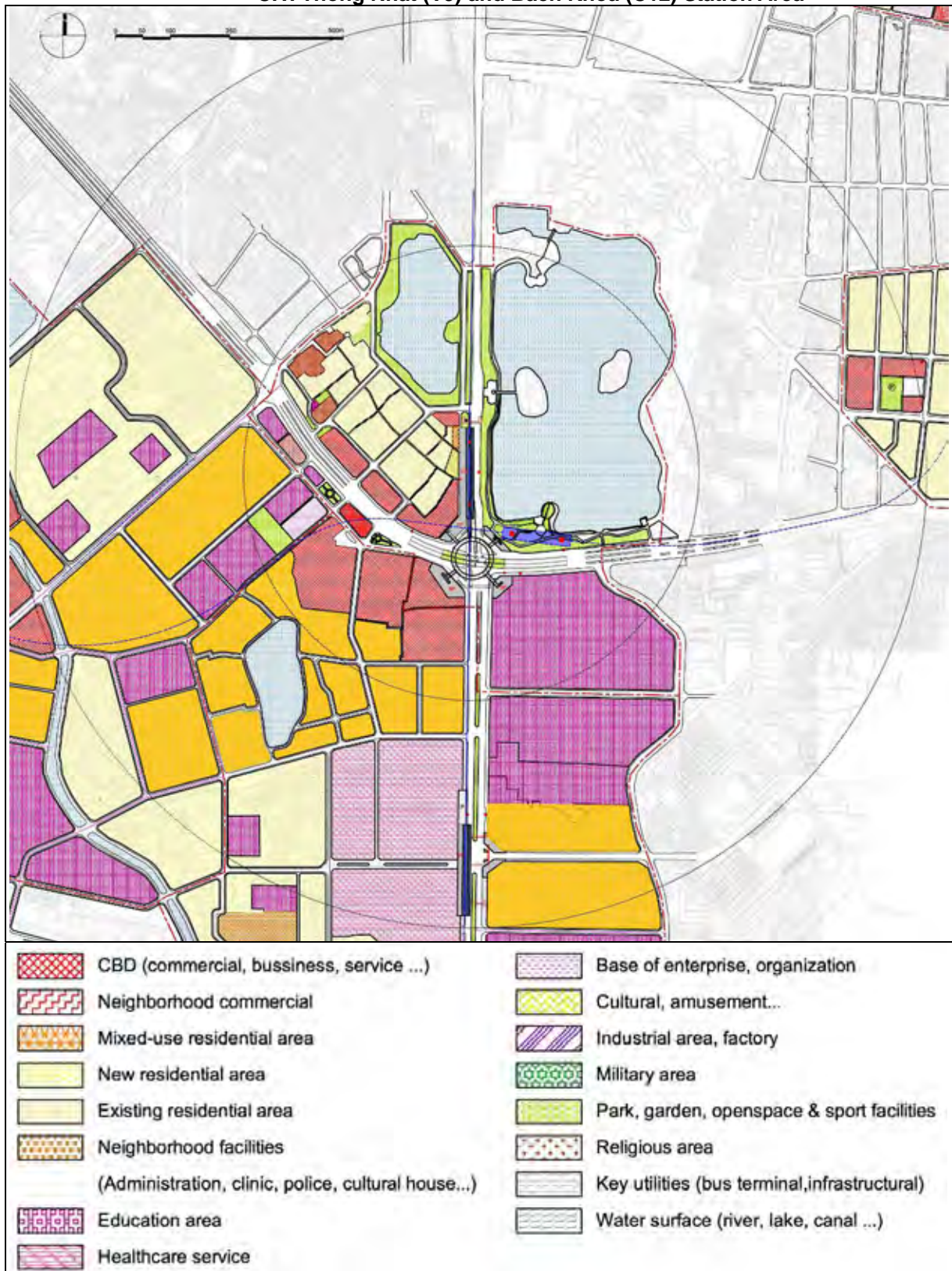
Source: JICA Project Team

Table 5.5.2 Demand Outlook for Bach Khoa Station Area (C12)

		Present	UMRT with integrated Urban Development	
			Without	With
Population of Station Area of radius 500m (persons)	Population	19,092	14,300	14,400
	Employment	9,030	11,600	12,600
	Student	17,741	31,000	31,200
Ridership (persons/day)		-	19,500	24,300

Source: JICA Project Team

**Figure 5.5.2 Land Use Plan of
 C.V. Thong Nhat (V9) and Bach Khoa (C12) Station Area**



Source: JICA Project Team

5.5.2 Long-Term Plan

580 Around university and hospital, advanced medical service facilities and research institutes will be clustered, and competitive IT venture business district will be promoted. Next to such modern urban facilities, attractive landscape of Thong Nhat Park and new residential area with mid and high rise buildings will be developed. Various types of commercial service will be promoted to attract students, hospital users and residents.

581 Living condition improvement of high-dense residential area and KTTs are critical issues of this station area, so urban redevelopment projects should be promoted for station area development.

Figure 5.5.3 Long-term Concept Plan of C.V. Thong Nhat (V9) and Bach Khoa (C12) Station Area



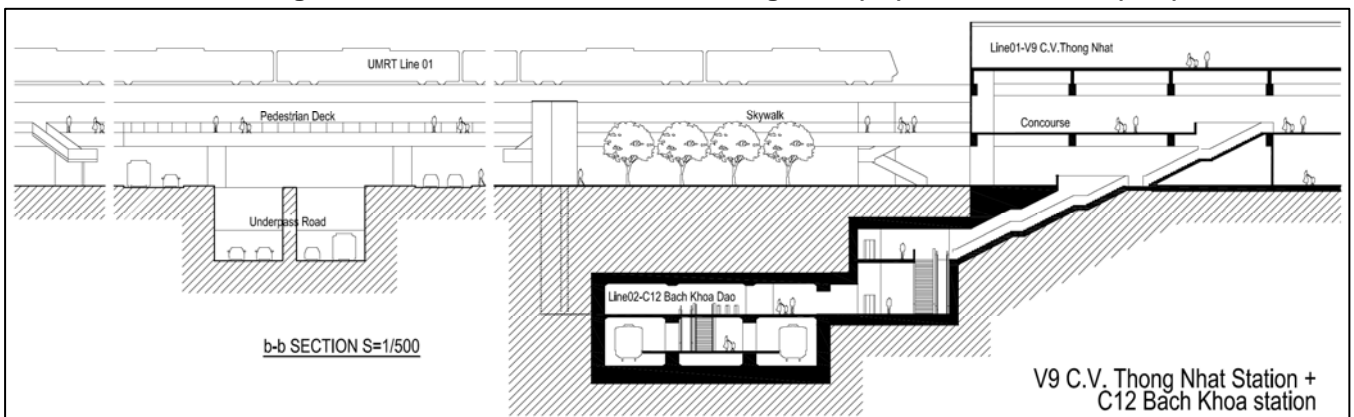
Source: JICA Project Team

5.5.3 Short-term Projects and Actions

582 To cross over Dai Co Viet Street, not only pedestrian underground at present but also circle-shaped pedestrian deck will attract station users and visitors to walk from station to universities and hospitals with enjoying beautiful scenery of Thong Nhat Park. Inside of high-dense residential area of Phuong Mai Commune, there are mostly alleys with dead-end, and Kim Hoa Street is the only access road to NH-1 and station. Improvement of this street is required to calm heavy traffic of motorbikes, uncontrolled roadside commercial activities, etc. In addition, street around Ba Mau Lake will be one of the main access routes from this commune. Development of this street with land clearance will be significant to improve accessibility condition for residents of station area.

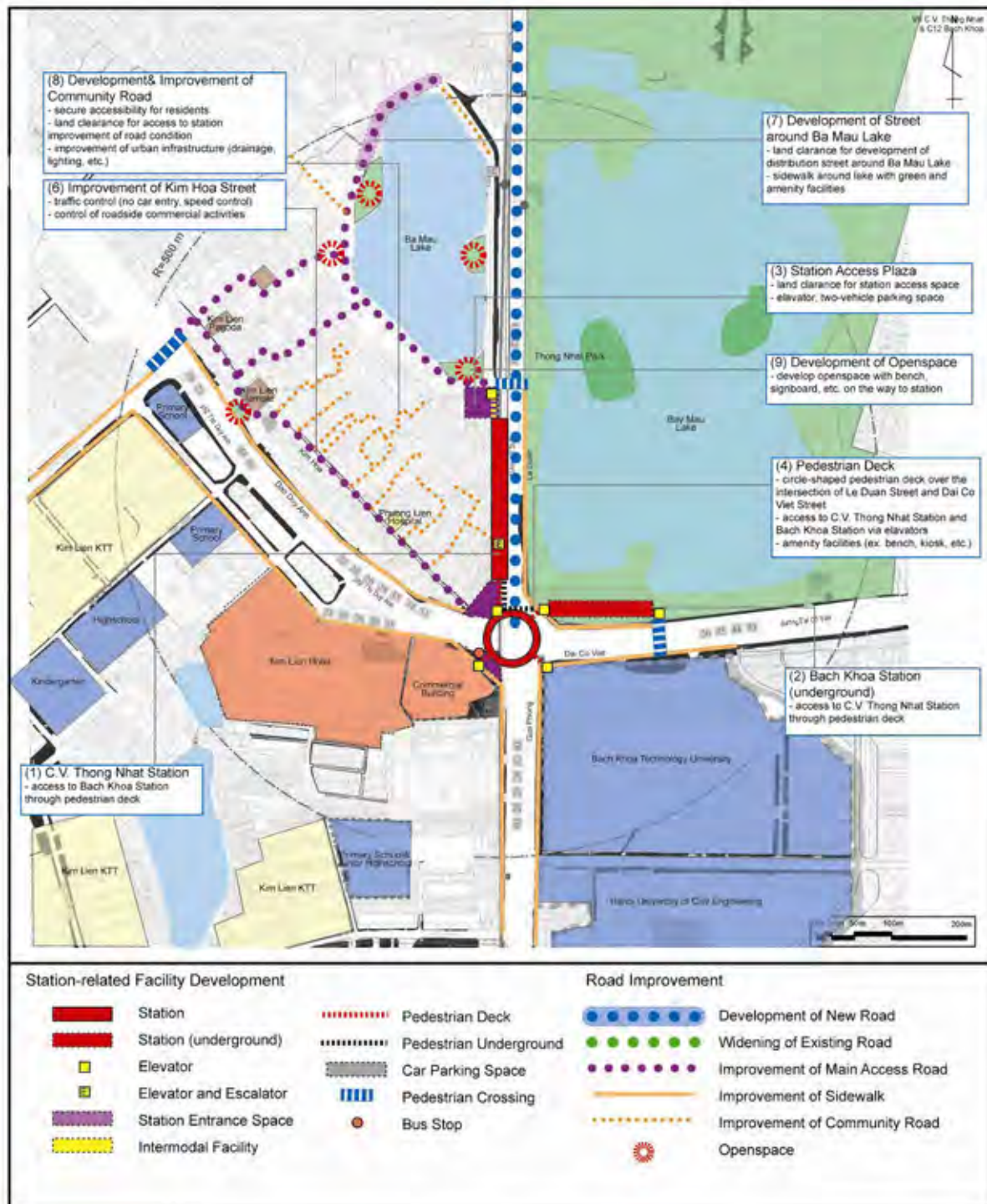
583 To connect C.V. Thong Nhat Station (elevated) and Bach Khoa Station (underground), long access route with pedestrian underground, elevators and stairs are necessary. Development of station entrance space at the corner of Kim Hoa Street with land clearance is recommended to receive many station users at grade.

Figure 5.5.4 Section Plan of C.V. Thong Nhat (V9) and Bach Khoa (C12)



Source: JICA Project Team

Figure 5.5.5 Short-term Concept Plan of C.V. Thong Nhat (V9) and Bach Khoa (C12) Station Area



Source: JICA Project Team

5.5.4 Project List and Implementation Mechanism

1) General/Minimum and Short-term Development Projects

584 Since the main development elements in the short-term is development of station entrance spaces and the widening/improvement of the roads, it is likely that conventional methods of land clearance and public work be applied for the development with initiative of HPC. Some adjustment may be needed between HPC and VNR for the saving of land and cost with regards to the station related facilities including the development of underground pedestrian path.

2) Medium and Long-term Development Projects

585 The development of circle-shaped pedestrian deck and two urban development projects are the elements of the Medium and Long-term Development. Although the urban development should be lead by the private sector, careful planning and management would be necessary by HPC to apply the combination of Land Readjustment System and Urban Redevelopment System to facilitate adjustment of land related rights and resettlement of the local residents.

5.5.5 Issues to be clarified

586 Connectivity with Line1 and Line2 station (short and long-term): To construct a safe and convenient interchange between two stations, it is necessary to develop pedestrian underground under railway alignment. The proposed pedestrian deck and skywalk of intersection is also a part of railway facility. So it is recommended these facilities will be designed and constructed in a short-term together with UMRT facilities of Line1-Phase1.

587 Land acquisition and relocation for urban renovation of residential area (long-term): Though it is a critical issue to improve living condition of high-dense residential area in Hanoi, there are no specific measures at present. Land acquisition and relocation should be integrated with station development process. For example, resettled households will be relocated to apartments near the station which are developed by the station area development project.

Table 5.5.3 Project List of C.V. Thong Nhat (V9) and Bach Khoa (C12) Station Area

Project		Scale		Construction Cost (000US\$)	Land acquisition		Implementation Body	Financial resource			
					Scale	Measure					
Phase 1 C.V. Thong Nhat	A Minimum development till opening	SF-SE-1*	North station entrance space	1,800	m2	144	6,777	1,800	LA from public ¹⁾	HPC	HPC
		SF-SE-2	South station entrance space	1,350	m2	108		1,350	Land acquisition	HPC	HPC
		SF-PD-1	North pedestrian deck	700	m2	1,820		-	-	HPC	HPC
		SF-PD-2*	South pedestrian deck	600	m2	1,560		-	-	VNR	VNR
		SF-EV-1*	Elevator	3	No.	300		-	-	VNR	VNR
		SF-ES-1*	Escalator	1	No.	300		-	-	VNR	VNR
		SF-BS-1	Bus stop	1	No.	5		-	-	TRAMOC	HPC
		RD-WR-1*	Widening of Le Duan Str. (w=30m)	800	m	560		6,400	Land acquisition from park	HDOT	HPC
		RD-MA-1	Improvement of main access road	1,800	m	1,980		-	-	HDOT	HPC
	B Short-term (opening~3years)	SF-OS-1	Openspace for community road	1,800	m2	97	999	-	-	HDOT	HPC
		SF-OS-2	Openspace for community road	900	m2	49		-	-	HDOT	HPC
		SF-OS-3	Openspace for community road	1,200	m2	65		-	-	HDOT	HPC
		SF-OS-4	Openspace for community road	1,800	m2	97		-	-	HDOT	HPC
		SF-OS-5	Openspace for community road	400	m2	22		-	-	HDOT	HPC
		RD-SW-1	Improvement of sidewalk of trunk road	2,480	m	670		-	-	HDOT	HPC
Phase 2 Bach Khoa	A Minimum	SF-EV-2	Elevator	2	No.	200	6,200	-	-	HRB	HPC
	B Short-term	SF-PU-1	Pedestrian underground	1,000	m2	6,000		-	-	HRB	HPC
C Medium-term (3-5years)	C	SF-PD-3	Circle-shaped pedestrian deck ³⁾	2,200	m2	5,720	5,920	-	-	HDOT	HPC
		SF-EV-2	Elevator	2	No.	200		-	-	HDOT	HPC
	UR-1	Urban redevelopment of Phuong Lien Commune (Phase1) ⁴⁾	1.5	ha	-	1.5ha		LR/UR	HPC/Private	Private	
	D Long-term (5-10 years)	UR-2	Urban redevelopment of Phuong Lien Commune (Phase2) ⁵⁾	5.9	ha	-		5.9ha	LR/UR	HPC/Private	Private

Source: JICA Project Team

Note: SOE = State owned enterprise, La = Land Acquisition, LR = Land Readjustment

Minimum projects with * are prioritized to develop together with station facilities, since land acquisition is not so difficult.

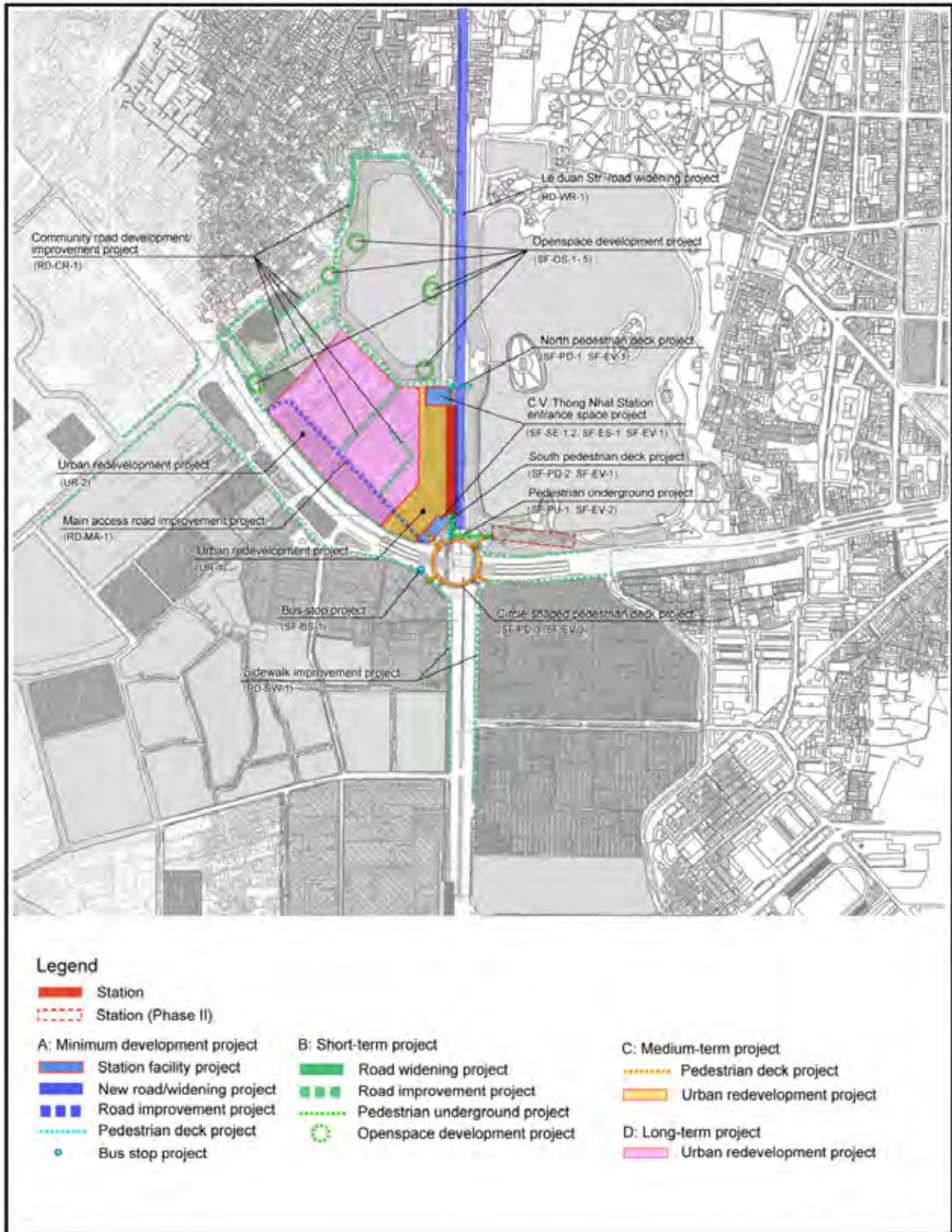
1) It is proposed to utilize the public land of Thong Nhat Park management office.

2) It is proposed to develop circle-shaped pedestrian deck of Phase2 of Line2 when Bach Khoa Station will be constructed.

3) It is proposed that the project area of phase 1 will cover neighboring block of C.V. Thong Nhat Station to develop commercial and public facilities.

4) It is proposed that the project area of phase 2 will cover residential area of Phuong Lien Commune between Ba Mau Lake and Dao Duy Anh Str. to redevelop residential areas.

**Figure 5.5.6 Project Location Map of
 C.V. Thong Nhat (V9) and Bach Khoa (C12) Station Area**



Source: JICA Project Team

5.6 Giap Bat (V12) and Bus Terminal Station Area

5.6.1 Development Character

1) Existing Condition and Issues

588 Giap Bat is a transport strategic-point of the south of Hanoi City. Giap Bat railway station and bus terminal are located. Especially Giap Bat bus terminal is one of the largest in the city, where inner-city, regional and national buses transit, and many people come to go to rural provinces. Around the bus terminal, many feeder transport services such as taxis, xe-om drivers are gathered. It is often seen that xe-om with bus passengers chase and board a bus along NH-1 to pay a cheaper bus fee directly to a bus driver than the official price to pay at the terminal. Traffic congestion and chaos with parking, waiting taxis and bikes around the bus terminal is serious.

589 Around the station and terminal, state-owned enterprises and factories of VNR are located. On the west side of railway, Dinh Cong New Town is located, and Dai Kim New Town will be developed. Around the Kim Dong Lake near to Giap Bat Bus Terminal, small restaurants and cafés are gathered with a good landscape. But Doi Dam pond on the west side of the station is swamped and not clean. Arterial roads such as Dinh Cong Street and Thuong Dinh Street are narrow and crowded to access to residential areas from NH-1.

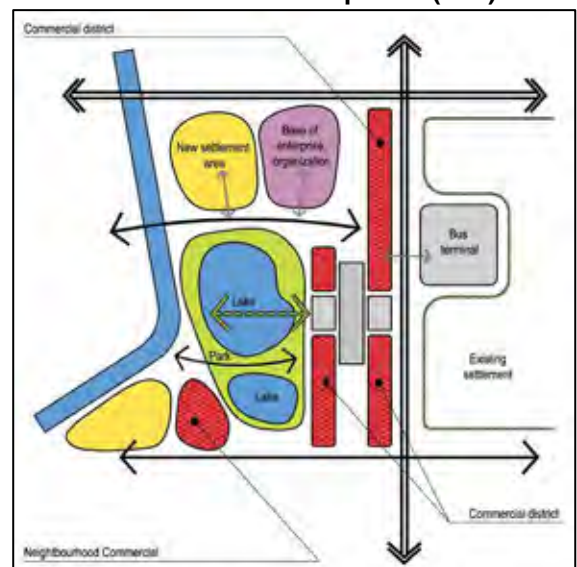
2) Development Objectives

590 The characteristics of Giap Bat Station will be “a southern gateway of Hanoi City with transport hub and urban service facilities in harmony with natural environment”.

591 Creating a new urban core for district business and commercial activities will open up new opportunities for livelihood to residents around the station area. This would entail judicious exploitation of agricultural lands and hinterland ponds, as well as provision of urban block roads linking the station to the Dai Kim – Dinh Cong new town.

592 As a transport hub, the area can become an urban node (sub-CBD) for the Hoang Mai District at the southern fringes of central Hanoi. By proper design of the UMRT station layout with the Giap Bat inter-city bus terminal and other transport modes, the overall connectivity of the network improves and makes transfers convenient.

Figure 5.6.1 Conceptual Diagram of Giap Bat Station Area Development (V12)



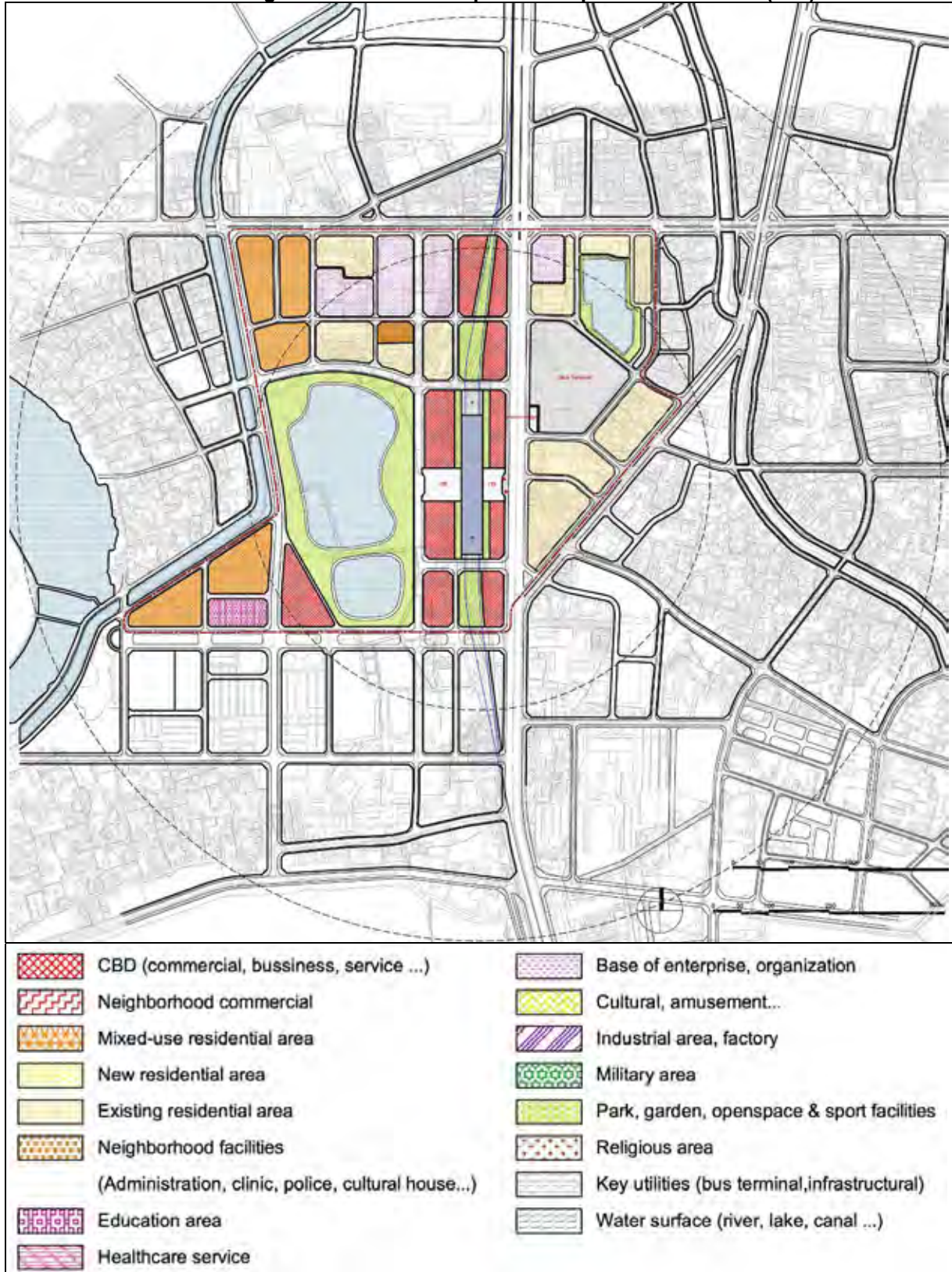
Source: JICA Project Team

Table 5.6.1 Demand Outlook for Giap Bat Station Area (V12)

		Present	UMRT with integrated Urban Development	
			Without	With
Population of Station Area of radius 500m (persons)	Population	6,128	14,200	15,000
	Employment	2,493	4,000	45,300
	Student	902	1,800	1,900
Ridership (persons/day)		-	18,000	20,400

Source: JICA Project Team

Figure 5.6.2 Landuse plan of Giap Bat Station Area (V12)



Source: JICA Project Team

5.6.2 Long-term Plan

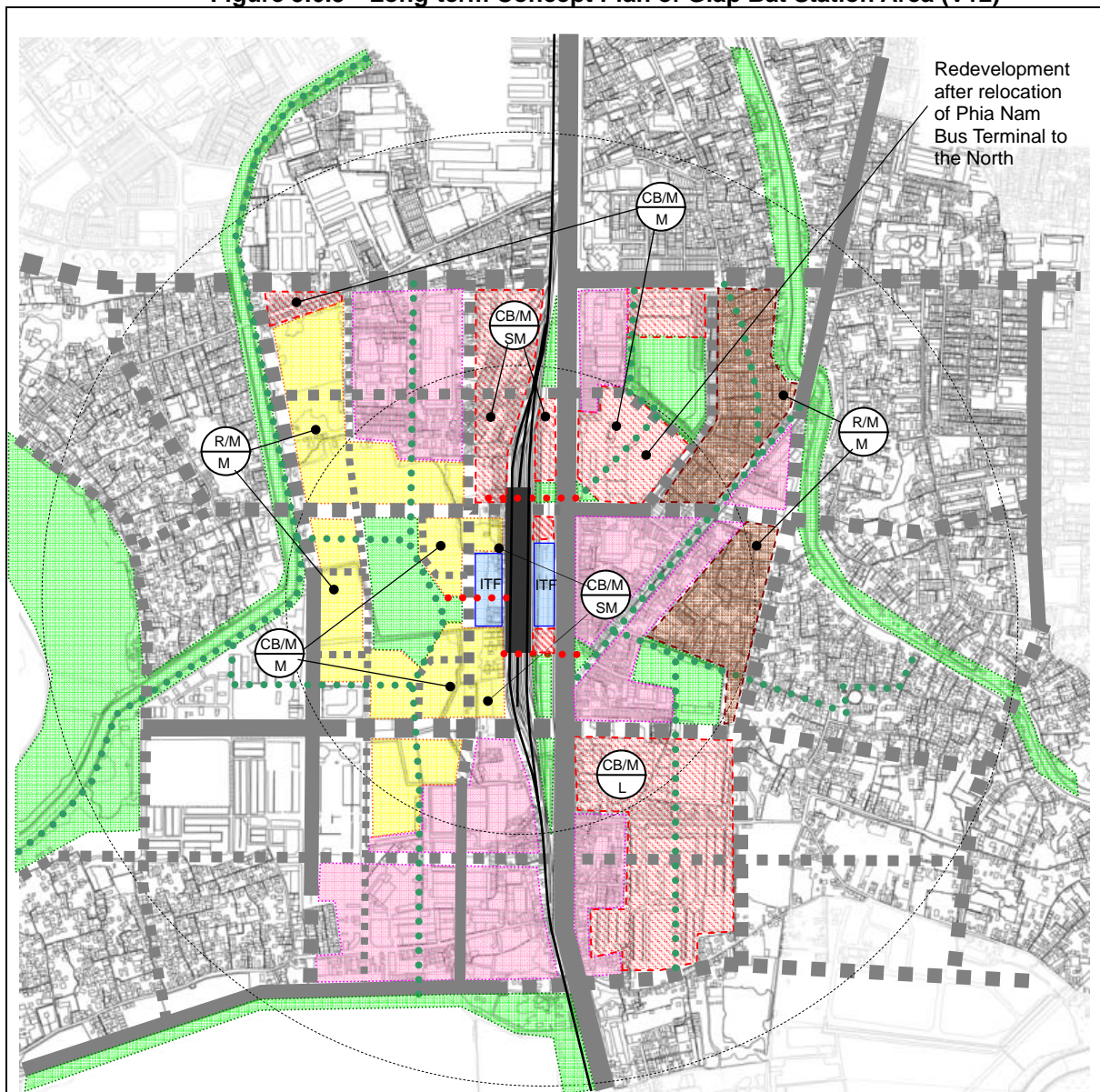
593 New town will be promoted and residents seek for modern urban services and facilities of the station area. To serve residents as well as employees of this area,

commercial and business facilities and cultural and amusement facilities are promoted in an integrated manner. Modern image of business district adjacent to new town will be promoted.

594 West Intermodal transfer facility will be a transport hub for bus, taxi, Park& Ride passengers. After relocation of bus terminal, intermodal transfer facility of the station will perform as a transport hub. Intermodal facilities and station-related facilities should be developed inside of VNR owned land in short-term. Giap Bat Bus Terminal is a gateway for bus passengers from other provinces, so this station will be a gateway to interchange from bus to UMRT. Connection between station and bus terminal is absolutely necessary.

595 In west of Giap Bat Station, there are broad unused land with marsh and lake. New town development has been promoted near the station area. Gradually, commercial and business development will be promoted as a south gateway of Hanoi City.

Figure 5.6.3 Long-term Concept Plan of Giap Bat Station Area (V12)



Source: JICA Project Team

5.6.3 Short-term Projects and Actions

596 Since Giap Bat Station is the destination of Phase1 of Line1, VNR needs to use their railway yard for railway operation for 10years after UMRT commence. So complete road network and to access to station and the intermodal transfer facility cannot be developed in short-term. It is necessary to secure distribution roads and community roads to access to station entrance space from west side.

597 Bus stops and Kiss& Ride parking spaces will be developed under viaduct along NH-1 of east. Inside Giap Bat Station, concourse is open to public to pass through west and east gate. Pedestrian deck from station to Giap Bat Bus Terminal is significant for safe and convenient interchange of passengers.

Table 5.6.2 Project List of Giap Bat Station Area (V12)

Project			Scale		Construction Cost (000US\$)	Implementation Body	Financial resource	
A Minimum development till opening	SF-SE-1*	Station entrance space of east of station	3,600	m2	288	10,299	VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-SE-2*	Station entrance space in bus terminal	1,750	m2	140		TRAMOC	HPC
	SF-SE-3	Station entrance space of south	750	m2	60		HPC	HPC
	SF-IM-1*	East Intermodal Facility	6,500	m2	351		VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-PD-1*	Pedestrian Deck	1,000	m2	2,600		VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-PD-2*	Pedestrian Deck	1,000	m2	2,600		VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-EV-1*	Elevator	4	No	400		VNR	VNR
	SF-ES-1*	Escalator	1	No	300		VNR	VNR
	SF-BS-1	Bus Stop	4	No	20		TRAMOC	HPC
	SF-PC-1	Pedestrian Crossing	1	No	10		HDOT	HPC
	SF-PC-2	Pedestrian Crossing	1	No	10		HDOT	HPC
	RD-WR-1*	Widening of Giai Phong Street ²⁾	1,100	m	770		HDOT	HPC
	RD-MA-1	Improvement of Main Access Road	2,500	m	2,750		HDOT	HPC
B Short-term (opening~3years)	SF-PD-3	Pedestrian Deck ⁴⁾	2,800	m2	7,280	8,023	VNR	HPC
	RD-SW-1	Improvement of Sidewalk	2,750	m	743		HDOT	HPC
	UR-1	Development of twin tower (planned) ³⁾	-	-	-		VNR	VNR/ Private
C Medium-term (3~5years)	UR-2	Redevelopment of VNR owned land	-			-	VNR/HPC/ Private	VNR/HPC/ Private
	UR-3	Development of station-front west park and Doi Dam Pond					MONRE/HPC	MONRE/HPC
D Long-term (5~10 years)	UR-4	Redevelopment of existing residential areas in Dinh Cong Commune					Private	Private
	UR-5	Redevelopment of the vacant land of bus terminal ⁵⁾					Private	Private

Source: JICA Project Team

Note: SOE = State owned enterprise, La = Land Acquisition, LR = Land Readjustment

Minimum projects with * are prioritized to develop together with station facilities, since land acquisition is not so difficult.

1) It has not been discussed and agreed between VNR and HPC which will be an implementation body and a financial resource for ITF development. JICA Project Team recommends VNR will develop ITF as a station related facility development.

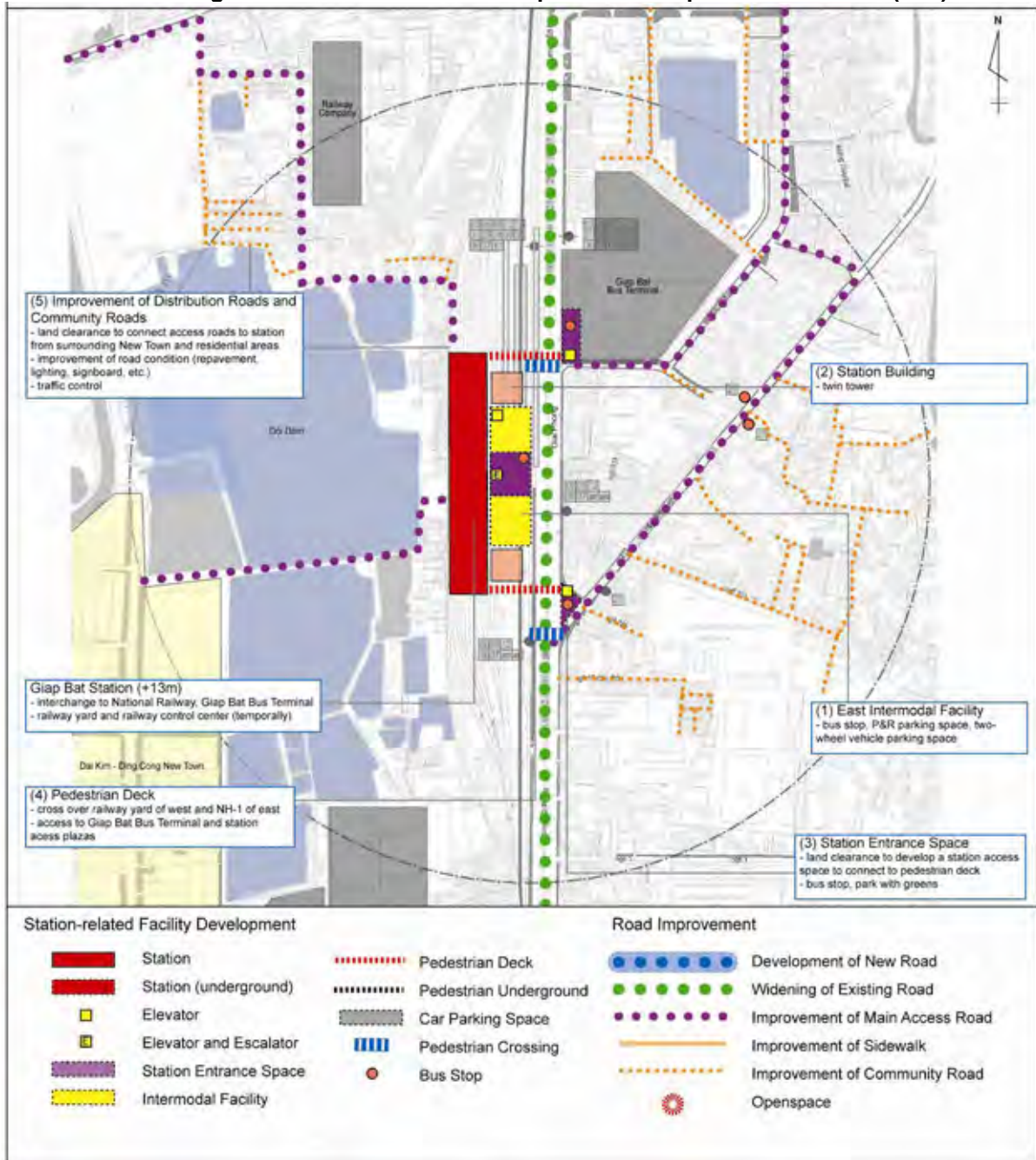
2) It is proposed to widen NH-1 under viaduct within ROW. Space under viaduct will be used for entrance space, parking space, etc. near station.

3) It is proposed that pedestrian deck to connect to twin tower will be developed together with twin tower construction.

4) It is planned to construct twin tower in the Feasibility Study.

5) It is proposed to develop a new bus terminal in front of Hoang Liet Station (V13) and relocate Giap Bat Bus Terminal into Hoang Liet.

Figure 5.6.4 Short-term Concept Plan of Giap Bat Station Area (V12)



Source: JICA Project Team

5.6.5 Issues to be clarified

598 Disposition of VNR property (short-term to long-term): As mentioned about station location, preferable location is to shift 150m-south from F/S in terms of integrated urban development. Technical feasibility for railway operation needs to be studied.

599 Possible redevelopment and relocation of Giap Bat Bus Terminal (long-term): At this moment, relocation of bus terminal has not been planned. It is necessary to consider if it will not be relocated, redevelopment of bus terminal into multi functional building including bus terminal and commercial facilities will be effective for service improvement. In case if it will be relocated, an urban redevelopment project will be conducted to utilize the land for commercial development.