

6. PROPOSED DETAILED PLANS

6.1. Objectives of Detailed Plans

6.1 Detailed planning focuses on further studies of integrated station area development of Line1 and Line2, taking account of developing feasible projects and examining typical examples of integrated development. Specifically, detailed plans:

- (i) Consolidate proposed concept plans and prepare implementation measures and cost estimates;
- (ii) Develop plans in detail in terms of level of study scale (1:1,000) and project implementation (cost estimates, implementation measures and program); and,
- (iii) Examine applicable planning models and implementation methods of integrated station area development.

6.2 In January 2010, the Urban Planning Law was enforced. The spirit of the law is to regulate the urban planning system which plans, implements, and controls urban development activities through feasible approaches. Control of land use and urban development activities will be specified under the Zone Plan (1/2,000 scale), which covers urban planning areas of neighboring administrative boundaries. In addition, new urban planning concepts such as urban design, strategic environmental assessment (SEA), public consultation, etc. are also applied in the system using specific methods and indicators.

6.3 In this project, in line with the trend of changes in the urban planning system of Vietnam, detailed planning was conducted for five (5) station areas for seven (7) stations: (i) Gia Lam Station of Line1, (ii) Nam Cau Long Bien Station of Line1 and Hang Dau Station of Line2, (iii) Hanoi Station of Line1, (iv) C.V. Thong Nhat Station of Line1 and Bach Khoa Station of Line2, and (v) Hoan Kiem Lake Station of Line2. Priority stations were selected based on several criteria, such as (i) potential for urban development, (ii) accessibility to stations, (iii) interchange functions, and (iv) necessity of socio-environmental considerations, etc.

6.4 For detailed planning, the following were carefully considered: (i) to improve accessibility to stations and convenience of transfer to another UMRT line and public transportation, (ii) to promote socio-economic activities to maximize land potential around UMRT stations, (iii) to harmonize with local characteristics and values, and strengthen the respective local identities of UMRT stations, (iv) to propose appropriate implementation approaches and measures through which Hanoi City, the private sector, and the public can be motivated to participate. Financial analyses were also conducted of various project packages for each priority station area development which can be carried out through public-private partnership (PPP) schemes and/or assessed to be financially implementable with private sector participation.

6.2. Proposed Detailed Plan of Gia Lam Station Area

6.2.1 Proposed Vision, Strategies and Projects

6.5 The vision of Gia Lam Station Area is to be “a transportation hub with new commercial & business district”. Accordingly, it can have such facilities as hotel, shopping center, business offices, and entertainment venues appropriate in scale to an urban sub center.

6.6 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-east 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.

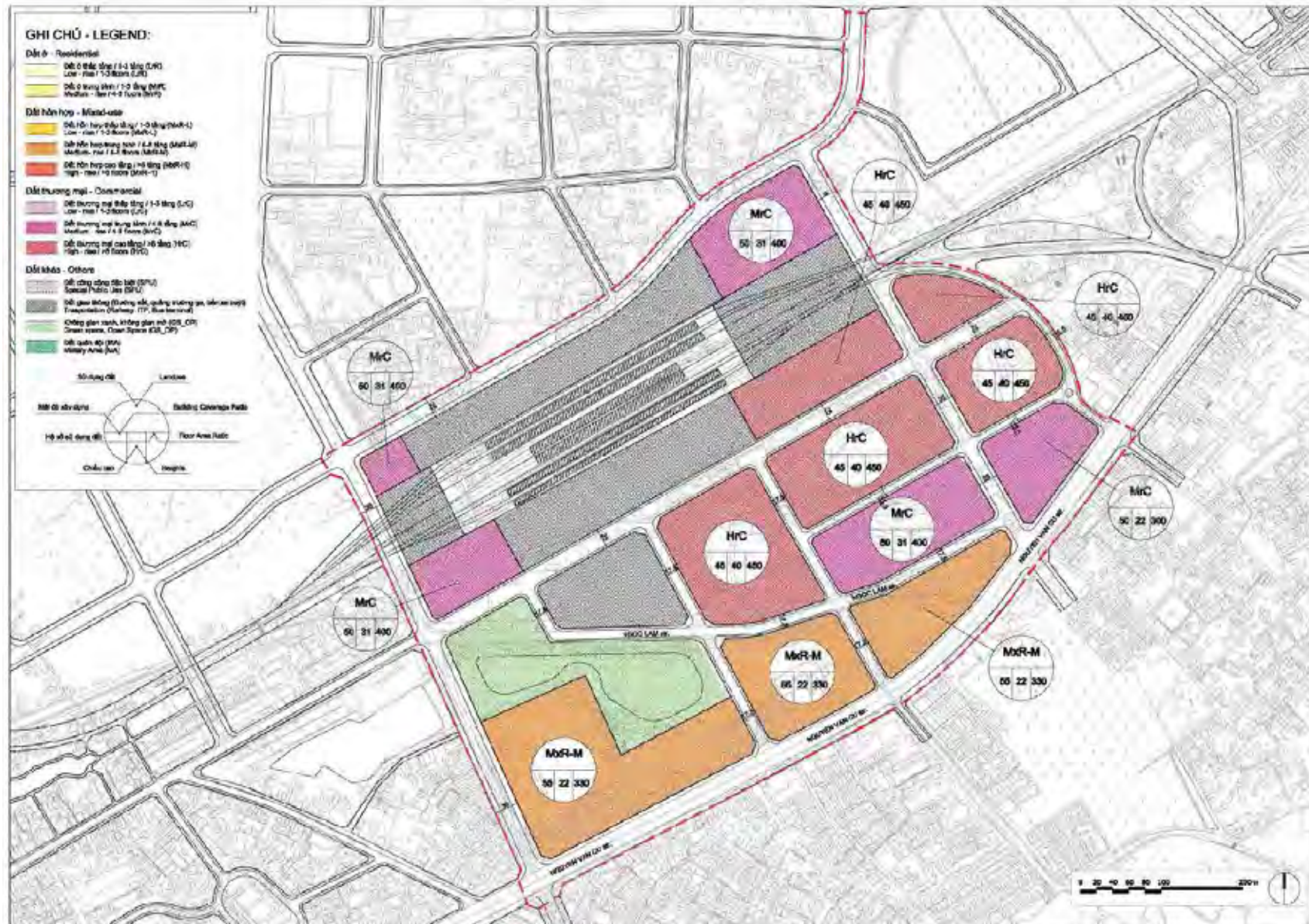
6.7 Based on the vision and strategies, urban development projects are proposed with taking into consideration of current urban structure and landuse (see Table 6.1 and Table 6.2).

Table 6.1 Proposed Projects for Gia Lam Station Area Development

	Transport Development Strategy	Economic Development Strategy	Living Condition Improvement Strategy
Station and related facilities	<ul style="list-style-type: none"> • Construction of new Gia Lam Station • Development of north and south ITF • Construction of pedestrian deck 	<ul style="list-style-type: none"> • Development of commercial and public facilities inside of station 	<ul style="list-style-type: none"> • Develop public service facilities inside of station
Within 100m	<ul style="list-style-type: none"> • Development of north access road • Development of west access road to cross railway 	<ul style="list-style-type: none"> • Redevelopment of VNR owned land for commercial and business district 	
Within 500m	<ul style="list-style-type: none"> • Relocation of Gia Lam Bus Terminal in front of station 	<ul style="list-style-type: none"> • Construction of mixed-use commercial and business buildings 	<ul style="list-style-type: none"> • Construction of mixed-use residential buildings along NH-1 • Development of south lakeside park • Formulation of green network
Surrounding influenced area	<ul style="list-style-type: none"> • Improvement of roads in built-up area • Provision of community bus service around the station 	<ul style="list-style-type: none"> • Rehabilitation of local commercial streets 	<ul style="list-style-type: none"> • Improvement of urban utilities in built-up area

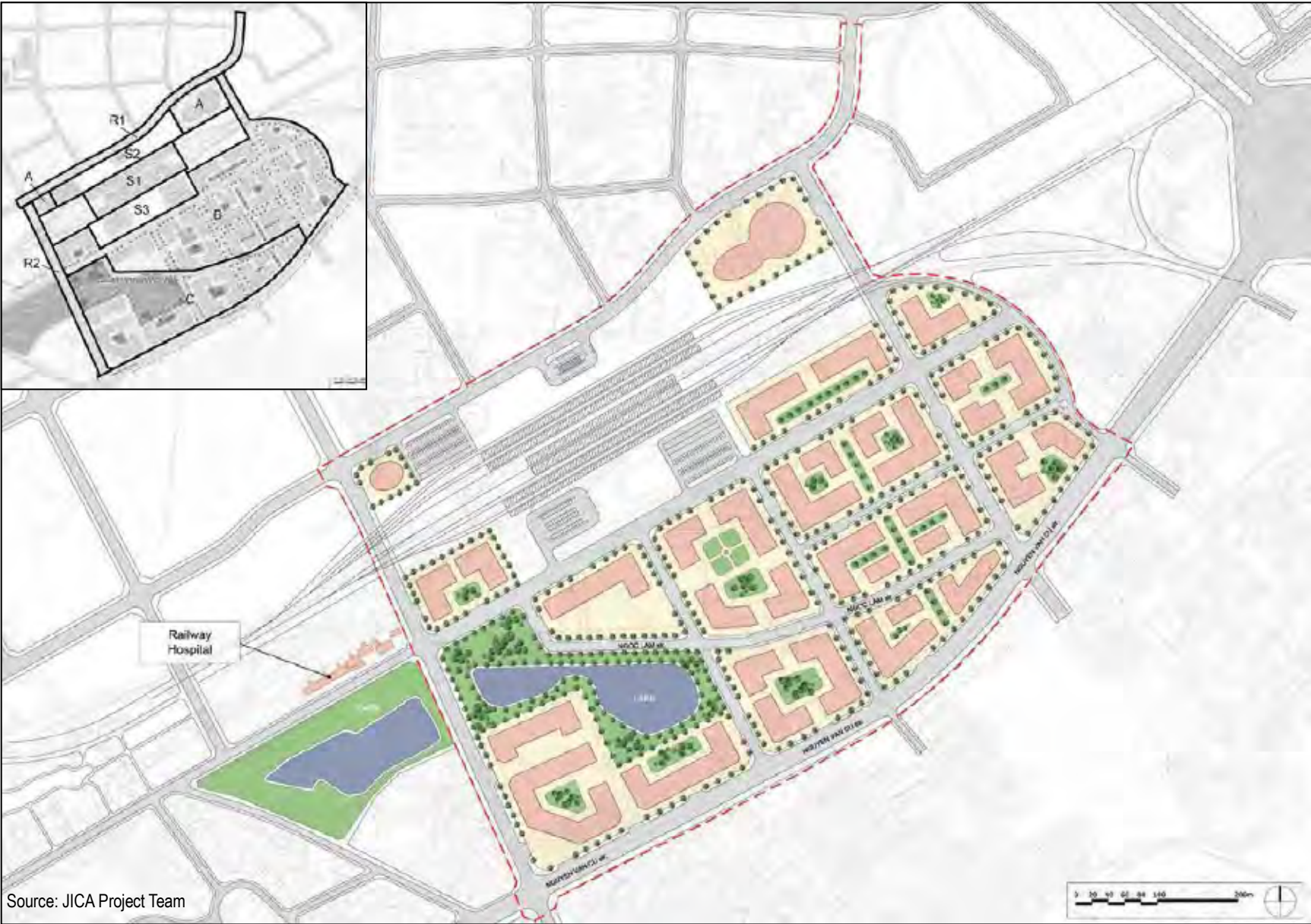
Source: JICA Project Team

Figure 6.1 Proposed Detailed Plan for Gia Lam Station Area



Source: JICA Project Team

Figure 6.2 Proposed Building and Landscape Plan for Gia Lam Station Area



Source: JICA Project Team

Figure6.3 Image of Future UMRT and Integrated Urban Development of Gia Lam Station Area



Source: JICA Project Team

Table 6.2 Implementation Program of Gia Lam Station Area Development

Project type	ID	Name of project	Schedule	Project area (ha)	Land acquisition area (ha)	Implementation Method	Implementation body	Financial resource
Station and related facility development	S1	Gia Lam Station & Railway	Minimum	6.6	-	Utilization of ROW and land acquisition from private lands	VNR	ODA
	S2	North ITF	Minimum	2.3	2.3	Land acquisition from private lands	VNR/HPC ¹⁾	VNR/HPC ¹⁾
	S3	South ITF	Medium	2.3	2.3	Land acquisition from VNR factory area	VNR/HPC ¹⁾	VNR/HPC ¹⁾
Road development	R1	New north access road (w=25m)	Minimum	3.0	3.0	Land acquisition from private lands	HDOT	HPC
	R2	Extension of Ngo Gia Kham Street (w=30m)	Minimum	1.6	1.1	Land acquisition from private lands	HDOT	HPC
	C2	Relocation of Gia Lam Bus Terminal	Long	1.5	1.5	Land recovery from VNR factory area and sell land of existing bus terminal	TRAMOC	HPC/Private
Urban development project	A	Urban redevelopment of next to North ITF	Short	1.9	1.9	Land acquisition from private lands	Private/HPC	Private/Public
	B	Urban redevelopment of VNR factory area	Medium	17.4	15.9	Land recovery from VNR factory area and development with LR and UR methods	Private/HPC	Private/Public
	C	Urban redevelopment of road side of NH-1	Long	11.3	2.8	Land recovery from private lands and development with LR and UR methods	Private/HPC	Private/Public

Source: JICA Project Team

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.

6.2.2 Proposed Implementation Schedule

1) Minimum project

6.8 Regarding station and related facility (S1, S2), the land acquisition for ROW of VNR should be completed until 2012 and construction of station and ITF should be completed until UMRT opening in 2017. South ITF (S3) is planned at VNR factory area. Therefore, development timing of South ITF is in the period of medium term when Project A is implemented.

6.9 Road development of new north access road (R1) and extension of Ngo Gia Kham Street (R2) should be completed until UMRT opening in 2017. In addition, two roads of R1 and R2 are used for access route for construction work of station and north ITF. Therefore the land acquisition should be completed before Station and ITF construction work.

2) Short term project

6.10 Urban development project of VNR owned land (A) is planned as short-term project. For the location nearby new north access road, the land acquisition should be carried out in the same period of land acquisition of road project.

3) Medium term project

6.11 From viewpoint of urbanization of Gia Lam station area, it is desirable that urban redevelopment of VNR factory area (Project B) is implemented as soon as possible. This project doesn't need a long time for land acquisition. Therefore, if relocation and land use change of VNR factory could be decided, it is expected speedy implementation and urbanization. As schedule at late, project implementation from 2016 is proposed.

4) Long term stage project

6.12 Urban redevelopment of roadside NH-1 (Project C) need the time for the preparation and implementation. This project adopts LR and UR scheme. The establishment for the legal system also needs a long time. In addition, this project should be implemented after Project B in VNR factory land from viewpoint of stepwise urbanization. Therefore implementation of project C is planned from 2022.

6.2.3 Project Investment and Operation Cost

6.13 Investment and operation cost of Gia Lam station area development is summarized as Table 6.4. Station building is excluded from this cost estimation. Total investment cost of Gia Lam station area is estimated at 785.0 million USD.

Table 6.4 Investment and Operation Cost of Gia Lam Station Area Development

Project type	Name of project	ID	Investment cost (million USD)			Operation (million USD/year)
			Land acquisition	Construction	Total	
Station and related facility development	Gia lam Station	S1	Exclusion	Exclusion	Exclusion	Exclusion
	North ITF	S2	12.6	1.2	13.8	0.1
	South ITF	S3	31.3	1.3	32.6	0.1
	Sub total		43.9	2.5	46.4	0.2
Road development	New north access road (w=25m)	R1	16.6	2.1	18.7	0.2
	Extension of Ngo Gia Kham Street (w=30m)	R2	14.1	1.1	15.2	0.1
	Relocation of Gia Lam Bus Terminal	C2	11.6	0.8	12.4	0.1
	Sub total		42.3	4.0	34.6	0.4
Urban development project	Urban redevelopment of next to North ITF	A	10.3	34.0	44.3	2.9
	Urban redevelopment of VNR factory area	B	214.3	324.1	538.4	20.3
	Urban redevelopment of road side of NH-1	C	34.9	86.4	121.3	22.0
	Sub total		252.3	444.5	704.0	45.2
Total			338.5	451.0	785.0	45.8

Source: JICA Project Team

6.3. Proposed Detailed Plan of Nam Cau Long Bien and Hang Dau Station Area

6.3.1 Proposed Vision, Strategies and Projects

6.14 The vision of two stations is “the northern gateway to Ancient Quarter to enter a modern and traditional urban center”. 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. 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.

6.15 While it is important to preserve tradition of the Ancient Quarter with improving living and transport conditions, development opportunities will be created along the outer area of Ancient Quarter in conjunction with Line1 elevated railway construction. 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.

6.16 Based on the vision and strategies, urban development projects are proposed with taking into consideration of current urban structure and landuse (see Table 6.5 and Table 6.6).

Table 6.5 Proposed Projects for Nam Cau Long Bien and Hang Dau Station Area Development

	Transport Development Strategy	Economic Development Strategy	Living Condition Improvement Strategy
Station and related facilities	<ul style="list-style-type: none"> • Construction of Nam Cau Long Bien Station • Construction of Hang Dau Station • Construction of pedestrian deck 	<ul style="list-style-type: none"> • Development of commercial and public facilities inside of station 	<ul style="list-style-type: none"> • Develop public service facilities inside of station
Within 100m	<ul style="list-style-type: none"> • Development of new trunk road between Hang Dau Street and Yen Phu Street • Development station access plaza • Pedestrian underground development • Development of Underground parking of Hang Dau Park (planned) 	<ul style="list-style-type: none"> • Underground mall development • Development of commercial facilities around station access plaza 	<ul style="list-style-type: none"> • Redevelopment of Hang Dau Park • Development of Water Tower Park
Within 500m	<ul style="list-style-type: none"> • Widening of Phung Hung Street 	<ul style="list-style-type: none"> • Construction of mixed-use commercial and business buildings • Development of cultural and public buildings 	<ul style="list-style-type: none"> • Construction of mixed-use residential buildings
Surrounding influenced area	<ul style="list-style-type: none"> • Traffic management of Ancient Quarter 	<ul style="list-style-type: none"> • Revitalization of traditional commercial streets of the AQ 	<ul style="list-style-type: none"> • Improvement of housings and urban infrastructure of the AQ

Source: JICA Project Team

Figure6.4 Image of Future UMRT and Integrated Urban Development of Nam Cau Long Bien and Hang Dau Station Area



Source: JICA Project Team

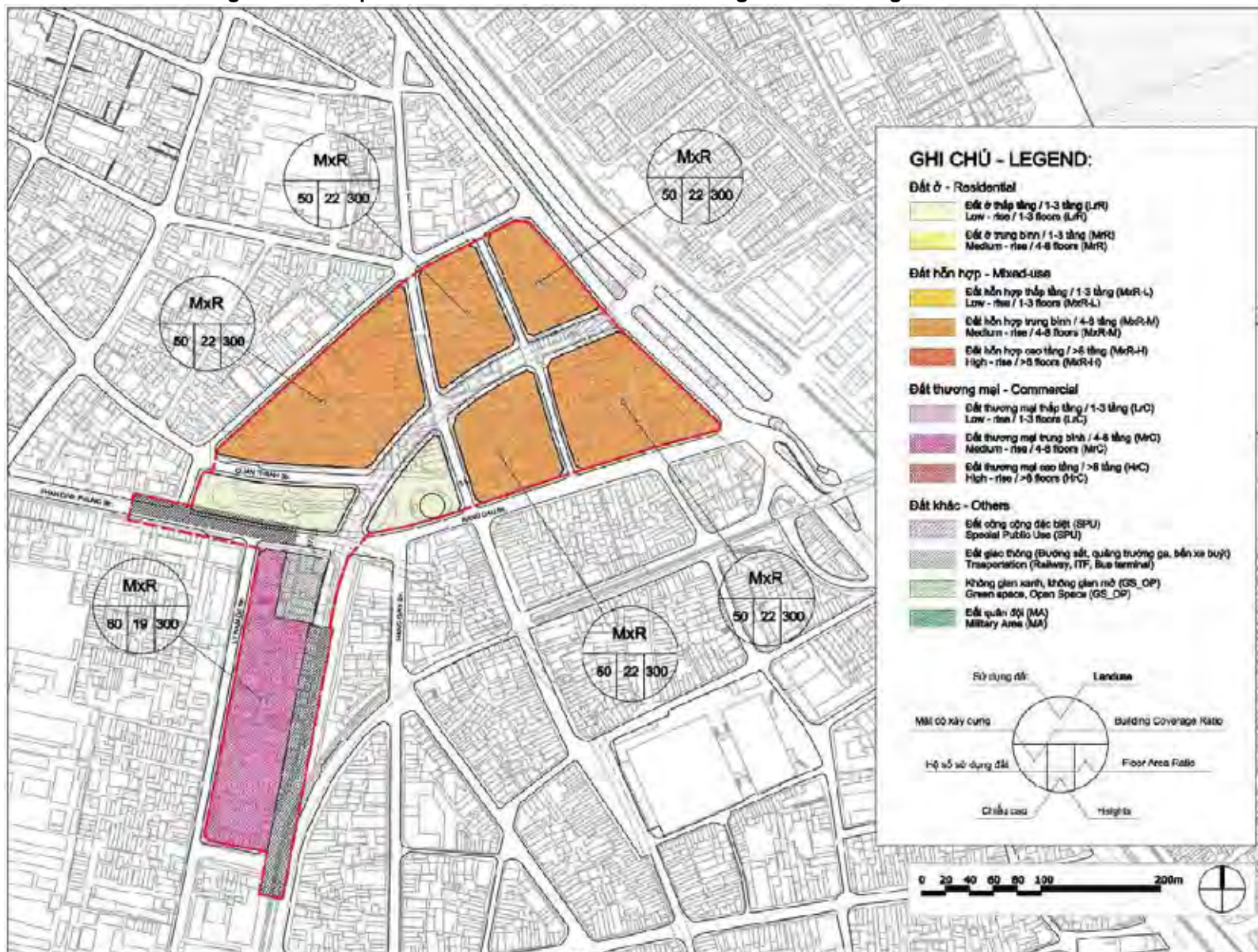
**Table 6.6 Implementation Program of Nam Cau Long Bien
and Hang Dau Station Area Development**

Project type	ID	Name of project	Schedule	Project area (ha)	Land acquisition area (ha)	Implementation method	Implementation body	Financial resource
Station and related facility development	S1	Nam Cau Long Bien Station	Minimum	0.6	Exclusion	Land acquisition from private lands	VNR	ODA
	S2	Hang Dau Station (underground)	Minimum	-	-	Land utilization of public lands of road and park	HRB	ODA
	S3	Pedestrian deck between Nam Cau Long Bien Bus Terminal	Minimum	-	-	Utilization of ROW	VNR	VNR by ODA ¹⁾
	S4	Station access plaza development	Short	0.2	0.2	Land acquisition from private lands	VNR/HRB ²⁾	Public/Private
Road development	R1	New trunk road development under elevated railway	Minimum	0.9	-	Land utilization of ROW	HDOT	HPC
	R2	Widening of Phung Hung Stree	Minimum	0.6	-	Land utilization of ROW	HDOT	HPC
Urban development	A	Urban redevelopment of north Nguyen Thung Truc Commune	Short	4.4	2.3	Land acquisition from private lands and development with LR and UR	HPC/Private	HPC/Private
	B	Urban redevelopment of west Nam Cau Long Bien	Medium	1.1	1.1	Land acquisition from private lands and development with UR	Private	Private
Green and open space development	G1	Hang Dau park and Water Tower Park development	Short	0.9	0.1	Land acquisition from private lands and roads, and development with LR and UR	HPC	HPC

Source: JICA Project Team

- 1) In the Detailed Design of UMRT Line1, pedestrian deck is proposed to develop it under ODA project.
- 2) It has not been discussed and agreed between VNR and HPC which will be an implementation body and a financial resource for transfer facility development. JICA Project Team recommends HRB will develop station access plaza as a station related facility development.

Figure 6.5 Proposed Detailed Plan for Nam Cau Long Bien and Hang Dau Station Area



Source: JICA Project Team

Figure 6.6 Proposed Building and Landscape Plan for Nam Cau Long Bien and Hang Dau Station Area



Source: JICA Project Team

6.3.2 Proposed Implementation Schedule

1) Minimum project

6.17 Regarding station and related facilities (S1, S2), the land acquisition for ROW should be completed until 2012 and construction of station and ITF should be completed until UMRT opening in 2017.

6.18 Road development of R1 is implemented as combined project with elevated railway. Widening of Phung Hung (R2) should be started land acquisition by at least 2013 to meet UMRT operation in 2017.

2) Short term project

6.19 For the implementation station access plaza development (S4), it is necessary to coordinate among VNR and HRB. Project should be started by at least 2015.

6.20 Urban redevelopment of Nguyen Thung Truc commune (A) is related with land acquisition for railway as proposed. To meet UMRT schedule, land acquisition and land readjustment should be completed by at least 2012.

6.21 Regarding Hang Dau Park and Water Tower Park development is scheduled after land acquisition of urban redevelopment of Nguyen Thung Truc commune (A).

3) Medium term project

6.22 From viewpoint of efficient land use, it is desirable that urban redevelopment of west Nam Cau Long Bien Station (B) is implemented as soon as possible. This project is proposed to adopt UR scheme. The establishment for the legal system also needs a time. Therefore, implementation of project B is planned from 2015.

Table 6.7 Implementation Schedule of Nam Cau Long Bien and Hang Dau Station Area Development

Project Type	Name of Project	Project ID	Implementation Schedule																		
			Minimum						Short			Medium			Long						
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026		
Station and related facility development	Nam Cau Long Bien Station	S1																			
	Hang Dau Station	S2																			
	Pedestrian deck between Nam Cau Long Bien Station and Long Bien Bus Terminal	S3																			
	Station access plaza development	S4																			
Road development	New trunk road development under elevated railway (w=28m, l=270m)	R1																			
	Widening of Phung Hung Street (w=28m, l=680m)	R2																			
Urban development project	Urban redevelopment of Nguyen Thung Truc Commune	A																			
	Urban redevelopment of west Nam Cau Long Bien Station	B																			
Green and open space development	Hang Dau Park and Water Tower Park development	G1																			

○ Project Approval, □ Land Acquisition, ▨ Construction, ■ Building

6.3.3 Project Investment and Operation Cost

6.23 Investment and operation cost of Nam Cau Long Bien and Hang Dau Lam station area development is summarized as Table 6.8. Station building and facility combined with railway structure are excluded from this cost estimation. Total investment cost of Nam Cau Long Bien and Hang Dau Station is estimated at 132.2 million USD.

Table 6.8 Investment and Operation Cost of Nam Cau Long Bien and Hang Dau Station Area Development

Project type	Name of project	ID	Investment cost (million USD)			Operation cost (million USD/year)
			Land acquisition	Construction	Total	
Station and related facility development	Nam Cau Long Bien Station	S1	exclusion	exclusion	exclusion	exclusion
	Hang Dau Station	S2	exclusion	exclusion	exclusion	exclusion
	Pedestrian deck between Nam Cau Long Bien Bus Terminal	S3	exclusion	exclusion	exclusion	exclusion
	Station access plaza development	S4	7.2	0.1	7.3	0.1
Road development	New trunk road development under elevated railway (w=28m)	R1	0	0.6	0.6	0.1
	Widening of Phung Hung Street (w=28m)	R2	0	0.5	0.5	0.1
Urban development project	Urban redevelopment of north Nguyen Thung Truc Commune	A	35.8	50.5	86.3	5.0
	Urban redevelopment of west Nam Cau Long Bien	B	16.8	19.2	36.0	1.9
	Hang Dau park and Water Tower Park development	G1	1.3	0.2	1.5	0.1
Total			61.1	71.1	132.2	7.4

Source: JICA Project Team

6.4. Proposed Detailed Plan of Hanoi Station Area

6.4.1 Proposed Vision, Strategies and Projects

6.24 The vision of Hanoi Station Area is proposed “an urban interchange center of Hanoi City and northern Vietnam with commercial and economic competitiveness with vital people’s livelihoods and harmonized cultural and natural properties.” In future, Hanoi Station area will be a main gateway as well as an urban center of a capital city, in terms of transport, commercial and business, culture and amenity. The station will be a strategic node of road and railway network. Three (3) types of railway, including UMRT, National Railway, and international railway will pass to the station, so it will be the biggest interchange stations in Hanoi.

6.25 Around the Hanoi Station, there are cultural places and facilities, such as Van Mieu (Literature Temple) and several temples of west, Vietnam-Russia Friendship Palace and several museums and traditional French-style buildings in French Quarter of east. Hanoi Station will be a gateway for tourists and visitors of Hanoi. In front of the station, there is Linh Quang Lake, which is under dredging and not open to public at present. Within 1km-radius distance, there are many lakes and openspace such as Van Chuong Lake, Van Lake in front of Van Mieu, and Thien Quang Lake.

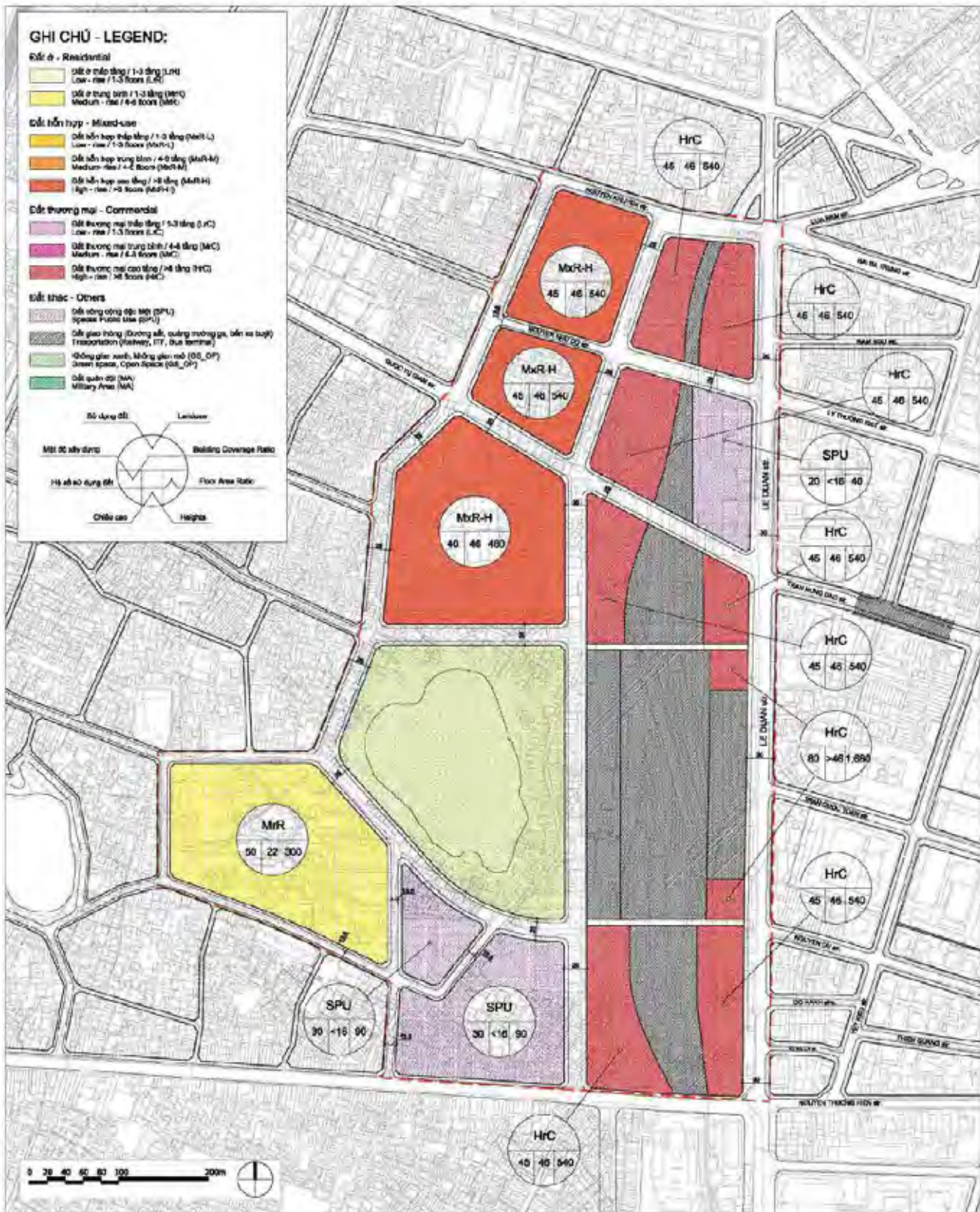
6.26 Based on the vision and strategies, urban development projects are proposed with taking into consideration of current urban structure and landuse (see Table 6.9 and Table 6.10).

Table 6.9 Proposed Projects for Hanoi Station Area Development

	Transport Development Strategy	Economic Development Strategy	Living Condition Improvement Strategy
Station and related facilities	<ul style="list-style-type: none"> • Construction of new Hanoi Station • Development of east and west ITF • Construction of pedestrian deck 	<ul style="list-style-type: none"> • Development of commercial and public facilities inside of station 	<ul style="list-style-type: none"> • Preservation of existing Hanoi Station • Develop public service facilities inside of station
Within 100m	<ul style="list-style-type: none"> • Development of West access road 	<ul style="list-style-type: none"> • Twin tower development • Underground mall development • Redevelopment of VNR owned land for commercial and business district 	
Within 500m	<ul style="list-style-type: none"> • Pedestrian underground development to connect to UMRT Line3 • Extension of Tran Hung Dao Street 	<ul style="list-style-type: none"> • Construction of mixed-use commercial and business buildings • Development of cultural and public buildings 	<ul style="list-style-type: none"> • Construction of mixed-use residential buildings • Redevelopment of Van Chuong KTT • Development of Linh Quang Lake Park • Formulation of green network
Surrounding influenced area	<ul style="list-style-type: none"> • Improvement of roads in built-up area • Provision of community bus service around the station 	<ul style="list-style-type: none"> • Rehabilitation of local commercial streets 	<ul style="list-style-type: none"> • Improvement of urban utilities in built-up area

Source: JICA Project Team

Figure 6.7 Proposed Detailed Plan for Hanoi Station Area



Source: JICA Project Team

Figure 6.8 Proposed Building and Landscape Plan for Hanoi Station Area



Source: JICA Project Team

Figure6.9 Image of Future UMRT and Integrated Urban Development of Hanoi Station Area



Source: JICA Project team

Table 6.10 Implementation Program of Hanoi Station Area Development

Project type	ID	Name of project	Schedule	Project area (ha)	Land acquisition area (ha)	Implementation method	Implementation body	Financial resource
Station and related facility development	S1	Hanoi Station & Railway	Minimum	5.4	Exclusion	Utilization of ROW and land acquisition from SOE land	VNR	ODA
	S2	West ITF	Minimum	1.3	0.9	Utilization of ROW and land acquisition from SOE land and private land	VNR	VNR/HPC ¹⁾
	S3	East ITF	Minimum	1.1	0.0	Utilization of ROW of VNR (no land acquisition)	VNR	VNR/HPC ¹⁾
	S4	Underground parking and mall	Short	1.1	-	Utilization of underground of VNR land, SOE land and private land	HPC/Private	Public/Private
	S5	Pedestrian underground and square	Short	0.3	-	None	HRB	Public/Private
Road development	R1	New west access road (w=24m)	Minimum	2.2	2.2	Land acquisition recovery from private land	HDOT	HPC
	R2	Widening of NH-1 (w=30m)	Minimum	2.8	1.1	Land acquisition from ROW of VNR, SOE land and private land	MOT	MOT
Urban development project	A	Urban development of VNR owned land	Short	5.3	3.7	Utilization of ROW and land recovery from SOE land and private land, and development with UR	VNR/Private	VNR/Private
	B	Development of district heating plant and distribution network	Short	-	--	Utilization of underground of station (no land acquisition)	Power company	Power company/private
	C	Urban redevelopment of Van Chuong KTT	Medium	4.9	3.0	Land recovery from private land, and development with UR	HPC/HUD/Private	Private
	D	Urban redevelopment of northern built-up area	Long	7.6	6.4	Utilization of ROW and land recovery from SOE land and private land, and development with LR and UR	VNR/Private	Private
	E	Urban redevelopment of surrounding area of water factory	Long	4.5	3.0	Land recovery from water factory area and private land, and development with LR and UR	Private	Private
	F	Urban redevelopment of cultural and public complex	Long	3.5	2.8	Land recovery from private land, and development	HPC/Private	Public/Private
Green and open space development	G1	Development of Linh Quang Lake Park	Medium	7.6	3.8	Land acquisition from private land	HPC	Public

Source: JICA Project Team

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.

6.4.2 Proposed Implementation Schedule

1) Minimum project

6.27 Regarding station and related facility (S1, S2 and S3), the land acquisition for ROW of VNR should be completed until 2012 and construction of station and ITF should be completed until UMRT opening in 2017.

6.28 Road development of new west access road (R1) and widening of NH-1 (R2) should be completed until UMRT opening in 2017. Road of R1 is also used for access route for construction work of west ITF. Therefore the land acquisition should be completed before ITF construction work. Construction of expansion section of R2 road is included in urban development project A and B.

2) Short term project

6.29 Urban development project of VNR owned land (A) is planned as short-term project. Although, the land acquisition area from private is not so large area, the land acquisition should be carried out in same time with road development of R1 and R2 for negotiation with private land right holder.

6.30 District heating system plant is installed basement of project A buildings. The construction work should be done to meet station development. And the schedule of distribution network development should be planned to meet construction schedule of other development area.

3) Medium and Long term project

6.31 Urban redevelopment of Van Chung KTT (C) is implemented using step-by-step development and temporary resettlement. Therefore the period of construction among residents and construction need to take a long time. Starting of UMRT construction in 2013 is one of the timing for negotiation with residents. And KTT redevelopment is one of the resettlement measures. This project should be completed before long term project E and F.

6.32 Project E and F need a long time for negotiation with residents and land acquisition. Although District heating plant is planned as minimum development project, district heating network for supply is planned as medium terms. Specific schedule of these projects should be coordinated with other urban development project such as project A and B.

4.2.1 Project Investment and Operation Cost

201 Investment and operation cost of Hanoi station area development is summarized as Table 6.11. Station building is excluded from this cost estimation. Total investment cost of Hanoi Station area is estimated at 1,180 million USD.

Table 6.12 Investment and Operation Cost of Hanoi Station Area Development

Project type	Name of project	ID	Investment cost (million USD)			Operation cost (million USD/year)
			Land acquisition	Construction	Total	
Station and related facility development	Hanoi Station & Railway	S1	exclusion	exclusion	exclusion	exclusion
	West ITF	S2	20.7	0.7	21.4	0.1
	East ITF	S3	34.7	0.6	35.3	0.1
	Underground parking and mall	S4	0	23.0	23.0	2.3
	Pedestrian underground and square	S5	0	12.8	12.8	1.3
	Sub total		55.4	37.1	92.5	3.8
Road development	New west access road (w=24m)	R1	36.7	1.6	38.3	0.2
	Widening of NH-1 (w=30m)	R2	33.3	1.9	35.2	0.2
	Sub total		70.0	3.5	73.5	0.4
Urban development project	Urban development of VNR owned land	A	90.7	157.7	248.4	11.6
	Development of district heating plant and distribution network	B	0	103.5	103.5	10.3
	Urban redevelopment of Van Chuong KTT	C	48.4	46.1	94.5	0
	Urban redevelopment of northern built-up area	D	104.5	180.7	285.2	8.1
	Urban redevelopment of surrounding area of water factory	E	48.6	111.5	160.1	3.7
	Urban redevelopment of cultural and public complex	F	45.4	11.2	56.6	1.1
	Sub total		337.6	610.7	948.3	34.8
Green and open space development	Development of Linh Quang Lake Park	G1	62.4	3.6	66.0	0.1
	Sub total		62.4	3.6	66.0	0.1
Total			525.4	654.9	1,180.3	39.1

Source: JICA Project Team

6.5. Proposed Detailed Plan of C.V. Thong Nhat and Bach Khoa Station Area

6.5.1 Proposed Vision, Strategies and Projects

6.33 This station area aims to be “a high-class educational and medical service area in harmony with natural environment”. 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. On weekday, students and employees will use stations to go to universities and companies, and enjoy lunch time in Thong Nhat Park, and enjoy shopping and dinner at commercial facilities near station on way home from work.

6.34 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.

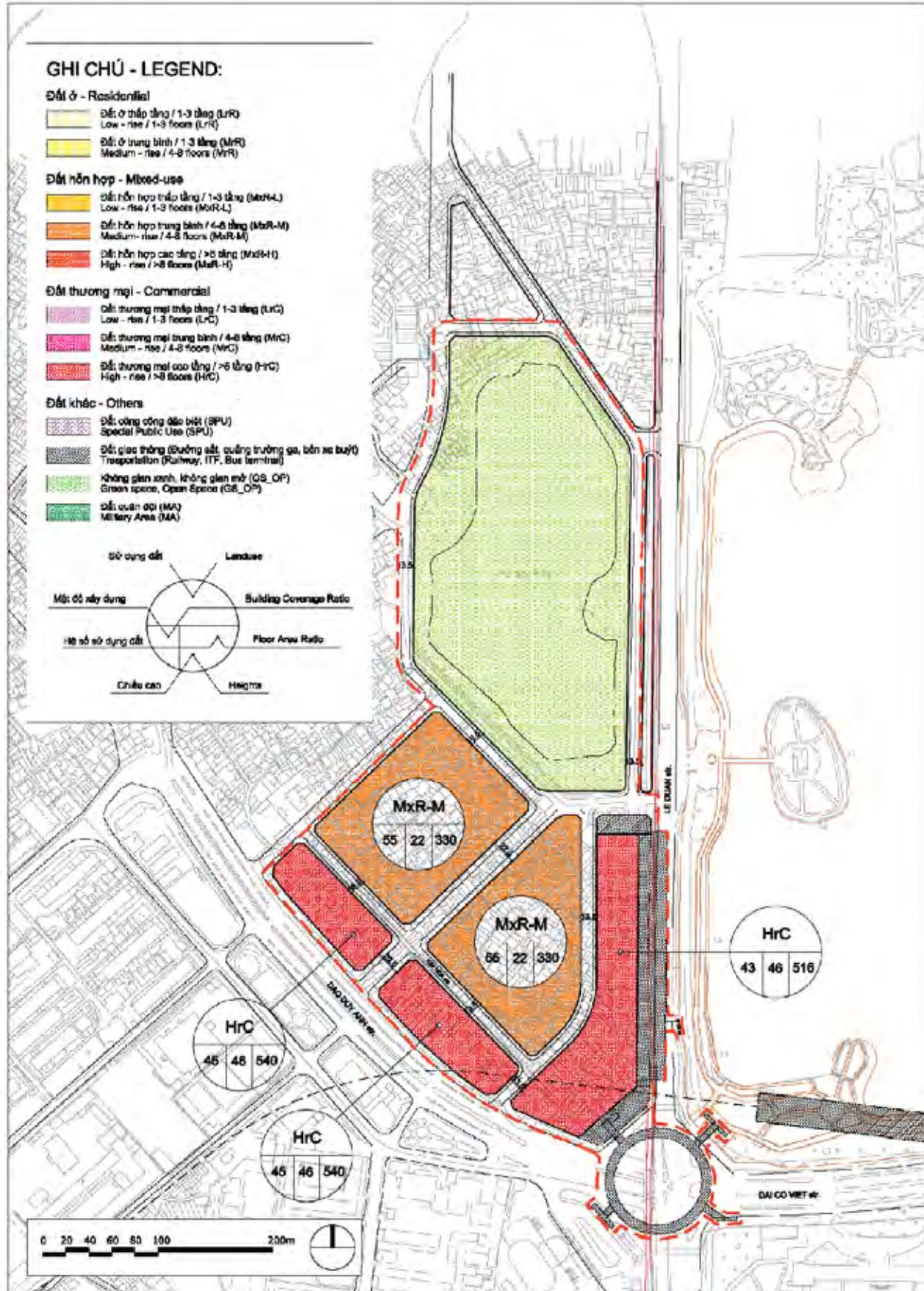
6.35 Based on the vision and strategies, urban development projects are proposed with taking into consideration of current urban structure and landuse (see Table 6.13 and Table 6.14).

Table 6.13 Proposed Projects for C.V. Thong Nhat and Bach Khoa Station Area Development

	Transport Development Strategy	Economic Development Strategy	Living Condition Improvement Strategy
Station and related facilities	<ul style="list-style-type: none"> • Construction of C.V. Thong Nhat Station (elevated) • Construction of Bach Khoa Station (underground) • Construction of skywalk under viaduct • Development of station entrance spaces • Development of parking spaces and bus stops under railway 	<ul style="list-style-type: none"> • Development of commercial and public facilities inside stations 	<ul style="list-style-type: none"> • Develop public facilities inside stations
Within 100m	<ul style="list-style-type: none"> • Pedestrian underground development to transfer two lines • Construction of pedestrian deck to cross intersection 	<ul style="list-style-type: none"> • Development of underground shopping mall along pedestrian underground 	
Within 500m	<ul style="list-style-type: none"> • Development of road around Ba Mau Lake 	<ul style="list-style-type: none"> • Construction of mixed-use commercial and business buildings 	<ul style="list-style-type: none"> • Construction of mixed-use residential buildings • Improvement of surrounding area of Ba Mau Lake
Surrounding influenced area	<ul style="list-style-type: none"> • Operation of bus services 	<ul style="list-style-type: none"> • Redevelopment of universities • Redevelopment of hospitals 	<ul style="list-style-type: none"> • Preservation of Kim Lien Temple and cultural properties

Source: JICA Project Team

Figure 6.10 Proposed Detailed Plan for C.V. Thong Nhat and Bach Khoa Station Area



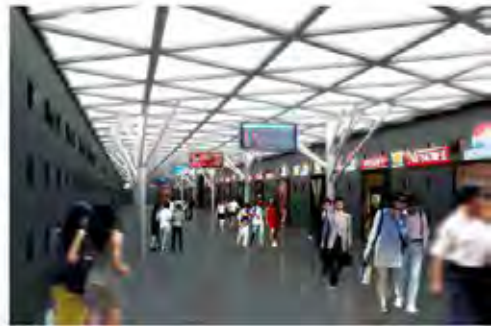
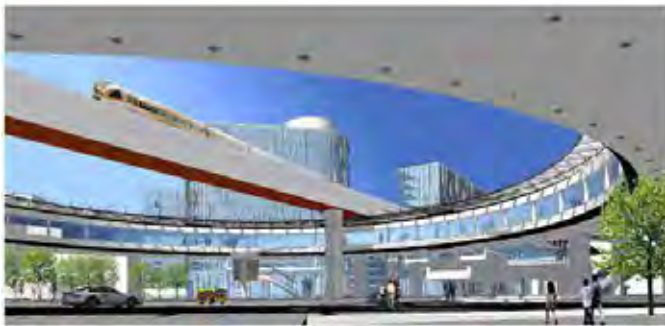
Source: JICA Project Team

Figure 6.11 Proposed Building and Landscape Plan for
C.V. Thong Nhat and Bach Khoa Station Area



Source: JICA Project Team

Figure6.12 Image of Future UMRT and Integrated Urban Development of C.V. Thong Nhat and Bach Khoa Station Area



Source: JICA Project Team

Table 6.14 Implementation program of C.V. Thong Nhat and Bach Khoa Station Area Development

Project type	Name of project	ID	Schedule	Project area (ha)	Land acquisition area (ha)	Implementation method	Implementation body	Financial resource
Station and related facility development	C.V. Thong Nhat Station	S1	Minimum	0.7	Exclusion	Utilization of existing road and land acquisition from private land	VNR	ODA
	Bach Khoa Station	S2	Minimum (in 2020)	-	-	Utilization of land of Thong Nhat Park (no land acquisition)	HRB	ODA
	Station entrance space of C.V. Thong Nhat Station	S3	Minimum	0.2	0.2	Land acquisition from private land	HPC	HPC
	Pedestrian underground	S4	Minimum (in 2020)	(0.1)	0.0	None	HRB	ODA/HPC /Private ¹⁾
	Skywalk and pedestrian deck	S5	Minimum	-	-	None	VNR	VNR
Road development	Widening of NH-1 (w=30m)	R1	Minimum	0.3	0.1	Land recovery from park (no land acquisition)	HDOT	HPC
	Development of road around Ba Mau Lake	R2	Short	-	-	Land acquisition from private land	HDOT	HPC
	Circle-shaped pedestrian deck	R3	Short	1.8	0.0	None	HDOT	HPC
Urban development	Urban redevelopment of west of C.V. Thong Nhat Station	A	Medium	1.1	1.1	Land acquisition from private land	HPC/Private	Private
	Urban redevelopment of built-up area of Phuong Lien Commune	B	Long	6.2	3.1	Land recovery from private land and development with LR and UR	HPC/Private	Private
Green and open space development	Improvement of Ba Mau Lake	G1	Short	7.8	0.0	Utilization of existing park and land acquisition from private land	HPC	HPC

Source: JICA Project Team

1) It has not been discussed and agreed which will be an implementation body and a financial resource for pedestrian underground development. JICA Project Team recommends HRB will develop a pedestrian underground to connect stations between Line1 and Line2 for accessibility of passengers. It is also possible private developers will develop it together with commercial facilities.

6.5.2 Proposed Implementation Schedule

1) Minimum project

6.36 Regarding station and related facility of C.V. Thong Nhat station (S1, S3 and S5), the land acquisition for ROW should be completed until 2012 and the construction should be completed until UMRT opening in 2017.

6.37 Regarding station and related facility of Bach Khoa station (S2 and S4), pedestrian underground should be completed until UMRT phase2 opening in 2020.

6.38 Regarding road development, land acquisition for widening of NH-1 (R1) should be completed until 2015 for to meet UMRT opening in 2017.

2) Short term project

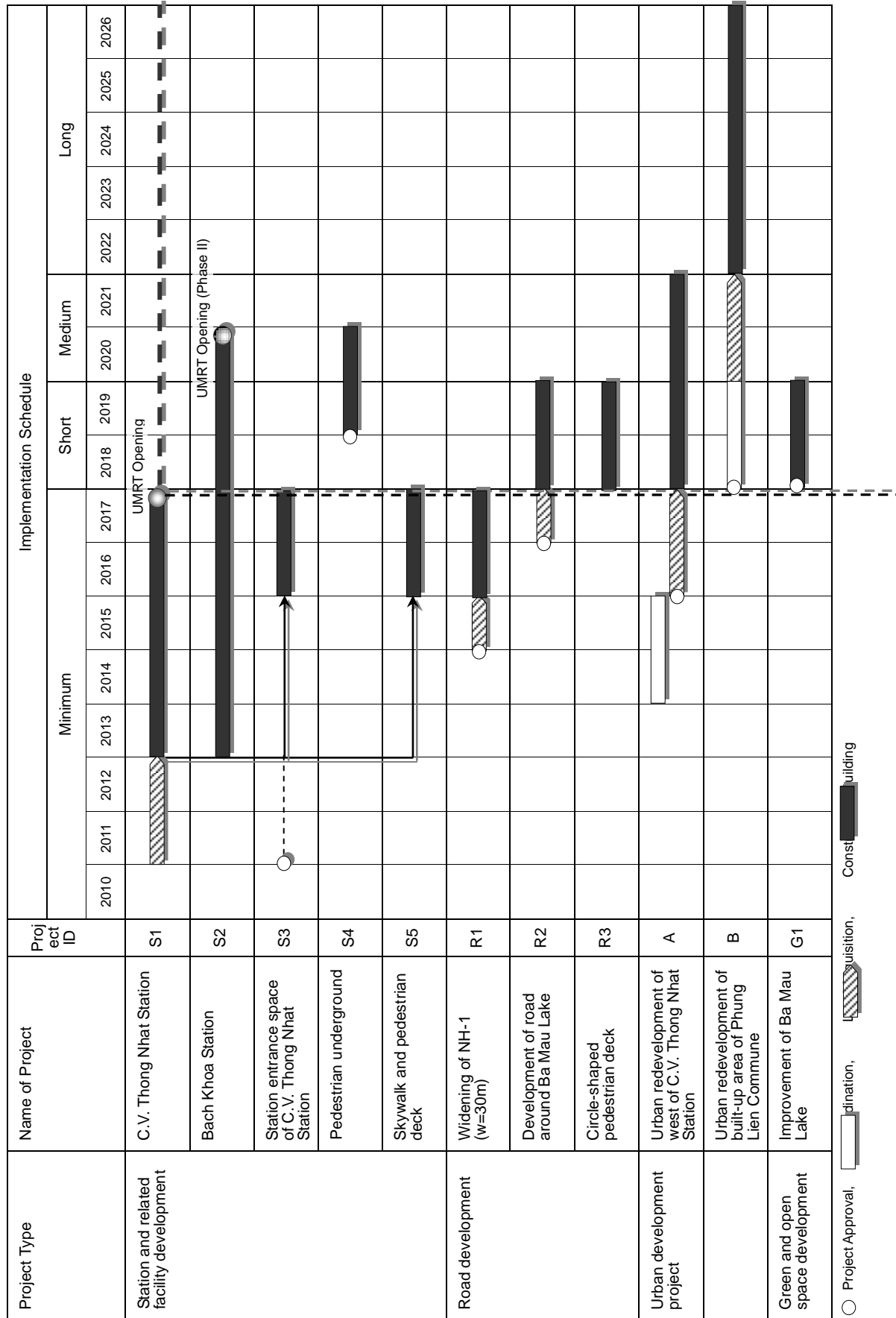
6.39 Road around Ba Mau Lake (R2) and Circle-shaped pedestrian deck (R3) should be finished the preparation by UMRT opening at late. Improvement of Ba Mau Lake (G1) should be at the same time of project R2.

3) Medium and Long term project

6.40 Urban redevelopment of west of C.V. Thong Nhat Station (A) is planned as medium term project. UMRT opening is good promotion for private investment. The preparation including land acquisition and legal procedure should be completed by UMRT opening in 2017 at the latest.

6.41 Urban redevelopment of built-up area of Phung Liet commune (B) need a long time for preparation of legal frame and coordination among residents. From viewpoint of stepwise development from project A, project B should be start the construction stage.

Table 6.15 Implementation Schedule of C.V. Thong Nhat and Bach Khoa Station Area Development



6.5.3 Project Investment and Operation Cost

6.42 Investment and operation cost of C.V. Thong Nhat and Bach Khoa station area development is summarized as Table 6.16. Station building and facility combined with railway structure are excluded from this cost estimation. Total investment cost of C.V. Thong Nhat and Bach Khoa Station is estimated at 222.1 million USD.

Table 6.16 Investment and Operation Cost of C.V. Thong Nhat and Bach Khoa Station Area Development

Project type	Name of project	ID	Investment cost (million USD)			Operation cost (million USD/year)
			Land acquisition	Construction	Total	
Station and related facility development	C.V. Thong Nhat Station	S1	Exclusion	Exclusion	Exclusion	Exclusion
	Bach Khoa Station	S2	Exclusion	Exclusion	Exclusion	Exclusion
	Station entrance space of C.V. Thong Nhat Station	S3	4.6	0.1	4.7	0.1
	Pedestrian underground	S4	0.0	3.6	3.6	0.4
	Skywalk and pedestrian deck	S5	Exclusion	Exclusion	Exclusion	Exclusion
Road development	Widening of NH-1 (w=30m)	R1	1.5	1.3	2.8	0.1
	Development of road around Ba Mau Lake	R2	5.8	1.0	6.8	0.1
	Circle-shaped pedestrian deck	R3	0	4.3	4.3	0.4
Urban development project	Urban redevelopment of west of C.V. Thong Nhat Station	A	23.3	38.5	61.8	3.9
	Urban redevelopment of built-up area of Phuong Lien Commune	B	43.9	93.0	136.9	9.3
Green and open space development	Improvement of Ba Mau Lake	G1	0.0	1.2	1.2	0.1
Total			79.1	143.0	222.1	14.4

Source: JICA Project Team

6.6. Proposed Detailed Plan of Hoan Kiem Lake Station Area

6.6.1 Proposed Vision, Strategies and Projects

6.43 The vision of Hoan Kiem Lake Station Area is “a southern gateway of Ancient Quarter and Business District with natural and traditional values”. Thanks to cultural properties like the Ancient Quarter, Hoan Kiem Lake, Ngoc Son Temple and Ba Kieu Temple, etc. this station will attract not only Hanoi citizens, but also domestic and international tourists. New business district will be formulated on the east of the lake with various government and private offices of the city center.

6.44 In future, this station area will be a pedestrian oriented district of Ancient Quarter and Hoan Kiem Lake area. Many people will be able to enjoy in this area for various purpose of commercial and business, sightseeing, refresh and religious. Hoan Kiem Lake Station will be a core for cultural exchange of citizens of Hanoi.

6.45 Based on the vision and strategies, urban development projects are proposed with taking into consideration of current urban structure and landuse (see Table 6.17 and Table 6.18).

Table 6.17 Proposed Projects for Hoan Kiem Lake Station Area Development

	Transport Development Strategy	Economic Development Strategy	Living Condition Improvement Strategy
Station and related facilities	<ul style="list-style-type: none"> • Construction of Hoan Kiem Lake Station • Construction of pedestrian underground 	<ul style="list-style-type: none"> • Development of commercial and public facilities inside of station 	<ul style="list-style-type: none"> • Develop public service facilities inside of station
Within 100m	<ul style="list-style-type: none"> • Construction of pedestrian underground to connect new urban facilities • Relocation of Bo Ho Bus Terminal • Develop underground parking space 	<ul style="list-style-type: none"> • Promotion of events inside openspace around Hoan Kiem Lake • Underground mall development 	<ul style="list-style-type: none"> •
Within 500m	<ul style="list-style-type: none"> • Provision of pedestrian crossings and signals to cross trunk roads around Hoan Kiem Lake 	<ul style="list-style-type: none"> • Construction of cultural and commercial buildings • Formulation of business district in Ly Thai To Commune 	<ul style="list-style-type: none"> • Development of public openspace inside new urban block
Surrounding influenced area	<ul style="list-style-type: none"> • Traffic management of Ancient Quarter and Hoan Kiem Lake area 	<ul style="list-style-type: none"> • Revitalization of traditional commercial streets of the AQ • Promotion of tourism activities around Hoan Kiem Lake 	<ul style="list-style-type: none"> • Formulation of pedestrian oriented district of AQ and Hoan Kiem Lake area • Urban design control around Hoan Kiem Lake • Improvement of housings and urban infrastructure of the AQ

Source: JICA Project Team

Figure 6.13 Proposed Detailed Plan for Hoan Kiem Lake Station Area

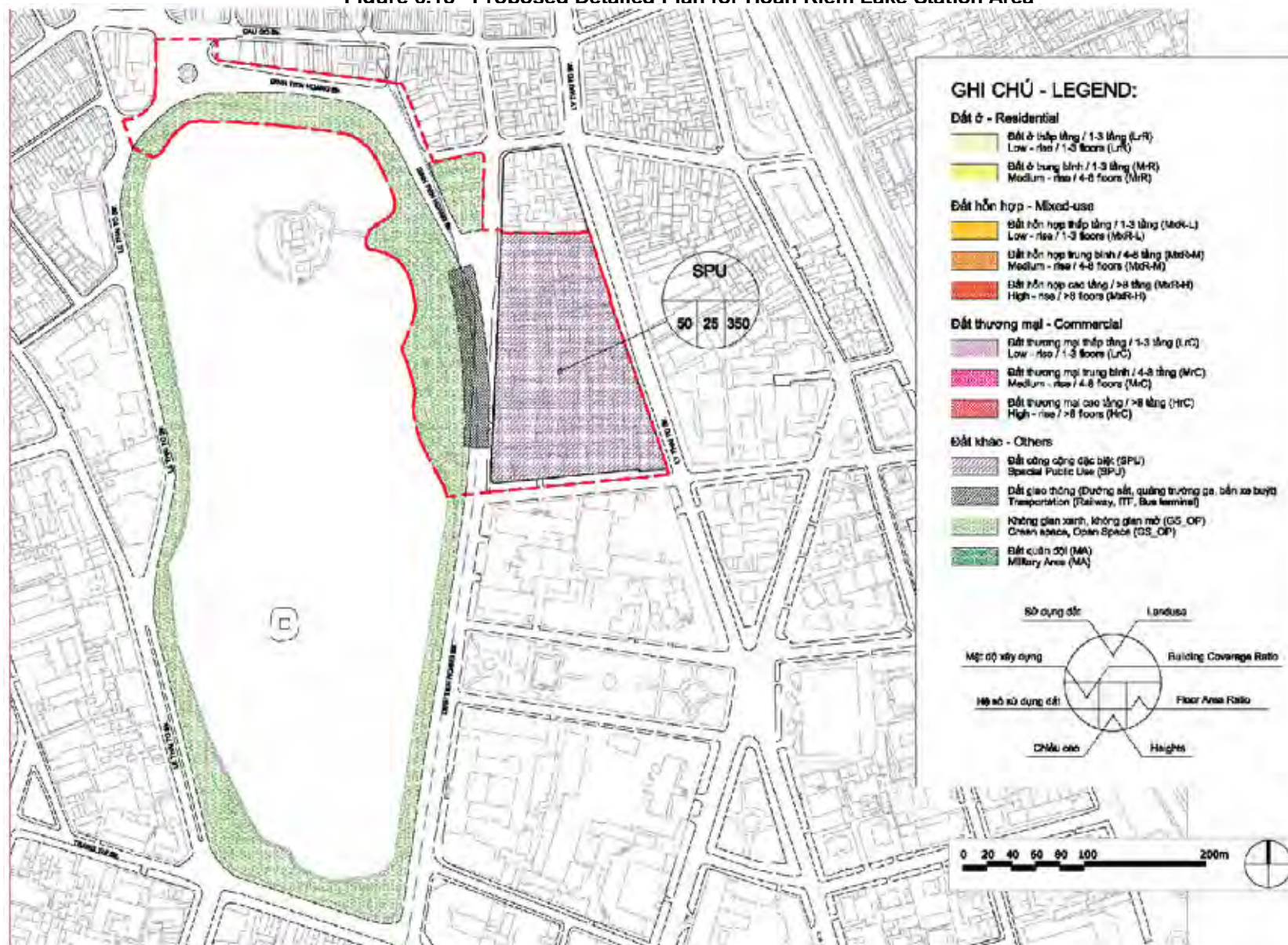
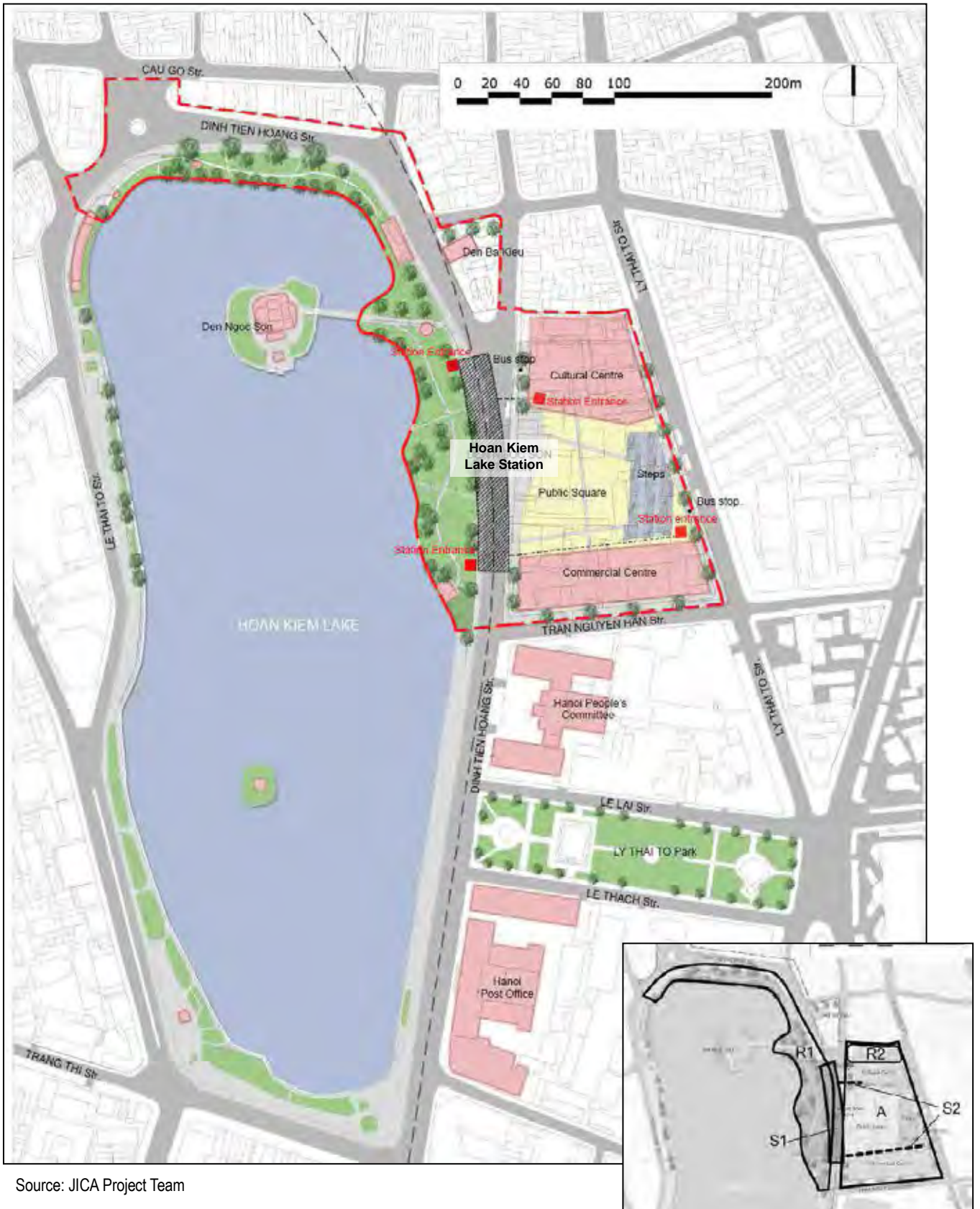


Figure 6.14 Proposed Building and Landscape Plan for Hoan Kiem Lake Station Area



Source: JICA Project Team

Figure 6.15 Image of Future UMRT and Integrated Urban Development of Hoan Kiem Lake Station Area



Source: JICA Project Team

Table 6.18 Implementation Program of Hoan Kiem Lake Station Area Development

Project type	Name of project	ID	Schedule	Project area (ha)	Land acquisition area (ha)	Implementation method	Implementation body	Financial resource
Station and related facility development	Hoan Kiem Lake Station	S1	Minimum	-	0.0	Utilization of underground of road and park (no land acquisition)	HRB	ODA
	Pedestrian underground	S2	Minimum	0.1	0.0	Utilization of underground of road and park (no land acquisition)	HRB	ODA/Private ¹⁾
Road development	Improvement of Dinh Tien Hoang Street	R1	Short	3.4	0.0	None	HDOT	HPC
	Relocation of Bo Ho Bus Terminal	R2	Medium	0.2	0.0	(part of Project A)	TRAMOC	HPC/Private
Urban development project	Urban redevelopment of Cultural and Commercial Complex	A	Short	2.2	2.2	Land recovery from power company and development with UR	HPC/Private	Public/Private

Source: JICA Project Team

1) Pedestrian underground to access to public space will be developed as a station related facility by using ODA.
 Pedestrian underground to access to commercial facilities will be developed by private sector.

6.6.2 Proposed Implementation Schedule

1) Minimum project

6.46 Regarding pedestrian underground of Hoan Kiem Lake Station (S2), it is necessary to coordinate with cultural and commercial complex project (A) about connection and entrance planning in preparation stage of project S2 and A

2) Short term project

6.47 Redevelopment of Dinh Tien Hoang Street (R1) is planned as short-term project. It is expected that cultural and commercial complex development (A) will affect increasing of no. of pedestrian in Hoan Kiem Lake area. R1 project should be completed at the same time of project A.

3) Medium and Long term project

6.48 Relocation of Bo Ho bus terminal (R2) is implemented after project A where is planned as new bus terminal location.

6.6.3 Project Investment and Operation Cost

6.49 Investment and operation cost of Hoan Kiem Lake station area development is summarized as Table 6.20. Station building and facility combined with railway structure are excluded from this cost estimation. Total investment cost of Deb Ngoc Son area is estimated at 127.4 million USD.

Table 6.20 Investment and Operation Cost of Hoan Kiem Lake Station Area Development

Project type	ID	Name of project	Investment cost (million USD)			Operation cost (million USD/year)
			Land acquisition	Construction	Total	
Station and related facility development	S1	Hoan Kiem Lake Station	Exclusion	Exclusion	Exclusion	Exclusion
	S2	Pedestrian underground	0	5.8	5.8	0.6
Road development	R1	Redevelopment of Dinh Tien Hoang Street	0	0.9	0.9	0.1
	R2	Relocation of Bo Ho Bus Terminal	0	0.1	0.1	0.1
Urban development project	A	Urban redevelopment of Cultural and Commercial Complex	89.3	31.2	120.6	3.1
Total			89.3	38.0	127.4	3.9

Source: JICA Project Team

7. PROPOSED PROJECT IMPLEMENTATION MECHANISMS AND MEASURES

7.1. Existing Legal system, Plans and Organizations for Urban Development

7.1.1 General

7.1 To propose implementation mechanism which will be applied to integrated UMRT and urban development, issues of present urban planning and development system are reviewed, mainly in the following aspects:

- i) Legal system of urban planning and development
- ii) Related plans and organizations of urban planning and development
- iii) Approved Plan and organization
- iv) Land acquisition and resettlement
- v) Underground development
- vi) Strategic Environmental Assessment (SEA)
- vii) Information disclosure and public consultation

7.1.2 Legal system of urban planning and development

1) Urban Planning System under Construction Law and Urban Planning Law

7.2 Main planning system for spatial development of Vietnam are (i) "Socio-Economic Development Plan" (SEDP) and (ii) "Urban and Regional Development Plan" including Construction Master Plan. SEDP is managed by Ministry of Planning and Investment (MPI), while Urban and Regional Development Plan is managed by Ministry of Construction (MOC). In line with these main spatial plans, sector plans such as "Landuse Plan" of Ministry of Natural Resource and Environment (MONRE), "Transport Development Master Plan" of Ministry of Transport (MOT), "Industrial Development Plan" by Ministry of Industry are formulated.

7.3 Legal framework of urban planning was stipulated by Chapter 2 of "Construction Law". Under Construction Law, urban plans were categorized into two layers of "General Plan" and "Detailed Plan". From 1st January 2010, "Urban Planning Law" has been enforced, and overall urban planning framework is stipulated by Chapter 2 of "Urban Planning Law". Under this law, urban plans are categorized into three layers of "General Plan", "Zone Plan" and "Detailed Plan" (see Table 7.1).

Table 7.1 Statutory Urban Plans under Construction Law and Urban Planning Law

Plan, scale and outline under Construction Law		Plan, scale and outline under Urban Planning Law	
(a) General Urban Construction Plan (1/2,000-1/25,000)	General framework of urban space, urban infrastructure and facility	(A) General Plan (1/5000, 1/10,000, 1/25,000, 1/50,000)	Framework to allocate spatial elements, urban infrastructure, urban facility and housings
(b) Detailed Urban Construction Plan (scale of 1/2,000)	Detailed plan of General Plan which is a legal basis for investment, construction and land transaction	(B) Zone Plan (1/2,000, 1/5,000)	To implement General Plan, formulate zoning and specify indicators related to land, infrastructure, functions of urban facility and landuse
(c) Detailed Urban Construction Plan (scale of 1/500)		(C) Detailed Plan (1/500)	To implement General Plan and Zone Plan, i) specify condition and indicators related to landuse, construction management and urban design and ii) to allocate infrastructure
(d) Technical Infrastructure Plan	One of the part of (a), (b) and (c)	(D) Technical Infrastructure Plan	One of the part of (a), (b) and (c)

Source: JICA Project Team

2) Detailed Plan and Zone Plan

7.4 Before enforcement of Urban Planning Law, the Detailed Plan of 1/2,000 was formulated by district, and it indicated too much detail related landuse and buildings which was a long way from feasibility. The Zone Plan which was newly stipulated under Urban Planning Law is aimed to formulate long-term development orientation of 20 or 25 years period. And the coverage is not only district unit, but also specific zones covering several districts. It can be said that the Zone Plan is aimed to indicate landuse and development framework to control urban development activities properly.

7.5 In the Detailed Plan of 1/2,000 as well as the Zone Plan, following planning indicators are stipulated (Article 29 of Urban Planning Law):

- i) Purpose of utilization of specific land lots
- ii) Spatial, architecture & landscape structure principles of the planned area
- iii) Population
- iv) Landuse
- v) Technical infrastructure indicators of each block
- vi) Social infrastructure layout in line with the development demands
- vii) Location and alignment of technical infrastructure and streets in compliance with development phases
- viii) Strategic Environment Assessment (SEA)

3) Urban Design

7.6 As for Urban Design of Zone Plan, it is necessary to identify control indicators such as setback, urban landscape, openspace, landmarks and street blocks, etc. (Article 32&33, Urban Planning Law).

7.7 In addition, it is necessary to propose measures to realize urban plan and design, and City or local PC as a responsible body for plan approval need to issue regulation on management in compliance with urban plan and design (Article 34& 35 of Urban Planning

Law). The contents of regulation covers following items:

- i) Boundary, scope and characteristics of the planned area
- ii) Location, boundary, characteristics and scope of specific zones in the planned area
- iii) Building to land ratio, floor area ratio, and height, elevation of specific street blocks
- iv) ROW, demarcation, elevation & detail specification of specific roads
- v) Protective area and corridor of technical infrastructure
- vi) Main spatial axes and urban landmarks
- vii) Location, scale, and protective corridor of underground construction
- viii) Reservation areas, historical and cultural relics, beautiful landscapes in the urban area and environment protection

7.1.3 Approved Plan and Organization

7.8 In accordance with Construction Law and Urban Planning Law, Urban Development Plan of City and District have been approved. Urban Planning Master Plan of Hanoi City till 2020 was approved by the Prime Minister in 1998. As of 2008, population of Hanoi City was more than 3.5 million. In August 2008, administration boundary of Hanoi City was expanded including former Ha Tay Province and some communes of Hoa Binh Province, and population was more than 6 million. At present, “Hanoi Capital Construction Master Plan” covering expanded city and adjoining urban areas has been formulated under management of MOC. The draft Master Plan will be submitted to the National Assembly in June 2010. In this Master Plan, transport network including UMRT lines and urban development plan of station vicinity area will be included.

7.9 The Detailed Plan and the Zone Plan of 1/2,000 and 1/500 is proposed by local district governments, and approved and managed by Hanoi Architecture and Urban Planning Authority (HAUPA). HAUPA also establish ordinances of construction standards approved by MOC, and implement review and approval of construction and urban development activities.

7.10 The approved Detailed Plan is a legal basis to control urban planning including road planning. It is reviewed and revised by 5 to 10 years. Most of Detailed Plans were approved in 2000, after approval of Hanoi City Master Plan in 1998. So these plans don't reflect UMRT network, station locations and urban development around stations. For realization of integrated UMRT and urban development, it is necessary to coordinate with these approved plans and adjust plans especially road network and alignment, landuse around the station. Key of district plan modification and related project are listed into Table 7.2.

Table 7.2 Modification of District Plan (General Plan)

	Station	District	District Plan			Related Project	
			Approved plan	Key of Modification		Road	Urban development
				Road	Land Use		
UMRT Line 1	1. Yen Vien	Gia Lam	●	●	●	-	-
	2. Cau Duong	Long Bien	●	●	●	●	●
	3. Duc Giang	Long Bien	●	●	●	-	●
	4. Gia Lam	Long Bien	●	●	●	-	●
	5. Bac Cau Long Bien	Long Bien	●	●	●	-	-
	6. Nam Cau Long Bien	Hoan Kiem/ Ba Dinh	●	●	●	-	-
	7. Phung Hung	Hoan Kiem/ Ba Dinh	●	●	●	-	-
	8. Hanoi	Don da/ Hoan Kiem	●	●	●	-	-
	9. C.V. Thon Nhat	Don da/ Hai Ba Trung	●	●	●	-	-
	10. B.V. Bach Mai	Don da/ Hai Ba Trung	●	●	●	-	-
	11. Phuong Liet	Thanh Xuan	●	-	-	-	-
	12. Giap Bat	Hoang Mai	●	●	●	-	-
	13. Hoang Liet	Hoang Mai	●	-	-	-	-
	14. Van Dien	Thanh Tri	●	●	●	-	-
	15. Vinh Quynh	Thanh Tri	●	●	●	-	-
	16. Ngoc Hoi	Thanh Tri	●	●	●	-	-
UMRT Line 2	1. Nam T. Long	Tu Liem/ Tay Ho	●	●	●	●	●
	2. Ngoai Giao Doam	Tu Liem	●	-	-	-	●
	3. Tay Ho Tay	Tay Ho	●	●	●	-	●
	4. Bui	Cau Giay	●	-	-	-	-
	5. Quang Ngu	Ba Dinh/ Tay Ho	●	-	●	-	-
	6. Bach Thao	Ba Dinh/ Tay Ho	●	-	●	-	-
	7. Ho Tay	Ba Dinh/ Tay Ho	●	-	●	-	●
	8. Hang Dau	Ba Dinh/ Hoan Kiem	●	●	●	-	-
	9. Hoan Kiem Lake	Hoan Kiem	●	●	●	-	-
	10. Tran Hung Dao	Hoan Kiem	●	●	●	-	●
	11. Cau Den	Hai Ba Trung	●	●	●	-	-
	12. Bach Khoa	Hai Ba Trung	●	-	-	-	-
	13. Kim Lien	Dong Da	●	-	-	-	●
	14. Chua Boc	Dong Da	●	-	●	-	●
	15. Nga Tu So	Dong Da/ Thanh Xuan	●	-	●	-	●
	16. Thuong Dinh	Thanh Xuan	●	-	●	-	●

●: Exist/ necessary, -:none/ unnecessary
 Source: JICA Project Team

7.1.4 Building Code

7.11 The Vietnam Building Code in 1997 was replaced to the Building Code on Regional and Urban Planning, Rural Residential Planning (Decision 04/2008/QD-BXD of April 3, 2008). The Building Code stipulates maximum building density by construction height and land area (see Table 7.3 and Table 7.4). Different from urban planning system in Japan which controls Building Coverage Ratio (BCR) and Floor Area Ratio (FAR) by zoning, BCR is controlled by height and land area, which does not depend on zoning or land use. Number of floor can be converted from building height, FAR is automatically defined by BCR and number of floor. It means that in case if building height is high, construction area is narrow, but in case if building height is low, construction area is large.

Table 7.3 Maximum Building Density of Apartment Buildings

Construction height (m)	Maximum building density (%) by land area (m ²)			
	≤ 3,000 ²	10,000 ²	18,000 ²	≥ 35,000 ²
≤ 16	75	65	63	60
19	75	60	58	55
22	75	57	55	52
25	75	53	51	48
28	75	50	48	45
31	75	48	46	43
34	75	46	44	41
37	75	44	42	39
40	75	43	41	38
43	75	42	40	37
46	75	41	39	36
> 46	75	40	38	35

Source: Building Code on Regional and Urban Planning, Rural Residential Planning, Decision 04/2008/QĐ-BXD of April 3, 2008

Table 7.4 Maximum Building Density of Apartment Buildings

Construction height (m)	Maximum building density (%) by land area (m ²)			
	3,000 ²	10,000 ²	18,000 ²	≥ 35,000 ²
≤ 16	80	70	68	65
19	80	65	63	60
22	80	62	60	57
25	80	58	56	53
28	80	55	53	50
31	80	53	51	48
34	80	51	49	46
37	80	49	47	44
40	80	48	46	43
43	80	47	45	42
46	80	46	44	41
> 46	80	45	43	40

Source: Building Code on Regional and Urban Planning, Rural Residential Planning, Decision 04/2008/QĐ-BXD of April 3, 2008

7.12 In the Building Code, it is stipulated that urban design in Detailed Plan for urban construction of 1/2.000 should meet the following requirements:

- Determine the point in the work space area planned under the direction, the vision;
- Threshold specified by the maximum, minimum (or not specified) and the principle of correlation of the height of the building adjacent to each functional area and for the entire area;
- Determine which regulations around back of the building on Main Street and Main Street intersection;
- Guidelines prescribed shapes, colors, lighting, architectural forms of the dominant structures, systems of trees, water, squares;
- Identify the principles of spatial connectivity designs with the area surrounding space outside the area design;
- Prescribed construction management of urban architecture as the content of planning schemes and detailed construction 1/2.000 to rate management of common landscape architecture designed by the regional content;

- Prescribed norms to control land use such as building density, building height (depending on space requirements and control intentional and planned, correctly defined the construction height, upper middle average, or maximum height regulations and in accordance with the minimum of correlation between the height of buildings in the area or planning regulations controlling building height).

7.1.5 Underground Development

7.13 Underground development is one of the hot urban planning issues in recent years. In Ho Chi Minh City, underground parking spaces of openspace and park have been developed by private developers. Decree on urban underground construction, No.41/2007/ ND-CP, was approved. Planning permission of underground facility is implemented by Provincial or City People's Committee, which also permit buildings and infrastructure above ground facilities. In Hanoi City, HAUPA will approve the development of underground facilities.

7.14 Recently, MOC issued the Decree No. 39/2010/ND-CP dated 7th April 2010, Guiding on Management of Urban Underground Space, which will specify contents and indicators which need to be planned into urban development plans. MONRE also prepares regulation related to underground development, from viewpoint of potential of buried natural resources.

7.15 According to the Decree, Provincial levels People's Committee shall decide to allow domestic organizations; foreign organizations and individual to use land for construction of urban underground works as provided by laws. Ministry of Natural Resources and Environment shall lead, coordinate with relevant ministerial bodies to set up the land use and management mechanism for construction of urban underground works, and submit to the Prime Minister for decision.

7.16 As such, construction of urban underground works such as the underground pedestrian way to connect two UMRT stations may be implemented by investors, comprising not only the public sector but also of private sector.

7.17 Urban Planning Law stipulates that construction of underground facilities must comply with underground spatial plan provided in approved urban development plans, construction codes for underground facilities issued by MOC, planning permit and construction permit.

7.2. Legal and Institutional Framework on Environmental Protection and Assessment

7.2.1 Law on Environmental Protection

7.18 The New Law on Environmental Protection (LEP 2005) approved by the National Assembly on 29 November 2005 is the major legal that regulates environmental protection in Vietnam. In addition, there are several other legal documents related to environmental protection sector which need to be considered for the development projects. The following 3 sections of Chapter III of the LEP 2005 stipulate issues on environmental assessment.

- Section 1: Strategic Environmental Assessment (SEA)
- Section 2: Environmental Impact Assessment (EIA)
- Section 3: Environmental Protection Commitments

7.19 Section 2 of the LEP 2005 has 6 articles (from Article 18 to Article 23) that define projects to be prepared EIA reports, elaboration and contents of the EIA report, appraisal and approval of the EIA report, implementation of the EIA report's commitments..

7.20 The projects stipulated in Article 18 of this Law may be approved and get an investment license, construction permit or operational permit only after the concerned EIA report is approved. (Article 22). Works may be commissioned for use only after the competent body has inspected and certified the performance of all environmental protection requirements. (Article 23).

7.21 Besides, the GOV has issued several legal documents related to the EIA, including the followings: (i) Decree 21/2008/NĐ-CP (dated 28/02/2008), (ii) Decree No. 80/2006/ND-CP (dated 09/08/2006), (iii) Circular No. 08/2006/TT- BTTMT (dated 08/09/2006).

7.22 Decree No. 21/2008/NĐ-CP includes a number of modifications and amendments of Decree No. 80/2006/ND-CP, including the list of projects subjected to prepare EIA report.

7.23 According to Decree No. 21/3008/ND-CP, projects subjected to prepare an EIA report include the followings (see Table7.5).

Table 7.5 Projects Subjected to Prepare EIA Report

Project	Scale
Projects to build infrastructures in urban centers or residential areas	Covering 50 ha or more
Projects to build supermarkets of markets	With 200 business places or more
Projects to build sports centers	Covering 10 ha or more
Projects to build hospitals	With 50 hospital beds or more
Projects to build underground works	All
Projects to build houses with basements	Basement of 10m or more deep
Projects to build underground traffic works (subways and tunnels)	500 m or more in length
Projects to build grade-IV roads	100 km or more in length
Projects to build traffic works	Requiring resettlement of 1,000 or more people
Projects to build passenger car terminals	Covering 0.5 ha or more

Source: Decree No. 21/3008/ND-CP

7.24 Requirement for environmental monitoring is described relatively in detail in Circular 05/2008/TT-BTNMT. According to this Circular, an EIA Report for a development project should include a chapter describing the environmental monitoring and management program. This chapter should propose an environmental monitoring program describing:

- (i) Waste monitoring: It requires monitoring waste flow/volume and other specific parameters of waste disposals according to current criteria, norms and regulation of Vietnam, at a minimum frequency of 03 (three) times a month. Monitoring points or stations must be mapped with clear legends.
- (ii) Monitoring surrounding environment: Only monitoring specific parameters of waste disposals according to current criteria, norms and regulation of Vietnam if there are no monitoring points or stations of State in the project areas, at a minimum frequency of 6 (six) times a month. Monitoring points or stations must be mapped with clear legends.
- (iii) Other monitoring: Only monitoring such factors as: eroded, slide, collapsed, and sunk land; erosion of river, stream, lake and sea banks; raised level of river, stream, lake and sea bed; changes of surface water level and underground water; salt water invasion; alum water invasion; and other impacts on natural and socio-economic environment (if there are), at an appropriate frequency to enable the monitoring of spatial and temporal changes of these factors. Monitoring points or stations must be mapped with clear legends.

7.2.2 Land Acquisition and Resettlement

1) Law on Land

7.25 The Law on Land (issued in 1993 and revised in 2003) is the umbrella law that regulates issues on land administration, in general, and land acquisition, in particular. Besides, there are a number of laws and regulations relating to the issues on land acquisition for development projects. In addition, each People's Committee of local province/city has to stipulate its own regulations to govern issues of land acquisition in its own territory. Key points of the Law on Land in 2003, and several main regulations on land issues (i.e. Decree 197/2004/CP, Decree 17/2006/CP, and Decree 84/2007ND-/CP) are summarized in Table 7.6.

7.26 As stated by law and regulations on land management and land acquisition, the people's committee of province or city under direct control of the central government (PPC) is the body in charge of managing land within its administrative territory, planning and implementing land acquisition for the investment projects carried out within its territory. For large scale project, after its investment report is approved, the PPC shall issue the policy to recover land, and direct relevant agencies in carrying out the land acquisition, compensation and resettlement.

7.27 The formulation of a Comprehensive Plan on Compensation, Support and Resettlement (Comprehensive Resettlement Plan) is required to guide resettlement planning and implementation for the project requiring land acquisition. The Comprehensive Resettlement Plan should have overall objective to ensure that all people affected by the project are able to maintain and, preferably, improve their pre-project living standards and income-earning capacity through compensation for the loss of physical and non-physical assets and, as required, other assistance and rehabilitation measures.

Table 7.6 Main Laws and Decisions related to Land Acquisition and Resettlement

Law/ Decision	Contents
Law on Land 1st July 2004	<ul style="list-style-type: none"> • It establishes the regulation of land allocation, lease management, land acquisition for development purposes, changes of land value under market mechanisms, and gives people access to land through land-user rights via land use right certificates (LURCs) • Depending on the use purpose, land is classified into 3 groups (agricultural land, non-agricultural land, unused land) • The State has right to recover lands in several specified circumstances. In these cases, the land user will be compensated for loss of land or assets. • When land recovery for use for objectives of national defense and security, national interest or public interest (Article 39), the State shall pay compensation and carry out site clearance after land use zoning and planning have been proclaimed or when an investment project with land use requirements in conformity with the land use zoning and planning is approved by the competent State body.
Compensation and resettlement policy Decree 197/2006/CP, amendment of Decree 17/2006/CP	<ol style="list-style-type: none"> (1) The Government limits its scope of compensation, assistance and resettlement, and encourages project owners themselves to negotiate with affected people on compensation and resettlement; (2) Assign PPCs to prepare and implement resettlement schemes to provide relocated people with houses or residential land in advance to the acquisition of their lands. (3) Land prices used for compensation are prices based on existing land prices which are regulated and announced by PPC or City PC. Compensation shall not be made according to the price set for the newly-shifted land use purpose. At the time of issuance of decision on land acquisition, if these land prices are not reflecting actual market land prices, the PPC/City PC should decide definite, adequate land prices. (4) Affected people whose lands are acquired by the State will be compensated with lands of the same land use purpose. If there is not land available for "land for land" compensation, he/she will be compensated in cash with an amount similar to the value of land at the time of issuance of the decision on land acquisition; (5) Compensation for residential land is based on the actual land use. Agricultural land scattered in urban residential area, residential garden land and pond, etc., will be compensated with an amount as for agricultural land, and with an additional compensation amount equal from 20 to 50% of the actual value of the residential land of the same plot; (6) Affected houses and structures attached to the acquired land are compensated at replacement cost without depreciation; (7) Affected crops and trees are compensated at replacement cost respectively; (8) Relocated people can choose one of the following three options: a) compensation with housing, b) compensation with assignment of a new residential plot, c) compensation in cash for self relocation (9) The resettlement implementation organization assigned by PPC has to inform affected people on proposed relocation options and publicly announce the options at their offices and at local commune/ward PC offices where there are lands to be acquired by the project, and at the resettlement sites, at least 20 days before the competent authority approves the resettlement options; (10) Relocated people, who lose more than 30% of their agricultural lands directly-cultivated by themselves but are not compensated with appropriate replaced lands, should be subject to livelihood restoration programs. These programs should be a combination of job training and job-creating measures through provision of non-farm land at a location convenient for running non-farm activities or services; (11) The poor (classified based on criteria of the Ministry of Labors, Invalids and Social Affairs) affected by the project should be assisted to overcome poverty;
Decree 84/2007/ND-CP May 25 2007	<ul style="list-style-type: none"> • This decree makes provision for the grant of land use right certificates, house ownership and residential land use right certificates; exercise of land user rights; recovery of land and land related compensation and support; procedures for land recovery, compensation, support and resettlement upon land recovery by the State for defense and security purposes, economic development, etc.; and for the settlement of land-related complaints. • This decree applies to all agencies, organizations and individuals involved in land administration and land use, and to agencies performing the function of state management of land. In particular, this decree states a relatively-detailed procedure to be applied for land acquisition, compensation and resettlement for development projects.

Source: JICA Project Team

2) Urban Planning Law

7.28 Under the Urban Planning Law, preparation of land reserve for plan-based urban development is legalized in Article 62, as followings:

- i) People's committee of competent level shall be responsible for organizing site clearance for areas covered in urban plan for construction of social and technical infrastructure in service of public interests and implementation of approved detailed plan.
- ii) Land acquisition and compensation is executed in accordance with land legislations. Upon acquiring land, land user is compensated for legally created assets prior to announcement of approved detailed plan.
- iii) People's committee at levels shall give favorable conditions for contractors to follow plan and investment programs properly.
- iv) Upon rolling out road construction projects under approved plan, competent state organs shall at the same time organize land acquisition on roadsides as planned, organize bidding to select investors or contractors in accordance with applicable law.
- v) Scope of investment projects must be identified on basis of relevance to existing land use conditions, harmonious satisfaction of project objectives and urban embellishment, avoidance of land areas failing to meet requirements of construction, or impacts on urban architecture and landscape.
- vi) If the investment projects uses only one part of land lot but remaining area is too small to meet land use requirements or it affects urban architecture and landscape, the state shall acquire and compensate land users.
- vii) After detailed plan gets approved and announced, if the state has not conducted land acquisition, organizations and individuals in the planned areas are permitted to continue using, repairing, building temporarily in accordance with construction legislations.

3) Current Issues of resettlement

7.29 At present, land acquisition and resettlement are the bottleneck to implement urban development and transport development projects. It is said that about 80% of total project cost is for compensation in Hanoi City. There are several reasons which land acquisition and resettlement is difficult, as followings:

- i) Resettlement housings are provided in suburban areas which is not convenient compared to original places
- ii) Condition for compensation is not satisfied for households and business owners
- iii) Onsite resettlement is not popular, which move residents near original sites

7.2.3 Strategic Environment Assessment

7.30 Strategic Environment Assessment (SEA) is a component of General Plan, Zone Plan, Detailed Plan and Technical Infrastructure Plan under Urban Planning Law. Contents of SEA are as follows:

- i) Evaluation of the existing urban environment conditions in terms of hydrometeorology,

water quality, air quality, ecosystems, geology, land erosion, solid waste, wastewater, noise, natural resources exploitation and use, climate change, and issues related to social, landscape, cultural and heritages to provide the foundation for urban planning alternatives.

- ii) Forecast of environment change in the urban planning implementation process.
- iii) Proposals on environment impact prevention, mitigation and remedy measures and environment monitoring plan.
- iv) The Government shall promulgate the detail contents of strategic environment assessment in urban planning

7.2.4 Information disclosure and public consultation

7.31 According to Decree 84/2007/ND-CP, the people's committees at district level and commune level shall be responsible to publicize the orientation of land recovery (chủ trương thu hồi đất), the decision on land recovery (quyết định thu hồi đất), and the Detailed Plan of Compensation, Support and Resettlement (Phương án bồi thường, hỗ trợ và tái định cư), etc.

7.32 However, experience from many projects in actuality shows that the process and method to disclose such information undertaken by the people's committees of districts and communes are generally not sufficient and proper. Therefore, in many cases, the project-affected people are not easy to access to such information and present their opinions. Moreover, the need to organize consultation meetings with project-affected people is not clearly stated in any Vietnam laws and regulations on land acquisition and resettlement.

7.33 For international cooperation agencies, the timely dissemination of information to, and consultation with the project-affected people including nongovernmental organizations (NGOs), are considered essential for the effective implementation and sustainability of projects. JICA, as an example, has policy to disclose information on environmental and social considerations in collaboration with the recipient governments, in order to ensure accountability and to promote participation of various stakeholders. In addition, in the case of Category A projects (i.e. projects with significant adverse impacts), JICA has policy to hold at least a series of discussions at each stage of scoping, preparing an outline of measures for environmental and social considerations, and the completion of a draft of the final report.

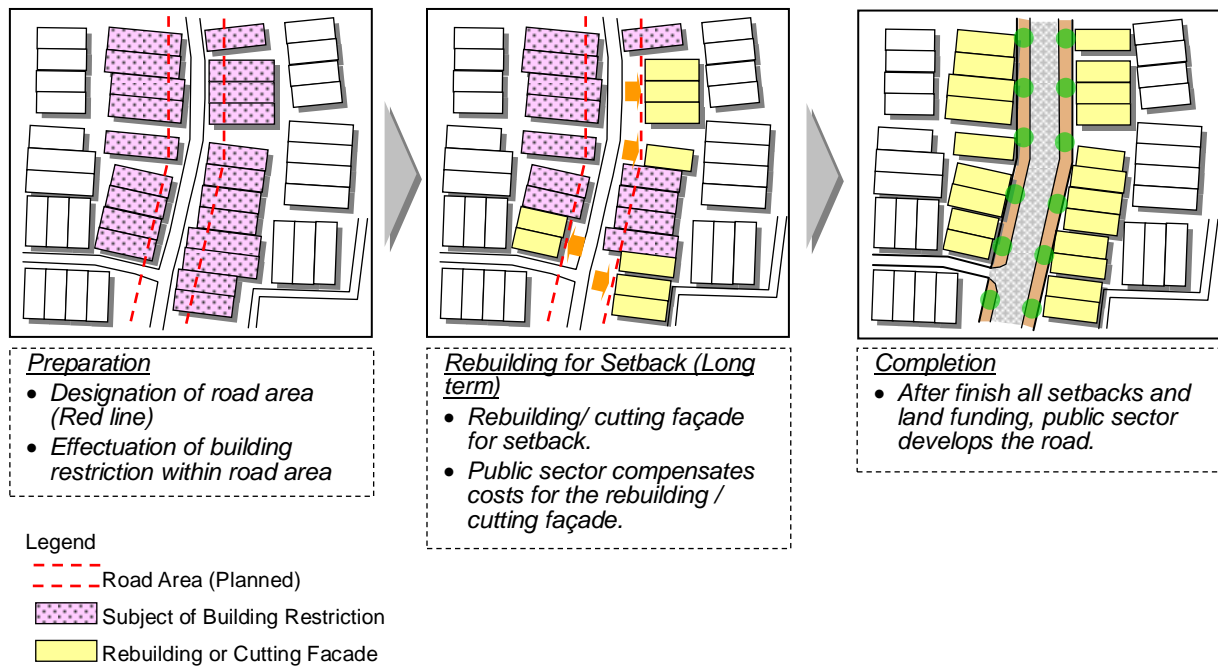
7.34 In several projects, the funding agency also urges the recipient country to prepare and distribute widely a booklet (or leaflet) of resettlement which generally includes the following contents: (i) Objectives of the project; (ii) Service area of the project and project site; (iii) Cost estimation and sources of capital; (iv) Project implementation planning (i.e., F/S, EIA, and basic resettlement plan preparation); (v) Project impacts; (vi) Definition of eligibility; (vii) Resettlement and compensation principles; (viii) Compensation policy; (ix) Subsidize allowances; (x) Settling complaints (grievance redress procedure).

7.3. Proposed Urban Development Scheme

7.3.1 Land acquisition under present legal system

7.35 At present, land acquisition by compensation or provision of resettlement housings is the only measure for road development and urban development (see Figure 7.1). Land acquisition measure by land recovery and compensation will be applied to UMRT development and integrated urban development project. However, it will be difficult to adapt land recovery for urban redevelopment/ urban renovation in built-up area. For instance, shortage of available lands for resettlement to the neighbors, low-profitability by increasing of land acquisition cost for the high amount of land price and compensation will make difficult to ensure the feasibility of project implementation.

Figure 7.1 Road Development by Land Acquisition



Source: JICA Project Team

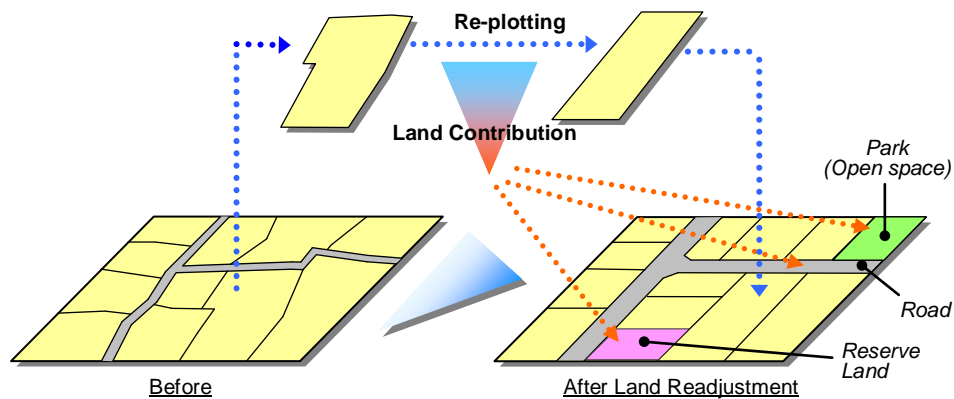
7.3.2 Proposed Land Redevelopment scheme

7.36 It is proposed that “Land Readjustment (LR)” scheme and “Urban Redevelopment (UR)” scheme with landuse right conversion. These new urban development schemes will be useful and effective for land preparation in addition to general land acquisition at present.

7.37 Land Readjustment (LR) is an integrated urban development measure including land re-plotting and infrastructure construction (see Figure 7.2). It is a well-known urban development measure in Japan and the same or similar system is adapted in more than ten countries such as Thailand, Indonesia, Germany, Turkey and Nepal. As typical function, it has land re-plotting system to consolidate land lots. Basically, land owners within the LR site can secure their own landuse rights during the project. In other words, LR is one of urban renovation measure by citizen participation with consensus building.

7.38 There is the “Land Contribution System” to secure lands for infrastructure, public open space and/ or reserved land for urban development. The project implementation body can secure reserved lands to sell for project cost as a self-financial system.

Figure 7.2 Schematic Model of Land Readjustment (LR)

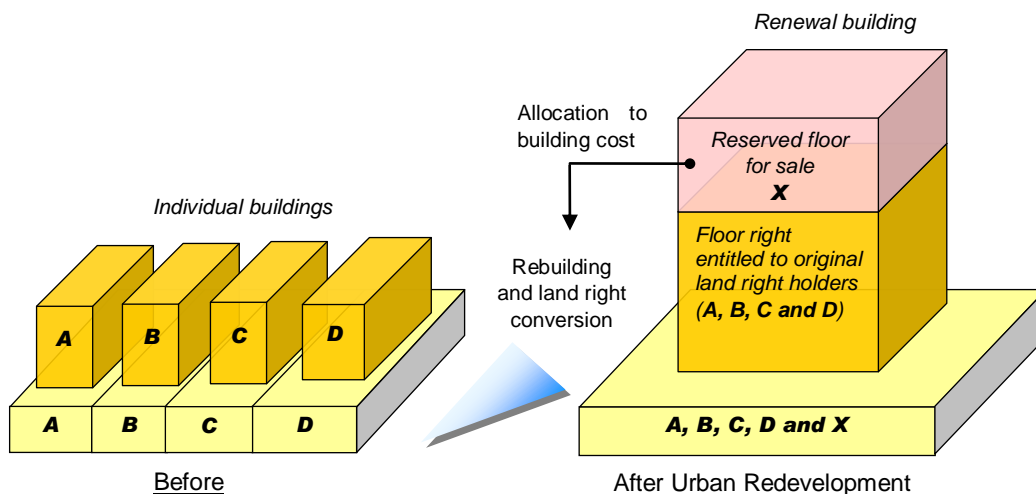


Source: JICA Project Team

7.3.3 Proposed Urban Redevelopment scheme

7.39 Urban Redevelopment (UR) is one of reconstruction measures using landuse right conversion system. This measure is used to combine of plural individual lands to a collective land to construct new apartments and large-scale buildings, which existing owners can resettle (see Figure 7.3). Original landuse right holders secure their landuse right during the project implementation period, and their landuse rights will be distributed to sectional ownerships of the new building. There is also a self-finance system to secure reserved floor for sale to recover the construction cost.

Figure 7.3 Schematic Model of Urban Redevelopment (UR)



Source: JICA Project Team

7.3.4 Proposed Land Banking system

7.40 To implement LR and UR effectively, “Land Banking (LB)” is a measure of priority land acquisition as an initial investment for future urban development. In case that private lands will be disposed by the owner, public sector acquires the land as an initial investment. In the future urban development, public sector uses the land as seed lot for consolidation of large land lot for urbanized land use and public facility. The measure is widely practiced in the world and proven an effective method to consolidate necessary land lot and to reduce the land acquisition cost of the public sector for the future urban development.

7.3.5 Proposed urban development scheme using LR and UR

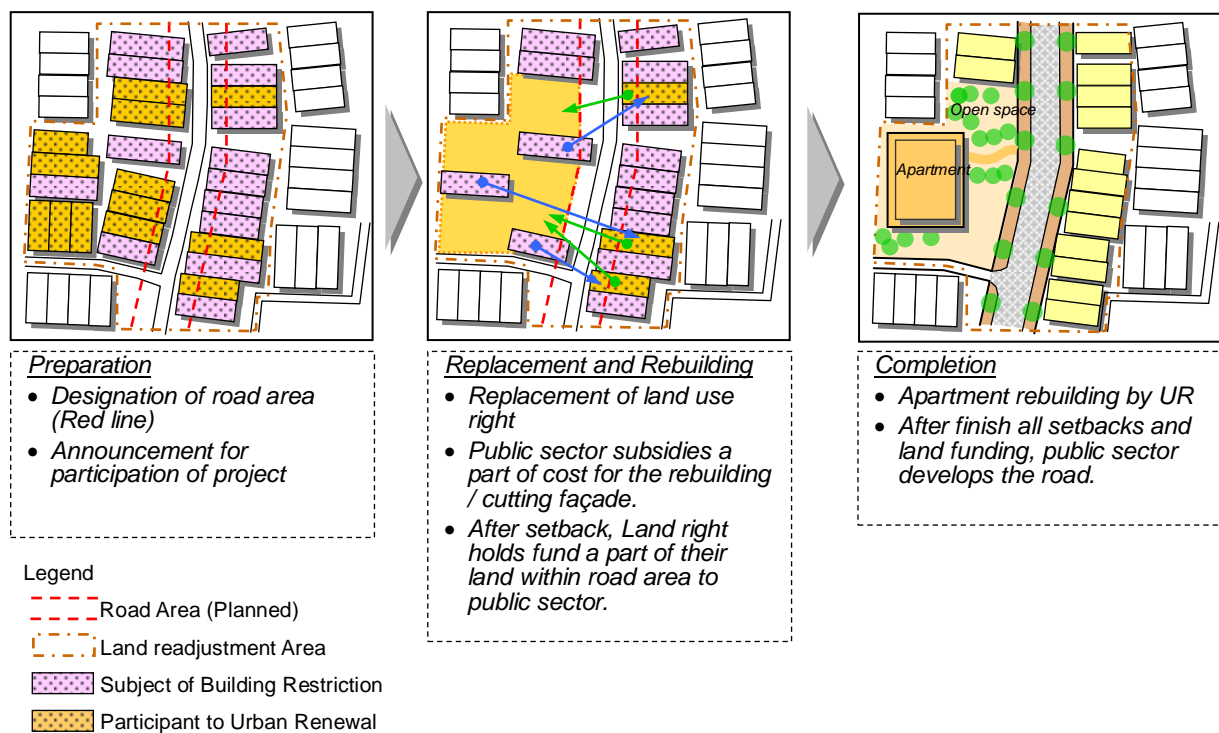
7.41 LR and UR schemes can be applied to urban development project with infrastructure development such as for road, ITF and railway. Proposed urban development scheme with land use right exchange with LR and UR aims at the following merits;

- Expand coverage area for land acquisition for infrastructure
- Provide options of on-site resettlement
- Encourage effective land use

7.42 The implementation process of proposed hybrid scheme of LR and UR is as follows (see Figure7.4):

- i) Define a project boundary for road development, which is wider than ROW
- ii) HPC announces and requests for participation of the project to landuse owners inside project boundary.
- iii) Participants who agree with the project will convert landuse right to floor right of new apartment by Urban Redevelopment scheme
- iv) Non-participants will exchange land with participants by Land Readjustment scheme
- v) Participants will construct a new apartment and move to plotted housings
- vi) Road will be developed by subsidy of public sector
- vii) With using profits of Urban Redevelopment Project of new apartment, openspace will be developed.

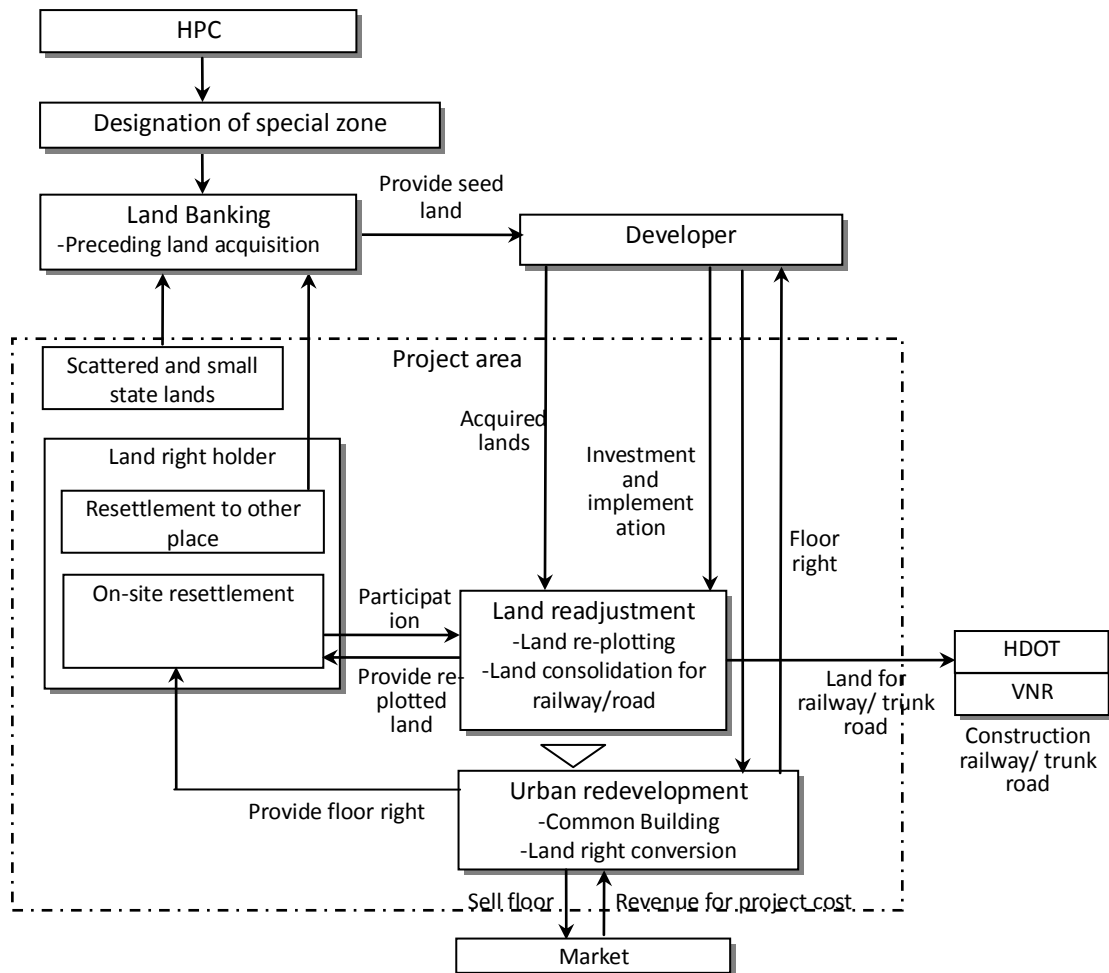
Figure 7.4 Implementation Process of Road Development using LR and UR



Source: JICA Project Team

7.43 The proposed urban development scheme using LR and UR is as follows (see Figure 7.5):

Figure 7.5 Proposed Urban Development Scheme using LR and UR



Source: JICA Project Team

7.44 Proposed measures for land preparation and urban development will be applied to various types of project for UMRT and integrated urban development (see Table 7.7).

Table 7.7 Implementation Measure for Integrated Urban Development in UMRT Station Area

Type of Project		Implementation Body			Measures for Land Preparation			Financial resource		
		Public sector	Private sector	PPP	Land acquisition	Land Readjustment	Urban redevelopment	ODA loan	Subsidy	Private
Minimum	Station and related facility	●	-	○	●	○	-	●	-	○
	ITF facilities	●	-	-	●	○	-	●	-	-
	Road/ Walkway improvement	●	-	-	-	-	-	-	●	-
	Road/ Walkway Development	●	-	-	●	○	-	-	●	-
Short/ Mid-long term	Road/ Walkway Development	●	-	-	●	○	-	-	●	-
	ITF facilities	●	-	-	●	○	-	-	●	-
	Feeder bus service	●	-	-	●	-	-	-	●	-
	Shifting Existing Bus terminal	●	-	-	-	-	-	-	●	-
	Urban Redevelopment	-	●	-	-	○	○	-	-	●
	New Urban Development	-	●	-	●	-	-	-	-	●
	Urban Renovation	●	○	-	●	○	○	-	●	○
Living condition improvement	●	-	-	●	-	-	-	●	-	

Legend ●: Basic measure, ○: Optional Measure, -: none
 Source: JICA Project Team

7.3.6 Feasibility of proposed implementation scheme using LR and UR

1) Preceding Land Acquisition

7.45 Regarding land acquisition, proposed implementation measure adopts land banking system using preceding land acquisition. It is useful for securing seed of land for infrastructure and urban development and for managing and controlling development by private sector. However, in existing legal scheme, there are some legal issues as follows;

- Difficulty of land acquisition before project approval: In principle, it is necessary to acquire a project approval to carry out land acquisition. There is no legal basis for land banking and preceding land acquisition at present.
- Difficulty of land acquisition for combined purposes of infrastructure and urban development: In principle, infrastructure project and urban development project are separated in existing legal system. So that, the land acquisition should be separated into each project purpose. Therefore, it is difficult that one organization acquire lands for both purpose of infrastructure and urban development.
- Difficulty of land acquisition for urban development by HPC: HPC is permitted only public activities and not be able to implement profitable activities such as commercial development. Therefore, HPC cannot acquire land for urban development which generates profits. It needs to use umbrella organization or company to do this.

7.46 For land banking and preceding land acquisition, designation system of special zone will be proposed. This system includes following functions;

- To designate a project boundary of urban development project for public interest.
- To restrict construction activities and transaction of land use right within boundary.
- To permit HPC to acquire land use right in advance of project approval.

2) Exchange of Landuse Right (Land re-plotting and land right conversion)

7.47 Typical feature of LR and UR measure is exchange system of land use right using land re-plotting and land right conversion. Although there is no legal scheme for land re-plotting and landuse right conversion in existing legal system in Vietnam, there is a possibility to implement a proposed measure for on-site resettlement.

7.48 In general, there are three types of compensation and resettlement measures such as i) paying compensation money, ii) providing residential lands and iii) providing housings. Under present legal situation, land re-plotting and land right conversion will be implemented as resettlement of providing residential land and apartment. In this scheme, developer provides land lots or floor right after urban development as compensation to original landuse right. In other words, this scheme maybe similar with land pooling system rather than LR and UR. And it should be noted that under the current regulation compensation and resettlement measured could be designed based on contractual basis without being consistent with normal stipulated procedures.

7.49 However, existing resettlement scheme is only for residential purpose, but not for commercial and business purpose. Therefore, it is unclear to apply this scheme to commercial and business purpose lands at present. Asset right of apartment generally consists of sectional ownership. Each resident has sectional floor right and common land use right. However, sectional ownership scheme is only for apartment, there is no legal basis of sectional ownership for commercial and business use building. Therefore, it will be difficult to implement land use right conversion project for commercial and business building.

7.50 However, it is because there has been no preceding example of this right conversion. New system and methodology should be proposed and set a bench mark for the new way of right conversion in urban development.

3) Legal power of re-plotting and land right conversion plan

7.51 For the implementation of LR and UR, most important issue in legal aspect is how to secure land rights and land right exchange plan during project implementation. In Japan, securement of landuse right of individual owners during project implementation period is legalized by “Land Readjustment Law”, “Urban Redevelopment Law”, as well as a basic law of “Law on Land”. In case of Vietnam, it is possible to implement LR and UR only as a resettlement measure under existing legal system. In this case, the resettlement plan should be included as a part of approved urban development project plan and has legal power by the official decision.

4) Implementation body for LR and UR

7.52 Private developer will be able to implement the urban development project with LR and UR under the decision. VNR and Special Purpose Company (SPC) who has right to implement urban development project are also able to implement LR and UR project. However, HPC is not permitted to implement profitable activities including urban development, but an umbrella company is permitted. Therefore, private developer, VNR and SPC with a HPC umbrella company would be able to implement LR and UR.

Table 7.8 Feasibility of proposed Implementation scheme with LR and UR

Proposed scheme	Feasibility in existing legal system	Proposal on legal improvement
Preceding land acquisition	<ul style="list-style-type: none"> • Difficult of land acquisition before project approval • Difficult of land acquisition with combined of purpose for public infrastructure and urban development • Difficult of land acquisition with commercial purpose by HPC 	<ul style="list-style-type: none"> • Establish of project boundary designation system for land banking and preceding land acquisition before project approval. • Permission to HPC of land acquisition within designated special zone.
Land re-plotting	<ul style="list-style-type: none"> • Possible to implement as one of resettlement measure • Only for residential land • Unclear of commercial purpose resettlement 	<ul style="list-style-type: none"> • Addition resettlement method for commercial and business purpose land • Or establish newly legal scheme for land re-plotting
Landuse right conversion	<ul style="list-style-type: none"> • Possible to implement as one of resettlement measure • Only for apartment project • No legal basis of sectional ownership for commercial building 	<ul style="list-style-type: none"> • Addition resettlement method for commercial and business purpose land • Establish sectional ownership scheme for commercial and business purpose building • Establish new legal scheme for landuse right conversion
Legal power of land re-plotting and land right conversion plan	<ul style="list-style-type: none"> • Possible of provide legal power by official decision of urban development plan including resettlement plan 	
Implementation body	<ul style="list-style-type: none"> • Possible of LR and UR by private sector, VNR and SPC with HPC umbrella company • Difficult for HPC to implement LR and UR project with commercial purpose 	<ul style="list-style-type: none"> • Permission to HPC of land acquisition within designated special zone.

A: Possible, B: Possible with condition, C: impossible

Source: JICA Project Team

7.4. Proposed Project Implementation Mechanism

7.4.1 Phasing based on Time and Feasibility

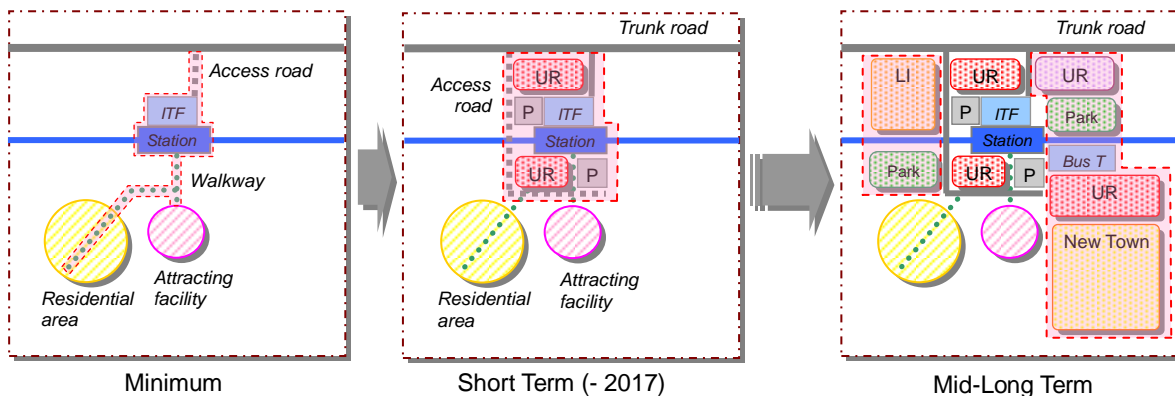
7.53 A long gestation period will be required to materialize any kind of full-fledged urban development. Furthermore, careful consideration should be given to the planning and development if it is integrated with the development of a UMRT system. Special attention should be given to the following aspects:

- Incorporation with existing urban construction plan;
- Adjustment with existing railway development plan;
- Coordination with the UMRT development;
- Complicated land acquisition and resettlement;
- Clear delineation and role sharing of public sector , railway developer and private sector;
- Combination of different financing sources

7.54 In order to cope with the above difficulties, a step-by-step approach must be taken to implement the proposed projects. The following phasing is proposed and the image of this phasing is illustrated in Figure 7.6:

- **Minimum Development:** It includes station and its related facilities, Inter-modal Transfer Facility (ITF) facilities and road/ walkway development for accessibility from/to UMRT station. They are minimum facilities to operate of UMRT and to use UMRT station. They must be developed by UMRT opening in 2017.
- **Short Term Development:** It includes small scale and/ or high feasibility project in perspective of land acquisition and urban development projects has high-synergistic effect by developing in time for the UMRT opening.
- **Mid/ Long Term Development:** it includes large scale and/ or time consuming projects in perspective of land acquisition, securing financial resources and tendency of private investment, infrastructure condition in surroundings, necessary institutional arrangement including new legislation.

Figure 7.6 Step-by-Step Development and Proposed Phasing



Source: JICA Project Team

7.4.2 Project Packaging

7.55 Packaging of different project elements is essential tool for project implementation. The following aspects should be carefully taken into consideration when packaging the projects:

- **Timing:** As illustrated above, timing of implementation for each project element is the most important aspect of project packaging;
- **Same Function and Objective:** Projects could be packaged together in accordance with same function and objective as adopted in this project as follows:
 - (i) Station and related facility development
 - (ii) Road development
 - (iii) Urban development project
 - (iv) Green and open space development
- **Priority on realizing railway function:** Projects should be implemented so as not to avoid realization of railway function. For example, underground commercial property development should not disturb construction of railway facilities or constraint accommodation of basic railway facilities such as sub station for railway operation. Absolute priority should be given, in the process of planning, to the realization of railway function so that integrated urban development would not negatively affect the railway operation.
- **Consideration on Private Sector Involvement:** When packaging the projects consideration on private sector involvement is specially important in the following aspects:
 - (i) Development of commercial/office/residential property integrated with station
 - (ii) Kiosk and other in-station business development
 - (iii) Integration of IC card ticketing and credit card/e-money business
 - (iv) Sharing of cost for infrastructure and related facilities development
 - (v) Financing the implementation of project package
 - (vi) Possibility of Public and Private Partnership (PPP) in implementing project package

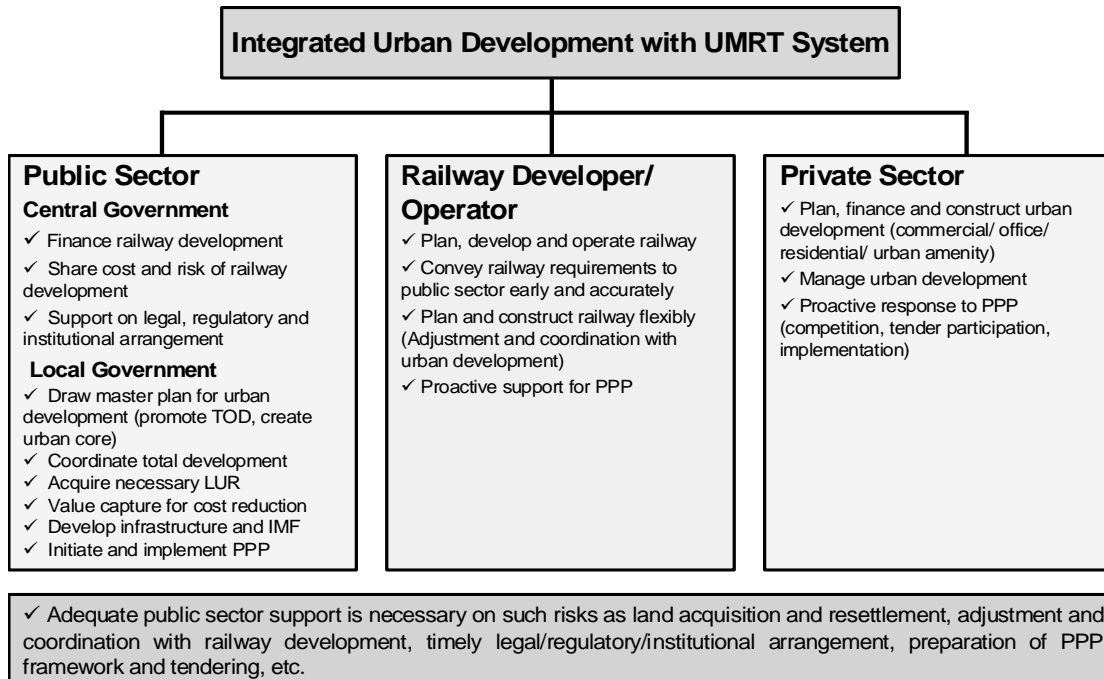
7.4.3 Responsibility and Risk Sharing among Major Stakeholders

7.56 To accomplish a large scale integrated urban development with UMRT system, three major stakeholders will be involved, namely public sector, railway developer/operator and private sector. Responsibility and risk among these three stakeholders will be shared as follows and described in Figure 7.7. Details of the above will be described in the following sections.

- **Public Sector:** (i) Finance railway development, (ii) Draw up grand design of the development and coordinate implementation, (iii) Acquire necessary LUR, and (iv) Initiate and implement PPP;

- **Railway Developer and Operator:** (i) Plan, construct and operate railway, (ii) Convey railway requirements to the urban development side, and (iii) Support PPP proactively;
- **Private Sector:** (i) Plan, finance, construct and manage the urban development, and (ii) Respond PPP proactively

Figure 7.7 Responsibility and Risk Sharing among Major Stakeholders



Source: JICA Project Team

7.4.4 Responsibility of Public Sector

1) Responsibility of Central Government

(1) Finance railway development

7.57 Since construction of UMRT system involves huge initial investment and it is generally very difficult to recoup this investment just by fare revenue, essential responsibility of the central government is to finance the UMRT development. Concessional funding with long term repayment period and low interest rate could be procured by the central government and used for initial investment. The initial investment cost could be shared with local government, in this case Hanoi PC, with part of it to be covered by cash flow generated through the UMRT operation.

(2) Support legal, regulatory and institutional arrangement

7.58 Some of the necessary legal, regulatory and institutional arrangement will also be the responsibility of the central government. To materialize the large scale urban development proposed in the previous chapters, the legal, regulatory and institutional arrangement related to the following aspects should be conducted by the central government:

- (i) Underground property development
- (ii) Legal framework and necessary regulations for land readjustment
- (iii) Legal framework and necessary regulations for urban redevelopment
- (iv) Legal framework and necessary regulations for private urban development
- (v) Legal framework and necessary regulations for urban redevelopment under PPP format

2) Responsibility of Local Government

(1) Draw up grand design of the development

7.59 Most essential responsibility of the local government is to draw up a grand design (master plan) of the integrated urban development with total UMRT systems in the jurisdiction such as the one which this JICA Study is now supporting Hanoi PC to prepare. Basic orientation of this grand design is promotion and facilitation of the concept of Transit Oriented Development (TOD) and the formation of urban cores.

(2) Coordinate total development

7.60 Based on the above master plan, the local government is responsible to coordinate the total development among the development of public sector, railway developer and private sector in terms of timing, realized function, funding/budgeting, promotion of private sector participation, design and implementation of PPPs and so on. Detailed mechanism for coordination will be proposed in the later section of this chapter.

(3) Acquire necessary land use right

7.61 Since the management of land related matters is under the authority of local government, once the right of way (ROW) of UMRT is finalized, acquisition of necessary land use right (LUR) and resettlement will be conducted by the local government for the railway developer. In addition to that land banking (preceding land acquisition) of necessary seed land tracts in the vicinity of large scale station based urban development should be conducted in advance by the local government so as to facilitate formation of large development lot in the vicinity of the UMRT station by using and exchanging those seed land tracts. In this way early LUR acquisition could save the cost of total development. This method has been practiced in Japan and Singapore and proven effective.

(4) Value capture for cost reduction

7.62 Total value which a railway system brings about along its corridor is huge and grows in time as a network of railway forms. Fare revenue from the railway passengers is only a small portion of the total development value captured. The rest of the value created by the railway development resides in the increased value of property along the corridor. The value increase is especially large around the stations. The local government should capture and utilize this increased value to reduce its financial burden on the cost sharing of the railway development and related facility development such as access road, station plaza and Inter-modal Transfer Facilities (ITF). The following are the example of Value Capturing Methodology:

- Development charge
- Developer's contribution
- Special assessment district

- Tax Incremental Financing (TIF)
- Land Readjustment
- Urban Redevelopment
- Land auction/sale of LUR/land lease
- Public and Private Partnership (PPP)

7.63 Some of the above-listed methodologies will be described in detail in the later section of this chapter. Ultimate value capturing for the local government is the tax revenue increase from the ownership and transaction of the value increased property along the corridor.

(5) Develop infrastructure and inter-modal transfer facilities

7.64 Access road and inter-modal transfer facilities are essential infrastructure for a railway station to function effectively as a railway station. Responsibility is basically with the local government and related local agencies. Cost of development could be shared and reduced by adopting the value capturing methodologies as described above. Since it is common element of station development for all the stations, development of ITFs could be bundled as one package for procuring concessional funding such as bilateral and multi lateral loan to finance a part of its development for all the stations of one UMRT line.

(6) Initiate and implement PPP

7.65 Public and Private Partnership is effective way to design and implement an integrated urban development with the development of UMRT system. PPP must be initiated by the local government which has total authority about the management of land use right, urban planning, building control and provision of infrastructure.

7.66 The local government should prepare a proper framework in which PPP for the integrated urban development is implemented. A task force unit specialized in promotion and implementation of PPP project should be established in the local government to design and manage the PPP process for implementing the integrated urban development under the PPP format. Details of PPP implementation will be described in the later section of this chapter.

7.4.5 Responsibility of Railway Developers/Operators

1) Plan, develop and operate railway

7.67 Responsibility of the railway developer/operator is to plan, develop and operate the railway system properly, and to provide efficient transportation service and linkage among urban cores so that mobility of people is increased and quality and value of urban environment along the corridor could be enhanced to a great extent.

7.68 One important issue is establishment of organization to control and manage total network of UMRT lines in Hanoi Metropolitan Area. As far as the urban development is concern, to what extent the railway developer and operator side could handle the property development will be important issue to determine.

2) Convey railway requirements to public sector early and accurately

7.69 It is a critical success factor for the railway developer to convey the important requirements to the urban development side, mainly the local government, as early and

accurately as possible so that the requirements could be properly reflected to the urban development. The following are examples of such requirement:

(1) Construction Plan

- Right of way (ROW) for the railway development should be clearly delineated so that the boundary of the railway side and the urban development side could be identified in terms of planning and implementation: Since this will provide a base and will become an essential prerequisite for drawing up an integrated urban development plan for each station area, urgent negotiation and agreement on final ROW between VNR and HPC is necessary at this moment.
- Specification of construction (location, volume, timing, construction load, construction method, etc)
- Urban design (Station design, building height, etc)
- Land acquisition and resettlement policy

(2) Operation Plan

- Railway operation plan
- Station related facilities development (station plaza, car and motor bike parking, bicycle parking, pedestrian decks, etc) and whether they are developed by the railway side or not.
- Kiosk and in-station business, in station plaza business, etc.

(3) Demand Plan

- Major movement lines (station entrance/exit, major access from surrounding area: pedestrian, automobile, bus, taxi), service movement line.
- Forecast of railway passengers at each station for both boarding and alighting in each time segment in future years, and modal split.
- Transfer for other transport modes (UMRT, VNR, Bus, etc) and whether the ITFs will be developed by the railway side or not.

(4) Others

- Social and environmental assessments
- Land use plan for land tract owned by the railway side and used for non railway use

3) Plan and construct railway flexibly

7.70 Construction of railway is generally planned rather rigidly in terms of timing and specification whereas the progress of urban development would be largely dependent on such changing factors as property market cycle, availability of finance, business decision of anchor tenant and so on. Therefore, perfect orchestration of both the railway development and the urban development is very difficult.

7.71 One solution is to give some flexibility to the planning and construction of the railway. For example, station could be designed and constructed so that plausible but new future entrance or access walk way could be accommodated and opened when it becomes necessary in the future. Transferability with future UMRT lines could be secured when the hub stations are designed and constructed to accommodate such future linkages.

4) Support PPP proactively

7.72 Success factor for implementing PPPs is clear cut risk allocation between the public and the private. However, PPP in this integrated urban development will be conducted by three some, the public, the railway and the private. So, we need to design proper risk allocation among the three as illustrated in the previous Figure. Since, at some major stations, the railway developer owns a large tract of land which could be used as a seed land for large scale urban development, the railway developer may take an initiative to lead the PPP project. It could even form a strategic joint venture with selected private sector partner to implement a large scale urban development which is fully integrated with the development of major UMRT station.

7.4.6 Private Sectors Involvement

1) What is PPP?

7.73 The term “public-private partnership” (“PPP”) has been in general use since the 1990s. However, there is no widely agreed, single definition or model of a PPP. The term “PPP” covers a range of different structures where the private sector delivers a public project or service. Concession-based transport and utilities projects have existed in EU member countries for many years, particularly in France, Italy and Spain, with revenues derived from payments by end-users. The UK’s Private Finance Initiative (“PFI”) expanded this concept to a broader range of public infrastructure and combined it with the introduction of services being paid for by the public sector rather than the end-users.

7.74 The use of PPPs has now spread to most EU country and some Asian countries such as Japan and Korea, and depending on the country and the politics of the time, the term can cover a spectrum of models.

7.75 These range from relatively short term management contracts (with little or no capital expenditure), through concession contracts (which may encompass the design and build of substantial range of services and the financing of the entire construction and operation), to joint ventures and partial privatizations where there is a sharing of ownership between the public and private sectors (Figure 7.8).

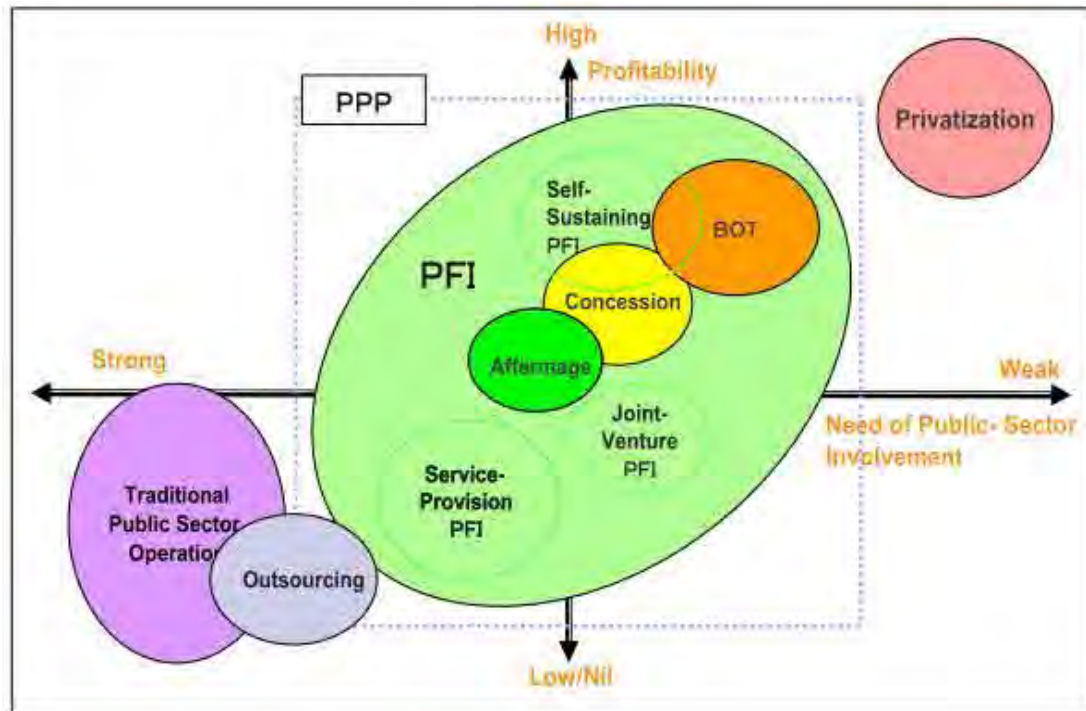
7.76 Under traditional public sector approach, the public sector designs, builds, operates, and maintains infrastructure, and sets level of quantity and standards of service quality, while under privatization approach, the private sector conducts all of these aspects in place of the public sector. Under PPP approach, the public sector is ultimately accountable for service provisions, although the private sector designs, builds, operates and maintains infrastructure. PPP ensures provision of services to general public, but at lower cost and better quality by the use of private-sector management skills and finance capabilities.

7.77 Expected Benefits with PPP are as follows:

- Reduction in life cycle costs of the public service by PPP compared to the traditional public sector work.
- Better and less expensive service delivery by maximizing the use of private sector skills and allocating risks to the party best able to manage or absorb each particular risk.

- Contributing to private sector development by developing a new market for the private sector.
- Mitigating public budget constraints and making the project affordable for the public sector in the long term.

Figure 7.8 Positioning of PPP Options



Source: JICA Project Team

7.78 The following are the key requirements for PPP implementation:

- Strong political commitment and continuous government support for establishing sufficient PPP regulatory and institutional framework and gaining confidence from the private sector.
- Sufficient capacity of the public sector to design and manage the implementation of PPP projects
- Appropriate risk allocation in designing and implementing PPP projects
- Transparent and fair selection procedure of private sector proponents
- Mature and experienced domestic capital market and financial institutions for provision of long term project finance
- Certainty of the elements required to forecast project cash flow such as feasibility of fare increase, addition of competing projects, change of subsidy system, etc.
- Setting an appropriate counterpart for PPP in the public sector side to promote better coordination and dialogue between the public sector and the private sector.

7.79 In Vietnam, there has been a few examples of PPP projects implemented in power generation and telecommunication sectors in the past however there are also some examples in water treatment plant (bulk water supply) and expressway development with urban development concession along its right of way. HPC has experienced one of the expressway PPPs called Lang-Hoa Lac Expressway which has above mentioned urban development concession. However, MOT has taken an initiative for the implementation of the project, thus

experience of HPC in the details of PPP project may be limited at present. Currently DPI with assistance from World Bank is preparing a PPP regulatory framework called “PPP financing framework” which includes viability gap funding mechanism. The framework has been drafted already and is scheduled for Prime Minister’s approval in the fall of 2010, which may be applicable for PPPs in the urban development sector.

2) Implementation of PPPs in Urban Development

7.80 Land Readjustment (LR) and Urban Redevelopment (UR) schemes which are widely diffused in Japan are one form of PPP in urban development. Special characteristic of these schemes are as follows:

- Land related rights and floor area rights of the residents in specified area are pooled and redistributed based on the previous right in terms of property value under contractual arrangement.
- Increased property value due to the provision of proper infrastructure, road and commercial development is captured in terms of surplus land and floor area which are sold to the market to cover a part of investment.
- Power of implementing body and framework is backed up by special legislation to secure exchange of rights, implementation and financing.

7.81 The above characteristics are generally common for the PPPs in urban development. Therefore, critical success factor is to properly capture the increased value of the property and use it to cover and reduce the financial burden of public investment and attain sustainable management of the whole development. The value increase and value added will be further enhanced when the urban development is integrated with the development of station and UMRT corridor.

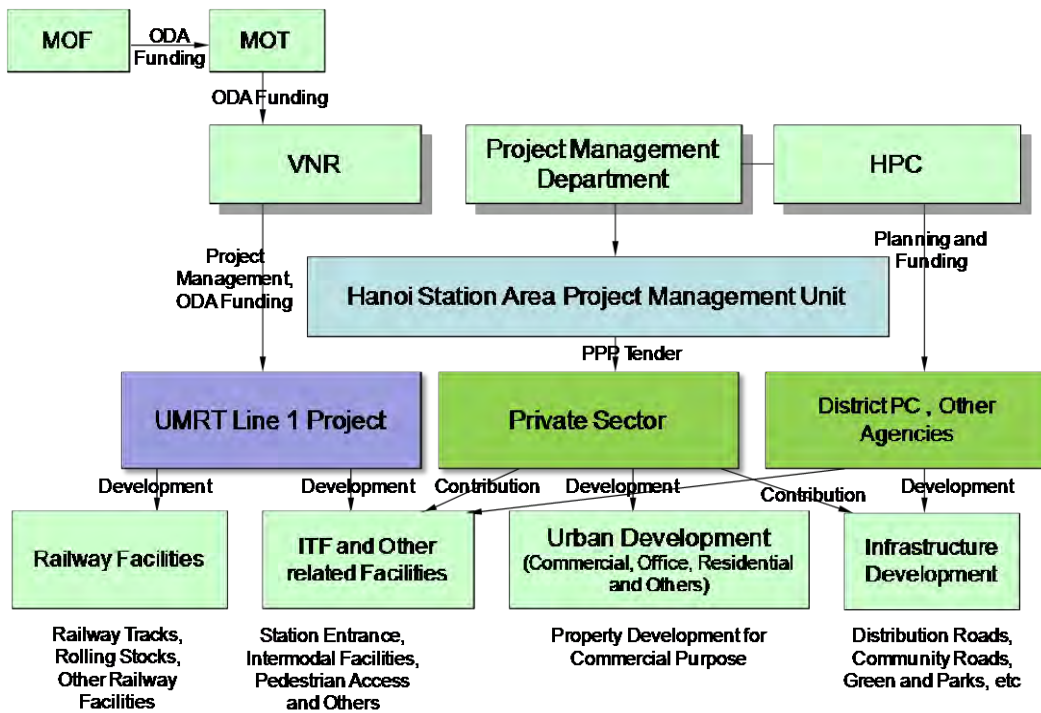
3) Plan, finance and construct urban development

7.82 Even though the framework is prepared by the public sector, main player of this PPP is by all means the private sector. They compete, plan, finance, construct and manage urban development based on their experience, know how, network, technical, financial and human resources to plan and maximize synergy benefit of railway and urban development and return the increased value to the locality for the benefit of residents.

7.83 This could be the only business model which makes railway business profitable and financially self-standing as has been proven in the history of Japanese private railway business development in which the railway business and urban development are integrated and enjoy synergy benefit under the same corporate umbrella.

7.84 Generally a PPP project is implemented on the basis of hybrid structure among the stakeholders as illustrated in Figure 7.9.

Figure 7.9 Example of Hybrid PPP Implementing Structure



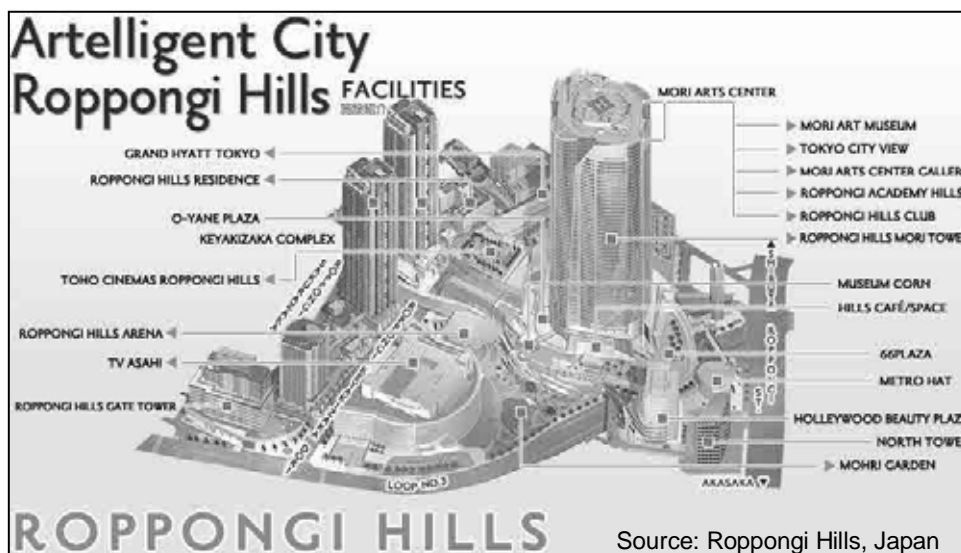
Source: JICA Project Team

4) Management of urban development

7.85 Management of developed commercial and residential facilities is source of sustainable profit for the private sector. In large scale urban development there are various facilities and properties to be managed as illustrated in Figure 7.10.

7.86 Part of the infrastructure and utility services such as district road, open space, area cooling and heating system, waste water treatment could be developed and managed by the area management organization established mainly by the initiative of the private sector developer to provide comprehensive and sustainable area management. This kind of private sector initiative could, as a result, reduce the total cost of the management to be shouldered by the public sector.

Figure 7.10 Facility Management of Roppongi Hills (Japan)



5) Respond to PPP proactively

7.87 Urban development at the major station could become very large in scale and have huge potential for commercial profit. Therefore, under the PPP format and the framework prepared by the public sector, private sector proponents will proactively participate in the PPP tender and compete in ideas, know how, network, technical, financial and human resources to come up with proposals of urban development at the global standards.

7.2.5 Financing

1) General orientation for financing integrated urban development

7.88 Financing of integrated urban development must be planned and implemented in an comprehensive manner by carefully considering important financing elements such as implementation body, method of procuring necessary land tracts and available funding sources. It is necessary for the public sector to lead the financing of the minimum elements such as station and related facility development, ITF facilities and road/walkway development so that potential of integrated urban development could be enhanced and trigger the private sector development in the vicinity of UMRT stations. For doing so, grant technical assistance could be procured for planning and packaging the project and concessional funding such as bilateral and multilateral loans may be utilized to finance the minimum development.

7.89 In the mid-long term development, various value capturing methodologies, which leverage market growth potential in the vicinity of UMRT stations and of the UMRT corridors, such as land readjustment, urban renewal, developers contribution, land banking and utilization of public LUR, Public Private Partnership and so on could be utilized to finance the integrated urban development. It is important concept for mid-long term development to capture the value created by the formulation of UMRT corridor and public transit accessibility (increased value of urban development potential) to cross-subsidize the development of necessary public facilities such as station related facility development, ITF facilities and road/walkway development so that the total financial burden on the public sector for the development of necessary infrastructure and community facilities could be reduced to a considerable extent.

2) Leveraging ODA funding to facilitate PPPs

7.90 Various financing sources must be combined to finance an integrated station area development. To initiate this combination of financing package, possibility of procuring concessional funding such as bilateral and multilateral loans may be examined for financing the development of inter-modal transfer facilities at each station which is packaged as one project to be funded. It is essential element for the functioning of railway station and should enhance active participation of private sector investors and developers in unsolicited development proposal and in the solicited PPP tender for the station area development.

7.2.6 Proposed Procedures for preparation and implementation for Integrated UMRT Station Area Development

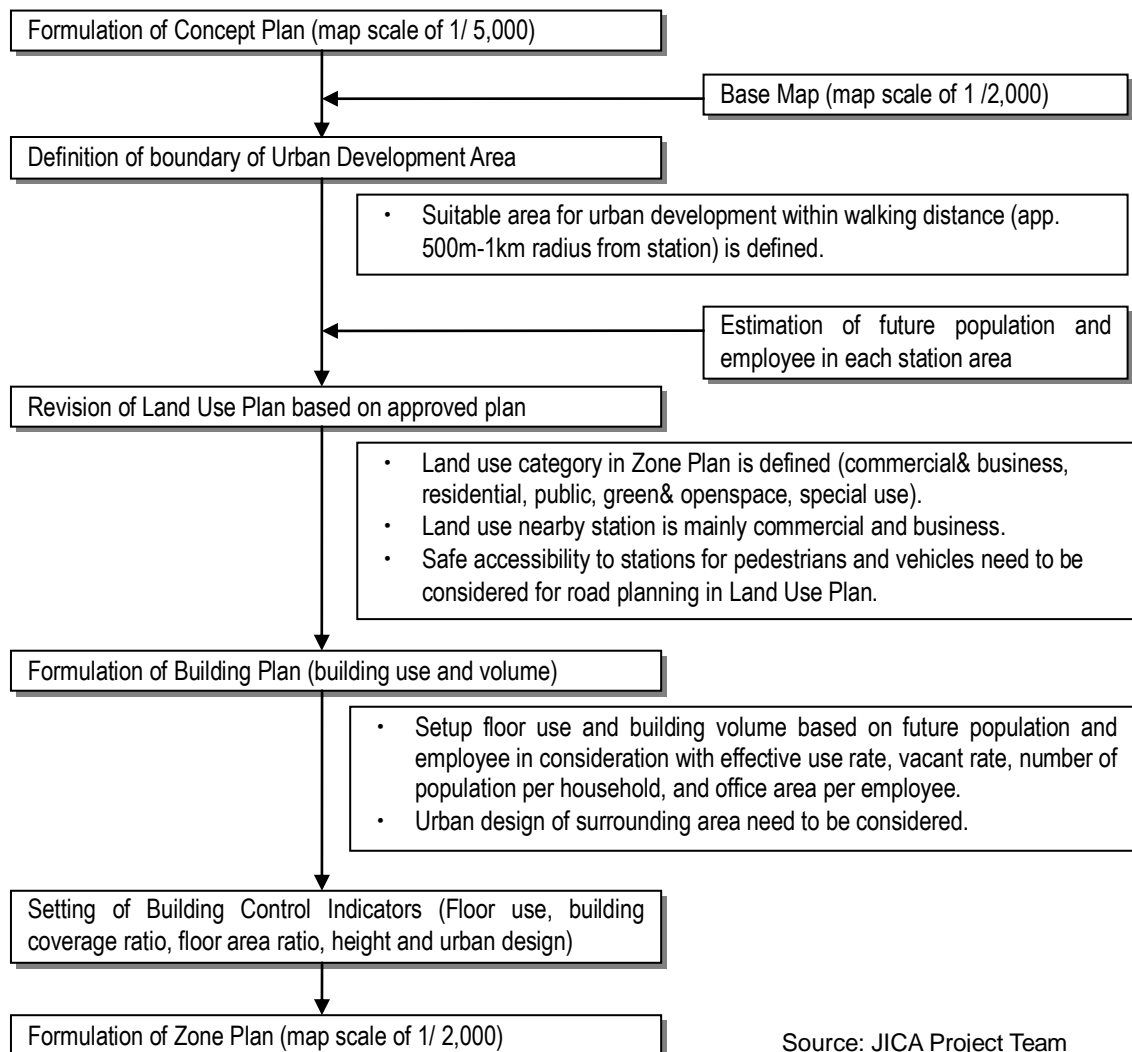
7.91 For implementation of integrated urban development project with UMRT and its surrounding areas, it is necessary to establish and improve the legal system related to urban planning and management of urban development. The following activities by HPC and institutional arrangements are proposed for preparation and implementation of the integrated urban development with UMRT system in Hanoi;

1) Formulation of Zone Plan

7.92 In this project, Detailed Plans in 5 station areas were formulated which can be reflected into Zone Plan in accordance with Urban Planning Law. For implementation of integrated urban development in all station area, Zone Plans covering integrated urban development area around the station will be formulated by local district governments and approved by HAUPA.

7.93 Urban Planning Law stipulates that Zone Plan has to be formulated by 1/2,000 scale and has to describe land use, road network and indicators in each block. Indicators are consisted of: (i) Building Coverage Ratio (BCR), (ii) Floor Area Ratio (FAR), (iii) building height, for building control and urban design consideration. Proposed formulation process of detailed planning for Zone Plan is shown in Figure 7.11

Figure 7.11 Process of Detailed planning based on Concept Plan



Source: JICA Project Team

2) Establishment Special Zone system and the designation

7.94 Special zone for Integrated UMRT station area development will be proposed for smooth implementation of urban development. Special zone is designated for urban development area with public purpose in every UMRT station area. It is proposed that HAUPA or higher authority has authority to decide of the special zone. Special zone has mainly the following functions;

- Restriction of private building and construction
- Limitation of purchasing and selling of private land
- Permission on preceding land acquisition for public purpose

7.95 Establishment of legal scheme for special zone is required before starting short term project. Preceding land acquisition is effective measure for securing land for infrastructure and control of disordered private development. Especially, it will be necessary to secure seed land for UMRT and integrated urban redevelopment such as Nguyen Thung Truc Commune in Nam Cau Long Bien station area.

3) Establishment of Project Management Department for Integrated UMRT Station Area Development under HPC

7.96 Establishment of project management department in HPC is proposed for promotion and management of whole urban development surrounding UMRT stations. This department has function of coordination among related organizations and facilitation of project management unit in each station area and implementation of infrastructure development and land acquisition.

7.97 This department will also design and prepare necessary PPP tenders for each station area development and assist each project management unit mentioned below for implementation of PPPs.

7.98 Establishment of this department is required before starting minimum term project.

7.99 HPC plans to establish Public Transport Authority (PTA), which will be in charge of operation and management of public transport including five (5) UMRT Lines and BRT. It is said that TRAMOC will be restructured into PTA, and HRB might also be transformed into PTA. So it is proposed that two management departments of public transport operation and urban development of vicinity of UMRT stations will be established at the same time and fully coordinated to realize integrated UMRT and urban development.

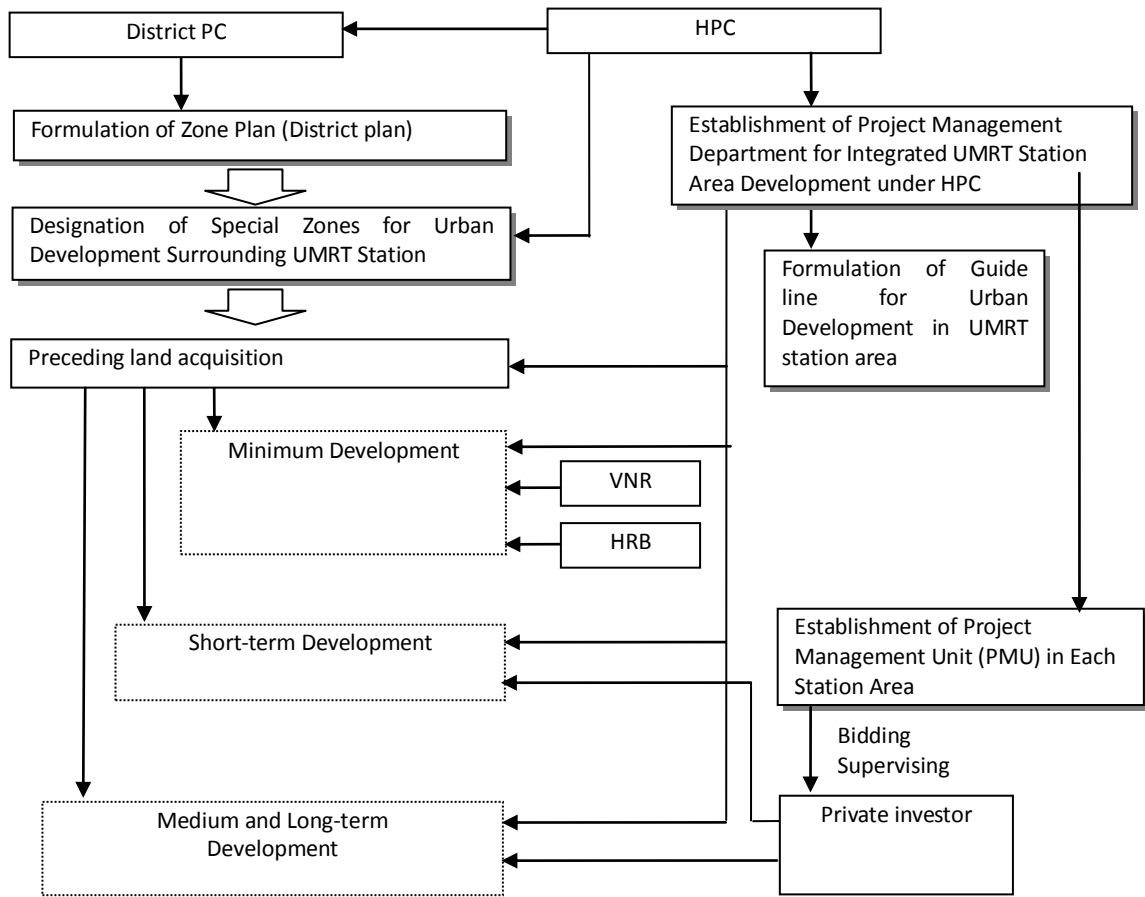
4) Establishment Project Management Unit for Each Station Area

7.100 Establishment of project management unit for each station area is proposed. This management unit has function of management urban development project, bidding and supervising private developer's coordination among related organizations. Establishment of these is required before starting short term project.

5) Formulation of Guide line for Urban Development in UMRT Station Area

7.101 For the control and encouragement of integrated urban development along the UMRT corridor, Guideline for Urban Development in UMRT Station Area will be proposed. The Guideline guides designing of urban infrastructure, building and structure and specific land use and landscape for both private and public sector. In addition, it provides procedure and technical issue for project management and implementation. The guideline will be formulated by Project Management Department as above mentioned.

Figure 7.12 Process for preparation and implementation for UMRT development



Source: JICA Project team

7.5. Proposed Sectoral Plans coordinated with UMRT Development

7.5.1 General

7.102 After development of UMRT, urban structure of Hanoi City will be reformed in terms of landuse, transport network, living condition, etc. Since UMRT development is new for Hanoi City, there are many issues to be coordinated with. It is significant not only to prepare new plans of UMRT development and urban development of vicinity of station, but also to coordinate with and adjust of existing plans which are affected by UMRT development.

7.103 In this context, (i) feeder bus service plan, (ii) underground space management plan, and (iii) resettlement plan of UMRT development, are preliminary proposed. These plans should be further studied and developed by relevant governmental agencies of HPC for approval.

7.5.2 Proposed Feeder Bus Service Plan

1) General

7.104 It is expected that passengers on buses will decline as many would shift to the UMRT. This is particularly true for current bus routes that are parallel or nearly parallel to UMRT Line1 and Line2. On the other hand, the feeder routes will generally go up, especially when the overall bus route network is modified to form overall integration with that of the railway lines (see Figure 7.13).

7.105 It is necessary to conduct a separate and more comprehensive study to re-structure the bus route network of Hanoi, or overall public transport study, since Public Transport Authority (PTA) will be formulated under HPC to operate all UMRT lines except for Line1 and buses. In this section, it can only be presumed as recommendatory to that larger study.

7.106 To formulate public transport oriented city, it is necessary to promote UMRT and bus service as an integrated public transport network, rather than competing each other. For effective bus service both for UMRT transfer passengers and bus passengers, it is proposed to consider following issues:

- i) Development of bus terminal in front of UMRT stations of suburban areas
- ii) Improvement of transfer between bus and UMRT in CBD
- iii) Modification of bus routes to provide feeder bus services from UMRT stations

Figure 7.13 Present Bus Route Map of Hanoi



Source: TRAMOC

2) Development of bus terminal

7.107 At present, there are eight (8) bus terminals which will be affected by UMRT development namely: Nam Thang Long, My Dinh, Kim Ma, Bo Ho, Long Bien, Gia Lam, Giap Bat and Ha Dong (see Figure 7.14). Among them, Bo Ho, Long Bien, Gia Lam and Giap Bat are located near to UMRT stations: (i) Bo Ho bus terminal near to Hoan Kiem Lake station (C8), (ii) Long Bien bus terminal near to Nam Cau Long Bien station (V6), (iii) Gia Lam bus terminal near to Gia Lam station (V4), and (iv) Giap Bat bus terminal near to Giap Bat station (V12).

7.108 To provide public transport service in the area out of UMRT service areas, it is proposed to improve feeder bus services from UMRT stations of suburban areas. At present, Gia Lam, My Dinh and Giap Bat are located new suburban districts to provide feeder bus services. TRAMOC plans to relocate Giap Bat bus terminal toward south. It is proposed that new bus terminal will be located in front of Hoang Liet station (V13) where factory is existed.

7.109 Nam Thang Long station (C1) will be located inside of CIPTRA new town, where has been mostly developed with residential facilities. In future, the Tay Ho Tay urban governmental district will be developed as a new urban center of Hanoi City, and Tay Ho Tay station (C3) will be located in the center of this district. It is proposed to utilize the land for park under approved Detailed Plan for bus terminal development, which will be convenient to provide feeder bus services to the north districts of Red River. HPC also plans to develop City Air Terminal (CAT) in this station which has a function of transit and check in service to Noi Bai Airport.

3) Improvement of transfer between bus and UMRT stations

7.110 As mentioned above, bus terminals of Bo Ho, Long Bien, Gia Lam and Giap Bat are located near to UMRT stations, in addition to proposed bus terminals of Hoang Liet and Tay Ho Tay. To improve connectivity and accessibility for public transport users, it is important to improve transfer condition.

7.111 **Bo Ho bus terminal:** In the Detailed Plan of Hoan Kiem Lake station (C8), it is proposed Bo Ho bus terminal will be relocated inside the building of the Hanoi Electricity Company urban redevelopment area, where is directly connected to underground path of Hoan Kiem Lake Station. The proposed location is more convenient to transfer to UMRT, and to improve a landscape of Hoan Kiem Lake. The function of this bus terminal will not only be a feeder bus service, but also be a bus parking space of tourist buses, as a gate of Ancient Quarter.

7.112 **Long Bien bus terminal:** In the Detailed Plan of Nam Cau Long Bien station (V6) and Hang Dau station (C8), it is proposed a skywalk under the viaduct will be constructed to connect to the Long Bien Bus Terminal along Yen Phu street. Bus transfer passengers will be able to access to UMRT stations without crisscrossing roads. To avoid traffic conjunction, pedestrian network of elevated skywalk among 2 UMRT stations and the bus terminal will be safe and effective.

7.113 **Gia Lam bus terminal:** In the Detailed Plan of Gia Lam station (V4), it is proposed that existing Gia Lam bus terminal along NH-1 will be relocated in front of Gia Lam station. Urban redevelopment project of VNR railway facilities will enable to develop a station-front bus terminal.

7.114 **Giap Bat bus terminal:** It is necessary to cross over NH-1 from Giap Bat bus terminal to Giap Bat station (V12). After relocation to Hoang Liet, the condition will be the same. It is proposed to develop a pedestrian deck to connect UMRT station and bus terminal directly for transit passengers.

Figure 7.14 Proposed bus terminal location map



Source: JICA Project Team

4) Modification of bus routes

7.115 There are 60 bus routes in Hanoi, as of 2009, of which 57 crisscrossed or run alongside the proposed UMRT lines. Of the 57 bus routes, only six (6) can be considered as overlapping with UMRT Lines 1 and 2. Hence, they need to be terminated or drastically modified in order to avoid direct competition with the railway services. These lines are shown on Table 7.9.

Table 7.9 Bus Routes Overlapping with UMRT

No.	Route Name	Ave Length, Km	Degree of Overlap	Peak-Hr Frequency	Average Pax Load/Bus, 2008	Pilot Stations Affected
10	Long Biên - Từ Sơn	19.1	67%	6 x 80pax	99.9	V4
3	Giáp Bát - Gia Lâm	15.9	57%	6 x 80pax	126.0	V4, C12
21	Giáp Bát - Hà Đông	13.1	57%	4 x 80pax	107.9	
14	Bờ Hồ - Cổ Nhuế	15.2	51%	6 x 60pax	96.8	V6, C8
44	Trần Khánh Dư - Mỹ Đình	16.5	44%	4 x 60pax	57.3	C12
1	Long Biên - Hà Đông	14.2	43%	6 x 80pax	138.1	V6, V8

Source: Transport Survey, 2009, JICA Project Team

7.116 Assuming a least-disruptive approach, the tentative adjustments for the above “parallel routes” are as follows:

Table 7.10 Proposed Changes in Parallel Bus Routes

No.	Current Path	To
10	Long Biên - Từ Sơn via Chuong Duong bridge, Nguyen Van Cu; Ngo Gia Tu; Ha Huy Tap.	Cut section from Long Bien to Yen Vien. Bus line 10 runs from Yen Vien station (V1) to Tu Son
3	Giáp Bát - Gia Lâm passing by Giai Phong, Le Duan, Kham Thien, Chuong Duong bridge; Nguyen Van Cu	Merge with Route 2: Long Bien - Tran Nhat Duat - Tran Quang Khai - Tran Khanh Du - Tran Hung Dao - Trang Tien - Hang Khay - Trang Thi - Dien Bien Phu - Tran Phu - Ton Duc Thang - Tay Son - Chua Boc - Dao Duy Anh - Le Duan - Tran Nhan Tong - Quang Trung - Tran Hung Dao - Hanoi (V8).
21	Giáp Bát - Hà Đông passing by Giai Phong, Dao Duy Anh, Pham Ngoc Thach, Chua Boc, Tay Son, Nga Tu So, Nguyen Trai	Re-route from Giap Bat (V12) to Hanoi (V8), as follows: Giap Bat (V12) - Giai Phong - Le Duan - Tran Nhan Tong - Quang Trung - Tran Hung Dao - Hanoi (V8)
14	Bờ Hồ - Cổ Nhuế via Quan Thanh, Thuy Khe, Hoang Quoc Viet, Hoang Hoa Tham, Phan Dinh Phung	For closure
44	Trần Khánh Dư - Mỹ Đình via Dai Co Viet, Dao Duy Anh, Chua Boc, Tay Son, Nga Tu So, Nguyen Trai	Khánh Dư - Trần Hưng Đạo - Tăng Bạt Hổ - Yecxanh - Lò Đúc - Trần Khát Chân - Đại Cồ Việt - Kim Lien keo dai - De La Thanh - Nguyen Chi Thanh - Trần Duy Hưng - Phạm Hùng - Mỹ Đình Bus Terminal.
1	Long Biên - Hà Đông via Hang Dau, Hang Cot, Hang Ga, Hang Dieu, Le Duan, Tay Son, Nga Tu So, Nguyen Trai	Hanoi (V8)- Kham Thien - Nguyen Luong Bang - Nga Tu So - Nguyen Trai - Yen Nghia Station

Source: JICA Project Team

5) Routes passing at/near priority stations of Detailed Planning

7.117 The bus routes intersecting or passing near the seven (7) UMRT stations included in the 5 priority stations for Detailed Planning are shown on Table 7.11. The forecasted number of daily passengers in year 2020 that may require transfers to/from buses are also compared with current (i.e., year 2008 data) bus capacities at those stations. The transfer volumes suggest that bus reductions are likely only at Hoan Kiem Lake (C9). More buses will be needed at the twin stations of Nam Cau Long Bien (V6) and Hang Dau (C8).

7.118 The number of bus bays indicated in the Table 7.11 assumes a dwell time of 5 minutes per bus, intended only for loading or unloading.

- i) For Gia Lam station, most of the feeder buses will be inter-provincial, and destined for lay-over at the nearby bus terminal.
- ii) For the twin stations of Nam Cau Long Bien and Hang Dau, 5 bus bays per direction are recommended – with 3 closer to Hang Dau (i.e., Line 2) and 2 nearer to Nam Cau Long Bien (i.e., Line 1).
- iii) The twin stations of CV Thong Nhat and Bach Khoa will need 3 bus bays – 1 bay along Line 2 and 2 bays along Line 1. Because of the forecasted decline in bus transfers at Bo Ho Bus Terminal at north of Hoan Kiem Lake, and considering the one-way road traffic in the area, a single bus bay near Hoan Kiem Lake Station will be sufficient to cater for both directions.

Table 7.11 Feeder Bus Service Requirements at Priority Stations of Detailed Planning

No.	Route Name	Priority Stations of Detailed Planning						
		Gia Lam	Nam Cau Long Bien	Hanoi	C.V. Thong Nhat	Hang Dau	Hoan Kiem Lake	Bach Khoa
		V4	V6	V8	V9	C8	C9	C12
2	Bác Cổ - H.Đông - Ba La						X	
8	Long Biên - Ngũ Hiệp						X	
9	Bờ Hồ - Bờ Hồ						X	
11	Ga Hà Nội - ĐH NN I	X						
18	Kim Mã - L.Biên - Kim Mã		X					
22	BX Gia Lâm - BV103		X			X		
23	Ng. C.Trứ - Ng. C.Trứ		X					
25	Nam TLong - Giáp Bát							X
30	Mai Động- HQ Việt			X				
31	Bách Khoa- Đ.H Mỏ							X
32	Giáp Bát - Nhón			X				X
35	Trần .K. Dư - Nam TL							X
36	Yên Phụ - Linh Đàm		X			X		
38	N.T.Long - Mai Động			X				
41	Giáp Bát - Nghi Tàm							X
43	Ga Hà Nội - Đông Anh			X				
49	T.K. Dư - KĐT Mỹ Đình			X				
51	T.K. Dư - KĐT Trung Yên							X
	Bus-Rail Transfers in 2020	49,100	60,700	39,100	32,000	69,000	2,100	20,400
	Peak-Hr Bus Capacity							
	- Current, excluding overlap	240	942	1,600	n.a.	576	2,070	1,912
	- Required bus capacity in 2020	3,069	3,794	2,444	2,000	4,312	131	1,275
	Desirable No. of Bus Bays, per direction	2	2	2	2	3	1	1

Source: JICA Project Team

7.119 The bus routes passing by or near the 7 stations were then analyzed, as to whether they would compete directly with the UMRT or complement the service. Modifications in the paths or circuits of these routes are then postulated – by removing or reducing competition, and improving the feeder roles of buses at those stations.

7.120 It must be observed that the preceding adjustments in bus routes are partial and sub-optimal, in the sense that the network and secondary effects on other bus routes have not been taken into account. Hence, the analysis limited itself to route modifications – rather than a total re-design of the route structure. The key modifications were on sections of the routes within the central envelope formed by Line1 and Line2 (which is mainly the Ancient Quarter). As to the suburban nodes, only those routes terminating at Gia Lam (V4), Giap Bat (V12), and Nam Thang Long (C1), which are the terminals of UMRT Line1 and Line2, are affected.









7.121 In so far as timing is concerned, there is no immediacy. The UMRT lines are scheduled to open only by 2017; neither will the two lines be opened for commercial service simultaneously. Hence, executing the changes in bus routes should be synchronized with the relevant Line or station. Also, to permit existing passengers to adjust, it is recommended to overlap the phased-out and phased-in over several weeks – so that the old and the new routes would still co-exist for a short period. Bus frequency or headways would necessarily change. In addition, it is recommended that the bus operators and TRAMOC conduct on-board ride-check surveys on the affected bus routes – to determine with more accuracy sectional traffic volumes.







Figure 7.15 Proposed Adjustments in Bus Routes

(1/5)


No.	Route Name	Current Orientation of Service	Proposed Adjustments
2	Bắc Cổ - H.Đông - Ba La	Serves southwest areas of Hanoi, with northern section ending at Hoan Kiem Lake (C9).	Essentially retain the route. However, lay-over area for Bo Ho Bus Terminal near Hoan Kiem Lake is unnecessary and waste of valuable space.
8	Long Biên - Ngũ Hiệp	Serves north-south axis. Large overlap with UMRT Line1, from Giap Bat (V12) to Nam Cau Long Bien (V6)	Cut-off the northern extension through the Ancient Quarter; route to end at and feed Tran Hung Dao (C10).
9	Bờ Hồ - Bờ Hồ	Serves Ba Dinh District to Hoan Kiem, with minimal duplication with UMRT.	No change. Additional buses or frequency not necessary






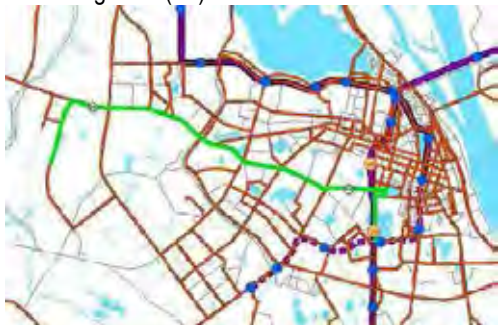


(2/5)

11	Ga Hà Nội - ĐH NN I	Overlap with UMRT 1, from Gia Lam (V4) to Hanoi (V8). 	Cut or terminate at Gia Lam (V4), to become main feeder to/from northeast areas. 
18	Kim Mã - L.Biên - Kim Mã	Follows Kim Ma corridor to Long Bien 	Maybe terminated at Trang Hung Dao (C10) to avoid duplication within Ancient Quarter. 
22	BX Gia Lâm - BV103	Similar corridor as Route 2 towards Ha Dong, but crosses Long Bien Bridge 	Cut-off sections that crosses the bridge, so line terminates at Station Nam Cau Long Bien (V6). 
23	Ng. C.Trứ - Ng. C.Trứ	Overlapping sections with UMRT Line 1, between Hang Dau (C8) and Nguyen Thai Hoc 	Remove Phung Hung section, shift to Hang Gai - Cau Go (Bo Ho Bus Terminal) 

25	Nam TLong - Giáp Bát	<p>North-south axis with sharp turn to Cau Giay; overlapping sections with UMRT 1 from Giap Bat (V12) to Hanoi (v8), and with UMRT Line2 from Nam Thang Long (C1) to Cho Buo.</p> 	<p>The section at CBD which passes Le Duan Street, can be shifted eastward to Pho Ba Trieu and terminate at Bach Khoa (C12). Its suburban section can be cut to end at Buo (C4).</p> 
30	Mai Động- HQ Việt	<p>East-west axis complements UMRT</p> 	<p>No change, except to bring bus stop closer to CV Thong Nhat (V9).</p> 
31	Bách Khoa- Đ.H Mỗ	<p>Overlapping sections with UMRT Line1, from Bach Khoa (C12) to Nam Cau Long Bien (V6)</p> 	<p>Retain northern segment and terminate at Nam Cau Long Bien (V6).</p> 

(4/5)

32	Giáp Bát - Nhổn	East-west axis linking Hanoi (V8) to western parts of city	Retain route, but change turnback loop at Hanoi via proposed trunk road, instead of Chu Van An
35	Trần .K. Dư - Nam Thang Long	East-west orientation thru Bach Khoa	No change. But bus frequency may decline
36	Yên Phụ - Linh Đàm		No change, except to relocate bus stop nearer to Tran Hung Dao (C10)
38	Nam Thang Long - Mai Động	Circuitous north-south axis through the Ancient Quarter	No change, except to bring bus stop closer to C10, at turnback loop

41	Giáp Bát - Nghi Tâm	North-south axis with large overlaps with UMRT Line1, from Hanoi (V8) to Giáp Bát (V12) 	Cut off southern sections/extensions, so that line becomes Hanoi (V8) – Nghi Tâm 
43	Hà Nội - Đông Anh	Loop service around the Ancient Quarter 	Instead of Ga Hanoi, terminate at C.V. Thong Nhat (V9) until UMRT Line 2 gets extended 
49	T.K. Dư - Mỹ Đình	East-west axis, same corridor as Route 32 	Cur-off sections inside Ancient Quarter; loop back at C.V. Thong Nhat (V9) 
51	T.K. Dư - Trung Yên	East-west axis 	No change, feeds stations C.V. Thong Nhat (V9) and Bach Khoa (C12). 

Source: JICA Project Team

7.5.3 Proposed Underground Space Management Plan

7.122 Urban development project in surroundings area of UMRT station include underground transportation facilities such as underground station, underground parking, underground pedestrian and underground mall. In addition, underground technical infrastructure such as water supply, sewerage, power cable, telecommunication cable and utility tunnel exist and are planned under arterial road. Therefore, intensive utilization of underground space will be expected in surrounding area of UMRT station.

7.123 For the coordination and management of underground development, formulation of underground space management plan is proposed. Underground space management plan covers each special zone designated by HPC and consist horizontal plan and vertical plan indicated existing and planned major underground facility. Underground facility allocation principles under arterial road is shown as following figure.

Figure 7.15 Facility Allocation Principles under Arterial Roads (Proposed)

	Pedestrian Sidewalk		Carriageway		Pedestrian Sidewalk
	Zone A	Zone B		Zone A	
GI + 0m	<ul style="list-style-type: none"> Branch lines of supply and disposal, telecom facilities <i>New supply and disposal, telecom facilities (area-wide air conditioning, etc.)</i> 	<ul style="list-style-type: none"> Trunk lines of supply and disposal, telecom facilities (incl. branch connection) <i>Underground pedestrian facility (incl. underground arcade)</i> <i>Underground road</i> <i>Underground car parking</i> <i>Branch lines of supply and disposal, telecom facilities</i> <i>New supply and disposal, telecom facilities (area-wide air conditioning, etc.)</i> 		<ul style="list-style-type: none"> Branch lines of supply and disposal, telecom facilities <i>New supply and disposal, telecom facilities (area-wide air conditioning, etc.)</i> 	
-3m -5m	<ul style="list-style-type: none"> Underground pedestrian facility (incl. underground arcade) Subway (Station) 	<ul style="list-style-type: none"> Trunk lines of supply and disposal, telecom facilities (incl. common-use cable tunnel) 	<ul style="list-style-type: none"> Underground road Underground car parking 	<ul style="list-style-type: none"> <i>Branch lines of supply and disposal, telecom facilities</i> <i>Trunk lines of supply and disposal, telecom facilities (incl. branch connection)</i> 	
-6m-10m	<p style="text-align: center;">Zone E</p> <ul style="list-style-type: none"> <i>Underground road</i> <i>Subterranean river</i> 		<ul style="list-style-type: none"> Subway (rail track) Subway (station) <i>Underground car parking</i> 	<ul style="list-style-type: none"> <i>Trunk lines of supply and disposal, telecom facilities (incl. common-use cable tunnel)</i> 	
Below - 30m	<p style="text-align: center;">Zone H</p> <ul style="list-style-type: none"> Subterranean river Subway (rail track) Subway (station) <i>Underground road</i> 			<ul style="list-style-type: none"> <i>Trunk lines of supply and disposal, telecom facilities (incl. common-use cable tunnel)</i> 	

Remarks: standard allocation zone in normal; *alternative allocation zone in italic*
 Source: JICA Project Team

7.5.4 Proposed Resettlement Plan for Integrated UMRT and Urban Development

7.124 Land acquisition and resettlement of existing entities and households constrain implementation of urban development and infrastructure projects. At present, there are two options for land acquisition: (i) to pay compensation, or (ii) to provide resettlement areas. It is said that more than half of project costs are for compensation. Because of difficulty of land acquisition, many approved projects have been delayed or not been implemented.

7.125 One of the characteristics of UMRT development is to cover various types of lands for development, including CBD, peri-urban, and sub-urban areas extensively. In sub-urban areas, it is easier to develop residential areas converted from agricultural lands in sub-urban areas than in CBD and peri-urban areas where most of lands are built up. There are many New Town development projects in sub-urban areas and vacant lands which can be urbanized in future.

7.126 To implement integrated development smoothly and effectively, it is proposed to develop a comprehensive resettlement plan for UMRT development. This plan is to utilize potential lands for housing development for resettlement especially in sub-urban areas, and to provide these housings to resettled households in CBD or peri-urban areas.

7.127 The potential lands for housing development for resettlement can be identified following types of lands (see Table 7.12 and Figure 7.16):

- a) Public related land: There are state owned companies (SOE), public housings which were disposed to war invalid and government staffs, etc. Many of these facilities occupy broad lands in city center, and facilities have been degraded.
- b) Agricultural land: In sub-urban areas, there are broad agricultural lands. These lands around stations will be converted to urban purpose.
- c) KTT (*Khu Kap Te*): KTT is a public apartment complex, and most of residents are low income and live in a narrow space with many family members including elderly. These KTT facilities have been deteriorated. Though several redevelopment projects of KTT have been proposed by private developers, most of them have not been implemented. It is difficult for low income households to resettle new apartments, and to pay necessary costs by themselves.
- d) New Town project: There are many new town projects which are approved or planned by private developers in sub-urban areas. Though these new apartments modern facilities, road and public transport network is not well developed.

7.128 In these potential lands, there are demands for urban development, especially for residential purposes. So it is proposed that HPC especially HAUPA will negotiate and coordinate with private developers to condition of development of resettlement housings as a part of projects when HAUPA will approve detailed plans.

7.129 A comprehensive resettlement plan utilizing lands along UMRT lines will enable resettled households to use UMRT for commuting. This plan will be an incentive for land acquisition and resettlement both for railway developers, urban developers, and residents.

Table 7.12 Potential lands for housing development of resettlement

Phase	Station		Type of Land / Name of Project	Present Condition of Potential Land				Project Status	
				Public related land	Agricul tural land	KTT	New Town project	Approve d or Planned	Proposed by JICA Team
Phase2	V1	Yen Vien	New residential area		✓				✓
	V2	Cau Duong	Thuong Thanh New Town		✓		✓	✓	
			Viet Hung New Town		✓		✓	✓	
V3	Duc Giang	-							
Phase1	V4	Gia Lam	Ngoc Thuy New Town		✓		✓	✓ ¹⁾	
	V5	Bac Cau Long Bien							
	V6/ C8	Nam Cau Long Bien/ Hang Dau	Army related facilities (ex. newspaper company, cinema)	✓					✓
	V7	Phung Hung							
	V8	Hanoi	Hanoi Water Company	✓					✓
			Van Chuong KTT			✓			✓
	V9/ C12	C.V. Thong Nhat/ Bach Khoa	Kim Lien KTT			✓		✓ ²⁾	
	V10	Bach Mai	-						
	V11	Phuong Liet	-						
V12	Giap Bat	New residential area		✓				✓	
Phase2	V13	Hoang Liet	Phap Van – Tu Hiep New Town				✓	✓ ³⁾	
			New residential area						✓
	V14	Van Dien	New residential area		✓			✓	
	V15	Vinh Quynh	New residential area		✓			✓	
Phase1	V16	Ngoc Hoi	New residential area	✓				✓ ⁴⁾	
Phase1	C1	Nam Thang Long	CIPTRA new urban area				✓	✓ ⁵⁾	
	C2	Ngoai Giao Doan	Ngoai Giao Doan new urban area				✓	✓ ⁶⁾	
	C3	Tay Ho Tay	-						
	C4	Buoi	-						
	C5	Quan Ngua	-						
	C6	Bach Thao	-						
	C7	Ho Tay	-						
	C9	Hoan Kiem Lake	-						
	C10	Tran Hung Dao	-						
	Phase2	C11	Cau Den	Nguyen Cong Tru KTT			✓		✓
C13		Kim Lien	Kim Lien KTT			✓		✓ ²⁾	
			Trung Tu KTT			✓			✓
C14		Chua Boc	-						
C15		Nga Tu So	Vinh Ho KTT			✓			✓
C16		Thuong Dinh	Co Khi Hanoi KTT			✓			✓

Source: JICA Project Team

- 1) It is necessary to coordinate with developers of new town (Hong Ha), HAUPA and Long Bien District PC.
- 2) Kim Lien KTT redevelopment detailed plan has been submitted to HPC and will be approved together with Kim Lien Station development.
- 3) It is necessary to coordinate with developer of the new town (HUD), HAUPA and Hoang Mai District PC.
- 4) JICA Project Team proposes to convert landuse of industrial of Ngoc Hoi Industrial Zone into residential/ mixed-use.
- 5) It is necessary to coordinate with developer of the new urban area (CIPTRA), HAUPA and Tu Liem and Tay Ho District PCs.
- 6) It is necessary to coordinate with developer of the new urban area (Hanoi Construction Co. Ltd., HAUPA and Tu Liem District PC.

Figure 7.16 Location of Potential Lands for Housing Development of Resettlement



Source: JICA Project Team

7.130 Integrated urban development with UMRT systems is more than a transportation development project which can promote urban and socio-economic development, as well as the preservation of culture and the environment. To implement a significant multi-sectoral project for Hanoi City, role sharing and coordination among public sector entities is inevitable. Furthermore, public participation, especially of the local community, should be promoted. With better understanding of the need to improve and preserve present conditions, and the future impact of an integrated UMRT and urban development, people will actively use and take advantage of the UMRT systems and the ensuing urban developments.

7.131 Key principle for implementation is role-sharing among governmental agencies and between public and private sectors. It is obvious that both monetary and non monetary values will increase, so development benefits can be shared equitably among stakeholders. It is expected private sector will participate in integrated development projects including road and infrastructure development. Other non-profit public facilities such as station related facilities and parks are mainly developed by public sector, and partly by private sector.

7.132 Proposed projects can be implemented under current institutional system, which HPC will lead and coordinate in general (see Table7.1). But this will not work effectively since there are many issues to be coordinated both for planning and implementation stages among several governmental agencies and private developers. At present, there is no single authority for integrated UMRT and urban development. Though railway developers (VNR for Line1 and HRB for Line2 and Line3) are responsible for railway and station development within ROW, their responsibility is so limited. Though minimum development projects (ex. ITF, access road, pedestrian underground) are proposed, it is still unclear which agency will be responsible and finance to develop them.

7.133 In this context, it is proposed to establish the special unit/ organization for integrated urban development under HPC, which will be initiated by HAPI and HAUPA. This organization will lead and coordinate necessary plans and projects, including (i) minimum development projects, (ii) integrated urban development including potential areas such as VNR owned lands, KTT, factories, (iii) necessary institutional arrangements including PPP, etc. In this organization, both railway developers (VNR and HRB) and authorities for planning (HAUPA, HAPI) and for implementation (HDOC, HDOT, TRAMOC) will be participated in.

7.134 Other required institutional arrangements for implementation of integrated development are as follows:

- i) Determination of Right of Way (ROW) for a project
- ii) Determination of implementation bodies (HPC, VNR, private sector)
- iii) Readjustment of approved District Plans
- iv) Coordination with related projects (ex. New Town development, redevelopment of factory, redevelopment of KTT)
- v) Formulation of policy, plans and regulations for underground development
- vi) Formulation of resettlement plan for UMRT development
- vii) Establishment of physical and operational coordination between UMRT lines and between UMRT and feeder services

8. CONCLUSION, RECOMMENDATIONS, AND NEXT STEPS

8.1. Conclusion

(1) UMRT Development and Integrated Urban Development to Facilitate the Transit-oriented Development of Hanoi City

8.1 This JICA project aims to propose a transit-oriented development (TOD) for Hanoi City by introducing conceptual planning for and methodologies of an urban development integrated with the development of UMRT systems in densely populated urban environments.

8.2 The concept of TOD, which introduces: (i) fast, frequent, reliable, and comfortable transit services; (ii) intensive and efficient land use along the UMRT corridor; (iii) hierarchical transportation mode; (iv) pedestrian- and UMRT-user-oriented urban development; and (v) structured UMRT corridor development, will generate the following benefits for Hanoi City:

For the community:

- **Less automobile use** → reduced congestion, savings in road and parking costs, increased road safety, protected environment, and livable community
- **Affordable mobility and increased transport choices** → savings in consumer's time and money, and increased convenience
- **Efficient and intensive land use** → more choice of activities and higher residential and commercial property values

For UMRT:

- **Intensive land use around stations** → more UMRT passengers
- **Intermodal transfer facilities** → more UMRT passengers and convenient transfers for users
- **Structured UMRT corridor development** → smooth passenger movement along the corridor in terms of time and space by planning dense urban centers, university towns, residential new towns, etc.

8.3 The integrated urban development with UMRT systems based on this TOD concept, along with the growth in the number of UMRT lines in the future, will have significant effects on the urban structure of Hanoi City. The formation of multiple urban centers (sub-CBDs) along the UMRT corridors will bring about large and sustainable impact on the growth of Hanoi's urban economy by continuously integrating the urban development of more than a hundred UMRT station areas on the city's extensive UMRT network in the future, as experienced in Tokyo.

(2) Development Plan for 31 Station Areas for UMRT Line 1 and Line 2 to Promote Development of Structured UMRT Corridors

8.4 UMRT Line 1 and Line 2 will cover various areas, such as the CBD which is mostly built-up and urbanized, peri-urban areas which are rapidly urbanizing and becoming increasingly congested, and suburban areas where mobility and accessibility to urban services have been difficult. In the CBD, the UMRT is expected to promote socio-economic activities around the stations, and in peri-urban areas, it is expected to reduce traffic congestion and make commuting and daily activities comfortable for people. Railway development in suburban areas will have much effect on land-use conversion

from rural to urban, promotion of urban development activities, promotion of settlements in new town, and others.

8.5 This JICA project proposed concept plans for 31 stations of UMRT Line 1 and Line 2. The plans indicate development concepts, future land use, and projects that will reflect an integrated development concept. In addition, development phasing based on time and feasibility is proposed to more easily understand the necessary projects toward UMRT development and operation, and recommended projects for integrated urban development at railway station vicinities. The concept plans are proposed based on the following hierarchy of urban center functions:

- Urban Center Core (CBD)
- Sub-Center in Urban Center Fringe
- Urban Core in Urban Center Fringe
- Key Urban Core in Suburban/Peri-urban
- Urban Core in Suburban/ Peri-urban

8.6 It is expected that the concept plans for 31 stations will be reflected in the new Hanoi City Master Plan. The formulation of the UMRT network will enable the development of a public-transportation-oriented city and promote urban development activities. UMRT development will play a significant role in achieving the vision for Hanoi City, which is that of becoming “a compact city with water, green and culture,” which was proposed in HAIDEP.

(3) Proposed Detailed Plans for Priority Station Area Developments deemed Implementable

8.7 In January 2010, the Urban Planning Law was enforced. The spirit of the law aims to regulate the urban planning system which plans, implements, and controls urban development activities with feasible approaches. Land use and urban development activities will be specified under the Zone Plan, which covers urban planning areas of neighboring administrative boundaries. In addition, new concepts for urban planning, such as urban design, Strategic Environmental Assessment (SEA), and public consultation, are also included in the system with specific methods and indicators.

8.8 In this project, in line with the trend of changes in the urban planning system of Vietnam, detailed planning was conducted covering five (5) station areas covering seven (7) stations: (i) Gia Lam Station of Line 1, (ii) Nam Cau Long Bien Station of Line 1 and Hang Dau Station of Line 2, (iii) Hanoi Station of Line 1, (iv) C.V. Thong Nhat Station of Line 1 and Bach Khoa Station of Line 2, and (v) Den Ngoc Son Station of Line 2. Priority stations were selected based on several criteria, such as: (i) potential for urban development, (ii) accessibility to station(s), (iii) interchange function, and (iv) necessity of socio-environmental consideration, etc.

8.9 For detailed planning, the following were carefully considered: (i) to improve accessibility to station(s) and convenience of transfer to another UMRT line and public transport, (ii) to promote socio-economic activities to maximize land potential around UMRT station(s), (iii) to harmonize with local characteristics and values, as well as promote the identity of each UMRT station, (iv) to propose appropriate implementation approaches and measures, in which Hanoi City, the private sector, and citizens can be motivated to involve themselves. Financial analyses were also conducted for various

project packages for each priority station area development on the basis of public-private partnership (PPP) schemes and assessed to be financially implementable with private sector participation.

(4) Proposed Implementation Mechanisms deemed Feasible and Effective based on Participatory Approach and PPP

8.10 Based on a review of the present conditions, appropriate implementation measures were proposed, which can be implemented under the present system, or using new approaches. As new legal and institutional mechanisms to implement the proposed urban development integrated with UMRT systems, the land readjustment (LR) and urban redevelopment (UR) systems are proposed in order to cope with complicated land-use rights conversion and resettlement issues in densely populated urban areas.

8.11 Project implementation mechanisms include phasing, project packaging, responsibility and risk sharing among major stakeholders (HPC, VNR, private sector, and community), PPP schemes, and financing mechanism. In addition, coordination within the public sector is essential. Urban development integrated with UMRT systems is more than a transport development project which can promote urban development, socio-economic development, and preservation of culture and environment. To implement a significant multisectoral project for Hanoi City, role sharing and coordination in the public sector is inevitable. Furthermore, public participation, especially of the local community, should be promoted. With a better understanding of the need to improve present conditions and of the future impact of an integrated UMRT and urban development, people will actively use and take advantage of the UMRT systems and associated urban development.

8.12 A preparation and implementation procedure is proposed which includes the formulation of a zone plan, establishment of special zones and designation systems, establishment of an Integrated Urban Development Project Management Department under the HPC, establishment of a project management unit (PMU) for each station area, and the formulation of guidelines on an integrated urban development in UMRT station areas.

8.2. Recommendations

(1) Establishment of a Special Unit on Integrated Urban Development

8.13 The impact of implementing a transit-oriented development and an integrated urban and UMRT development at station areas on the formation of Hanoi's urban structure and on the sustainability of the city's economic growth will be very significant for Hanoi City, as illustrated in the previous chapter. To effectively plan, implement, and manage such development, therefore, it is proposed that a special unit be established under the HPC to work on the integrated urban and UMRT development of all UMRT station areas in the future.

8.14 This special unit should coordinate with related departments, government bodies, and citizens, especially with VNR, HRB, and the future Public Transport Authority which are and will be responsible for developing and managing UMRT systems. The formation and involvement of this special unit should be concurrent with the construction of the UMRT system because coordinated planning and physical development are essential to

achieving the integration of UMRT and urban development.

8.15 This special unit should be established as soon as possible together with the following institutional arrangements:

- (i) Formulation of zone plans to reflect the concept plans for integrated urban and UMRT development at UMRT station areas;
- (ii) Establishment of special zones and designation of each UMRT station area;
- (iii) Establishment of a PMU for each station area to implement integrated urban development and necessary PPP projects; and,
- (iv) Formulation of guidelines for integrated urban and UMRT development at UMRT station areas.

(2) Implementation of Minimum Development Projects

8.16 Minimum development projects refer to those which must be readily available when the UMRT lines commence operations to ensure smooth access to the stations through different types of transportation modes, especially walking and public transportation. Without these projects, users will encounter difficulties in accessing the stations.

8.17 After this JICA project, the Hanoi city government and railway implementation bodies (i.e., VNR and HRB) are encouraged to continue discussing and coordinating with each other to implement the proposed minimum projects (e.g., station entrance space, intermodal facility, station access roads, etc.) till the UMRT starts operation in 2017. The detailed design of UMRT Line 1 has been carried out. It has not been clarified whether ODA would cover the construction of station-related facilities such as intermodal transfer facilities, parking spaces, and station access roads. For UMRT Line 2 for which the Hanoi city government is the implementing body, it is recommended that not only stations and railways be planned and constructed using ODA, but related facilities as well.

8.18 For the effective implementation of proposed projects in this JICA project, as proposed in Chapter 7 of Part II, coordination should be conducted as soon as possible. While these proposals, of which there are many, will be reflected in the new Hanoi City Master Plan which is under preparation, “the master plan for integrated UMRT and urban development” (tentative) should be planned and approved by the government as a legally binding plan. In this process, not only the Hanoi city government, but also local governments and private entities engaged in urban development, would be involved.

(3) Implementation of Pilot Projects

8.19 To establish effective implementation methods, such as land readjustment projects, urban redevelopment projects as well as financial mechanism including PPP scheme, the implementation of pilot projects for a selected station area is proposed. The proposed projects and station areas for piloting are as follows:

- i) Accessibility improvement with verification of small-scale land readjustment project: Cau Duong Station (V2), Duc Giang Station (V3), and Quan Ngua Station (V5), and
- ii) Intermodal transfer facility development and integrated urban development with verification of large-scale urban redevelopment and land readjustment projects: Nam Cau Long Bien Station (V6) and Hang Dau Station (C8), Hanoi Station (V8), C.V. Thong Nhat Station (V9) and Bach Khoa Station (C12), and Tay Ho Tay Station (C3)

8.20 Since each station area development package above covers various development elements and will offer essential experience in developing other station areas on the UMRT Line 1 and Line 2, only the minimum and short-term projects are proposed for implementation as pilot project packages.

8.21 Special zones should likewise be designated for this entire development and all possible resources should be tapped to implement this pilot project package which will include procurement of technical assistance and long-term, low-interest concessional finance from bilateral and multilateral financial institutions, as well as the preparation of possible PPP schemes to solicit the participation of national and international investors from Japan, USA, Europe, and other parts of Asia.

(4) Formulation of a Development Plan on Common Interline Transfer Facilities and Operating System

8.22 While five (5) UMRT lines have been planned, there are no authorities and integrated plans to integrate these UMRT lines. If nothing is done, there will be many physical barriers and inconveniences to users when transferring between lines. If there are common pedestrian underground paths and decks as interchanges, and passengers can use a common ticketing system for all UMRT lines (and bus also), passenger convenience will improve and ridership will dramatically increase.

8.23 At present, there is no agency that plans and coordinates these interline transfer facilities and operating systems, so railway developers should coordinate with each other to minimize unexpected barriers for users.

(5) Conduct of Detailed Social and Environmental Impact Assessment for Project Implementation

8.24 The assessment of social and environmental impacts should be carried out in further detail in the next development stages, especially after the construction plans for the station areas have been made. Appropriate measures to avoid or mitigate adverse impacts caused by the projects should be examined more closely.

8.25 Since the UMRT will be a new public transportation infrastructure in Hanoi City, it is necessary to pay attention to security and safety, especially in cases of emergency such as terrorism, accidents, and natural disasters such as flooding. The promotion of anticrime measures and evacuation plans should be done on a regular basis.

8.3. Next Steps

8.26 The next important step in pushing an integrated urban and UMRT development is to establish an appropriate organization that will lead and promote the concept in coordination with related organizations (i.e., MOT, VNR, HRB, HPC departments and districts, MOC, and other related project owners) and at two levels:

- (a) Decision-making level: similar to the HAIMUD Steering Committee, and
- (b) Project implementation level: PMU or an equivalent body to manage and implement the integrated projects.

8.27 The main activities for the next development phase comprises the following:

- i) Planning and implementation of intermodal facilities/ access roads which must be

ready when UMRT lines open (Line 1 in 2017);

- ii) Planning and implementation of integrated urban development at and around UMRT stations;
- iii) Establishment of an appropriate institutional framework to implement the integrated urban development projects with the participation of the private sector and communities; and
- iv) Implementation of pilot projects to work out necessary arrangements and ensure the above projects can be effectively implemented.

8.28 One agency should be responsible for each activity not only to implement it, but also to coordinate it with other relevant agencies. The preliminarily proposed role sharing for implementation is shown in Table 8.1. It is recommended that the HPC should further coordinate and discuss these activities with the concerned agencies.

Table 8.1 Proposed Activities and Role Sharing (Preliminary)

	Activity	Main	Secondary	Coordination
A. Planning and Implementation of Intermodal Facilities/ Access Roads	1) Concept plans	HAUPA (PMU)	HRB, VNR	DOT, DOC, District
	2) Detailed plans	HAUPA (PMU)	HRB, VNR	DOT, DOC, District
	3) Integration with urban plans	HAUPA	MOC, DOC	District
	4) Engineering/ implementation plans	DOT (PMU)	HAUPA, District	HRB, VNR
	5) Implementation/ monitoring	DOT (PMU)	HAUPA, District	HRB, VNR
B Planning and Implementation of Integrated Urban Development	1) Concept plans	HAUPA (PMU)	District	DOT, DOC, HRB, VNR
	2) Detailed plans	HAUPA (PMU)	District	DOT, DOC, HRB, VNR
	3) Revision of district plans	HAUPA	District	DOT, DOC, HRB, VNR
	4) Project preparation	HAPI (PMU)	HAUPA	HRB, VNR
	5) Invitation for investments	HAPI (PMU)	HRB, VNR	HAUPA
	6) Implementation/ monitoring	HAUPA (PMU)	HAPI	District, DOT, DOC, HRB, VNR
C. Institutional Arrangement	1) Organizational set-up	HPC	MOT	HAPI, HAUPA, DOT, HRB, VNR
	2) Related regulations	HPC (PMU)	MOT, MOC	HAPI, HAUPA, DOT, HRB, VNR
	3) PPP framework	HPC (PMU)	MOT, MPI	HAPI, Private sector
D. Implementation of Pilot Projects	1) Selection of pilot projects	HPC	HRB, VNR	HAPI, HAUPA, DOT
	2) PP implementing organization	(PMU)	HPC	HAPI, HAUPA, DOT, HRB, VNR
	3) PP implementation/ monitoring	(PMU)	HPC	HAPI, HAUPA, DOT, HRB, VNR

Source: JICA Project Team