

5.7. Tay Ho Tay (C3) and Line4/ CAT/ Bus Terminal Station Area

5.7.1 Development Character

a) Existing Condition and Issues

5100 Tay Ho Tay Station (C3) will be located in the center of Financial Center in “Tay Ho Tay” (west of West Lake) area. Though the station area is only agricultural land at present, future landuse and urban function will be converted to political and business use.

5101 Tay Ho Tay station is planned to be located above the urban arterial road in the middle of the Financial Center, where the Line4 (BRT) route has been planned in parallel with Line2 partially on the same arterial road. This station is expected to play a dual function station between Line2 and Line4. Road network around the station is planned as a part of Tay Ho Tay Financial Center Development Plan. The station and related facilities will be integrated as a part of this plan.

Figure 5.7.1 Future Image of Tay Ho Tay Financial Center Development



b) Development Objectives

5102 Tay Ho Tay station (C3) having dual-function of Line4 station where the station in Tu Liem district would play an important role in joining with Dong Anh District and Soc Son District to Hanoi City Center, needs key transportation facilities to address peoples mobility demand between the city center and suburban or rural area of Hanoi.

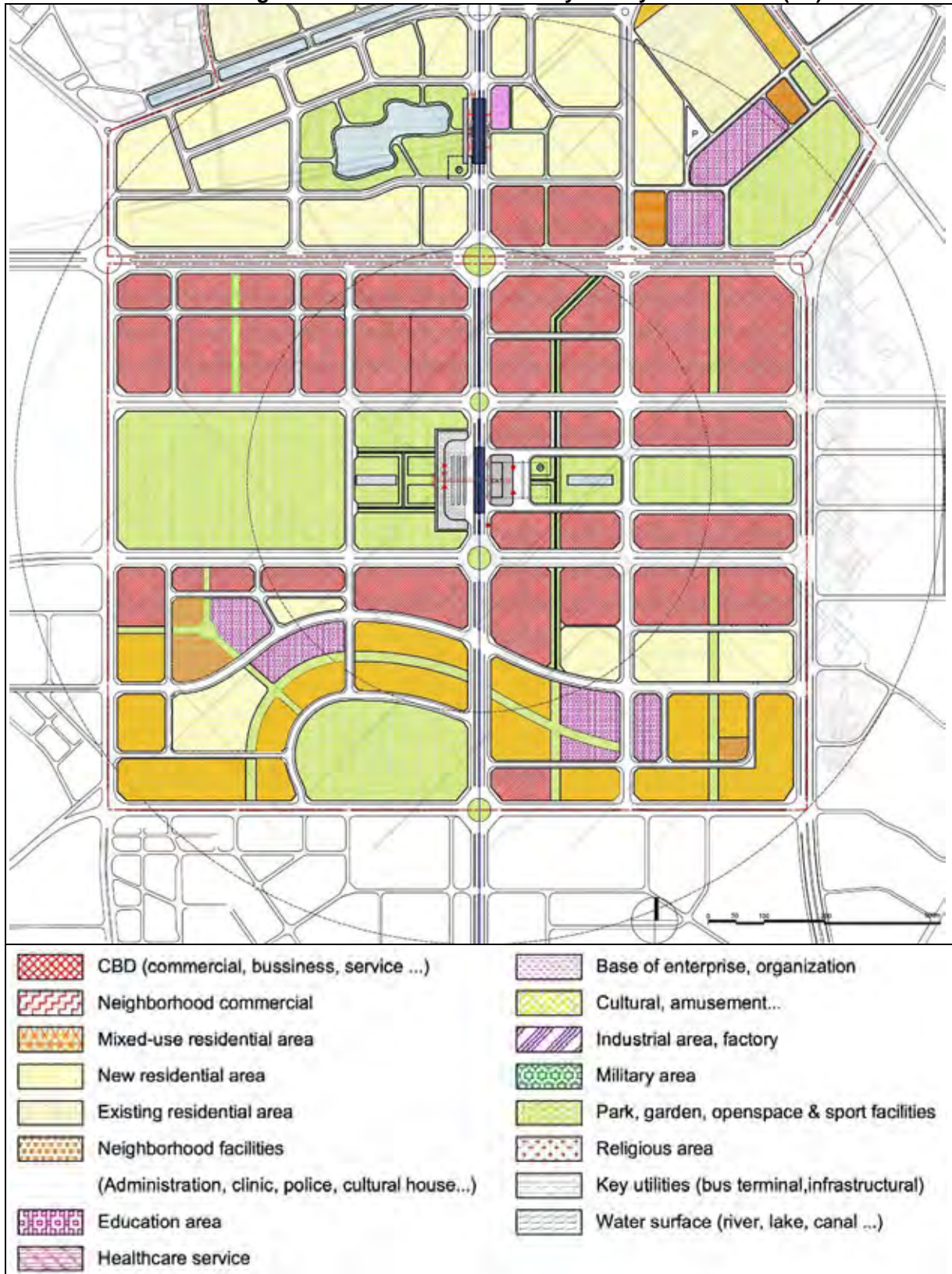
5103 Key development issues are i) to secure connectivity between two stations by setting properly in close location each other, and ii) to formulate efficient transportation node including potential station of CAT (City Air Terminal) for airline checking station, taking account of the northern gateway of Hanoi.

Table 5.7.1 Demand Outlook of Tay Ho Tay Station Area (C3)

		Present	UMRT with integrated Urban Development	
			Without	With
Population of Station Area of radius 500m (persons)	Population	0	8,600	8,600
	Employment	0	82,000	86,200
	Student	0	1,700	1,700
Ridership (persons/day)		-	13,930	25,700

Source: JICA Project Team

Figure 5.7.2 Landuse Plan of Tay Ho Tay Station Area (C3)



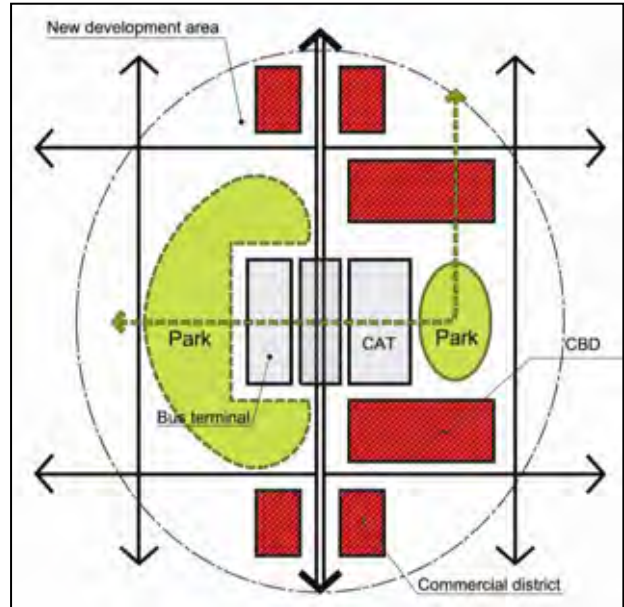
Source: JICA Project Team

5.7.2 Long-Term Plan

5104 The characteristics of Tay Ho Tay Station will be “a north-western gateway of Hanoi City with transport hub and high-class financial, commercial and business service facilities”.

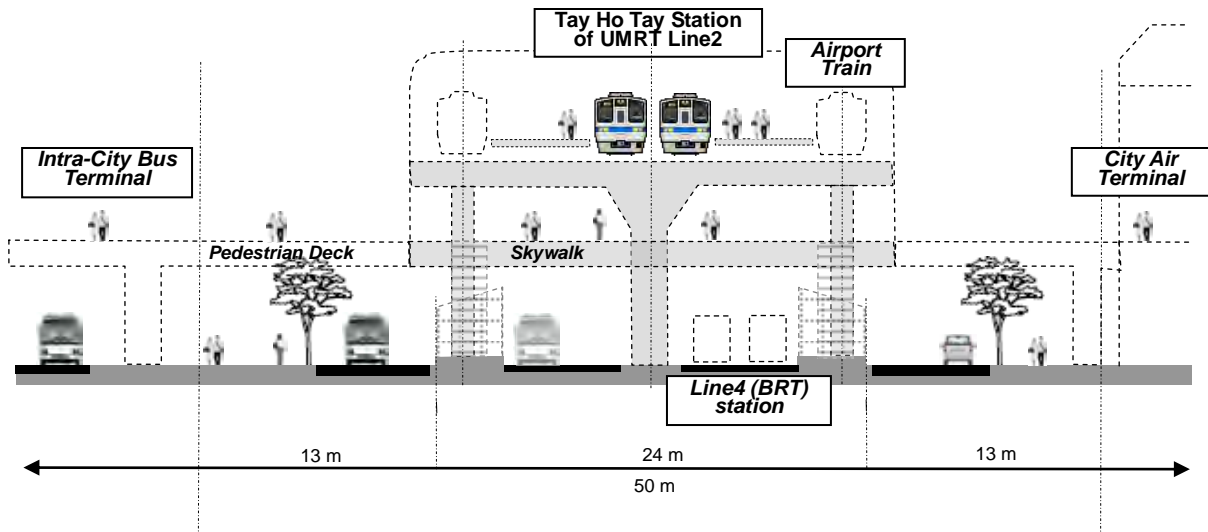
5105 In long term, this station is expected to be connected to Noi Bai Airport via airport link train. Tay Ho Tay Financial Center will be a modern city center of Hanoi and this station will be an international and national gateway. Pedestrian network at elevated level will be formulated with pedestrian deck. So interchange station of Line2, Line4 (BRT) and Airport Train will be integrated with commercial and business facilities around the station.

Figure 5.7.3 Conceptual Diagram for Tay Ho Tay Station Area Development (C3)



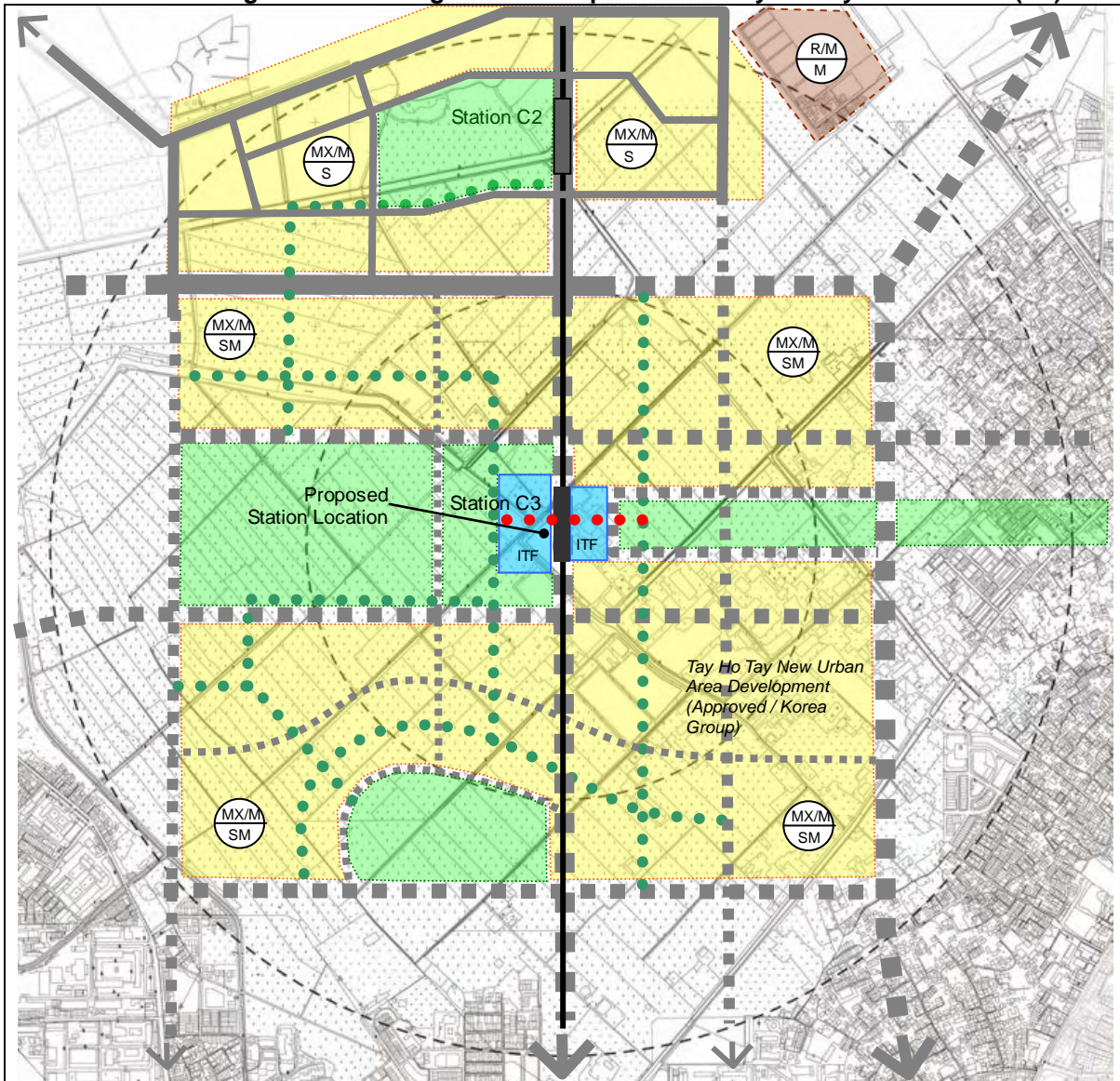
Source: JICA Project Team

Figure 5.7.4 Section Plan of Interchange Station of Line2, Line4 (BRT), Bus Terminal and CAT



Source: JICA Project Team

Figure 5.7.5 Long-term Concept Plan of Tay Ho Tay Station Area (C3)



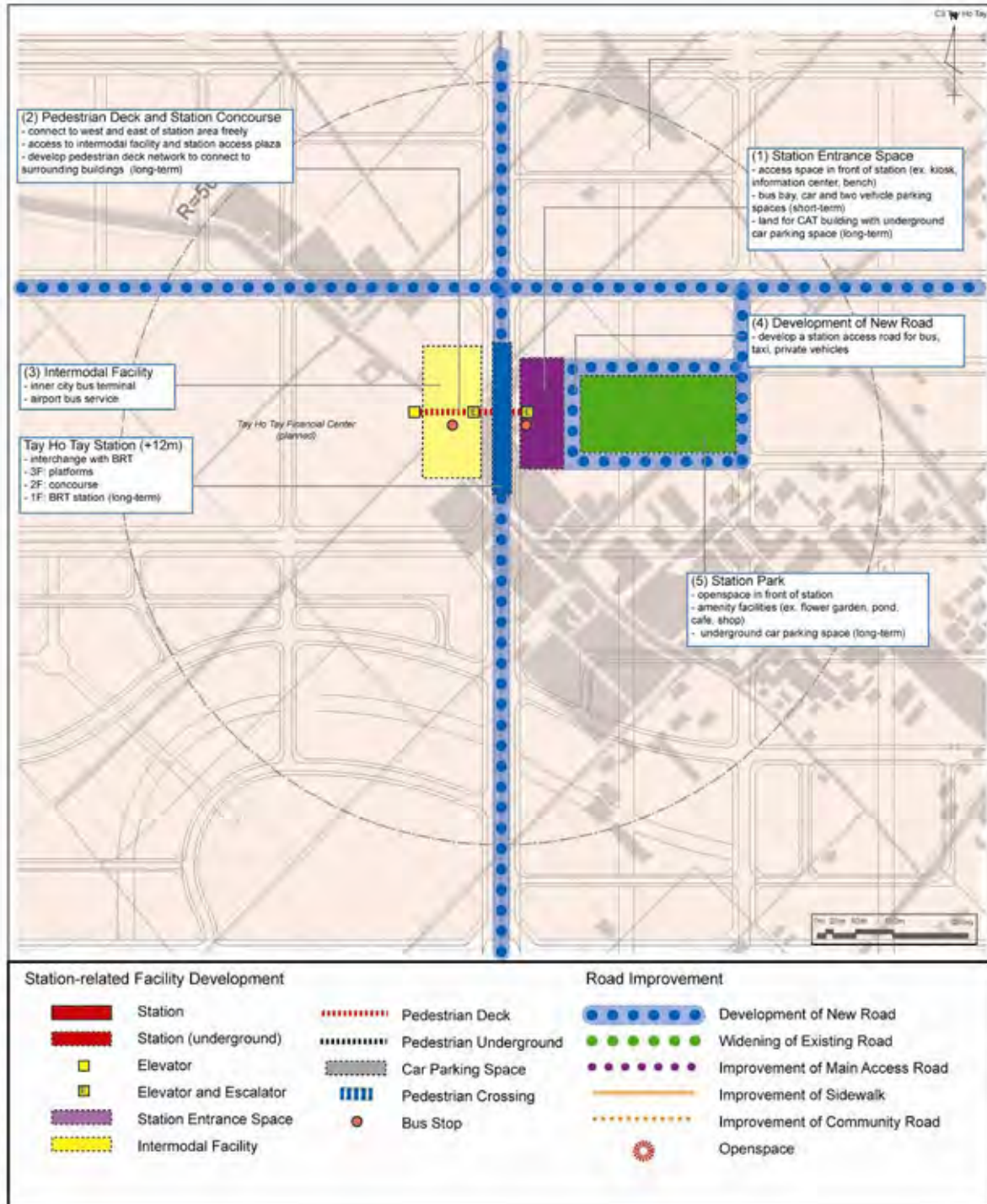
Source: JICA Project Team

5.7.3 Short-Term Projects and Actions

5106 As mentioned, new road network is planned in Financial Center Development Plan, so it is not necessary to develop station access routes independently. To cross over trunk road, pedestrian deck to connect west and east will be developed.

5107 Intermodal facility of west and Station Entrance Space of east will be developed in short-term. The land of this Station Entrance Space will be utilized to construct CAT in long-term, so direct transfer from UMRT Line2 to Airport Train will be achieved. Parks are planned both west and east of station. Underground of the park of east will be an underground car parking space, so it is recommended to develop station park as a symbol of Tay Ho Tay Station for station users, with convenient shopping stands, amenity facilities, etc.

Figure 5.7.6 Short-term Concept Plan of Tay Ho Tay Station Area (C3)



Source: JICA Project Team

Table 5.7.2 Project List of Tay Ho Tay Station Area (C3)

Project			Scale		Construction Cost (000US\$)	Implementati on Body	Financial resource	
A Minimum development till opening	SF-SE-1*	East Station Entrance Space	8,700	m2	696	10,820	HRB/HPC ¹⁾	HPC ¹⁾
	SF-IM-1*	West Intermodal Facility	13,600	m2	734		HRB/HPC ¹⁾	HPC ¹⁾
	SF-PD-1*	Pedestrian Deck	1,300	m2	3,380		HRB	HPC
	SF-EV-1*	Elevator	3	No.	300		HRB	HPC
	SF-ES-1*	Escalator	2	No.	600		HRB	HPC
	SF-BS-1	Bus Stop	2	No.	10		TRAMOC	HPC
	RD-NR-1	Development of new road	3,000	m	5,100		HDOT	HPC
B Short-term (opening~3years)	SF-OS-1	Station Park	20,500	m2	1,107	2,127	HDONRE	HPC
	RD-NR-2	Development of new road around station park	600	m	1,020		HDOT	HPC
C Medium-term (3~5years)	UR-1	Tay Ho Tay Central Park development (planned) ²⁾					HPC	HPC
D Long-term (5~10 years)	UR-2	Tay Ho Tay Financial Center development (planned) ³⁾					HPC/ Private	Private

Source: JICA Project Team

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

1) JICA Project Team recommends HRB or HPC will develop station related facilities together with UMRT station development.

2) Tay Ho Tay Central Park development is a part of financial center development project.

3) Tay Ho Tay Financial Center is planned and approved.

5.7.4 Issues to be clarified

5108 Coordination with Tay Ho Tay Financial Center Development Plan (short-term): As a core transport hub of Tay Ho Tay area, it is necessary to coordinate with Financial Center Development Plan for integrated accessibility and urban development. Since this station development will contribute to private developers, role sharing for planning and investment among HPC and private developers is indispensable.

5109 Integration with BRT Station (long-term): It is recommended BRT Station will be located under viaduct and Tay Ho Tay Station for shortest transfer.

5110 Development of Intra Bus Terminal and CAT (long-term): As a north-western gateway with transport hub, it is recommended to develop intra bus terminal and CAT in long-term. Short-term development plan will be integrated with long-term plan as well as urban development plan of surrounding area.

5.8 Quan Ngua (C5) and Line5 Station Area

5.8.1 Development Character

a) Existing Condition and Issues

5111 Quan Ngua Station will be located at the intersection of Hoang Hoa Tham Street and Van Cao Street. UMRT Line 5 station will be constructed near the intersection along Van Cao Street. Van Cao Street is connected from Kim Ma Street, where is one of the new business districts in Hanoi. This street is planned to be extended to West Lake. Hoang Hoa Tham Street will be widened and flyover will be constructed. Center hospital of pulmonary tuberculosis and 354 Army Hospital are located on the west of station within 500m. Quan Ngua Stadium is located on the south of the station along Van Cao Street. Along Thuy Khue Street, some high-class apartments are located to enjoy view of West Lake.

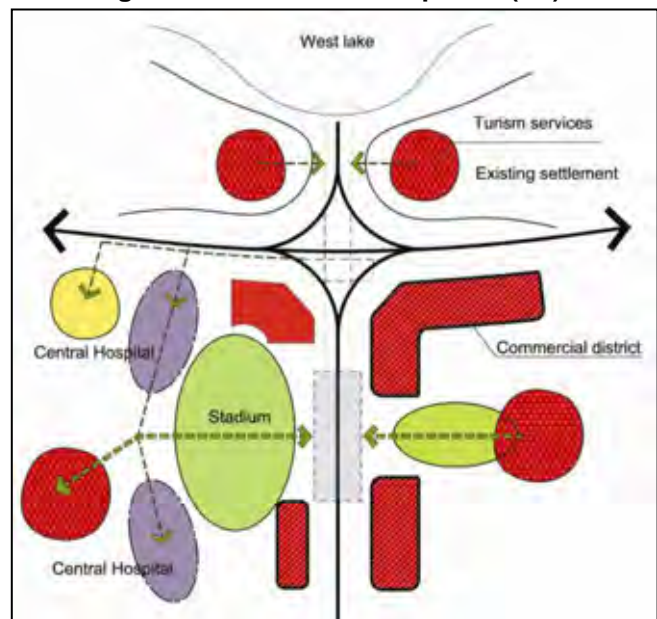
5112 UMRT development should be integrated with UMRT Line 5 development and road development projects to improve intermodal transfer condition to other railway and bus networks.

b) Development Objectives

5113 The terminal station of Quan Ngua Station of Line2 and station of Line5 could formulate an attractive place as one of the important urban nodes facing Ho Tay tourism and recreation waterfront area and Quan Ngua Stadium.

5114 There is a temple along Hoang Hoa Tham Street, so the waterfront area will be developed with not only modern commercial functions but also traditional atmosphere. Waterfront area should be used not for private buildings but for public use. Landscape need to be carefully designed to enjoy waterfront scenery for public citizens. The south of station area will be developed as a commercial district in conjunction with Kin Ma business district along Van Cao Street.

Figure 5.8.1 Conceptual Diagram for Quan Ngua Station Area Development (C5)



Source: JICA Project Team

5115 Key development issues are 1) to secure connectivity between two stations by setting properly the terminal station in the proximity to the C5 station, and 2) to formulate attractive transportation node with convenient walkway and open space, taking account of the gateway of the West Lake area as one of the tourism and recreational destinations of Hanoi.

5116 There are many planned and ongoing projects such as i) widening of Hoang Hoa Tham Street (ongoing), ii) extension of Van Cao Street toward West Lake (nearly completed), iii) development of Line5 station (planned). It is necessary to coordinate with these projects to achieve integrated development with UMRT for convenient transfer and maximization of urban function of this area.

5117 In short, Station Entrance Spaces will be developed and access roads will be

improved to secure enough station entrance space and safe access to facilities, where various types of passengers will use to stadium, hospitals, etc.

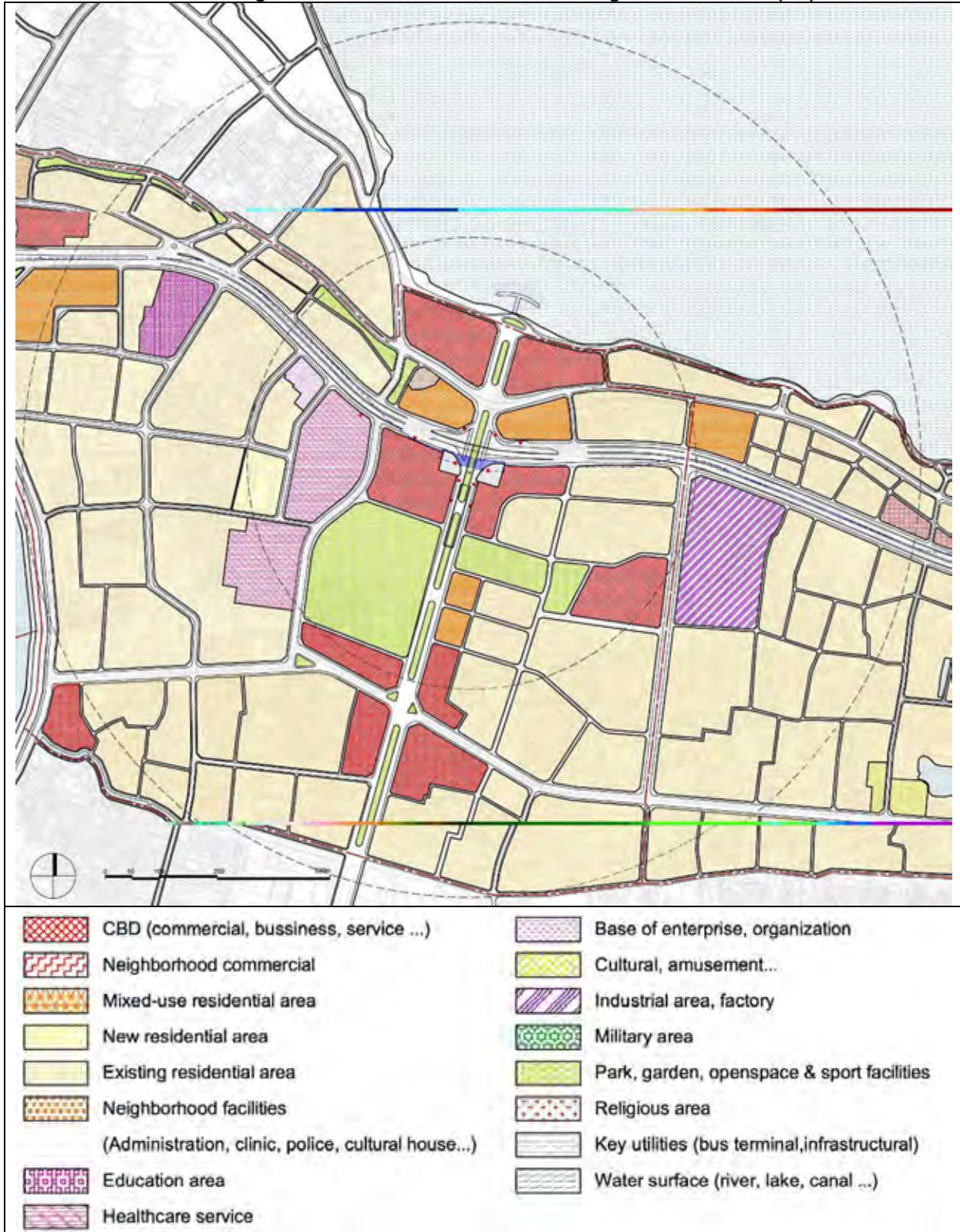
5118 Waterfront area needs to be secured for public amenity purpose, so it is recommended to develop an urban development project for Quan Ngua Waterfront Area. Urban redevelopment and renovation projects around station area will be promoted to formulate new business district in long-term.

Table 5.8.1 Demand Outlook of Quan Ngua Station Area (C5)

		Present	UMRT with integrated Urban Development	
			Without	With
Population of Station Area of radius 500m (persons)	Population	21,411	14,000	14,000
	Employment	6,205	6,000	7,000
	Student	4,246	3,500	4,000
Ridership (persons/day)		-	10,470	16,790

Source: JICA Project Team

Figure 5.8.2 Landuse Plan of Quan Ngua Station Area (C5)



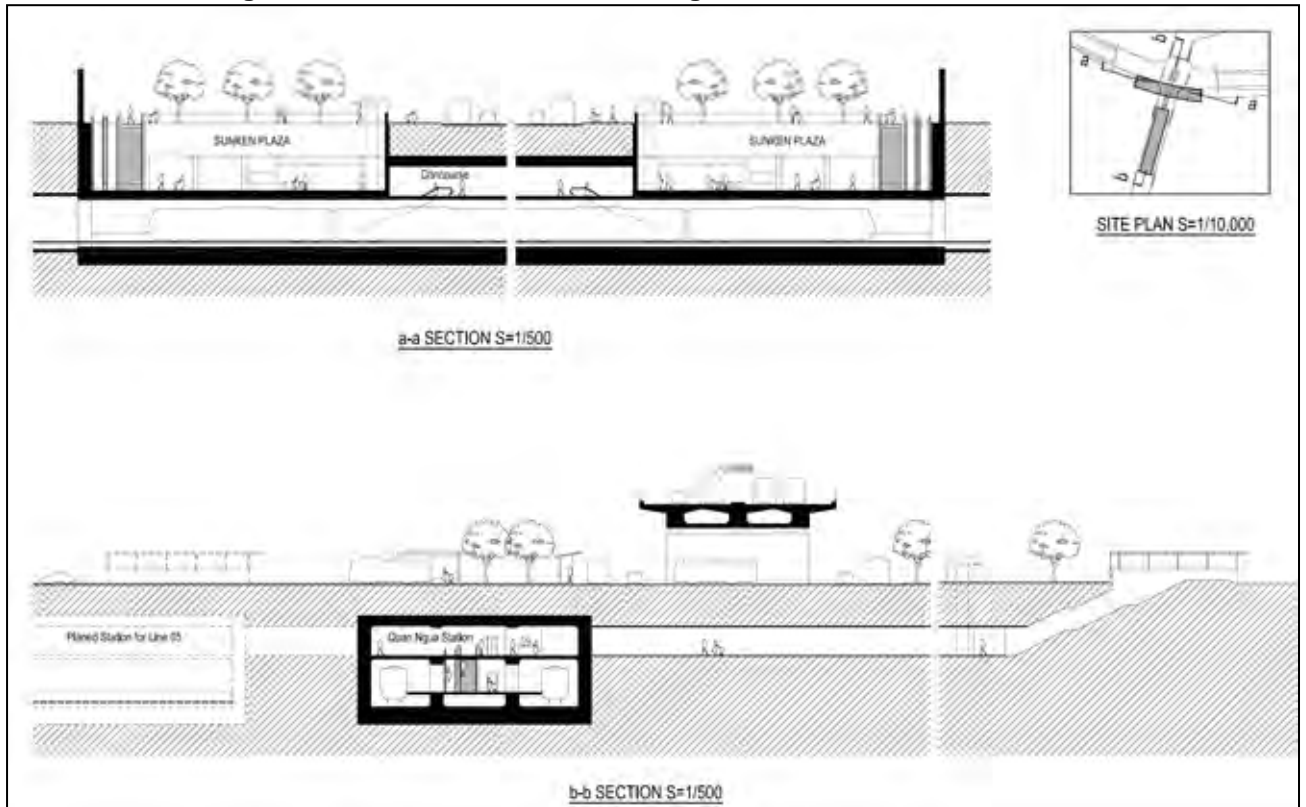
Source: JICA Project Team

5.8.2 Long-Term Plan

5119 With convenient interchange function between UMRT Line2 and Line5 as well as feeder bus services to south and west-east directions, Quan Ngua station area will be a new urban service center of south of West Lake with recreational and tourism facilities integrated with West Lake in north and business district in south.

5120 In the Station Entrance Space, sunken plaza will be developed to connect two stations and pedestrian underground to access to stadium and hospitals.

Figure 5.8.3 Section Plan of Quan Ngua Station and Line5 Station



Source: JICA Project Team

Figure 5.8.4 Long-term Concept Plan of Quan Ngua Station Area (C5)



Source: JICA Project Team

5.8.3 Short-term Projects and Actions

5121 In parallel with UMRT line2 development, the road project for widening of Hoang Hoa Tham will be proceeded. During construction period, safety of access roads needs to be secured. Distribution roads and community roads will be improved, and developed if necessary to secure access roads from residential areas without passing by trunk roads. Parking space can be utilized the land of Quan Ngua Stadium for Park& Ride and Kiss& Ride purposes.

5122 Station Entrance Space will be developed as a part of road widening project. New Hoang Hoa Tham Street will be a overpass of this intersection, so it is recommended to develop a pedestrian underground for pedestrian to cross trunk roads and access to station.

Table 5.8.2 Project List of Quan Ngua Station Area (C5)

Project			Scale		Construction Cost (000US\$)	Implementation Body	Financial Resource	
A Minimum development till opening	SF-SE-1	Station Entrance Space ²⁾	4,800	m2	384	47,459	HPC	HPC
	SF-PU-1*	Underground Pedestrian Plaza ²⁾	4,800	m2	28,800		HPC/HRB ¹⁾	HPC ¹⁾
	SF-PU-2*	Pedestrian Underground ³⁾	2,200	m2	13,200		HPC/HRB ¹⁾	HPC ¹⁾
	SF-EV-1*	Elevator	4	No.	400		HRB	HPC
	SF-BS-1	Bus Stop	7	No.	35		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	Development of New Road	500	m	1,100		HDOT	HPC
	RD-MA-1	Improvement of Main Access Road	1,500	m	1,650		HDOT	HPC
	RD-MA-2	Improvement of Main Access Road	1,300	m	1,430		HDOT	HPC
	RD-MA-3	Improvement of Main Access Road	400	m	440		HDOT	HPC
B Short-term (opening~3years)	SF-CP-1	Car parking Space in sports stadium ⁵⁾	4,500	m2	180	1,050	HDOT/ Private	HPC/ Private
	RD-WR-1	Widening of Existing Road inside sports stadium ⁴⁾	220	m	154		HDOT/ Private	HPC/ Private
	RD-SW-1	Improvement of Sidewalk	2,650	m	716		HDOT	HPC
C Medium-term (3~5years)	UR-1	Redevelopment for commercial and business district on south of station	-			Private	Private	
D Long-term (5~10 years)	UR-2	Waterfront tourism complex development in front of West Lake				Private	Private	

Source: JICA Project Team

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

1) JICA Project Team recommends HRB or HPC will develop station related facilities together with UMRT station development.

2) It is proposed to develop underground pedestrian plaza under entrance space to connect UMRT Line2 and Line5.

3) It is proposed to connect pedestrian underground to cross trunk roads.

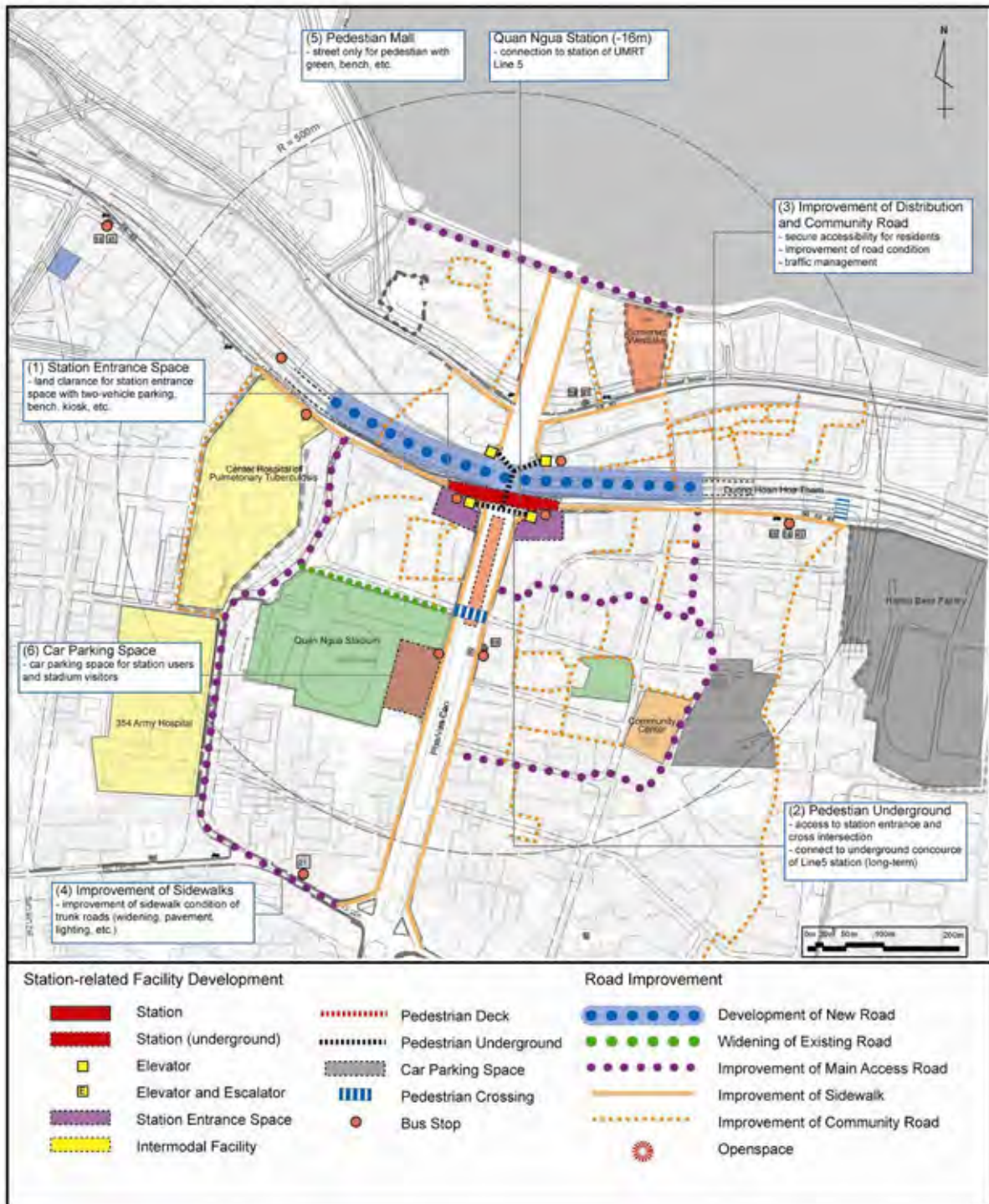
4) It is proposed to utilize car parking space and road in Quan Ngua stadium for station users.

5.8.4 Issues to be clarified

5123 Coordination with widened Hoang Hoa Tham Street (short-term): Alignment of Hoang Hoa Tham Street is nearly in parallel with UMRT Line2 underground. For effective construction and operation, alignment of subway and widened street will be well coordinated and designed.

5124 Location of Line5 Station (long-term): Location of Line5 station should be located nearby Quan Ngua for convenient access and transfer for passengers.

Figure 5.8.5 Short-term Concept Plan of Quan Ngua Station Area (C5)



Source: JICA Project Team

5.9 Tran Hung Dao (C10) and Line3 Station Area

5.9.1 Development Character

a) Existing Condition and Issues

5125 Tran Hung Dao Station will be located under the intersection of Tran Hung Dao Street and Pho Hue Street in French Quarter area. Tran Hung Dao Street is connected to Hanoi Station, so Tran Hung Dao Station will be a transfer station between Line2 and Line3. The station area covers the French Quarter where wide and grid road network with trees and sidewalk, traditional buildings with French style are located.

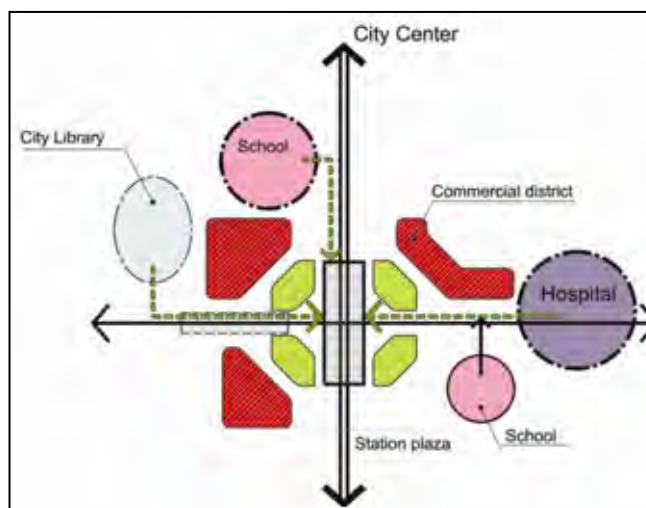
5126 Many ministries, international standard hotels, offices are clustered in this area. Within 500m from the station, many schools are located. Parents with cars and motorbikes gather in the morning and evening to children to home and school, and waiting traffic jam up surrounding roads.

b) Development Objectives

5127 Tran Hung Dao station together with a station of Line3 could formulate an attractive place as one of the important urban nodes connecting with key urban facilities of Governments, business, universities and institutes, museums, etc in French Quarter.

5128 Key development issues are 1) to secure connectivity between two stations by setting properly the Line03 station in the proximity to the C10 station, and 2) to formulate attractive transportation node with convenient walkway and open space, taking account of the gateway of French Quarter area as a part of the City Center of Hanoi and where attractive spaces and buildings for commercial and business service are expected to develop in the vicinity to two stations.

Figure 5.9.1 Conceptual Diagram for Tran Hung Dao Station Area Development (C10)



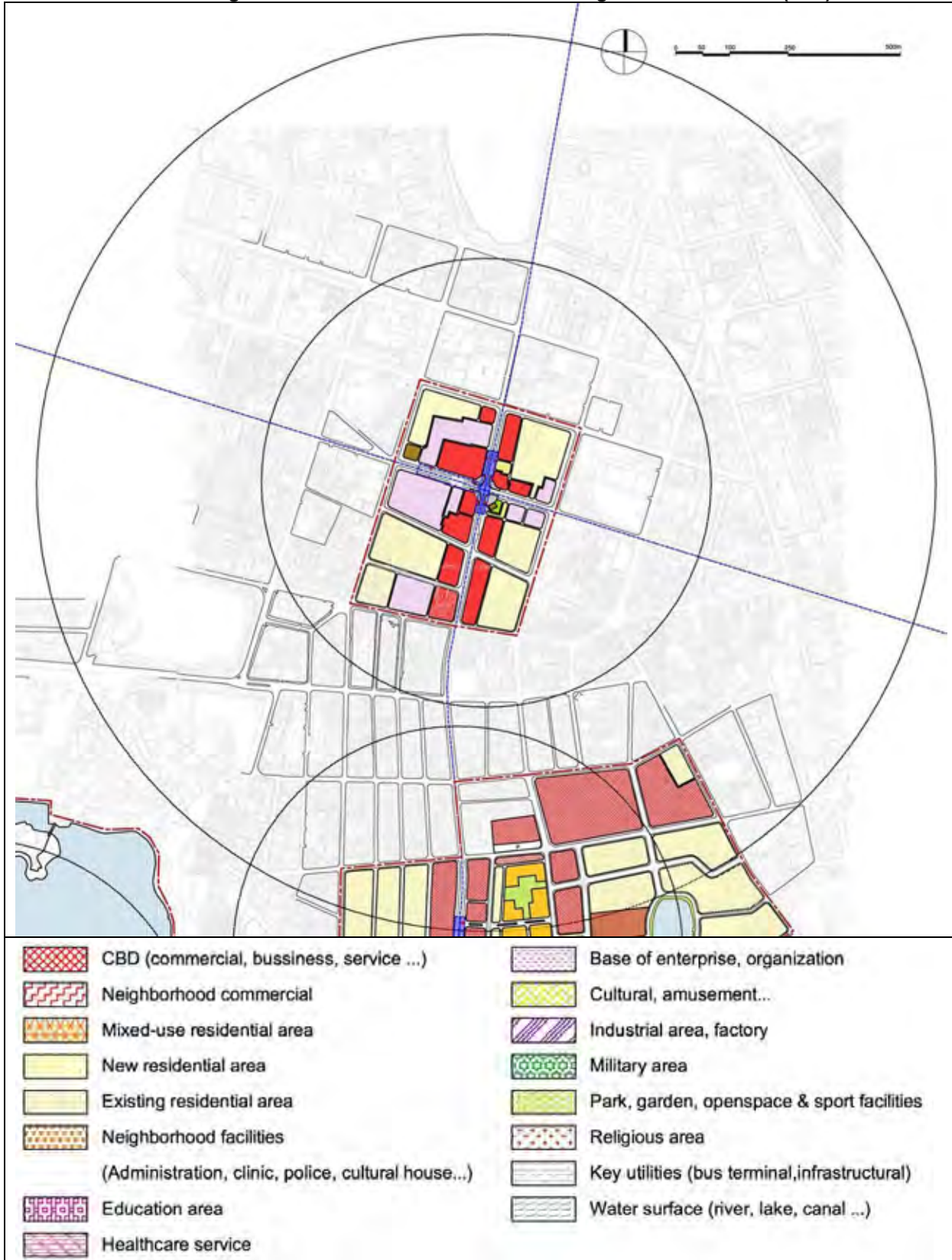
Source: JICA Project Team

Table 5.9.1 Demand Outlook of Tran Hung Dao Station Area (C10)

		Present	UMRT with integrated Urban Development	
			Without	With
Population of Station Area of radius 500m (persons)	Population	23,681	17,000	17,000
	Employment	33,531	48,800	53,300
	Student	11,431	11,600	11,600
Ridership (persons/day)		-	11,310	19,420

Source: JICA Project Team

Figure 5.9.2 Landuse Plan of Tran Hung Dao Station Area (C10)



Source: JICA Project Team

5.9.2 Long-Term Plan

5129 With convenient interchange function between UMRT Line2 and Line3 as well as feeder bus services which access to urban facilities in French Quarter, Tran Hung Dao station area will be a modern gateway of French Quarter.

5130 Integrated with various types of facilities, function of transfer station of Line2 and Line3 will be promoted mainly underground and provide convenient urban services for business persons, students and tourists.

Figure 5.9.3 Section Plan of Tran Hung Dao Station and Line3 Station

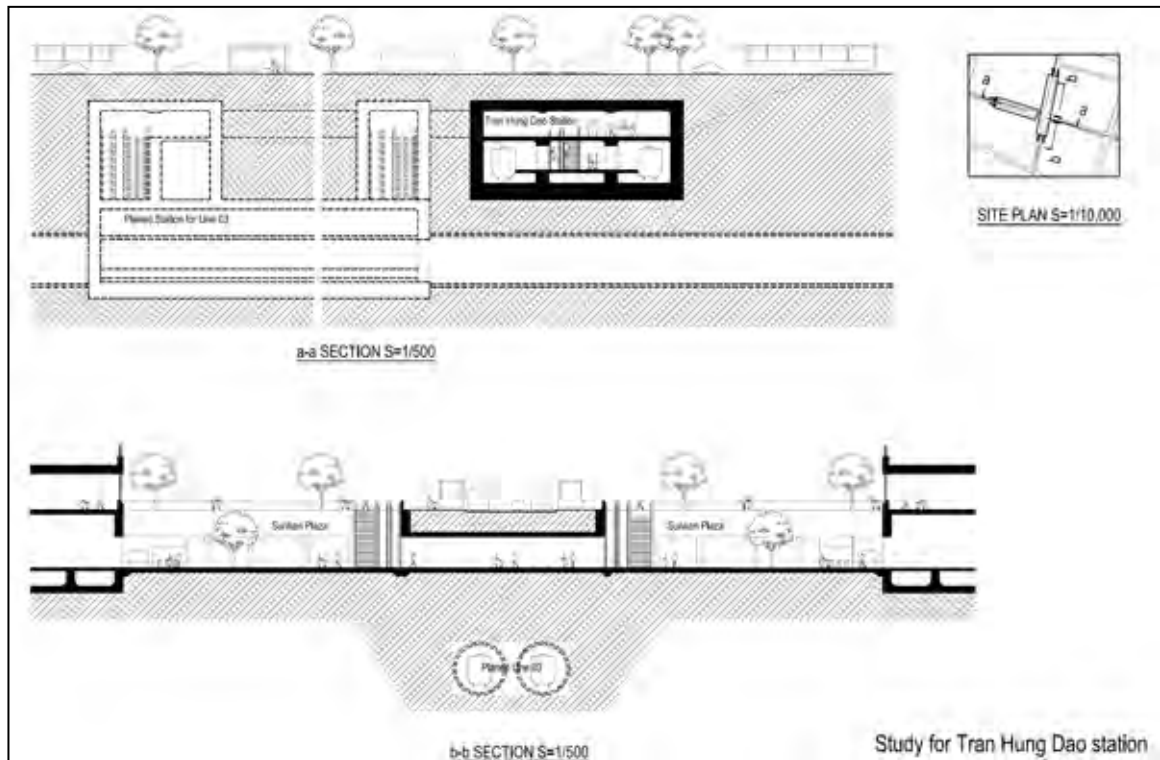
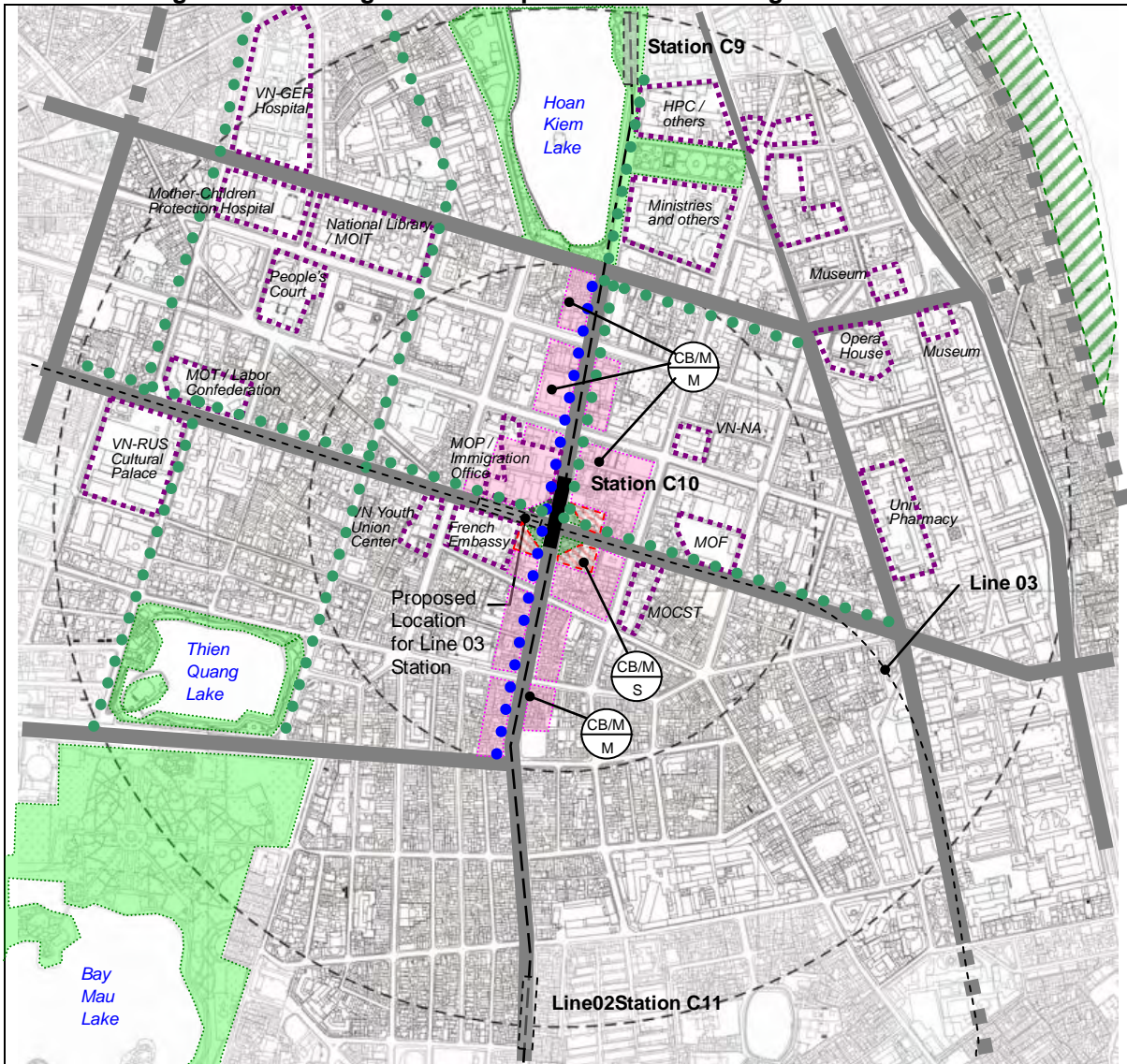


Figure 5.9.4 Long-term Concept Plan of Tran Hung Dao Station and Line3 Station



Source: JICA Project Team

5.9.3 Short-Term Projects and Actions

5131 Since the road network of French Quarter is well organized, it is not necessary to develop new roads at this moment. Sidewalk is physically secured, so traffic management such as parking control is recommended. For commuting purpose for ministries, offices as well as schools, courtesy bus services and round bus in French Quarter is recommended to cover whole French Quarter, especially to connect Hanoi Station of Line1, Tran Hung Dao Station of Line2 and major urban facilities of this area including hospitals of east side of station.

5132 Though the term to complete construction of Line2 and Line3 will not be the same, it is necessary to plan station and transfer facilities with integrated manner. It is proposed to develop station entrance spaces around intersection and a common underground concourse under the intersection which station users use to transit railways as well as visitors enjoy shopping, drinking, etc.

Table 5.9.2 Project List of Tran Hung Dao Station Area (C10)

Project			Scale		Construction Cost (000US\$)		Implementation Body	Financial resource
A Minimum development till opening	SF-SE-1	Station Entrance Space ³⁾	6,400	m2	512	39,377	HPC/HRB ¹⁾	HPC ¹⁾
	SF-PU-1*	Underground Pedestrian Plaza ³⁾	6,400	m2	38,400		HPC/HRB ¹⁾	HPC ¹⁾
	SF-EV-1*	Elevator	4	No.	400		HRB	HPC
	SF-BS-1	Bus Stop	13	No.	65		TRAMOC	HPC
B Short-term (opening~3years)	RD-SW-1	Improvement of Sidewalk	10,700	m	2,889	2,889	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) JICA Project Team recommends HRB or HPC will develop station related facilities together with UMRT station development.

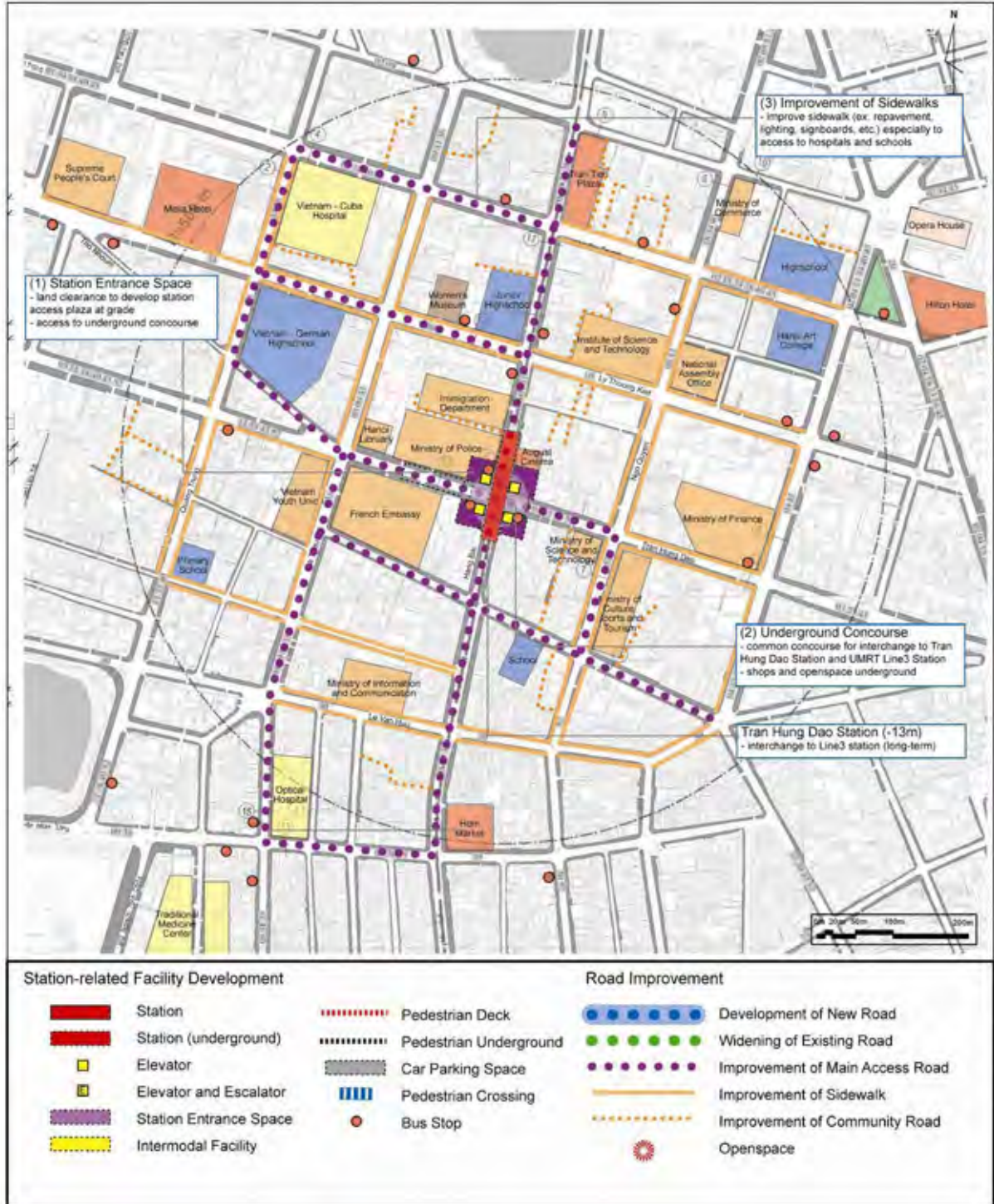
2) Station related facilities such as elevators, escalators will be constructed with the station facility.

3) It is proposed to develop underground pedestrian plaza under entrance space to connect UMRT Line2 and Line3.

5.9.4 Issues to be clarified

5133 Location of Line3 Station (short to long-term): Location of Line3 station should be located nearby Tran Hung Dao Station for convenient access and transfer for passengers. Interchange facilities such as a common underground concourse should be planned in Phase1 of Line2 for effective construction and operation after operation of Line3.

Figure 5.9.5 Short-term Concept Plan of Tran Hung Dao Station Area (C10)



Source: JICA Project Team

5.10 Thuong Dinh (C16) and Line2A/ BRT Stations Area

5.10.1 Development Character

a) Existing Condition and Issues

5134 Thuong Dinh Station is the destination station of Phase1 of Line2. It will be located along Nguyen Trai Street, and be a transfer station with Dai Hoc Quoc Gia Station of Line 2A (elevated) and Line4 Station (BRT at grade). Ring Road No. 2.5 is planned. In the station area, many factories and industries are clustered, but few commercial and business and public facilities. Co Khi Hanoi KTT is located nearby station location.

5135 This station will be an intermodal transfer station with three railway stations and bus network connected to Ha Dong and south-west side of Hanoi City. There are many urban redevelopment projects around this station area and Nga Tu So Station Area, especially along Nguyen Trai Street.

b) Development Objectives

5136 Thuong Dinh Station will be a transport hub of south-west of Hanoi City, and have an important role as an interchange station of three UMRT railways. Integrated with urban redevelopment of existing factories and KTT, new commercial and business center will be formulated.

5137 Key development issues are 1) to secure connectivity between three stations by setting properly the Line2, Line 2A and Line4 stations, 2) to formulate attractive transportation node with convenient walkway and open space, and 3) to coordinate the plan of the flyover in the intersection and formulate appropriate design of the intersection including options in case of no-flyover or re-design of flyover accommodating BRT line stations on the Ring Road 2.5 in the proximity to other two UMRT stations.

5138 While the term to complete construction of Line2, Line2A and Line4 will not be the same, it is necessary to plan station and transfer facilities with integrated manner.

Figure 5.10.1 Conceptual Diagram for Thuong Dinh Station Area Development (C16)



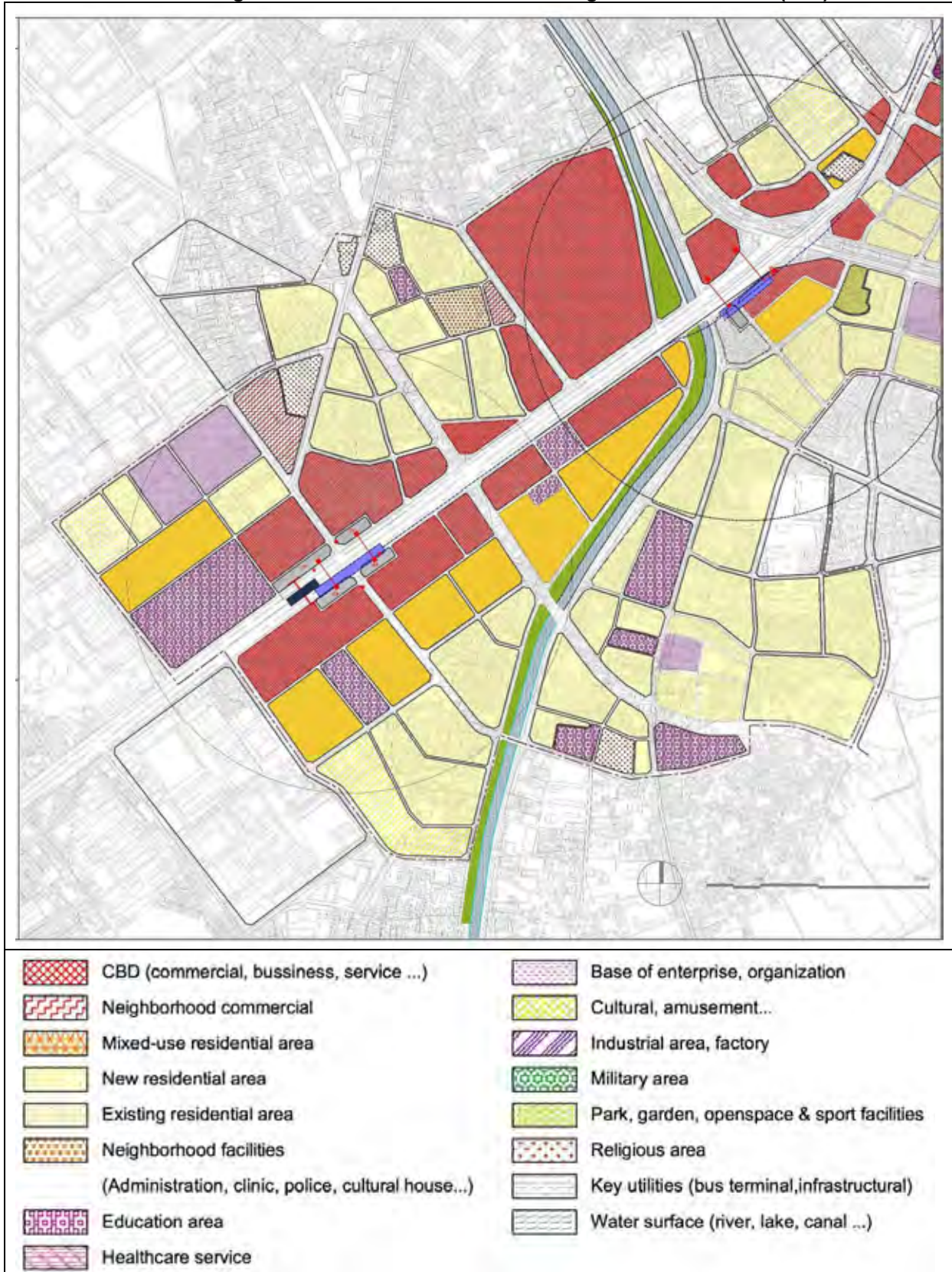
Source: JICA Project Team

Table 5.10.1 Demand Outlook of Thuong Dinh Station Area (C16)

		Present	UMRT with integrated Urban Development	
			Without	With
Population of Station Area of radius 500m (persons)	Population	16,894	15,300	16,500
	Employment	5,170	8,000	9,400
	Student	4,127	4,500	4,800
Ridership (persons/day)		-	8,010	17,580

Source: JICA Project Team

Figure 5.10.2 Landuse Plan of Thuong Dinh Station Area (C16)



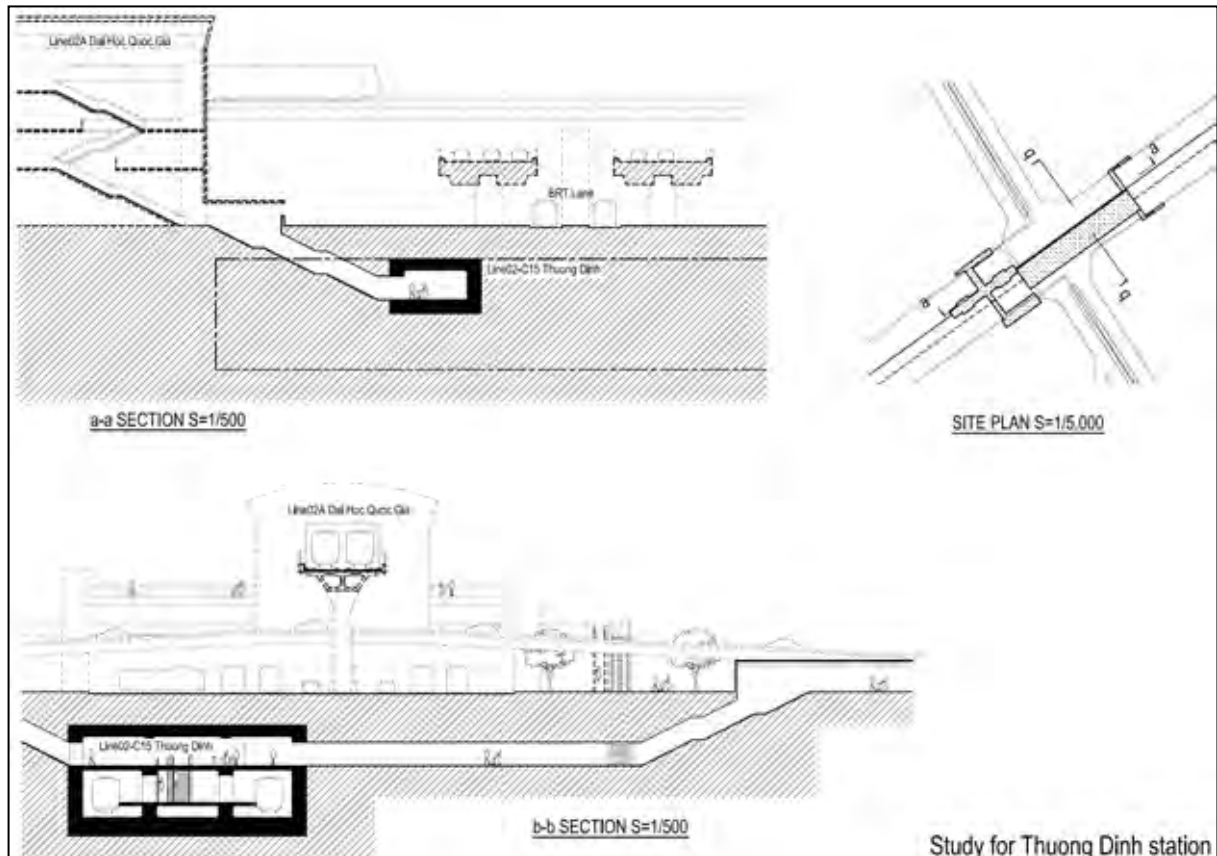
Source: JICA Project Team

5.10.2 Long-Term Plan

5139 With convenient interchange function between UMRT Line2, Line2A and Line4 as well as feeder bus services which connect to south-west of Hanoi City, Thuong Dinh station area will be a modern gateway of south-west of Hanoi City.

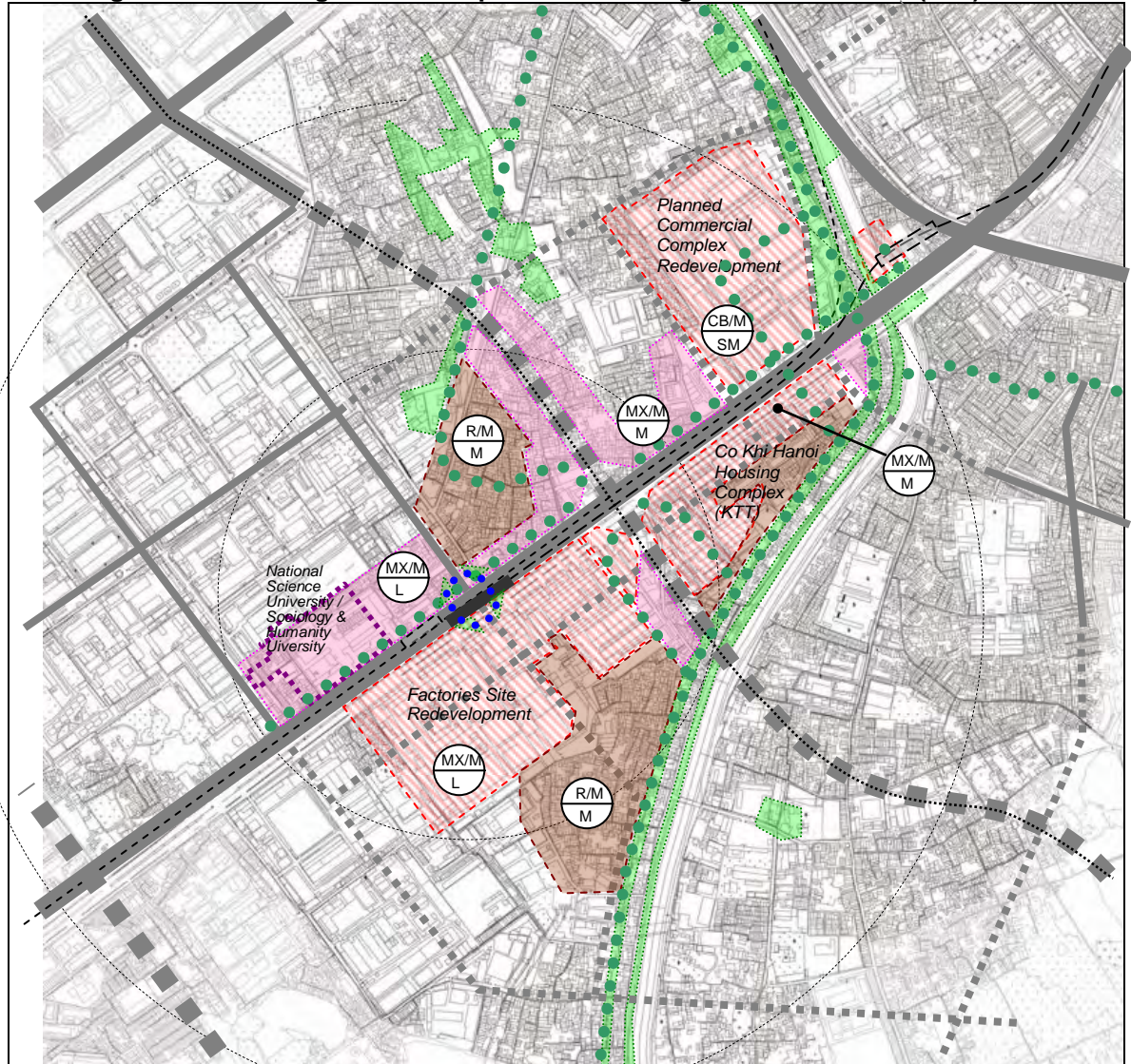
5140 With conversion from industrial areas to commercial areas, function of transfer station of Line2, Line2A and Line4 will be promoted vertically for passengers' convenience. Thanks to various urban facilities such as commercial districts, university, many visitors will use this station and mixed urban commercial and residential areas will be promoted.

Figure 5.10.3 Section Plan of Thuong Dinh Station, Line2A and Line4 Stations



Source: JICA Project Team

Figure 5.10.4 Long-term Concept Plan of Thuong Dinh Station Area (C16)



Source: JICA Project Team

5.10.3 Short-term Projects and Actions

5141 In existing residential area, there are many alleys not directly connected to distribution roads. It is necessary to secure appropriate access routes to station. Along Nguyen Trai Street, there are many shops along sidewalks. Though sidewalks are wide enough, it is recommended to control appropriate commercial activities and parking, and develop a pedestrian street as a symbol road of station.

5142 Station entrance spaces will be developed and access roads will be improved to secure enough station entrance space and safe access to many urban facilities. It is proposed to develop sunken plazas and underground access plaza for convenient transfer as well as commercial and business promotion. It is recommended to develop these interchange facilities as short-term projects, or the period when Line2A and Line4 station will be developed at latest.

Table 5.10.2 Project List of Thuong Dinh Station Area (C16)

Project			Scale		Construction Cost (000US\$)		Implementation Body	Financial resource
A Minimum development till opening	SF-SE-1	Station Entrance Space ²⁾	4,800	m2	384	33,564	HPC/HRB ¹⁾	HPC ¹⁾
	SF-PU-1*	Underground Pedestrian Plaza ²⁾	4,800	m2	28,800		HPC/HRB ¹⁾	HPC ¹⁾
	SF-EV-1*	Elevator	4	No.	400		HRB	HPC
	SF-BS-1	Bus Stop	4	No.	20		TRAMOC	HPC
	RD-MA-1	Improvement of Main Access Road	3,600	m	3,960		HDOT	HPC
B Short-term (opening~3years)	RD-SW-1	Improvement of Sidewalks	2,720	m	734	734	HDOT	HPC
C Medium-term (3~5years)	UR-1	Redevelopment of Mechanical Company on the south of Resource University for commercial district (planned)					Private	Private
	UR-2	Redevelopment of Nga Tu So Market for commercial district (planned)					Private	Private
	UR-3	Redevelopment of mechanical Company on the west of To Lich River for commercial district (planned)					Private	Private
D Long-term (5~10 years)	UR-4	Redevelopment of Vinh Ho KTT					Private	Private

Source: JICA Project Team

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

1) JICA Project Team recommends HRB or HPC will develop station related facilities together with UMRT station development.

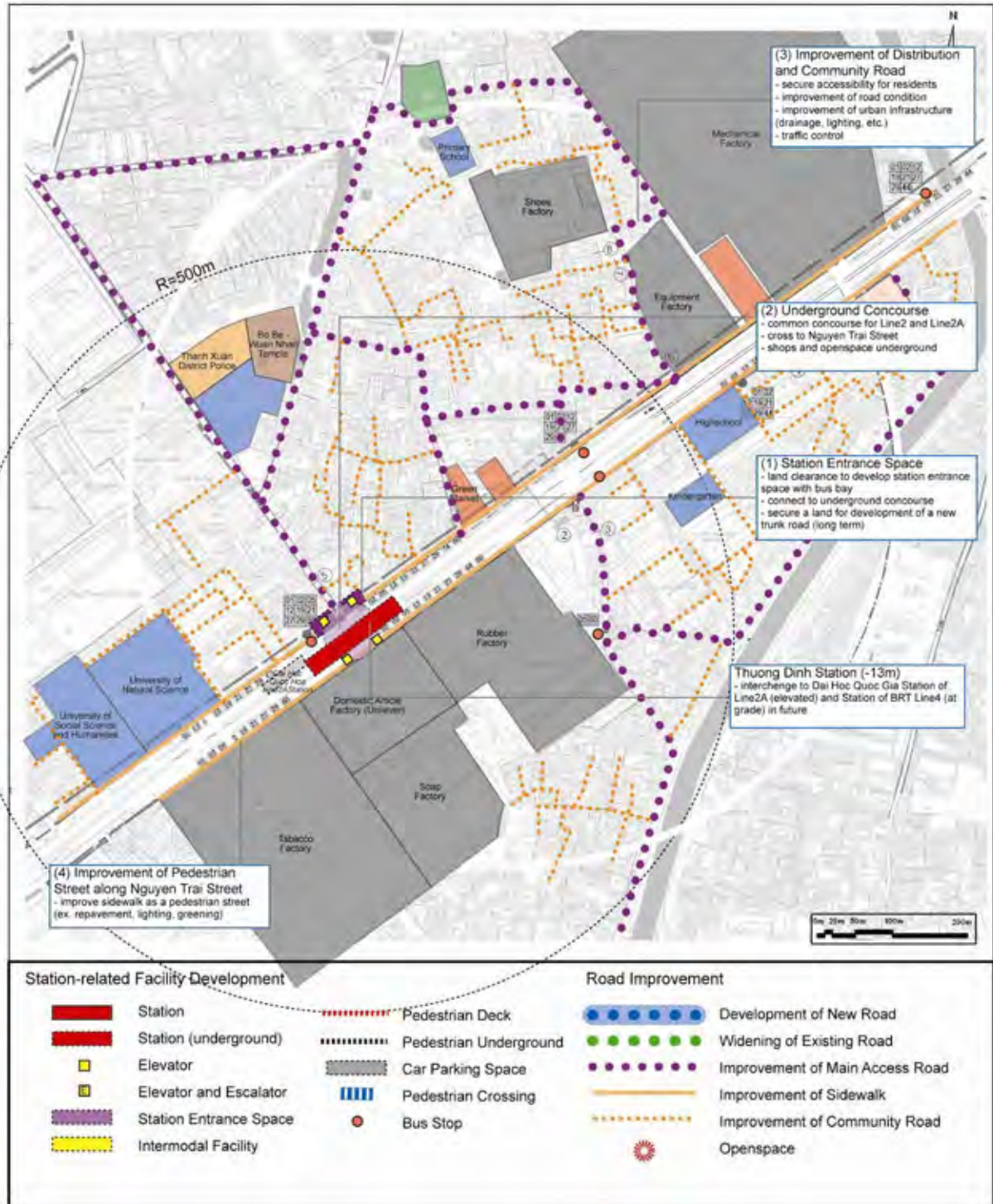
2) It is proposed to develop underground pedestrian plaza under entrance space to connect UMRT Line2 and Line3.

5.10.4 Issues to be clarified

5143 Adjustment of location of Line2A and Line4 Station (long-term): Location of Line2A and Line4 station should be located nearby Thuong Dinh Station for convenient access and transfer for passengers.

5144 Coordination with urban redevelopment projects of existing factories (mid& long-term): It is planned that urban redevelopment projects will be individually conducted which factory areas will be converted into commercial and business districts. Since it is expected that this station area will be an integrated sub-urban center with commercial, educational and residential functions, it is recommended various types of urban facilities such as culture, education, health will be also developed.

Figure 5.10.5 Short-term Concept Plan of Thuong Dinh Station Area (C16)



Source: JICA Project Team

5.11 Bac Cau Long Bien (V5) Station Area

5.11.1 Development Character

a) Existing Condition and Issues

5145 Bac Cau Long Bien Station will be located near to the dyke road of Red River (Gia Thuong Street) along Red River. South of railway is commercial area, but most of them are small companies and industries, and few urban service facilities. Along the railway, many illegal settlements encroach Right-of-Way. There are small rural villages in north of railway, but few commercial and service facilities there. Many houses and small shops are clustered out of dyke, where it is considered illegal settlement according to “Dyke Ordinance”.

5146 The existing railway is more than 500m far from NH-1 (Nguyen Van Cu Street), but there are two streets (Ngoc Thuy Street and Ngoc Lam Street) between them. These two streets don’t cross over Red River, but connect to the dyke road. Though it is planned to construct new road connected north to south, the dyke road (Gia Thuong Street) is the only one to connect this direction in this station area.

b) Development Objectives

5147 Bac Cau Long Bien Station will be only the station where is easily access to riverside of Red River. Passengers will be able to enjoy scenery of Long Bien Bridge and Red River inside the railway.

5148 Integrated with New Town development, it is expected to develop the station area where people enjoy new urban life with valuable structure of Long Bien Bridge and landscape of Red River.

Figure 5.11.1 Conceptual Diagram for Bac Cau Long Bien Station Area (V5)

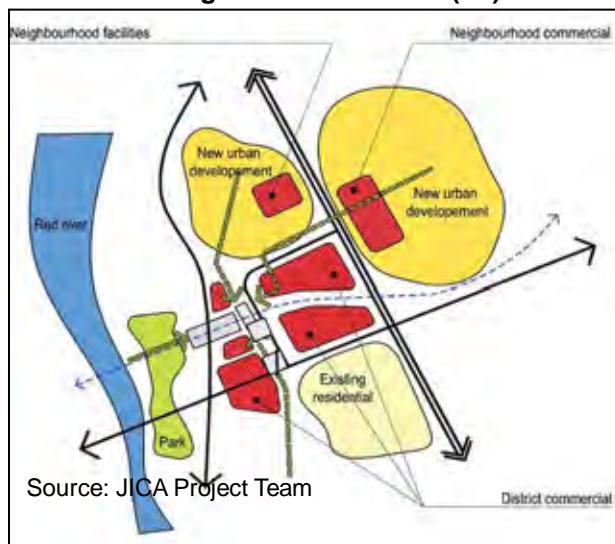
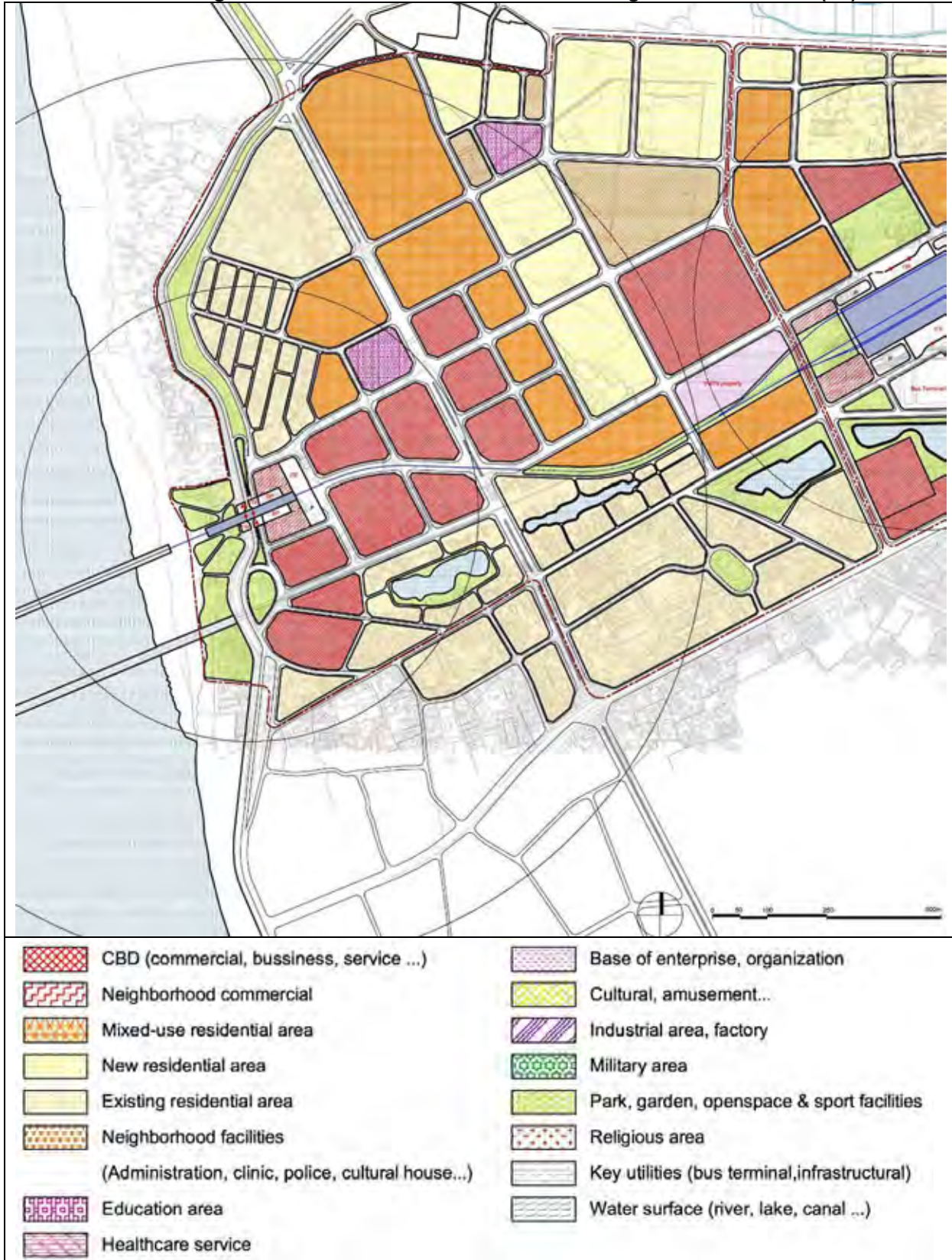


Table 5.11.1 Demand Outlook of Bac Cau Long Bien Station Area (V5)

		Present	UMRT with integrated Urban Development	
			Without	With
Population of Station Area of radius 500m (persons)	Population	4,119	4,800	4,800
	Employment	2,499	2,400	5,000
	Student	1,220	950	950
Ridership (persons/day)		-	3,900	4,600

Source: JICA Project Team

Figure 5.11.2 Landuse Plan of Bac Cau Long Bien Station Area (V5)

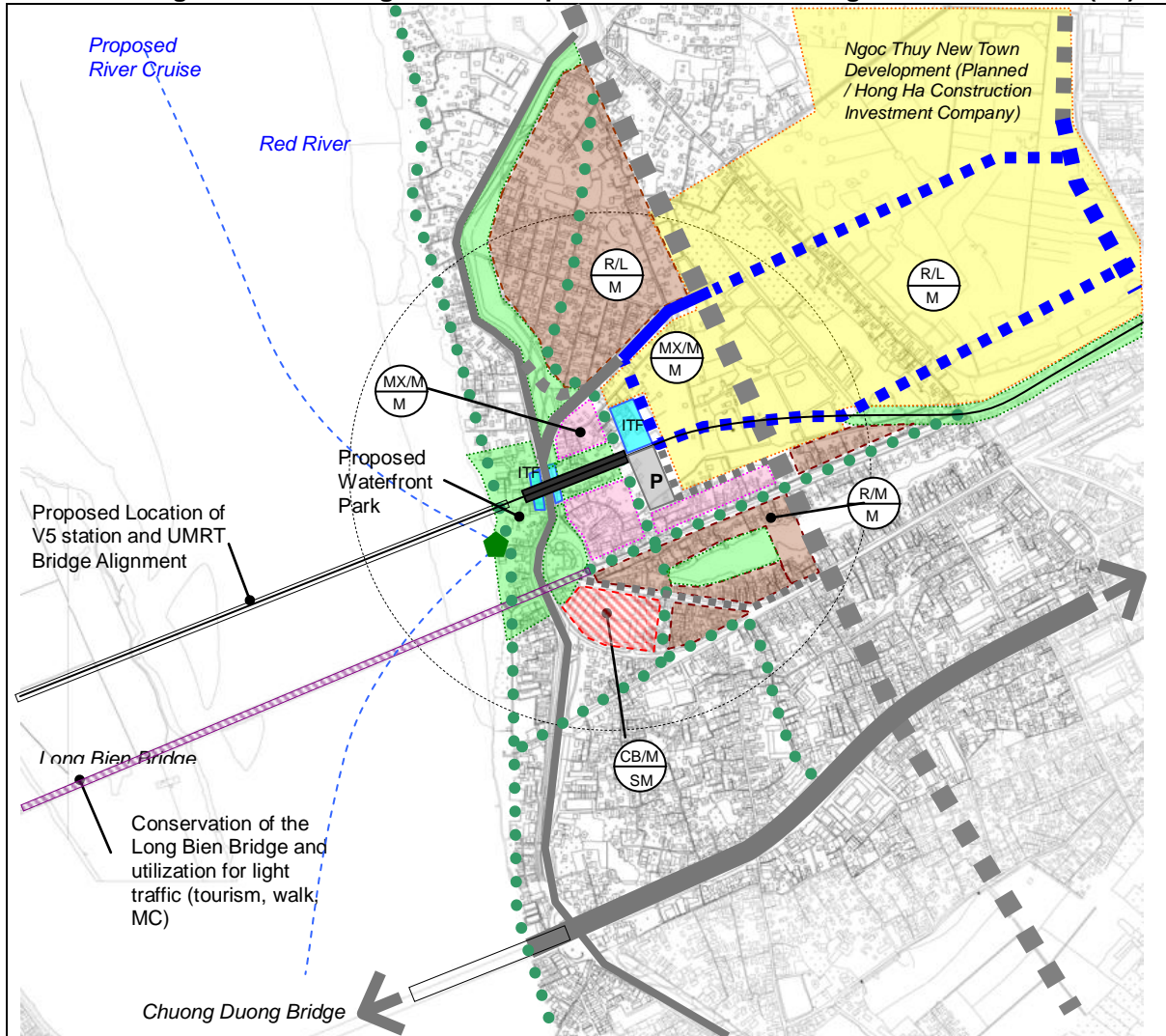


Source: JICA Project Team

5.11.2 Long-Term Plan

5149 After development of Ngoc Thuy New Town, new town residents will use this station. In addition, visitors and tourists will be expected to enjoy riverside park. Neighboring commercial and service facilities will be developed near the station to serve these various types of station users.

Figure 5.11.3 Long-term Concept Plan of Bac Cau Long Bien Station Area (V5)



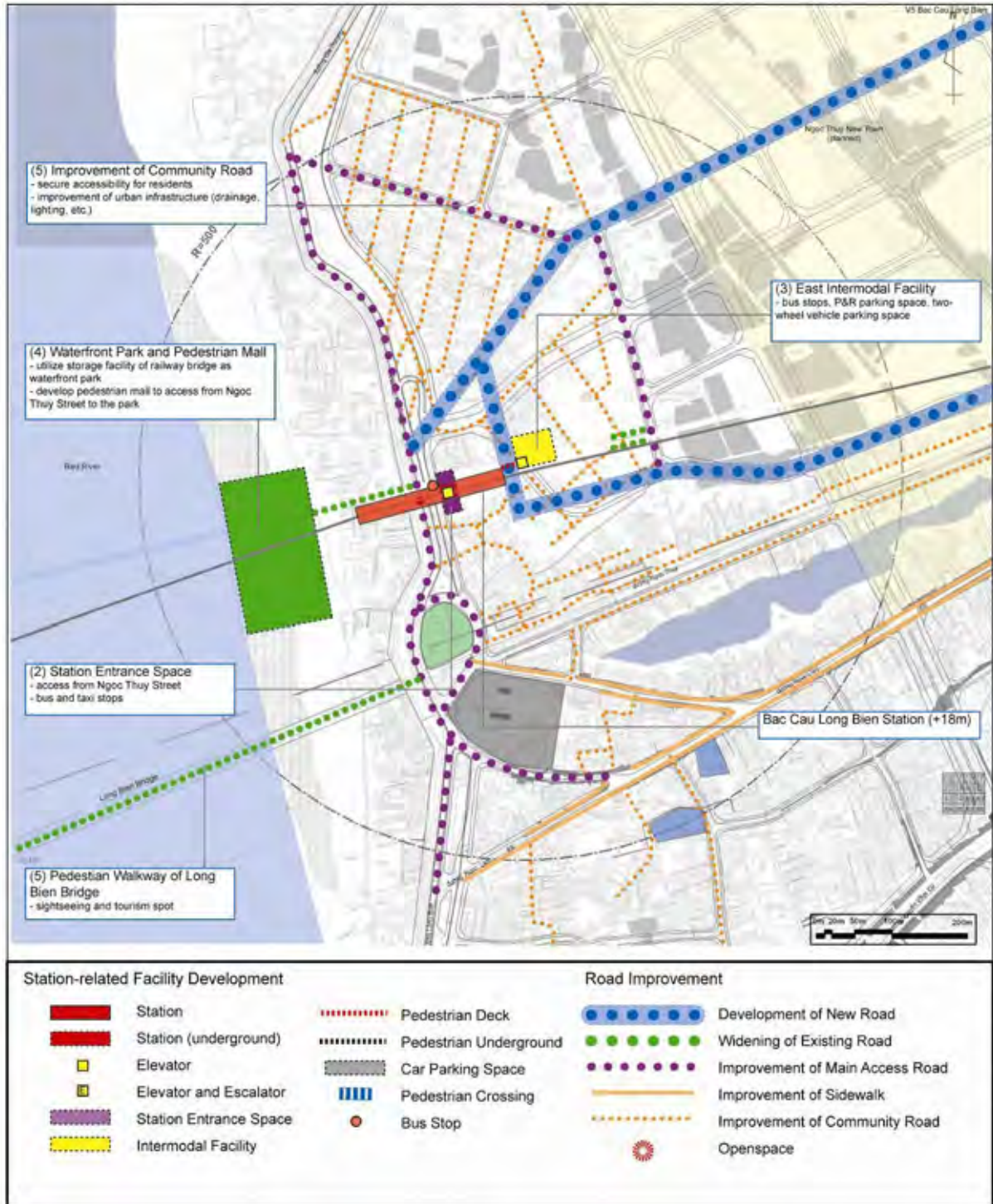
Source: JICA Project Team

5.11.3 Short-term Projects and Actions

5150 Since the station will cross over the dyke road, the station entrance space can be developed under the station in front of the dyke road. The intermodal facility will be developed in eastern side in conjunction with the new trunk road network especially for new town residents.

5151 The dyke road is the main access road for station. It is necessary to improve road condition for pedestrian. In the eastern side, there are no access roads for vehicles, it is necessary to develop new roads. Proposed trunk road network which is integrated with station need to be reflected to the Ngoc Thuy New Town Development Plan.

Figure 5.11.4 Short-term Concept Plan of Bac Cau Long Bien Station Area (V5)



Source: JICA Project Team

Table 5.11.2 Project List of Bac Cau Long Bien Station Area (V5)

Project			Scale		Construction Cost (000US\$)	Implementation Body	Financial Resource	
A Minimum development till opening	SF-IM-1	East intermodal facility	2,500	m2	135	5,894	VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-SE-1*	Station entrance space	675	m2	36		VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-PD-2*	Pedestrian deck	180	m2	468		VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-EV-1*	Elevator	2	No.	200		VNR	VNR
	SF-BS-1	Bus stop	1	No.	5		TRAMOC	HPC
	RD-NR-1	Development of new road ²⁾	900	m	1,530		HDOT	HPC
	RD-MA-1	Improvement of main access road	3,200	m	3,520		HDOT	HPC
B Short-term (opening~3years)	SF-PD-1	Pedestrian mall and waterfront park	23,000	m2	1,242	3,926	MONRE	HPC
	RD-SW-1	Improvement of sidewalk	3,350	m	905		HDOT	HPC
	RD-SW-2	Improvement of sidewalk	2,700	m	729		HDOT	HPC
	SF-WR-1	Pedestrian walkway of Long Bien Bridge ³⁾	1,500	m	1,050		HPC	HPC
C Medium-term (3~5years)	ND-1	Ngoc Thuy New Town development (Phase1) (planned) ⁴⁾				Private	Private	
D Long-term (5~10 years)	ND-2	Ngoc Thuy New Town development (Phase2) (planned) ⁴⁾				Private	Private	
	UR-1	Redevelopment of factory area				Private	Private	

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 new road under viaduct will be developed with UMRT railway development.

3) It is proposed Long Bien Bridge will be preserved as a pedestrian walkway for sightseeing and tourism purpose after UMRT development.

4) It is necessary to consult with HAUPA, District PC and developer to adjust road network, landuse, phasing of new town area.

5.11.4 Issues to be clarified

5152 Development potential of out of dyke area (short and long -term): The station will develop over the dyke road and out of dyke area. Based on condition of Dyke Ordinance, it is prohibited to develop any types of urban facilities out of dyke. Waterfront park development has a big potential for economic and tourism development in this station area, so it is necessary to clarify development potential of out of dyke area.

5153 Coordination with Ngoc Thuy New Town Project (short& mid-term): It is expected many residents of new town will use this station as well as Gia Lam station. It is necessary to coordinate with the plan especially for road network to enable effective accessibility to station.

5154 Preservation and promotion of Long Bien Bridge (short& mid-term): In short-term, it is proposed to use existing railway from Yen Vien station to Nam Cau Long Bien station as a commuting Train. But after the period of UMRT operation, the commuting train will not be necessary. Since Long Bien Bridge is a national cultural heritage of Vietnam, it must be preserved. It is proposed to utilize this bridge for pedestrian for sightseeing and tourism purpose.

5.12 Phung Hung (V7) Station Area¹

5.12.1 Development Character

a) Existing Condition and Issues

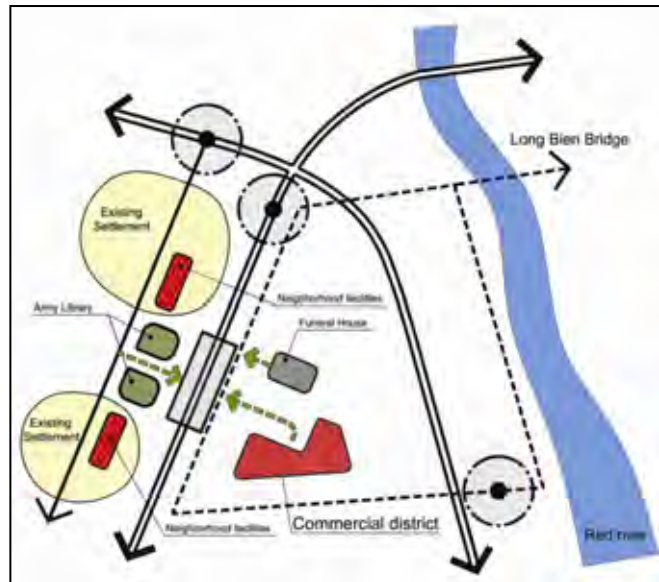
5155 Phung Hung Station will be located west center of Ancient Quarter. Phung Hung Street is one way from south to north. In front of the station location, there is a small park at present. Along the street, there are restaurants and small markets, and designated roadside parking areas. West side of railway, out of AQ is high-dense residential areas with 4-5 stories. Cau Dong and Tran Phu streets are only connected from AQ to west area. But Cau Dong is dead-end at Military Office area. Tran Phu Street is crowded with cars, especially at crossing of railway. Though land use of west side of railway is mostly for military and governmental use, connection of roads from east to west need to be improved.

b) Development Objectives

5156 Phung Hung Station will be the central station of Ancient Quarter, as well as center of surrounding stations of Hang Dau, Nam Cau Long Bien and Hoan Kiem Lake. Under the station and railway, Phung Hung Street will be served as an outer trunk road of Ancient Quarter, and commercial facilities will be developed along the street.

5157 Together with these stations, this station area will create pedestrian friendly commercial area in harmony with modern function and traditional values.

Figure 5.12.1 Conceptual Diagram of Phung Hung Station Area Development (V7)



Source: JICA Project Team

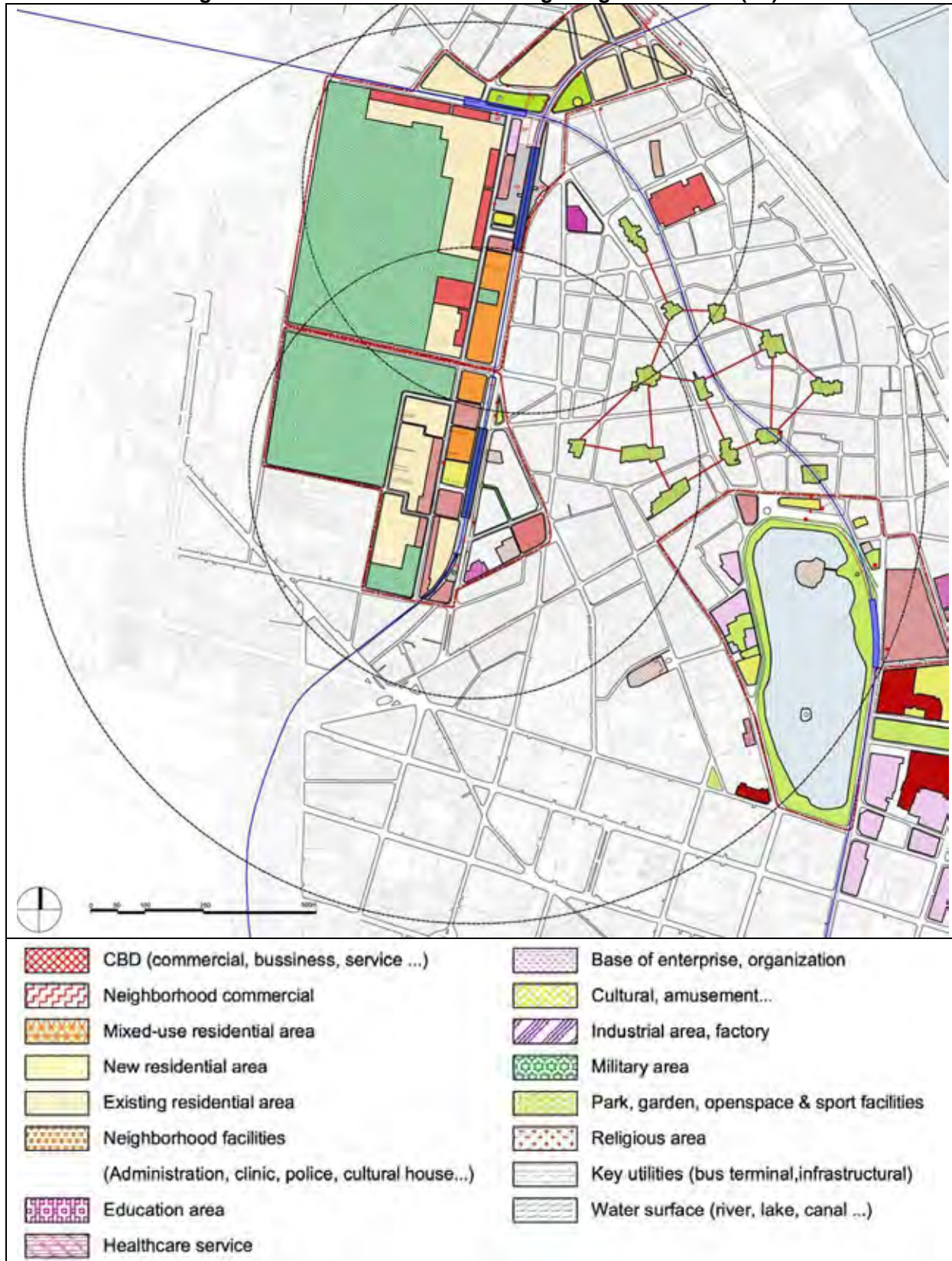
Table 5.12.1 Demand Outlook of Phung Hung Station Area (V7)

		Present	UMRT with integrated Urban Development	
			Without	With
Population of Station Area of radius 500m (persons)	Population	34,704	25,200	25,200
	Employment	20,853	32,000	35,600
	Student	5,371	4,100	4,100
Ridership (persons/day)		-	7,800	7,410

Source: JICA Project Team

¹ Based on the conclusion by HPC and MOT on 17th November 2010, Phung Hung Station (V7) was removed, which was too near to Nam Cau Long Bien Station (V6). The concept plan of this station is shown as a reference for future development opportunity.

Figure 5.12.2 Landuse Plan of Phung Hung Station Area (V7)



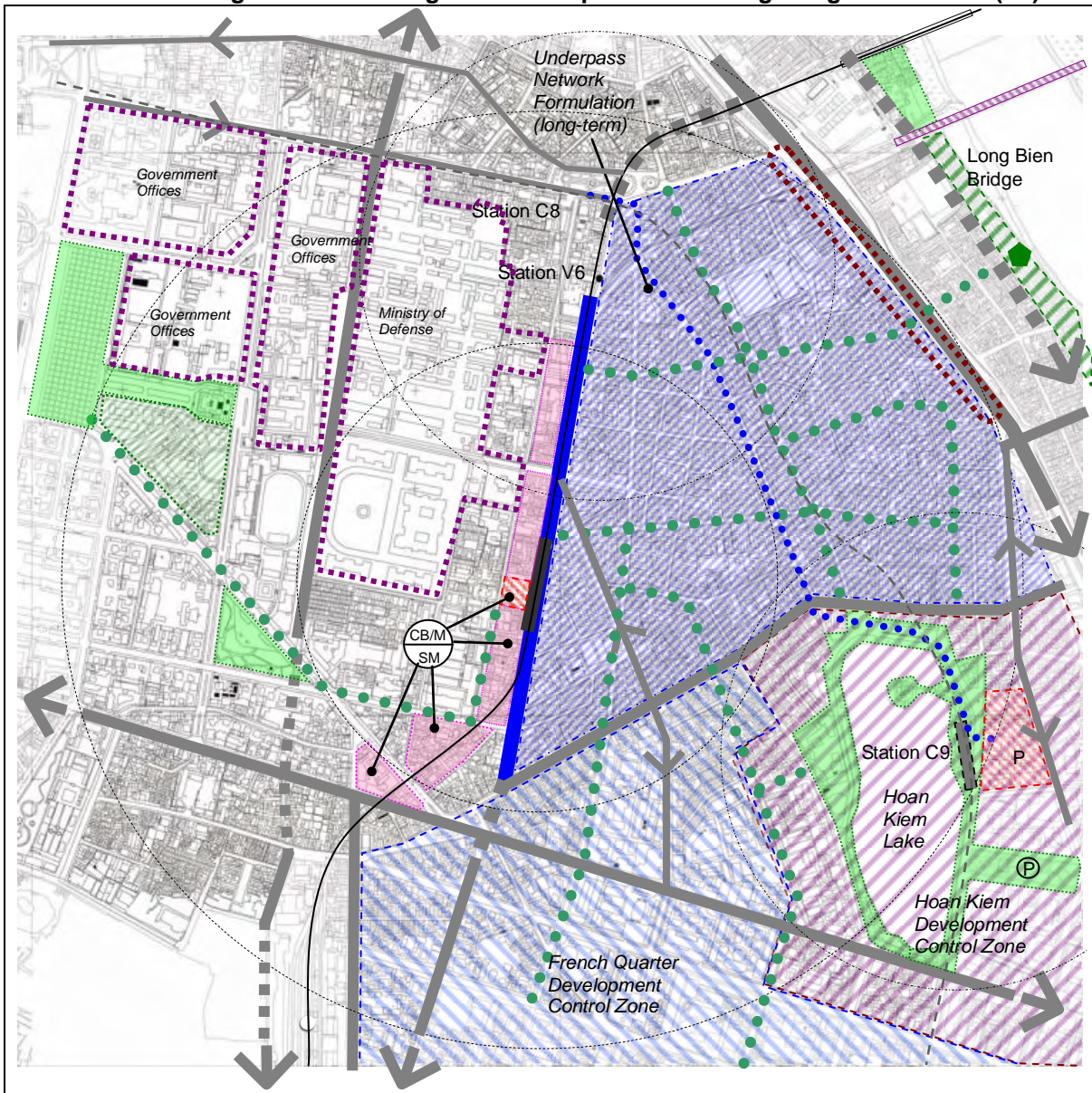
Source: JICA Project Team

5.12.2 Long-Term Plan

5158 Pedestrian-oriented road network in AQ should be created together with effective transport management system such as transit mall, etc. In long-term, underground network of the Ancient Quarter is proposed to be developed, while traditional buildings and road network will be preserved. The underground network will connect Nam Cau Long Bien Station (V6) and Hoan Kiem Lake Station (C9), together with sunken gardens inside urban blocks of AQ.

5159 Though it might be difficult to redevelop urban blocks in west side of railway, it is proposed to redevelop the Army Library and develop a station entrance space and new buildings, which include a library and service facilities such as café, shop, etc.

Figure 5.12.2 Long-term Concept Plan of Phung Hung Station Area (V7)



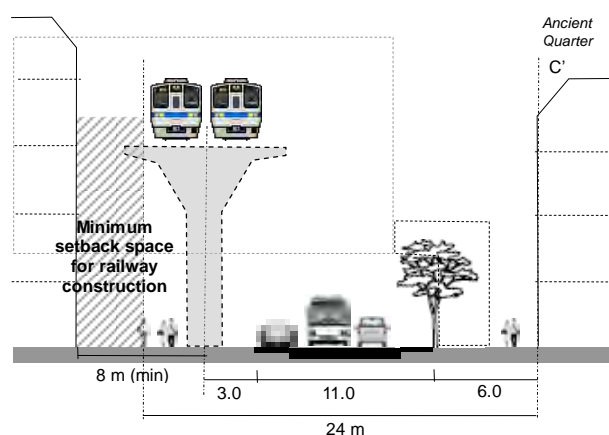
Source: JICA Project Team

5.12.3 Short-Term Projects and Actions

5160 Since dynamic urban development activities are strictly restricted in AQ, station-related facility will be developed in a limited openspace. The small park crossing Phung Hung Street and Bat Dan Street is the only potential area to develop a station entrance space.

5161 Though Phung Hung Street is a one-way street at present, it will be improved for two-ways traffic flow. The space under the viaduct should be utilized as a carriageway and sidewalk, without any additional land acquisition of both sides.

Figure 5.12.4 Section Plan of Phung Hung Street and Line1



Source: JICA Project Team

Table 5.12.2 Project List of Phung Hung Station Area (V7)

Project			Scale		Construction Cost (000US\$)	Implementation Body	Financial Resource	
A Minimum development till opening	SF-SE-1*	Station Entrance Space	875	m2	70	1,610	VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-PD-1*	Pedestrian Deck	300	m2	780		VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-EV-1*	Elevator	3	No	300		VNR	VNR
	SF-BS-1	Bus Stop	5	No	25		TRAMOC	HPC
	SF-PC-1	Pedestrian Crossing	1	No	10		HDOT	HPC
	SF-PC-2		1	No	10		HDOT	HPC
	SF-PC-3		1	No	10		HDOT	HPC
	SF-PC-4		1	No	10		HDOT	HPC
SF-PC-5	1		No	10	HDOT	HPC		
RD-WR-1*	Widening of Phung Hung Street ²⁾	550	m	385	HDOT	HPC		
B Short-term (opening~3years)	RD-SW-1	Improvement of Sidewalks	1,350	m	365	1,080	HDOT	HPC
	RD-SW-2		1,780	m	481		HDOT	HPC
	RD-CR-1	Improvement of Community Road	560	m	235		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 station entrance space development. JICA Project Team recommends VNR will develop it as a station related facility development.

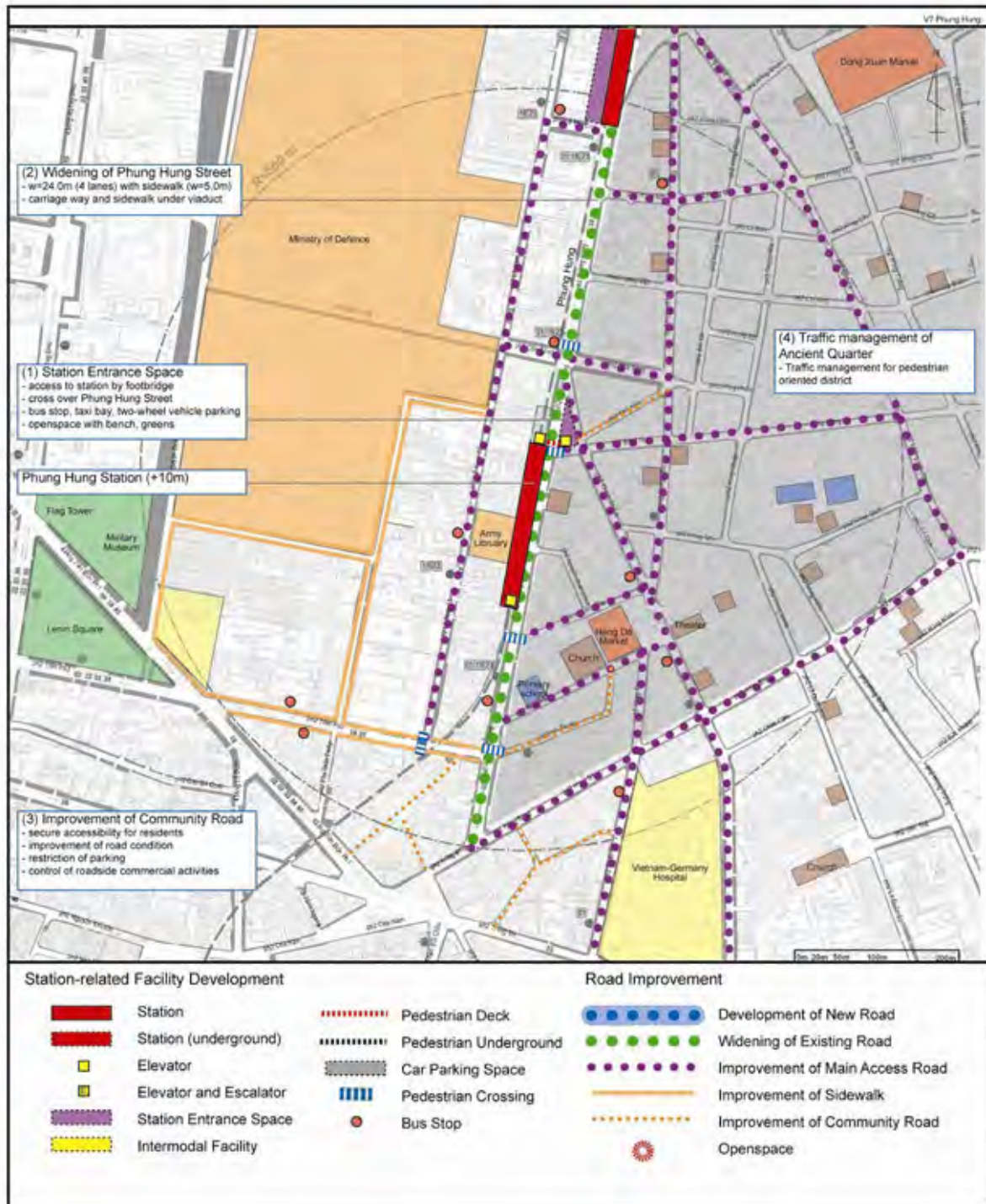
2) It is proposed Phung Hung Street will be widened within the width of ROW with UMRT railway development

5.12.4 Issues to be clarified

5162 Development of trunk road of Phung Hung Street (short-term): To improve Phung Hung Street as an outer road of the Ancient Quarter, it is recommended to utilize the space under the viaduct for traffic purpose. It is necessary coordinate with VNR and Hanoi City.

5163 Urban redevelopment of Army Library for Station Entrance Space development (long-term): As proposed, to develop station entrance to west side, it is necessary to redevelop urban blocks along Ly Nam De Street. Though many mid-rise housings and apartments as well as Army-related facilities are clustered in this block, it is necessary to identify a suitable location to develop a station entrance.

Figure 5.12.3 Short-term Concept Plan of Phung Hung Station Area (V7)



Source: JICA Project Team

5.13 B.V. Bach Mai (V10) Station Area

5.13.1 Development Character

a) Existing Condition and Issues

5164 Bach Mai Station locates in front of Bach Mai Hospital, which is major general hospital in northern Vietnam. Around of this hospital, four hospitals are clustered. On the east side of Giai Phong Street (NH-1), National Economic University and Civil Engineering University are located. With a central focus on these medical and educational facilities, there are many schools and medical facilities are gathered in this area.

5165 Though there are sidewalks along and pedestrian bridges over Giai Phong Street, connectivity and accessibility to Le Thanh Nghi Street, which commercial and food services are clustered. Only Phuong Mai Street and Trung Chinh Street are district roads which connect from NH-1 to high dense residential area of Phuong Mai and Kim Lien Communes. There are small medical and service facilities are clustered along these streets. Inside KTT residential areas where cars are difficult to enter in, there are many alleys and yards, where lively community activities and lifestyles are remained.

5166 On the east side of NH-1, Le Thanh Nghi Street and Tran Dai Nghia Street are rather new and wide, and various commercial and service facilities stand in a low. Educational district in Bach Khoa and Dong Tam Communes can enjoy modern urban services. There is a big income gap between this old residential area of west and new residential area of east.

b) Development Objectives

5167 To develop this area as a “Medical and Educational District of Hanoi”, Bach Mai Station area development has a significant role to connect medical and traditional residential area of west and high-class educational and modern commercial area of east into integrated new urban area. It is expected station area development will create opportunities for patients to go out and around, and for university students to promote various entrepreneurship activities as well as welfare activities.

Figure 5.13.1 Conceptual Diagram of B.V Bach Mai Station Area (V10)

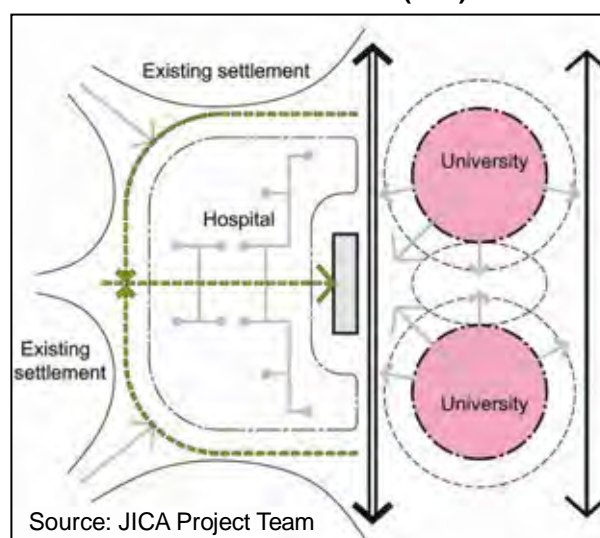
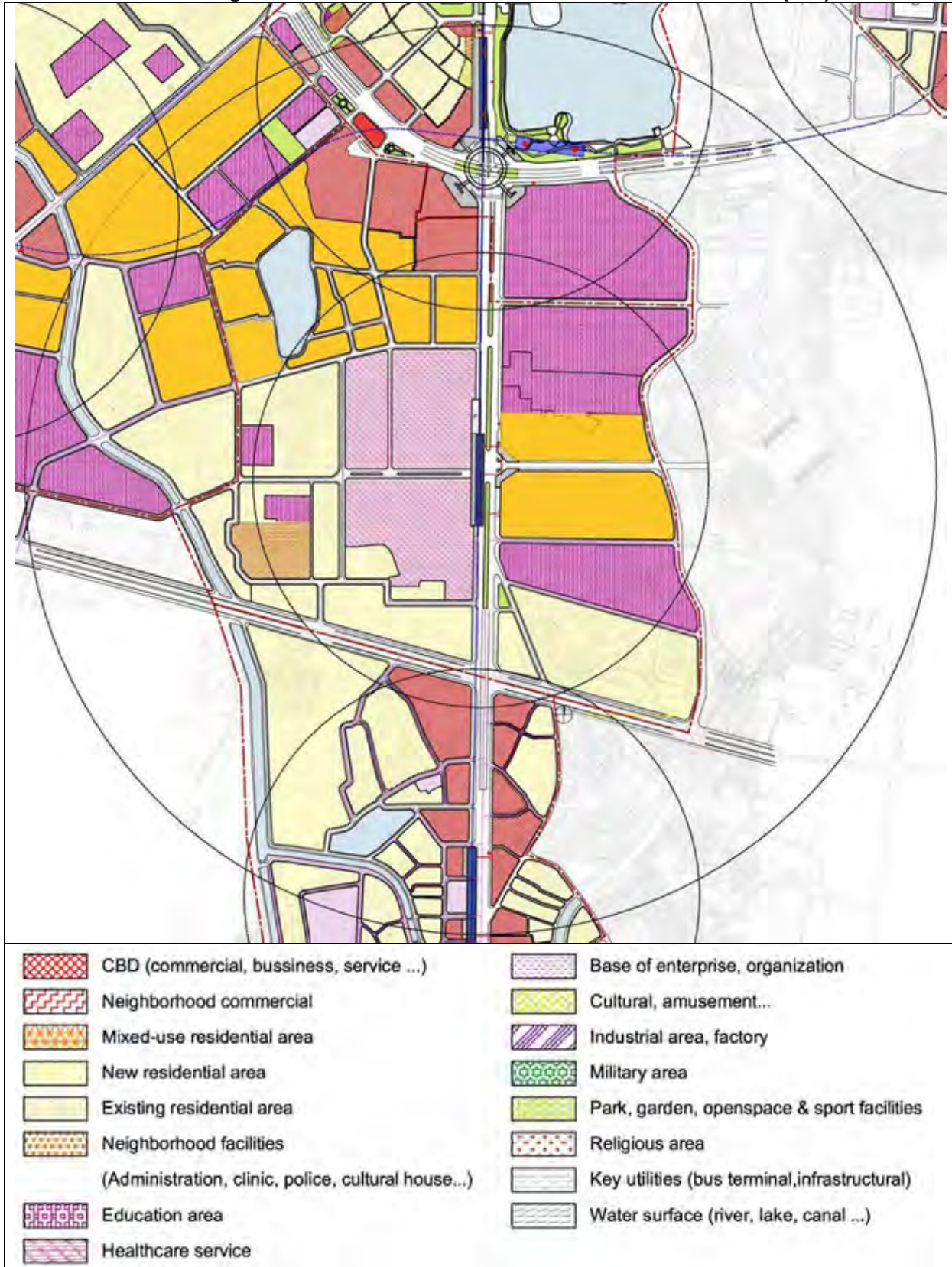


Table 5.13.1 Demand Outlook of B.V. Bach Mai Station Area (V10)

		Present	UMRT with integrated Urban Development	
			Without	With
Population of Station Area of radius 500m (persons)	Population	24,044	19,100	19,100
	Employment	10,224	13,700	14,400
	Student	24,078	12,600	12,600
Ridership (persons/day)		-	12,800	7,500

Source: JICA Project Team

Figure 5.13.2 Landuse Plan of B.V. Bach Mai Station Area (V10)



Source: JICA Project Team

5.13.2 Long-Term Plan

5168 B.V. Bach Mai Station will be centrally located of medical and educational area, so when urban redevelopment projects of these hospitals and universities will be conducted in long-term, function and capacity of station will be improved. In addition, after urban redevelopment of KTTs, more residents will use this station. Access roads to station should be planned integrated with these development plans.

Figure 5.13.3 Long-term Concept Plan of B.V. Bach Mai Station Area (V10)



Source: JICA Project Team

5.13.3 Short-Term Projects and Actions

5169 In short-term, there are few projects out of station-related facility development. Footbridges and station entrance spaces across NH-1 will be located which is convenient not only residents but also university students.

5170 For hospital visitors, “barrier-free” concept and design is important which all of citizens including elderly, disabled, foreigners, etc. can easily access and use station facilities. It is proposed to develop a station access road passing by the hospital site which is safe and open to public.

Table 5.13.2 Project List of B.V. Bach Mai Station Area (V10)

Project			Scale		Construction Cost (000US\$)		Implementat ion Body	Financial Resource
A Minimum development till opening	SF-SE-1	Station Entrance Space	1,000	m2	80	3,276	VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-SE-2*	Station Entrance Space inside Bach Mai Hospital ²⁾	1,200	m2	96		VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-PD-1*	Pedestrian Deck	240	m2	624		VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-PD-2*	Pedestrian Deck	210	m2	546		VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-EV-1*	Elevator	5	No	500		VNR	VNR
	SF-BS-1	Bus Stop	8	No	40		TRAMOC	HPC
	RD-WR-1*	Widening of Giai Phong Street ³⁾	1,200	m	840		HDOT	HPC
	RD-MA-1	Improvement of Main Access Road	500	m	550		HDOT	HPC
B Short-term (opening~3years)	RD-SW-1	Improvement of Sidewalks	8,000	m	2,160	2,160	HDOT	HPC
D Long-term (5~10 years)	UR-1	Redevelopment of Bach Mai Hospital	-				Hospital/Private	Private

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 station entrance space development. JICA Project Team recommends VNR will develop it as a station related facility development.

2) It is proposed to use entrance space of Bach Mai Hospital as a station entrance space. It is necessary to coordinate with Bach Mai Hospital.

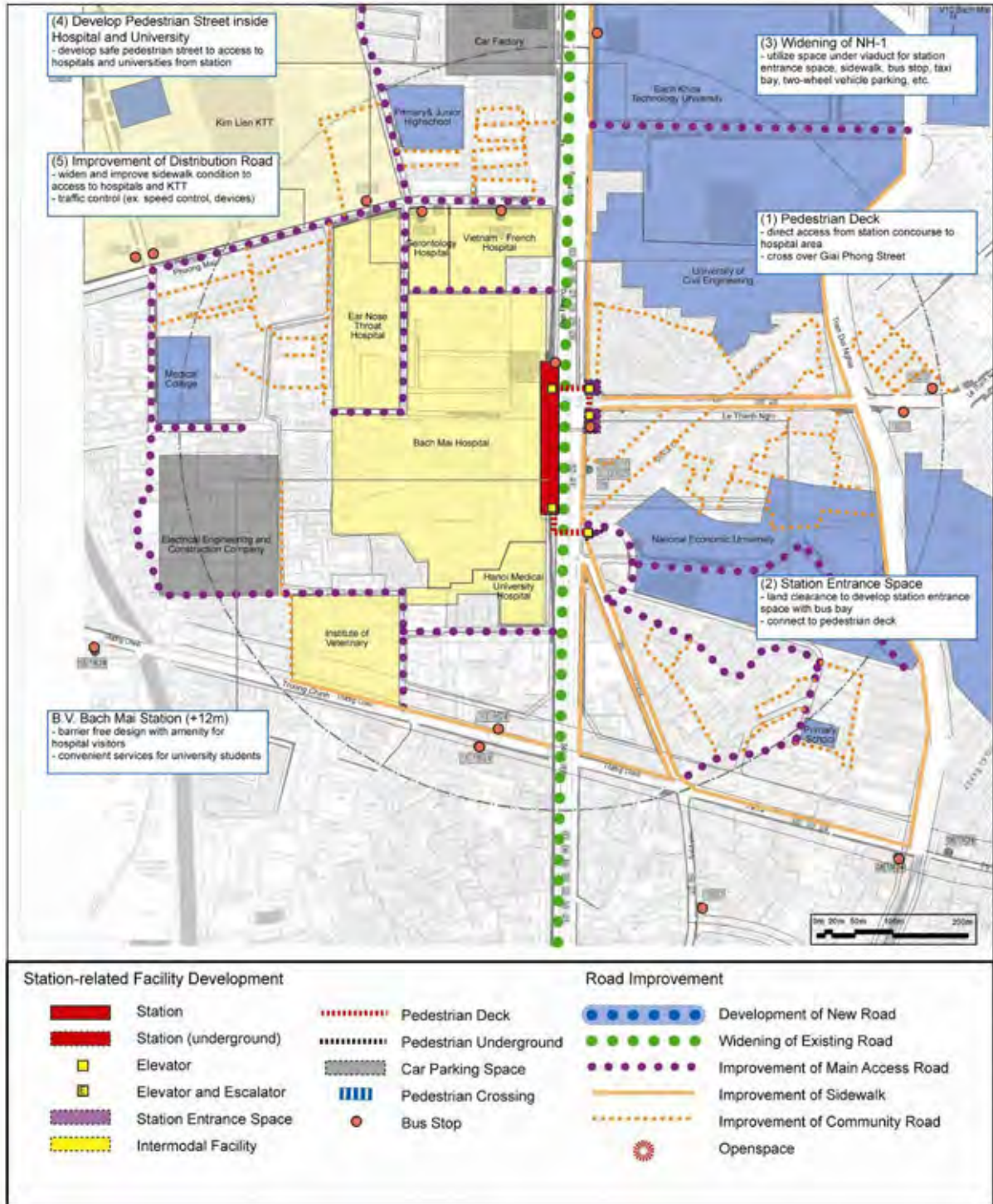
3) It is proposed to widen NH-1 under viaduct within ROW. Space under viaduct will be used for entrance space, parking space, etc. near station.

5.13.4 Issues to be clarified

5171 Development of access road inside urban facility sites (short-term): Since most of station area within 500m are occupied by hospitals and universities, it is proposed to develop access roads inside these sites for safe and short access to station. It is necessary to coordinate with urban facility owners.

5172 Urban redevelopment of urban facilities (long-term): Urban redevelopment projects should be integrated with station area development. To strengthen socio-economic impacts, station function should be improved gradually.

Figure 5.13.4 Short-term Concept Plan of B.V. Bach Mai Station Area (V10)



Source: JICA Project Team

5.14 Phuong Liet (V11) Station Area

5.14.1 Development Character

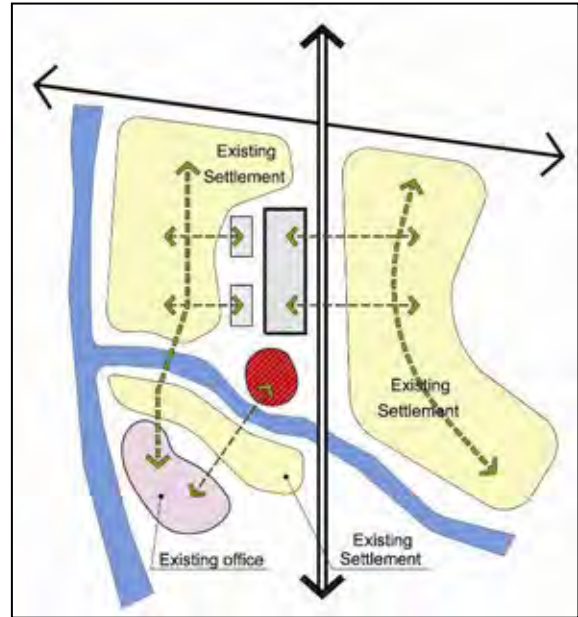
a) Existing Condition and Issues

5173 Phuong Liet Station will be located in front of the Agribank building. On the west side of the railway, the Air Defense and Military Zone is located. On the south of the station area, state-owned companies and factories are clustered. Though commercial activities are not active, many KTTs are gathered and small shops are clustered neighborhood.

b) Development Objectives

5174 Though not much specific urban facilities will be developed in this station area, commercial and public facilities will be developed along NH-1 to support daily social and economic activities for residents around the station area. It is necessary to improve accessibility of residential areas to connect to station, and connect the area of south of river.

Figure 5.14.1 Conceptual Diagram of Phuong Liet Station Area Development (V11)



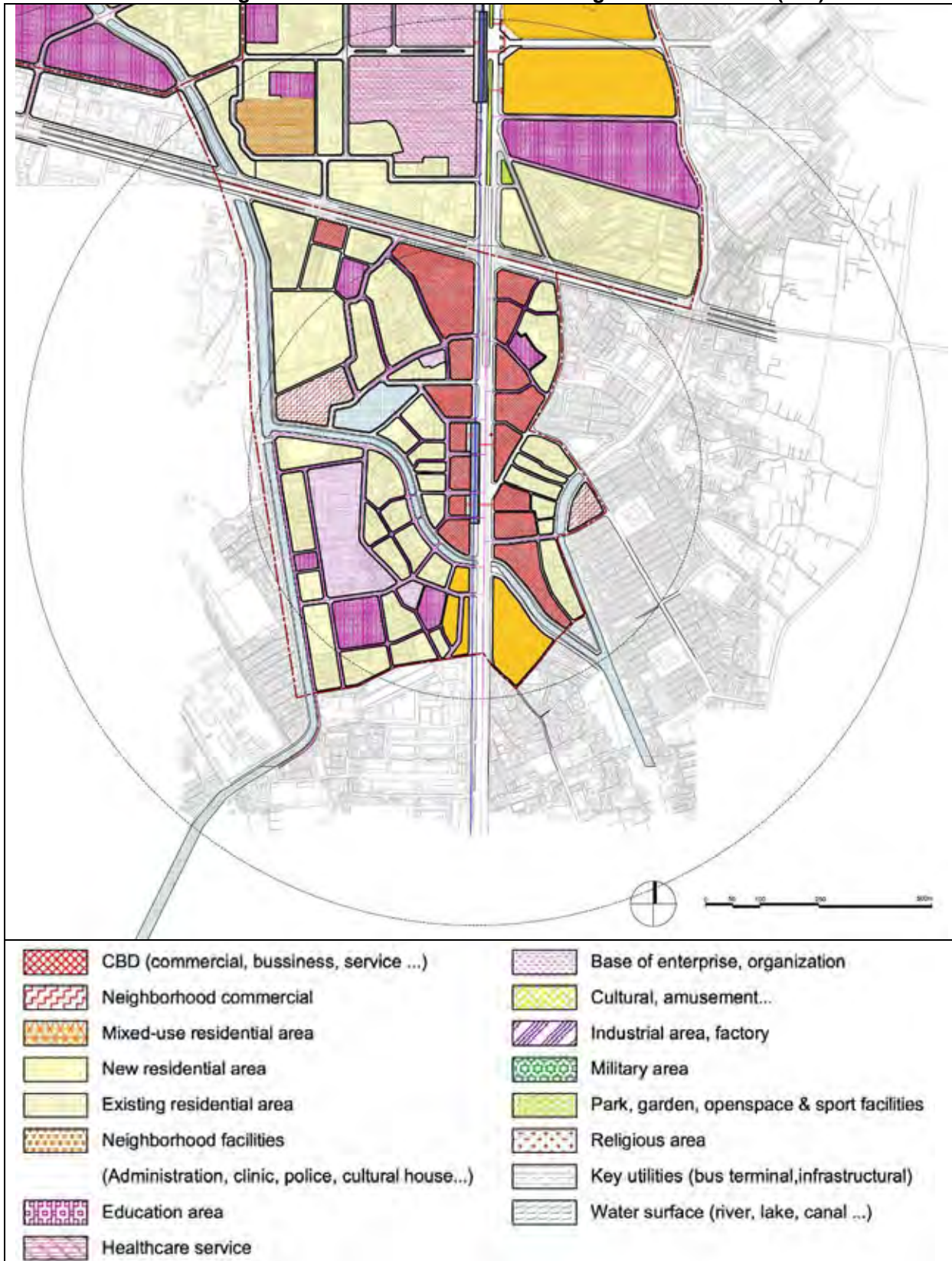
Source: JICA Project Team

Table 5.14.1 Demand Outlook of Phuong Liet Station Area (V11)

		Present	UMRT with integrated Urban Development	
			Without	With
Population of Station Area of radius 500m (persons)	Population	21,999	21,200	21,200
	Employment	9,239	9,600	11,000
	Student	7,633	8,100	8,100
Ridership (persons/day)		-	100	4,200

Source: JICA Project Team

Figure 5.14.2 Landuse Plan of Phuong Liet Station Area (V11)



Source: JICA Project Team

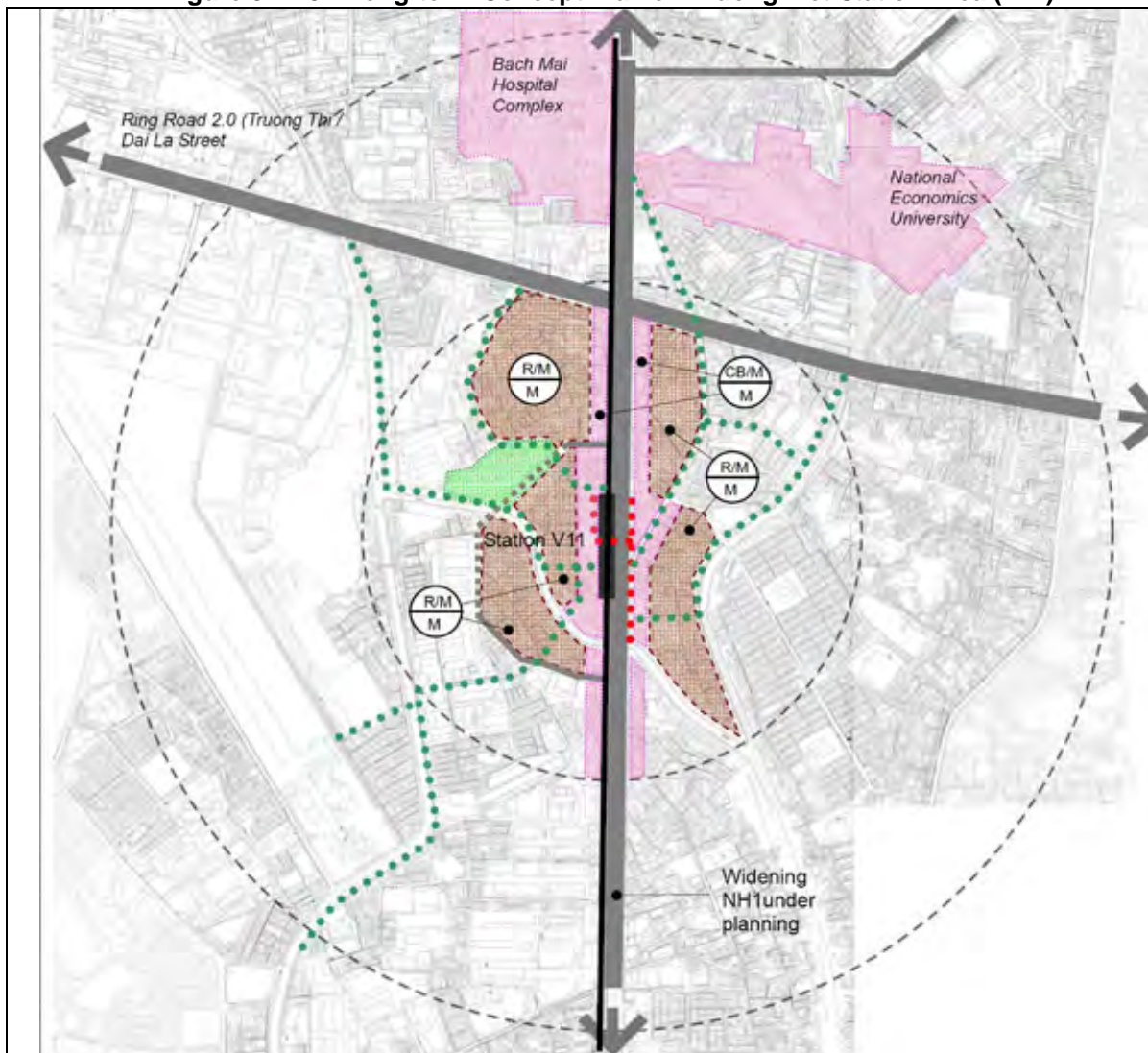
5.14.2 Long-Term Plan

5175 Since the station area is already built-up, and urban facilities are few, it is difficult to conduct a large-scale urban development project. Along NH-1, commercial facilities are clustered for daily service purpose.

5176 Urban redevelopment project in front of station/ along railway (long-term): To attract station users, station building and entrance space will be developed. Urban redevelopment project to develop commercial and business facilities will be effective to enhance socio-economic potential of this area.

5177 At present, there are few bridges to cross river, so it is proposed to develop bridges especially for pedestrian to shorten access to station. Riverside road should be developed for pedestrian's accessibility and amenity.

Figure 5.14.3 Long-term Concept Plan of Phuong Liet Station Area (V11)



Source: JICA Project Team

5.14.3 Short-Term Projects and Actions

5178 There are few trunk roads in this station area, so it is necessary to improve road condition which are connect to urban facilities. There are many schools, so it is necessary to pay attention to improve roads for safety for children. Since the station area is already built-up, and urban facilities are few, it is difficult to conduct a large-scale urban development project. Along NH-1, commercial facilities are a plenty to serve local needs.

Table 5.14.2 Project List of Phuong Liet Station Area (V11)

Project			Scale		Construction Cost (000US\$)	Implementation Body	Financial Resource	
A Minimum development till opening	SF-SE-1*	Station Entrance Space	400	m2	32	4,922	VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-PD-1*	Pedestrian Deck	400	m2	1,040		VNR/HPC ¹⁾	VNR/HPC ¹⁾
	SF-EV-1*	Elevator	2	No	200		VNR	VNR
	SF-BS-1	Bus Stop	6	No	30		TRAMOC	HPC
	SF-PC-1	Pedestrian Crossing	1	No	10		HDOT	HPC
	SF-PC-2	Pedestrian Crossing	1	No	10		HDOT	HPC
	SF-PC-3	Pedestrian Crossing	1	No	10		HDOT	HPC
	RD-WR-1	Widening of Giai Phong Street ²⁾	1,200	m	840		HDOT	HPC
	RD-MA-1	Improvement of Main Access Road	2,500	m	2,750		HDOT	HPC
B Short-term (opening~3years)	RD-SW-1	Improvement of Sidewalk	8,000	m	2,160	2,160	HDOT	HPC

Source: JICA Project Team

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

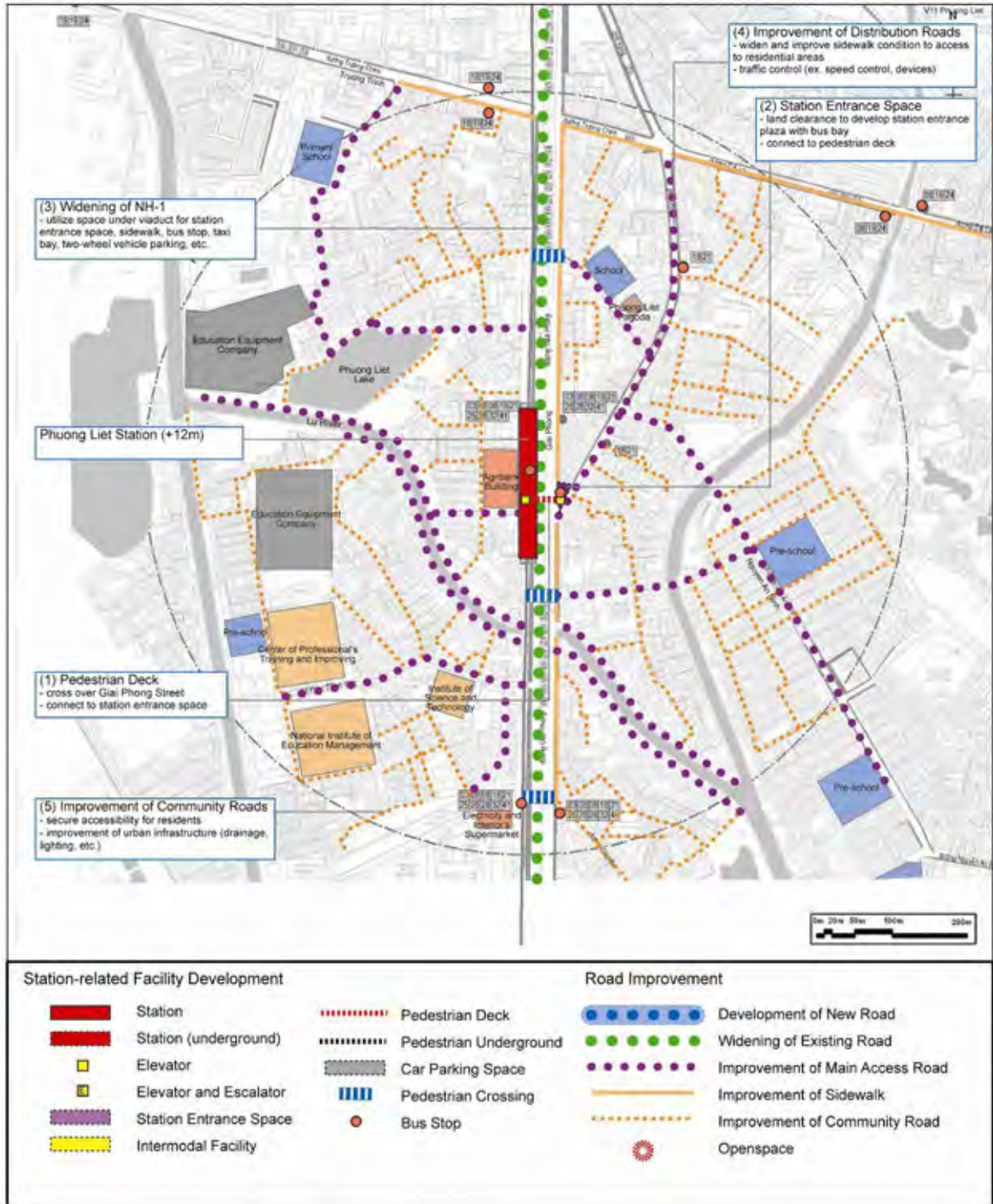
1) It has not been discussed and agreed between VNR and HPC which will be an implementation body and a financial resource for station entrance space development. JICA Project Team recommends VNR will develop it as a station related facility development.

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.

5.14.4 Issues to be clarified

5179 Not specified.

Figure 5.14.4 Short-term Concept Plan of Phuong Liet Station Area (V11)



Source: JICA Project Team