Socialist Republic of Vietnam
Ho Chi Minh City People's Committee (HCMC PC)
Ho Chi Minh City Management Authority for Urban Railways (MAUR)

Special Assistance for Project Impementation (SAPI) for Ho Chi Minh City Urban Railway Project (Ben Thanh – Suoi Tien Section (Line 1)) (Improvement of Intermodal Station Access)

Final Report

Part IV: Station Area Development

August 2014

Japan International Cooperation Agency (JICA)

ALMEC Corporation
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Nikken Sekkei Research Institute

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(Based on the "General Guidelines for the 1st Batch of FY2014 Japanese ODA Loan Projects")

PREFACE

The output of the "Special Assistance for Project Implementation (SAPI) for Ho Chi Minh City Urban Railway Project (Ben Thanh – Suoi Tien Section (Line 1))", is organized into the following reports (see table below), each providing detailed findings on specific subjects.

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2. Urban Development and Transport Contexts
3. Review of the International Experience in Intermodal Transfer Improvement
4. Planning Direction on the HCMC UMRT Line 1 Transit Corridor
5. Travel Demand Forecast
6. Conclusion, Recommendations and Next Steps

Part II: Feeder Bus Network Planning
7. Bus Network Planning
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Part III: Intermodal Facility Development
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ABBREVIATIONS

BRT	Bus Rapid Transit
CBD	Central Business District
CII	Ho Chi Minh City Infrastructure Investment Joint Stock Company
CP	Contract package
DC	Direct current
DOC	Department of Construction
DOT	Department of Transport
DPA	Department of Planning and Architecture
DPI	Department of Planning and Investment
EIA	Environmental Impact Assessment
GIS	Geographical Information System
GMS	Greater Mekong Sub-region
HCMC	Ho Chi Minh City
HIS	Household Interview Survey
HOUTRANS	The Study on Urban Transport Master Plan and Feasibility Study in Ho Chi Minh Metropolitan Area
HW	Highway
IEE	Initial Environmental Examination
IP	Industrial Park
IRR	Internal Rate of Return
ITS	Intelligent Transport Systems
JICA	Japan International Cooperation Agency
MAUR	Management Authority for Urban Railways
LRT	Light Rapid Transit
M/P	Master Plan
MOC	Ministry of Construction
MOCPT	Management and Operation Center for Public Transportation
MONRE	Ministry of Natural Resources and Environment
NJPT	NJPT Association – General Consultants for the UMRT Line 1 Project
OD	Origin-Destination
ODA	Official Development Assistance
O&M	Operations & Maintenance

PPP	Public Private Partnership
RAP	Resettlement Action Plan
SAPI	Special Assistance for Project Implementation
SAMCO	Saigon Transportation Mechanical Corporation
SEA	Strategic Environmental Assessment
STEP	Special Terms for Economic Partnership
STRASYA	Standard Urban Railway System for Asia.
TOD	Transit Oriented Development
UCCI	Urban – Civil Works Construction Investment Management Authority of HCMC
UMRT	Urban Mass Rapid Transit
VND	Vietnamese Dong
VNU-HCM	Vietnam National University - Ho Chi Minh City

Part IV: Station Area Development

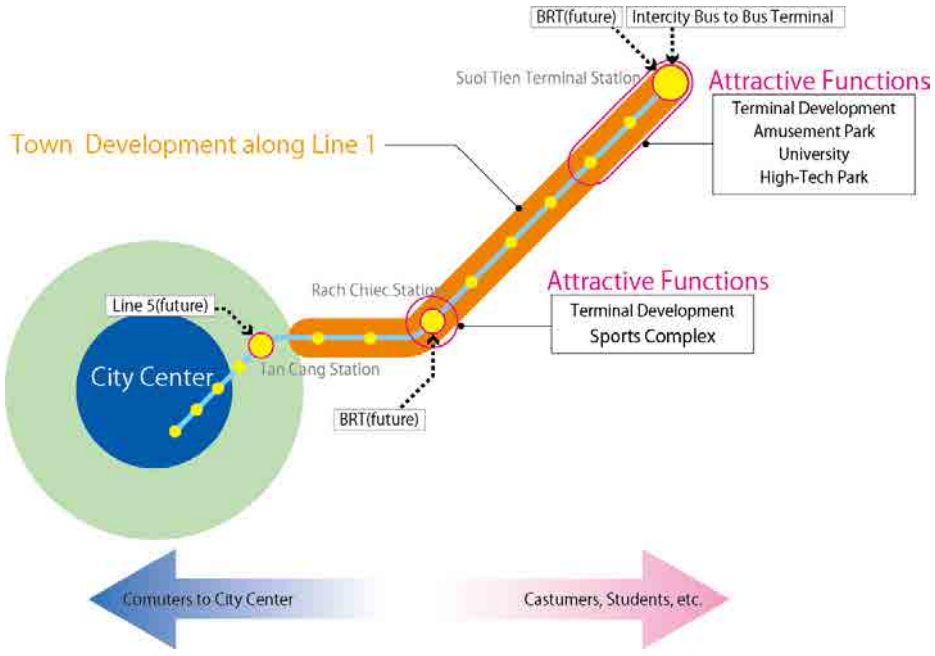
13 CONCEPT PLAN OF STATION AREA DEVELOPMENT

13.1 Basic Concept of Urban Development for the HCMC UMRT Line 1 Corridor

1) Essential Points for Promoting TOD along the HCMC UMRT Line 1

To promote urban development along the area of the HCMC UMRT Line 1 based on the TOD concept indicated in Chapter 3, the following points have to be taken into consideration (Figure 13.1.1 shows the image of urban development along the HCMC UMRT Line 1 based on the TOD concept).

- As indicated in Chapter 2, the zoning plan was formulated for the area in the western side of the Saigon River, in which the TOD concept is adopted. For example, the station plaza and integrated development with the station facilities are indicated in the land use plans for the Tan Cang and Ba Son Areas. However, since the army owns these areas, the city authority does not fully control the areas' development according to the approved zoning plan.
- In the area on the eastern side of the Saigon River, there are not enough urban plans following the TOD concept. Only for the Thao Dien Area in District 2, the land use plan with high density development along the UMRT Line 1 is indicated. However, the plan is at the level of the planning task which only stipulates the basic planning criteria.



Source: Study Team

Figure 13.1.1 - Image of Urban Development for the Area along the HCMC UMRT Line 1 Based on the TOD Concept

- To increase the ridership of the UMRT, the urban plans along the HCMC UMRT Line 1 of the eastern side of the Saigon River have to be formulated or amended. In particular, accessibility to the existing and planned facilities near the UMRT stations has to be improved by the urban plans, which include the sports facilities in the southeastern part of Rach Chiec Station, the Suoi Tien Water Park and the educational facilities near the Suoi Tien Station, and the Saigon High-Tech Park adjacent to the High-Tech Park Station.
- In addition, Suoi Tien Terminal and Rach Chiec Stations have to be planned as a hub stations for the eastern area of the HCMC UMRT Line 1.

2) Development Concept in the Vicinity of Stations based on TOD

The following are the development concept for the areas near the stations based on the TOD concept.

Walkability

- Construction of pedestrian network uninterrupted by car traffic (Pedestrian decks separated from car traffic, lively corridor with commercial functions, etc.)

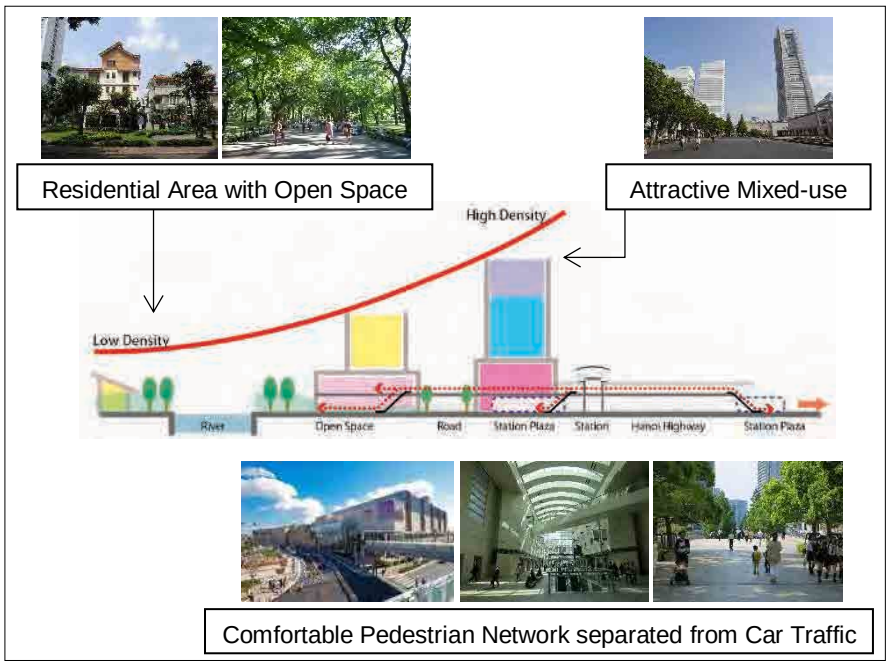
High Density & Mixed Use

- Layout of attractive and convenient functions close to stations (Retail, amusement, public facilities, etc.)

Public Space for Modal Shift

- Improvement of accessibility from bus and other transportation modes to railway stations (Station plaza adjacent to the station, other transport-related facilities including parking spaces, etc.)

Since the HCMC UMRT Line 1 on the eastern side of the Saigon River has an elevated structure, the ticket gates and the pedestrian bridges crossing the Hanoi Highway are located at the second floor. Therefore, establishing the pedestrian networks at such a level which connect between the stations and their surrounding urban areas will be important. In addition, creating a functional and pleasant living and urban environment of the areas adjacent the stations, which takes into consideration the suburban development typology of Ho Chi Minh City, is also important. Many suburban urban development projects in the city are composed of high-rise condominiums with commercial functions at the lower level and detached houses taking advantage of the surrounding natural environment.



Source: Study Team

Figure 13.1.2 - Development Concept in the Vicinity of Stations based on TOD

13.2 Planning Framework for Controlling Urban Development

1) Necessary Urban Planning Schemes

While a general plan in Vietnam indicates the basic development direction of the planned area, including the basic land use concept, urban structure and location of major infrastructure, a zoning plan stipulates the concrete planning criteria in each urban block such as the floor area ratio (FAR), building coverage ratio (BCR), and planned population and height restriction. Therefore, to control urban development for the areas near the stations, the appropriate zoning plan which is formulated based on the TOD concept is needed.

To follow the TOD concept, a mixed-use land use criterion is needed for a zoning plan. In principle, the stipulated land use criteria do not allow the development of other land uses. In many cases, however, land use criteria have been applied as a mixed-use category at local governments' own discretion. In Ho Chi Minh City, to evade such an unclear application of the land use criteria, the mixed-use land use category have already been introduced in the approved zoning plans. In this study, the mixed-use categories are proposed by following Ho Chi Minh City's practices of zoning plans.

However, the planning scheme of the zoning plan does not provide enough conditions to control urban development with the TOD concept. Hence, the Study Team recommends that in addition to the zoning plan, an architectural management guideline should be formulated which can stipulate the additional regulations under the flexible regulatory framework. The detailed regulatory frameworks of the zoning plan and architectural management regulation are shown below.

a) Regulatory Framework of Zoning Plan

As indicated below, a zoning plan stipulates the land use plan with detailed planning criteria, allocation of public facilities and infrastructure plans, which will be able to control urban development according to the TOD concept. However, since the zoning plan is applied to each urban block, if the urban block is developed by dividing into small plots, the criteria of the plan are not always applied to those plots.

1. Land use plan
   a) Functional zones of the planning area
   b) Indicators of land use, BCR, FAR, building height for each block, setback area for each axis, location and scale of underground buildings (if any).
2. Regulations, requirements of landscape and spatial arrangement for each functional zone, major axes, open space, landmark, central area, and preservation area (if any).
3. Infrastructure plan
   a) Transportation network, section, red boundary line and right of way, location and scale of depots, terminals (elevated, on the ground and underground), alignment and stations of underground railways and technical tunnels.
   b) Demand and resource of water supply, location and scale of water plant, water station, network of water pipes and other necessary technical factors.
   c) Demand and resource of power supply, location and scale of electricity substations, network of low-voltage electricity wires.
   d) Demand and network of the telecommunication system.
   e) Volume of sewage and garbage, drainage system, location and scale of drainage and garbage treatment buildings.

Source: Decree No. 37/2010/ND-CP (Article 19)

Figure 13.2.1 - Major Contents on the Regulations of the Zoning Plan

b) Regulatory Framework of Architectural Management Guidelines

Under certain conditions, local authorities can flexibly stipulate the contents of regulations of an architectural management guideline. Therefore, by utilizing the institutional framework of the guideline, the regulations which are not stipulated in the zoning plan can be provided and this may include the concrete functions of a station plaza and the location of pedestrian networks in private land.

Although there is only a small number that was actually formulated in Vietnam, in the expanded CBD area of Ho Chi Minh City, the guideline was approved in 2013 together with the zoning plan.

13.3 Implementation Framework for Developing Intermodal Facilities

The intermodal facilities at the stations of the HCMC UMRT Line 1 will be developed by the following three patterns: i) utilizing lands for public facilities (road, green spaces, etc.), ii) included in the large-scale urban development projects by the private sector, iii) developing as a part of the redevelopment of existing urbanized areas (Table 13.3.1 shows the outline and evaluation of these development schemes).

For the pattern i), since the land use does not need to be purchased, the intermodal facilities could be developed in an earlier stage. However, the necessary size of land for developing the facilities will not always be secured in all the station areas. In addition, negotiation and coordination with other authorities and institutions which manage these lands is needed. The intermodal facilities will be developed by the public sector and could utilize the ODA funds.

Pattern ii) will be implemented by (A) a project by the public sector, and (B) a project through a public private partnership (PPP) scheme. For a project of (A), the intermodal facilities will be integrated into the urban development project, but the public sector will obtain (purchase or cause the transfer of) the necessary lands and construct the intermodal facilities, which could utilize the ODA funds as in the case of the pattern i).

For a project of (B) of the pattern ii), the intermodal facilities will be developed and operated by the public and private partnership, to which the JICA PPP scheme could be applied. The facilities could be constructed and transferred to the government, Build Transfer (BT) scheme, and some facilities, such as parking spaces, could be constructed and operated before being transferred to the government, Build Operate Transfer (BOT) scheme.

Pattern iii) also utilizes the nonpublic lands and will be implemented by (A) a project by the public sector, and (B) a project by the public private partnership (PPP) scheme, as in the case of the pattern ii); however, for a project (A) of the pattern iii), negotiation and coordination with plural land owners is needed, and compensation cost for them will be a heavy burden for the public sector. Therefore, developing the intermodal facilities by this pattern will require a long period of time and seems to be more complicated.

For a project (B) of pattern iii), it will be difficult to promote urban development under the fair condition for the land owners (difficult to ensure an equal distribution of development benefit among the land owners) under the current Vietnamese laws and regulations. In Japan, there are several urban development schemes which develop infrastructure and public facilities that ensure fairness and transparency for land owners in redeveloping existing urbanized areas or buildings, such as the “Land Readjustment Method” and “Urban Redevelopment Method.” However, in Vietnam there are no such regulations, and it will take a certain period of time to establish the regulations which are compatible with Vietnam’s legal system and the social norms.

Table 13.3.1 - Alternative Implementation Schemes for Intermodal Facility Development

Case		Scheme	Expected Schedule		Features and Issues
i	Utilizing public facility lands	Public project	Fast	No need to purchase lands	- Can easily secure lands - ODA funds could be utilized
ii	Included in large-scale development projects	(A) Public project	Decided by progress of development projects		- Lands will be purchased or transferred - Could utilize the ODA funds
		(B) Public and private partnership			- Could be integrated into development projects - BT, BOT and PPP schemes could be utilized
iii	Developing as a part of redevelopment of existing urbanized areas	(A) Public project	Slow	Negotiation and coordination with plural land owners will take a long period	- Need to purchase lands - ODA fund could be utilized
		(B) Public and private partnership			- Promoting redevelopment of existing urbanized area and ensuring an equal distribution of development benefit is difficult under the current Vietnamese laws and regulations - Need to establish new regulations

Source: Study Team

To develop the intermodal facilities in accordance with the inauguration of the HCMC UMRT Line 1, the pattern i) (utilizing lands for public facilities) will be the most appropriate scheme to be examined. However, this pattern is not sufficient enough to promote urban development with the TOD concept for the areas near the stations.

In pattern ii) (included in large-scale urban development projects by the private sector), the schedule of intermodal facility development will be decided by the progress of urban development projects. Therefore, if some urban development projects start in the near future, the intermodal facilities will also be developed in the early period. In addition, since the intermodal facilities will be developed as part of urban development projects by designating with urban and development plans, the TOD concept could be materialized through its inclusion in these plans.

Pattern iii) (developing as a part of redevelopment of existing urbanized areas) will require a long period of time and considerable amount of compensation money for securing the necessary lands. In addition, the present legal system in Vietnam cannot appropriately promote the facility development. Therefore, this pattern will only be applied to the case that the urbanized area near the station needs to be thoroughly restructured with necessary infrastructure including the intermodal facilities for a long period of time.

13.4 Application of Planning Frameworks to Each Station

1) Overview of the Urban Development Situation for the Station Areas

The urban development situations for the station areas of the HCMC UMRT Line 1 are shown in the table below. Although in most of the station areas urban development projects would not start immediately (Phase 1), in several station areas, including the western part of Phuoc Long Station, the southern parts of High-Tech Park and Suoi Tien Stations, and the surrounding area of Suoi Tien Terminal Station, urban development projects are expected to start in the near future (Phase 2). In several remaining station areas, large-scale urban development projects will be implemented in the long run (Phase 3).

Table 13.4.1 - Urban Development Situations for the Station Areas

No.	Name of Station	Urban Development Situations for Station Areas		
		Phase 1	Phase 2	Phase 3
1	Ben Thanh	-	-	-
2	Opera House	-	-	-
3	Ba Son	-	-	Redevelopment of shipyard
4	Van Thanh Park	-	-	Redevelopment of area near the station
5	Tan Cang	-	-	Redevelopment of container port
6	Thao Dien	-	-	-
7	An Phu	-	-	Development of northern area
8	Rach Chiec	-	-	Sports area development
9	Phuoc Long	-	Urban Development by the Vietnamese developer with access roads	-
10	Binh Thai	-	-	-
11	Thu Duc	-	-	Relocation of the District PC
12	High-Tech Park	-	Development of area near the station by the Singaporean developer	-
13	Suoi Tien	-	Redevelopment of Suoi Tien Expansion Area	-
14	Suoi Tien Terminal	-	JICA PPP-FS	-

Source: Study Team

In the areas near the stations in which urban development projects are planned or expected, the intermodal facilities have to be integrated with urban development by coordinating the planning and implementation. In particular, until the Phase 2 period integration with the railway development project is expected which could promote urban development with the TOD concept.

2) Case Studies of Station Areas

For the station areas on the western side of the Saigon River where urban development is planned or expected, including the areas of Ba Son, Van Thanh Park and Tan Cang

Stations, the zoning plan on the Expanded CBD Area was formulated based on the TOD concept. However, as indicated in Chapter 2, due to the relationship with the landowners, the city authority does not fully control the areas' development according to the approved zoning plan.

On the other hand, for the station areas on the eastern side of the Saigon River where urban development is planned or expected, the urban plans will be amended or formulated based on the TOD concept. Therefore, for those station areas which urban development is planned or expected on the eastern side of the Saigon River, the case studies are shown in this section. The Suoi Tien Terminal Station area is not included in the case study, for which the JICA PPP study is planned to be conducted.

(1) An Phu Station

Existing Conditions and Plans

Current land use and plan

- At the northern side of the station, there is a large vacant land in which the urban development project was planned and currently a part of it is being constructed, and there are detached houses surrounding the station.
- At the southern side of the station, residential development by small blocks is ongoing according to the zoning plan of the An Phu-An Khan New Urban Area. The big supermarket is located adjacent to the station.
- At the southeastern side of the station, several large-scale development projects have already been completed according to the zoning plan of the An Phu Urban Area. Several vacant lands still remain in the area.

Transportation condition and plan

- The areas on both sides of the station have been urbanized according to the urban plans so that there is no need to formulate an additional road plan.
- There is no road which connects both sides of the station (the Hanoi Highway severs the area).

Issues and Orientations

Land use

- To promote urban development of a large vacant land at the northern side of the station.
- To integrate urban development of the areas at the southern side of the station (integration of redevelopment of the supermarket block and development of large-blocks of the An Phu Urban Area).

Transportation

- To examine the road which connects both sides of the station

Proposed Concept Plan

Figure 13.4.1 indicates the concept plan of the wide area surrounding the station, in which high-density mixed use development will be developed by utilizing the vacant areas near the station. Figure 13.4.2 shows the concept plan of the area adjacent to the station, in which a station plaza, U-turn route and pedestrian decks connecting all of the development areas will be developed.

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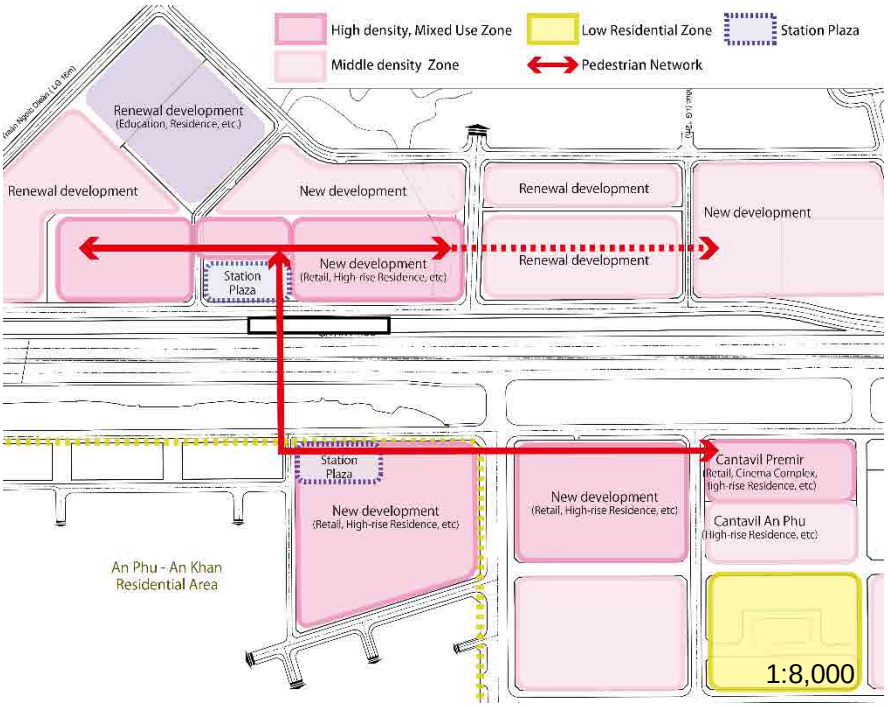
Source: Study Team

Figure 13.4.1 - Concept Plan of the Wide Area Surrounding An Phu Station



Source: Study Team

Figure 13.4.2 - Concept Plan of the Area Adjacent to An Phu Station

(2) Rach Chiec Station

Existing Conditions and Plans

Current land use and plan

- The southeastern side of the station is a low marshy land, currently used mainly as an agricultural land, in which the sports complex area is planned with stadiums for more than 500,000 spectators.
- There are other development projects including the Saigon Sports City (mixed-use functions with residential and sports facilities), the golf resort development project (residential development with a golf course) which is now stopped, and several housing development projects.

Transportation condition and plan

- As arterial roads, the East-West Highway has already been developed, and construction of the Long Thanh-Dau Giay Highway is ongoing (to be completed in 2015) from which the access roads to the station area are planned.
- The BRT line is planned along the East-West Highway (the F/S study is supported by the World Bank).

Issues and Orientations

Land use

- To allocate main sports facilities within a walking distance from the station.
- To secure the plural access measures between the sports facilities and the station.
- To secure the access to the station for the people living in the neighboring areas.
- To set the planning criteria of the area near the station as a high-density mixed-use urban function area, including residential, office and commercial.
- To allocate a residential function surrounding the station area with convenient access by bicycle or feeder bus.

Transportation

- To develop access roads to the station which will be used as feeder bus routes.
- To install bicycle lanes in new roads to promote ridership of bicycles to the station.

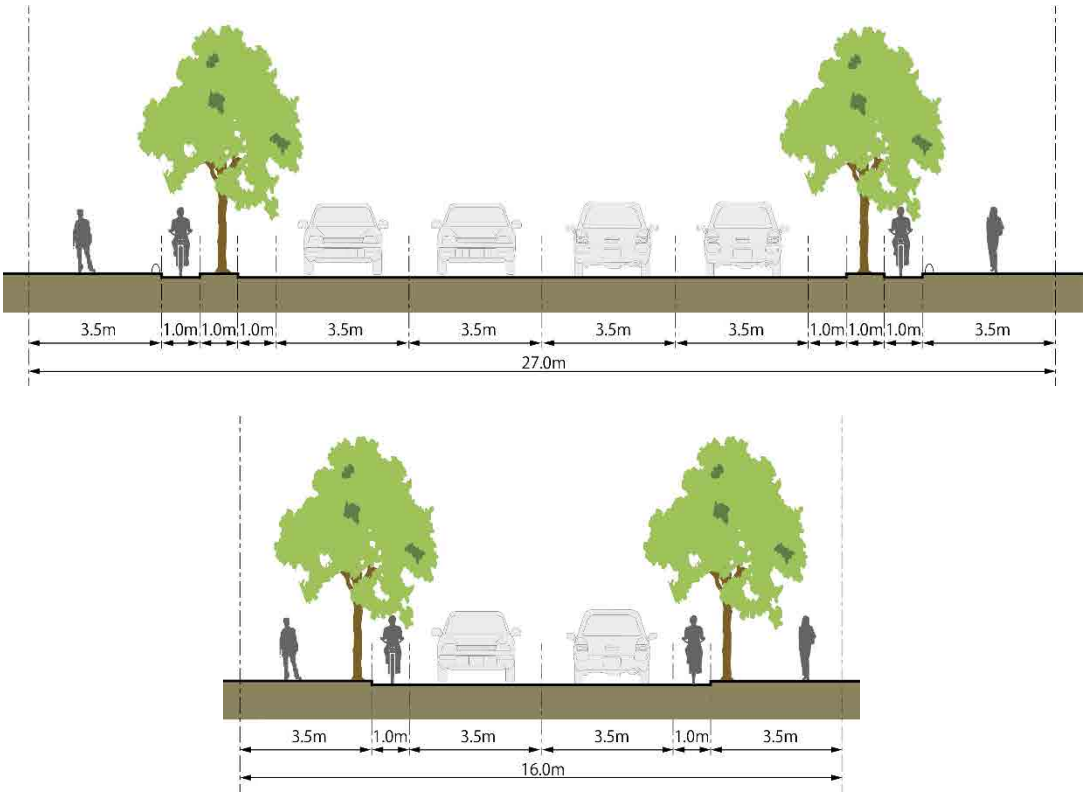
Proposed Concept Plan

Figure 13.4.3 indicates the concept plan of the wide area surrounding the station, in which sports facilities will be concentrated in the central part with the access roads and pedestrian networks connecting to the UMRT and BRT stations. These access facilities will also be used by the people living in the neighboring areas.

Figure 13.4.4 indicates the standard section of the new roads. Main roads will have 4 car lanes to smooth the operation of feeder buses and will have bicycle lanes separated from car traffic and sidewalks. Sub roads will also be used by feeder buses, bicycles and pedestrians.

Source: Study Team based on Internet

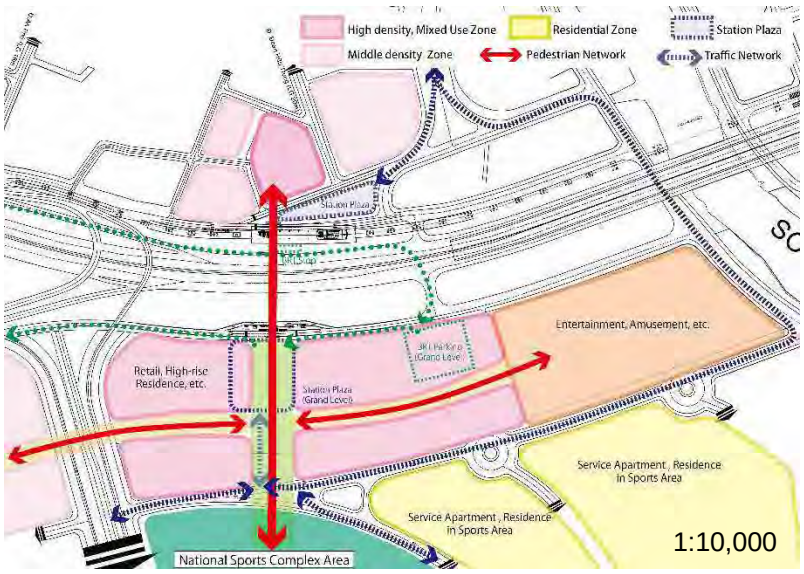
Figure 13.4.3 - Concept Plan of the Wide Area Surrounding Rach Chiec Station



Source: Study Team based on Internet

Figure 13.4.4 - Standard Section of New Roads

Figure 13.4.5 shows the concept plan of the area adjacent to the station, in which a pedestrian network and the station plaza will be developed with a sufficient width accommodating a large number of pedestrians during a sports event. Even in commercial facilities, shopping malls will be developed with a sufficient width to deal with crowds during sports events. At the southeastern part of the station which belongs to Saigon Tourist, the entertainment facilities will be developed.



Source: Study Team

Figure 13.4.5 - Concept Plan of the Area Adjacent to Rach Chiec Station

(3) Phuoc Long Station

Existing Conditions and Plans

Current land use and plan

- At the western part of the Hanoi Highway, the cement factory and the container depot are planned to be converted to the areas with urban and living functions.
- The high-voltage cable is running near the station which will be the constraint for the area's development.

Transportation condition and plan

- There is an access road which connects between the Hanoi Highway and the container depot.
- The road going underneath the Hanoi Highway will be developed along Rach Chiec River, which connects both sides of the station.

Issues and Orientations

Land use

- To set the planning criteria of the area near the station as a high-density mixed-use urban function area.
- To allocate a low-density residential function surrounding the station area utilizing the waterfront amenity.

Transportation

- To develop the road networks with the access to the northern, southern and western directions.
- To develop the aforesaid road going underneath the Hanoi Highway.

Proposed Concept Plans

Figure 13.4.6 indicates the concept plan of the wide area surrounding the station, in which the road network is planned with the access to the north, south and west directions. For planning the northbound road which will cross the high-voltage cable, coordination with the relevant authorities will be needed.

Figure 13.4.7 shows the concept plan of the area adjacent to the station, in which the station plaza and pedestrian decks accommodating a large-volume of pedestrians are planned. Together with the pedestrian decks, the parks and green spaces will be developed utilizing the waterfront amenity. In the buildings facing the station plaza, car and motorbike parking spaces will be developed through public private partnerships.

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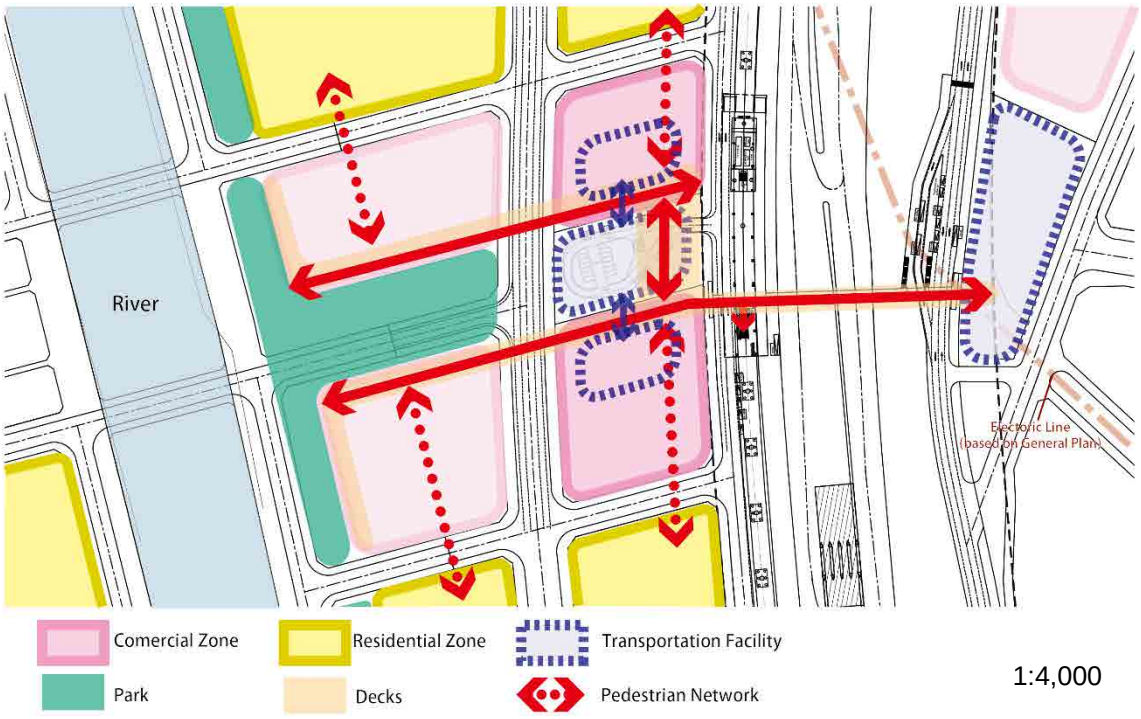
Source: Study Team

Figure 13.4.6 - Concept Plan of the Wide Area Surrounding Phuoc Long Station



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Source: Study Team

Figure 13.4.7 - Concept Plan of the Area Adjacent to Phuoc Long Station

(4) Thu Duc Station

Existing Conditions and Plans

Current land use and plan

- At the eastern side of the station, many large-scale factories and high-rise buildings exist.
- At the western side of the station, the historical urbanized area is in good condition and has been developed since the French colonial period. The government office for the district people's committee is located near the station.

Transportation condition and plan

- At the eastern side of the station, the high-density urbanized area has been developed, in which the development of new roads would be difficult.
- At the western side of the station, the roads have already been developed.

Issues and Orientations

Land use

- To set the planning criteria of the area near the station as a mixed-use urban function area with a station plaza.
- To allocate a residential function at the eastern station development area which harmonizes with the surrounding residential areas.

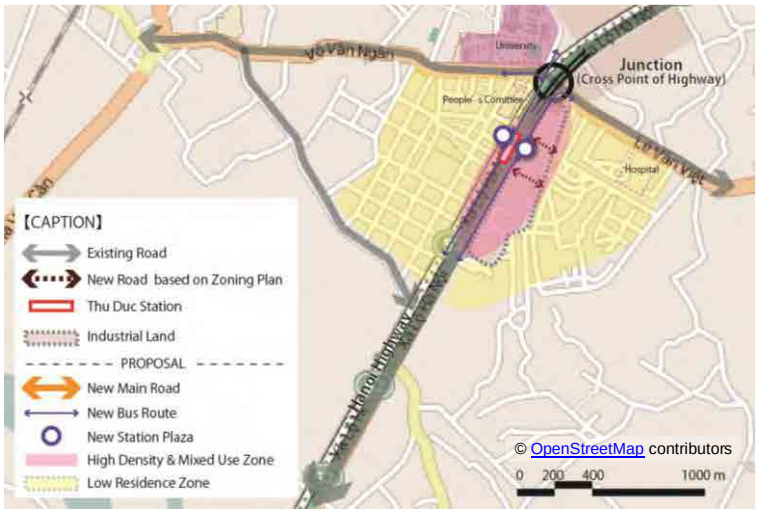
Transportation

- To improve the existing road networks.
- To develop the road inside the eastern station development area which connects with the surrounding road networks.

Proposed Concept Plan

Figure 13.4.8 indicates the concept plan of the wide area surrounding the station, in which the development of the high-density mixed-use station area will be harmonized with the surrounding existing areas respecting the historical context.

Figure 13.4.9 shows the concept plan of the area adjacent to the station. At the eastern side of the station, the pedestrian decks connecting between the station and the buildings along the Hanoi Highway will be developed. The residential blocks will be harmonized with the surrounding existing blocks in terms of size and type of housing. At the western side of the station, the pedestrian network is planned not at the deck level but at the ground level, respecting the historical context of the area. It would be a long-term project to develop the station plaza at the district PC office block.



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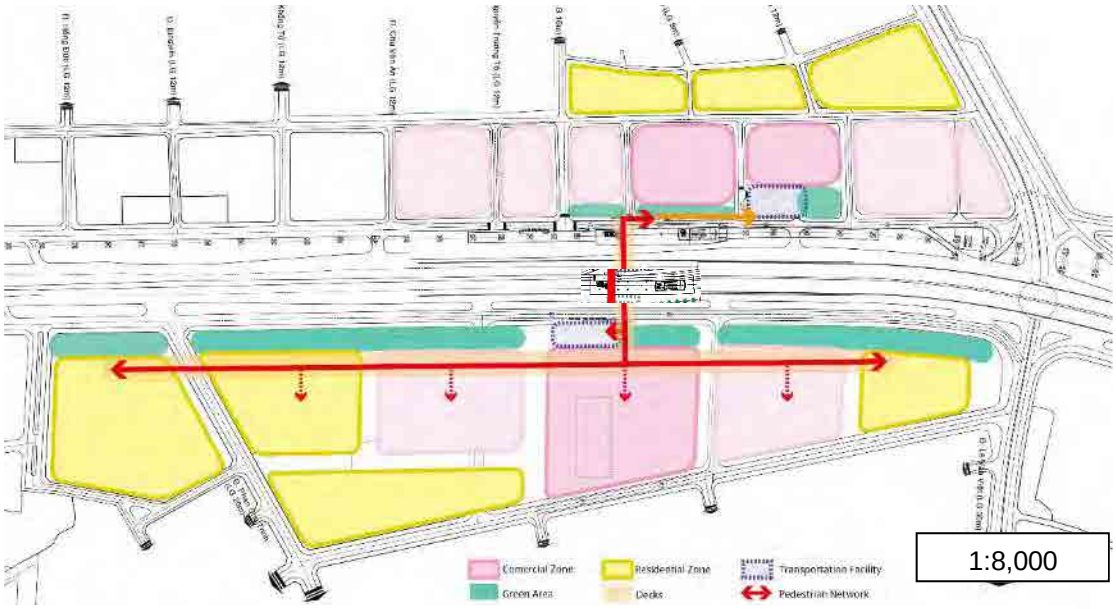
Source: Study Team

Figure 13.4.8 - Concept Plan of the Wide Area Surrounding Thu Duc Station



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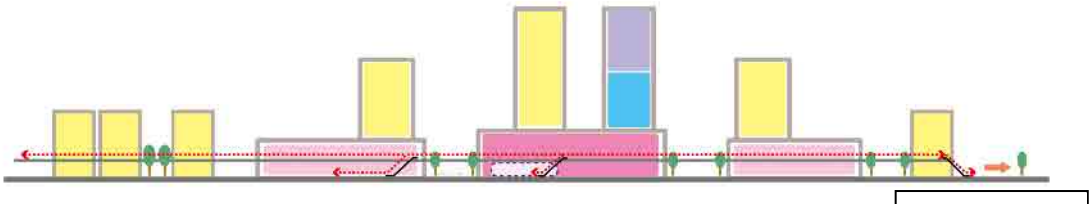

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Source: Study Team

Figure 13.4.9 - Concept Plan of the Area Adjacent Thu Duc Station

(5) High-Tech Park Station

Existing Conditions and Plans

Current land use and plan

- At the southern side of the station, a block adjacent to the station in Saigon High-Tech Park (SHTP) with an approximately 13 ha is planned as a mixed-use development area, which is owned by a Singaporean investor.
- The northern side of the station is a small housing area, but the zoning plan indicates that the area along the Hanoi Highway will be a high-rise residential area.

Transportation condition and plan

- The second ring road which will connect to National Road No. 1 is under construction.
- The road facilities have been planned and developed inside the SHTP.
- The zoning plan of the northern side of the station indicates the new roads.

Issues and Orientations

Land use

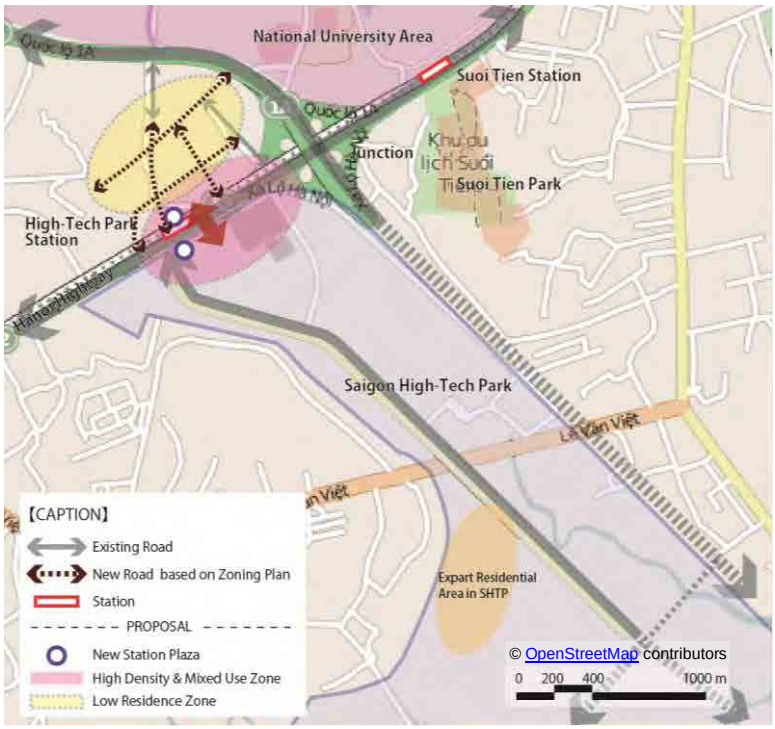
- The new mixed-use development on the southern side of the station and the high-rise residential development on the northern side of the station will be the core of the station area development.

Transportation

- The current and planned roads will be used for access to the station plaza at the southern side of the station.

Proposed Concept Plan

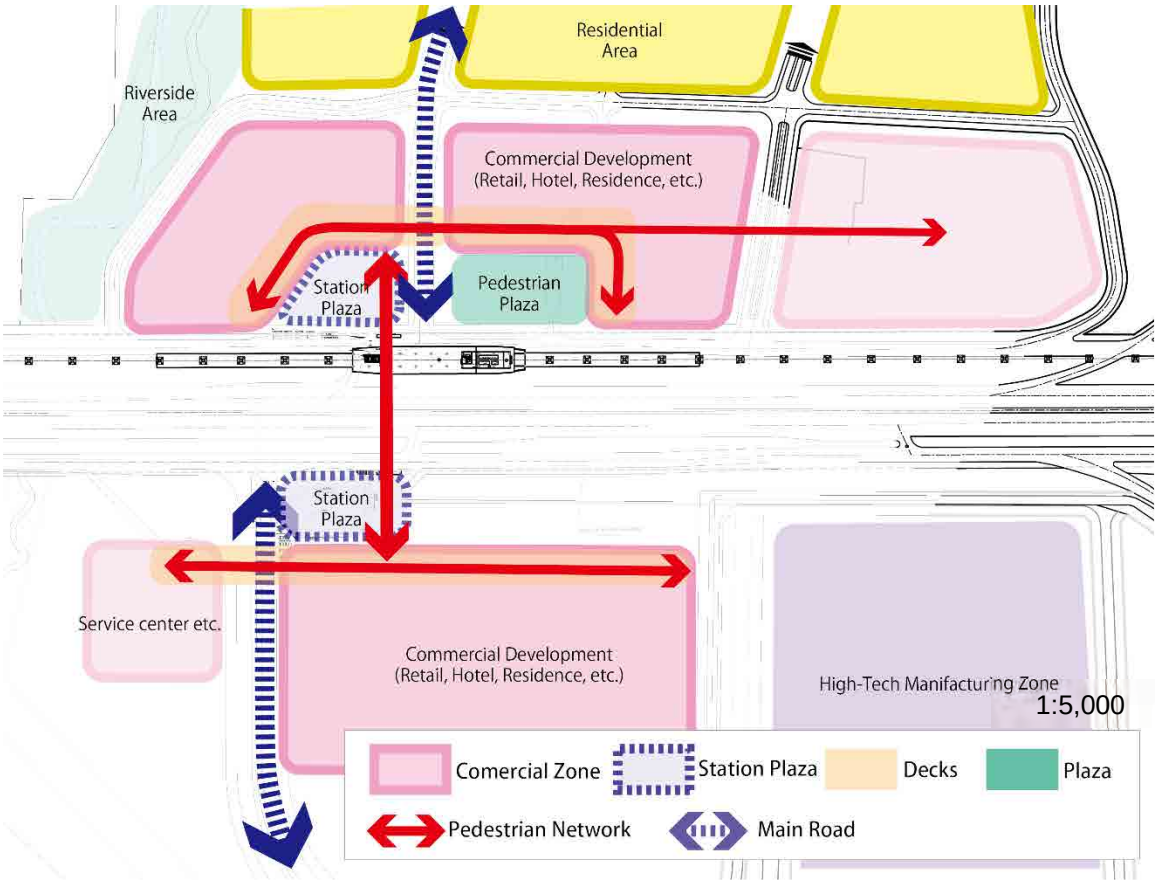
The station plazas to be developed at both sides of the station are connected to the main access roads to the surrounding areas. The high density development areas surrounding the station and the station plazas will be integrated by the pedestrian deck networks.



1:40,000

Source: Study Team

Figure 13.4.10 - Concept Plan of the Wide Area Surrounding the High-Tech Park Station



Source: Study Team

Figure 13.4.11 - Concept Plan of the Area Adjacent to the High-Tech Park Station

(6) Suoi Tien Station

Existing Conditions and Plans

Current land use and plan

(At the southern side of Suoi Tien Station)

- The amusement park, Suoi Tien Water Park, with an area of 50 ha is located here. There is a vacant space between the Hanoi Highway and the entrance of the Suoi Tien Water Park which is currently used as parking and a monument for the park.
- The investor of Suoi Tien Water Park has a plan to expand the park with an additional area of 105 ha. For this expansion project, the area in front of the station has already been cleared.
- The detached houses are located surrounding the Suoi Tien Water Park.

(At the northern side of Suoi Tien Station)

- In the National University Area, several universities have already been moved from the city center. Many houses still remain in the university area along the Hanoi Highway, which is planned to be cleared.

Transportation condition and plan

- The existing urbanized areas on both sides of the station do not have sufficient road facilities and it is difficult to develop new roads.
- There is no access road planned to the National University Area from the area adjacent to the station.

Issues and Orientations

Land use

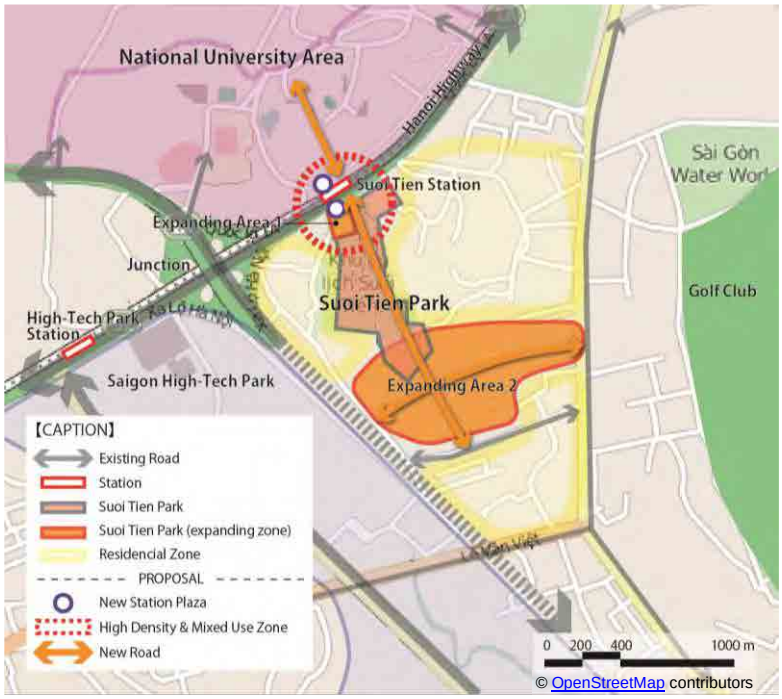
- The station area development will be realized in the expansion area of the Suoi Tien Water Park and inside the National University Area.

Transportation

- The inner roads in the Suoi Tien Water Park will connect between the station plaza and the arterial roads of the surrounding area. This road network will prevent the increase in traffic in the existing residential area.
- The access road from the Hanoi Highway to the National University Area will be developed adjacent to the station plaza and to be used by students who use public transport and the bicycle.

Proposed Concept Plan

Figure 13.4.12 indicates the concept plan of the wide area surrounding Suoi Tien Station. The roads in the water park will be connected from the Hanoi Highway to the southern, eastern and western directions to properly manage the traffic.

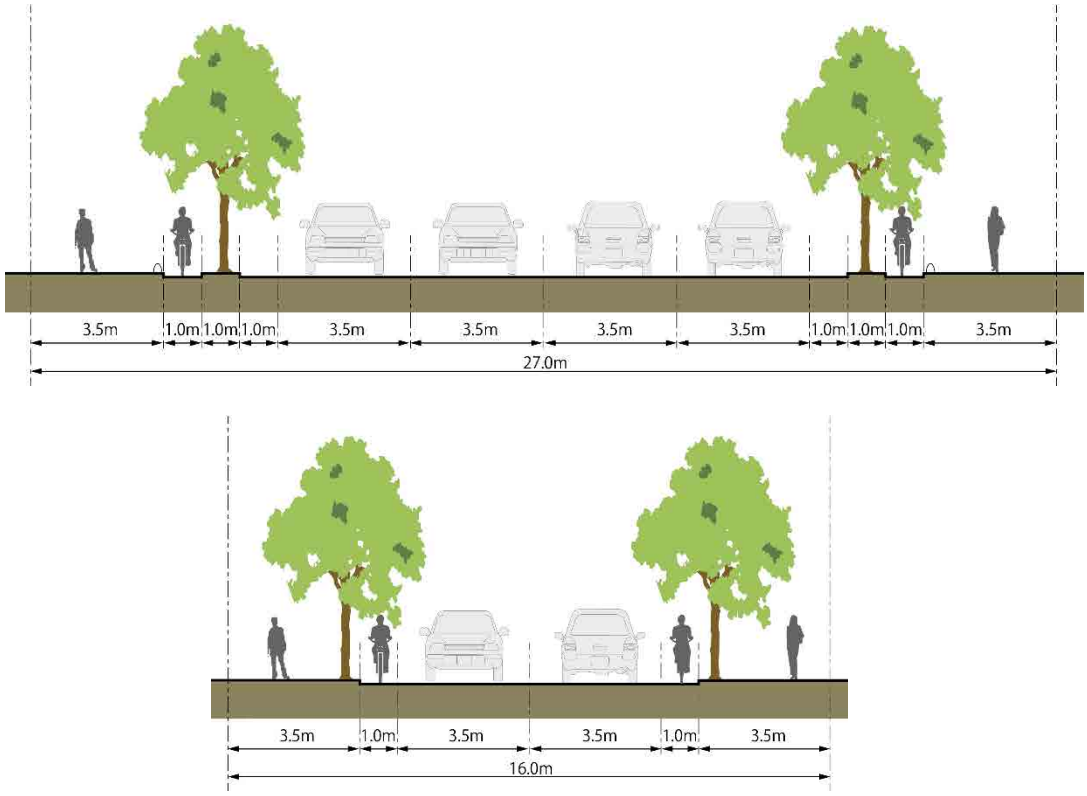


1:40,000

Source: Study Team

Figure 13.4.12 - Concept Plan of the Wide Area Surrounding Suoi Tien Station

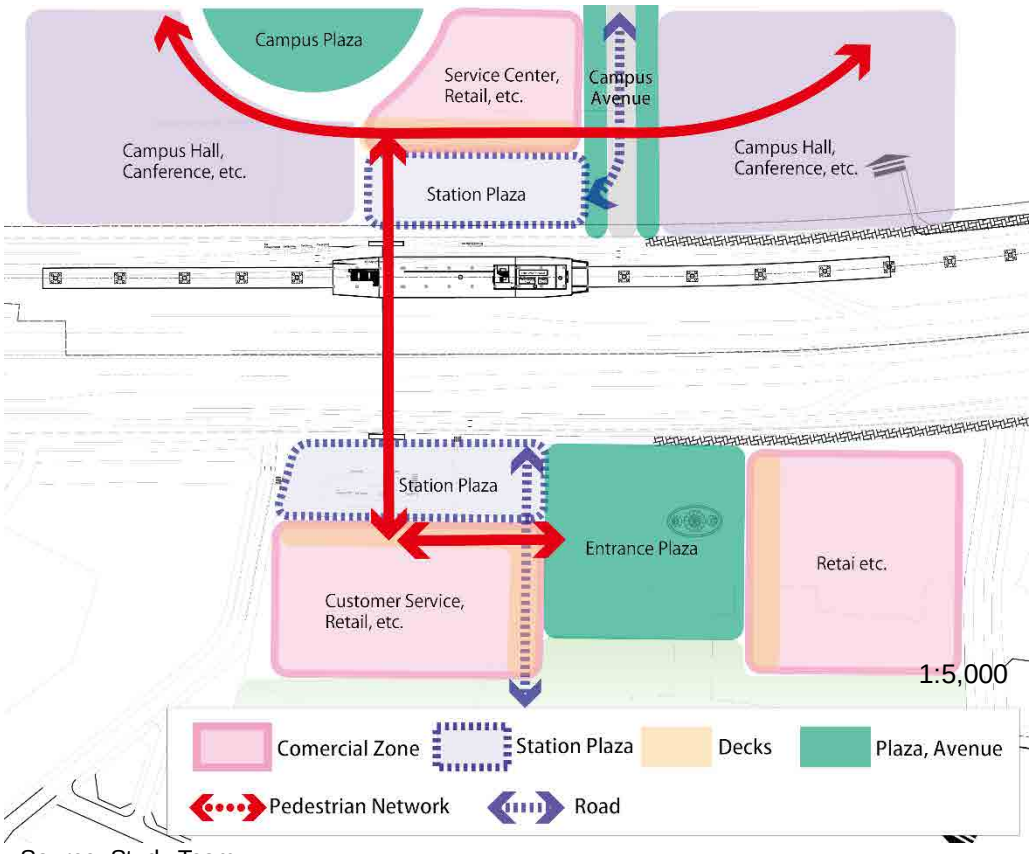
In National University Area, new roads will be used not only by commuters or visitors from the station but also by students living in dormitories. New roads in which bicycle lanes are installed will be convenient.



Source: Study Team based on Internet

Figure 13.4.13 - Standard Section of New Road in National University Area

Figure 13.4.14 shows the concept plan of the station area. The southern station plaza is planned adjacent to the station and connected to the inner road of the Suoi Tien Water Park. The station and the entrance of the park are connected by the pedestrian decks, which could be a part of the building facilities to be developed in the station area. The northern station plaza is also planned adjacent to the station and connected to the road which will be on the main avenue of the campus area. A service center and a hall will be located in front of the station as the “face” of the university area.



Source: Study Team

Figure 13.4.14 - Concept Plan of the Area Adjacent to Suoi Tien Station

13.5 Impacts to the HCMC UMRT Line 1 Ridership from the Proposed Station Area Development

Urban railway systems are most effective in the presence of a high volume of potential ridership. This ridership generally requires high density development at the ends of the system and along the urban railway corridors. The development of Transit Oriented Development (TOD) is increasingly being used to increase the ridership of urban railways. The impact of TOD along the HCMC UMRT Line 1 corridor is analyzed based on the concept plans of station area development at the 6 station areas.

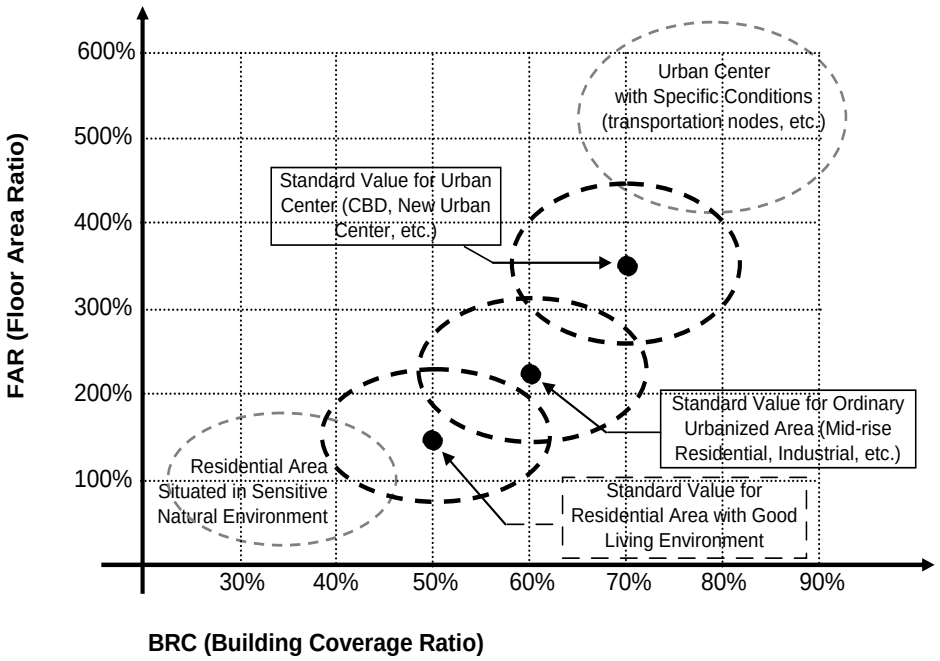
1) Impact by TOD-based Integrated Development

In urban development based on the TOD concept, the volume of buildings and the density of the population in the area adjacent to the station are set medium or high to effectively utilize the increased convenience and increased number of customers (passengers) from station development. For setting the building volume and population density of the station area, however, the fact that the strength and extent of the impact would be different depending on the existing and future functions and characteristics of the station and its surrounding area has to be considered.

All the station areas shown for the case studies in this chapter are located in the suburbs of Ho Chi Minh City, and these stations are not planned for core functions such as being interchange stations with other urban railway lines. Therefore, the impact of station development for these station areas is assumed to be not so large. In addition, the average walking distance in Vietnam where the motorbike is taking hold as a means of daily mobility would be comparatively short. Taking into consideration those conditions, the impact of station development is set within a 300 m radius, which is divided into (a) the area within a 150 m radius (an area of about 7 ha for both sides of the station), and (b) the area within a 150-300 m radius (an area of about 28 ha for both sides).

Figure 13.5.1 shows the standard interrelation between the floor area ratio (FAR) and the building coverage ratio (BCR) and the setting of those criteria. According to the formula indicated in the figure, the “Standard Value for Urban Center” or the “Standard Value for Ordinary Urbanized Area” would be applicable for the FAR and BCR of the station areas shown for the case studies in this chapter. Therefore, the FAR / BCR of the area (a) would be 300-400% / 60-80%, and the area (b) would be 200-300% / 40-60%. With these criteria, the building types of area (a) would be mainly medium-rise buildings, and those of the area (b) would be medium and low-rise buildings.

Considering the above planning criteria of the FAR and BCR and building types, the standard population density of those areas would be 400-600 persons/ha for the area (a) and 200-300 persons/ha for the area (b). Also, station area development usually includes non-residential functions, such as commercial and office facilities, so that the rate of the residential functions also has to be set for the calculation of population density. According to the experiences in Japan, such a rate would be 0.5-0.7 for area (a) and 0.7-0.9 for area (b). By multiplying those rates with the aforesaid standard population density, the population density of area (a) would be calculated at 200-420 persons/ha and that of area (b) would be at 140-270 persons/ha.



Source: Study Team

Figure 13.5.1 - Standard Interrelation between FAR and BCR in Japan

Table 13.5.1 - Assumed Population Density of Station Areas Based on the TOD Concept

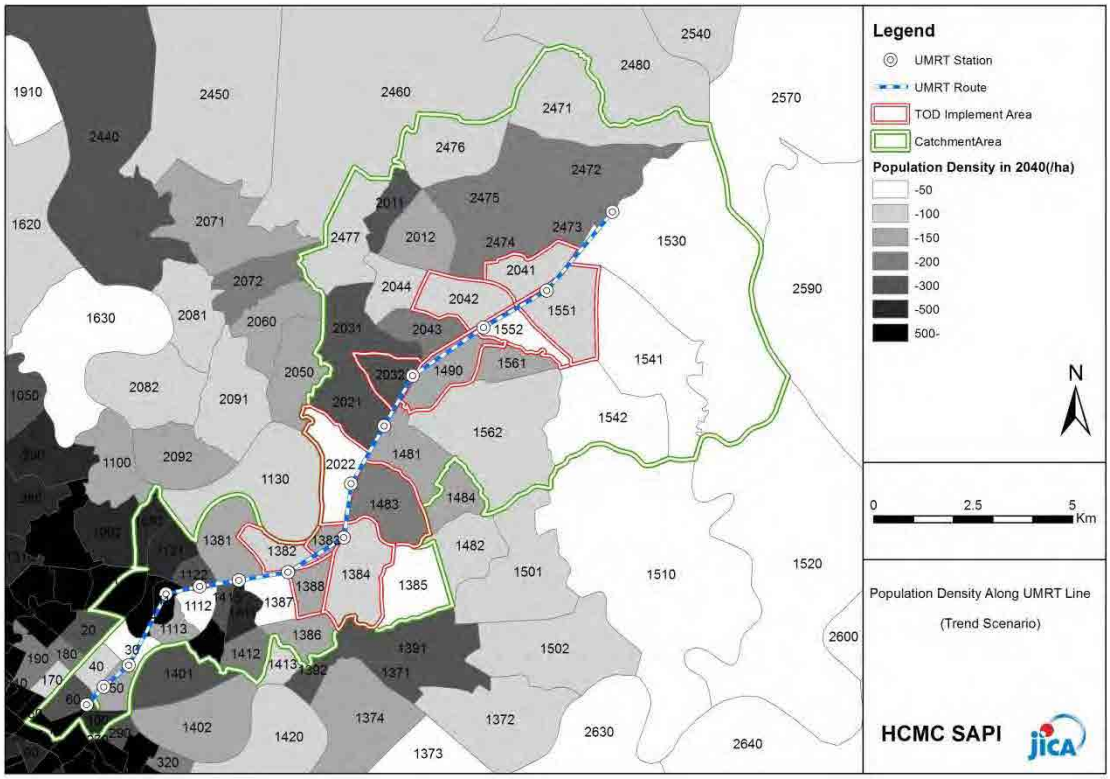
		Specific Conditions for Assuming Population Density	The area of (a) (within a 150 m radius)	The area of (b) (within a 150-300 m radius)
1	An Phu Station Area	Proximity to the CBD, existence of a large-scale urban development site on the western side of the station	350 persons/ha	200 persons/ha
2	Rach Chiec Station Area	Proximity to the CBD through the East-West Highway, existence of a large-scale developable piece of land in the Sports Area, the western side is difficult for redevelopment	350 persons/ha (only eastern side)	200 persons/ha
3	Phuc Long Station Area	The river flowing between District 2 and District 9 creates a psychologically large distance from the CBD.	250 persons/ha	150 persons/ha
4	Thu Duc Station Area	Fair distance from the CBD, but historically core area of Thu Duc District	300 persons/ha	175 persons/ha
5	High-Tech Park Station Area	Fair distance from the CBD, Saigon High-Tech Park Area is mainly for R&D functions so that the density of the area (a) is only applied for the northern side	250 persons/ha (only northern side)	150 persons/ha
6	Suoi Tien Park Station Area	Fair distance from the CBD, the northern side is the National University Area so that the density of the area (a) is only applied for the southern side	250 persons/ha (only southern side)	150 persons/ha

Source: Study Team

Table 13.5.1 shows the assumed population density of the station areas shown for the case studies in this chapter. Based on the aforesaid calculated population density for areas (a) and (b), these population densities are assumed by considering other specific conditions of each station, including the distance from the CBD, existing land conditions, future land use plans and on-going urban development projects. In addition, in several areas of these station areas, medium or high-density development would be difficult. For example, the southern side of High-Tech Park Station Area is planned mainly for R&D functions, and the northern side of Suoi Tien Park Station Area is only for university related functions. In such station areas, higher densities of the area (a) are not applied for both sides of the station areas.

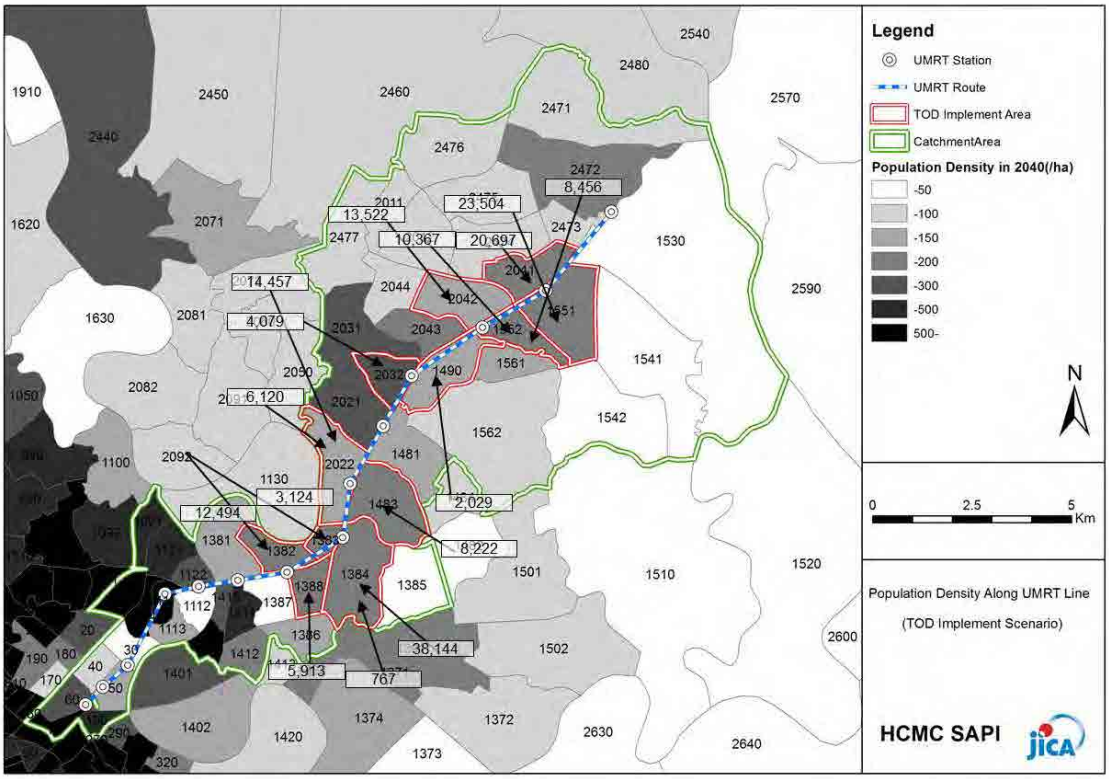
2) Socio-Economic Scenario for Transportation Impact Analysis

According to the discussion in the previous sections, population density in the station areas by TOD-based integrated development will be expected to reach to 150-350 persons/ha. In the base case scenario in accordance with the general plans by district, the population density in the station area will be not so high in the future (refer to Figure 13.5.2). Therefore, by the proposed concept plan of station area development based on the TOD concept, the population density can be induced to be increased in the station area. The TOD scenario is proposed as shown in Figure 13.5.3.



Source: Study Team

Figure 13.5.2 - Population Density in the Base Case Scenario, 2040



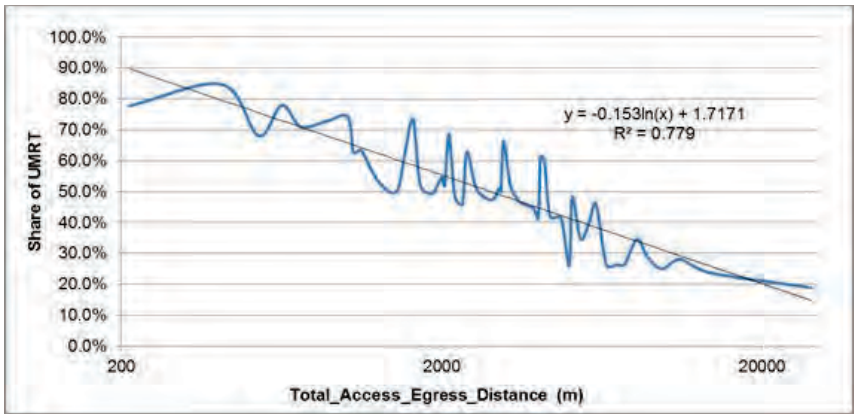
Source: Study Team

Figure 13.5.3 - Population Density in the TOD Scenario, 2040

Both the base case scenario (without TOD case) and the TOD scenario (with TOD case) in 2040 are shown in the Figures 13.5.2 and 13.5.3. The induced population in the station area by TOD will be assumed to be approximately 172,000.

3) Impact on Transportation from TOD-based Integrated Development

The Tendencies of Urban Railway Usage by Distance of the Access/Egress Trips: The increase and decrease of railway usage is largely affected by the distance of the access/egress traffic. Especially in hot cities, the dislike of long distance walking seems to be considerably high, thereby affecting urban railway usage. Figure 13.5.4 shows the tendency between the stated preference of the HCMC UMRT Line 1 usage and distance of access/egress to/from the nearest stations, using the result of the travel behavior (hearing) survey. The shorter the distance trip to/from the station, the more it contributes to an increase in the HCMC UMRT Line 1 usage.



Source: Study Team

Figure 13.5.4 - Tendency between the HCMC UMRT Line 1 Usage and the Distance of the Access/Egress Trip

Impact to Ridership of the UMRT Line 1: The increase of ridership on the HCMC UMRT Line 1 by station area development can be estimated based on the following preconditions:

- Trips from the HCMC UMRT Line 1 usage are estimated targeting both the base case scenario and the TOD scenario in 2040.
- The following formula is adopted to estimate the trips of the HCMC UMRT Line 1 usage:
  - [Trip Generation] = [Zone i] × {-0.153 ln (x)+1.7171}
  - x = [Access Distance from [Zone i] to nearest station)] + [Egress Distance (Medium value of travel behavior survey result (300 m))]
- Impact by trip attraction is not taken into account in this analysis.
- Impact is estimated from the difference between the two scenarios.

The estimation result is shown in Table 13.5.2. Station area development in 6 station areas seems to contribute to increase the traffic demand by 2.7% in 2040. On the financial evaluation in the “Project Investment Report (Adjustment) for the Ho Chi Minh Urban Railway Construction Project (Ben Thanh – Suoi Tien Terminal)”, June 2010, the profit

(Yen Bill) in 2040 was estimated as 15.5 billion yen, and the annual O&M cost in 2040 also was estimated as 3.7 billion yen, respectively. Based on the values in this analysis, the proposed station area development has the potential to gain 410 million yen per year by doing a simple calculation. This means that it covers 11.2% of the annual O&M cost. Thus, the station area development using the concept of TOD will contribute to create benefits that can partially cover the cost of the railway's O&M.

Table 13.5.2 - Impact by TOD-based Integrated Development in 2040

Station Name		Rate of Increase by TOD (%)	Proposed TOD Concept Plan	Scale of TOD (persons/ha)	
				Station Area*	Traffic Zone
1	Ben Thanh	-	-		
2	Opera House	-	-		
3	Ba son	-	-		
4	Van Thanh Park	-	-		
5	Tan Cang	-	-		
6	Thao Dien	-	-		
7	An Phu	10.6%	○	200-350	167.6
8	Rach Chiec	3.7%	○	200-350	184.2
9	Phuoc Long	14.2%	○	150-250	160.5
10	Binh Thai	-	-		
11	Thu Duc	3.3%	○	175-300	186.3
12	High Tech Park	13.9%	○	150-250	160.6
13	Suoi Tien	6.9%	○	150-250	169.6
14	Suoi Tien Terminal	-	-		
	Total	2.7%			

*: The area within a 150-300 m radius from stations
Source: Study Team

14 PROJECT IMPLEMENTATION MECHANISMS AND MEASURES ON STATION AREA DEVELOPMENT

14.1 Amendment of Urban Plans of the Proposed Concept Plans for Station Area Development

1) Principle of Amendment of Urban Plans for the Implementation of the Proposed Concept Plans for Station Area Development

As indicated in the Section 13.2, the legal urban planning schemes of a zoning plan and an architectural management guideline are needed for the implementation of the proposed concept plans for station area development. The tables below show the items of urban planning which are expected to be stipulated in these urban plans.

Table 14.1.1 - Items Stipulated in the Zoning Plan

Items	Principle of Amendment / Preparation
Road and road network	- Designation of roads and a road network with pedestrian and bicycle lanes into land use and transportation plans to ensure the accessibility to the station from surrounding areas and promote the utilization of public transportation.
Intermodal facilities in land use plan	- Designation of intermodal facilities, including a station plaza, into a land use plan to enhance the convenience of public transportation and transfer between different traffic modes.
Planning criteria	- Setting the planning criteria with medium or high-density (high FAR (floor area ratio), BCR (building coverage ratio) and height restriction) and with mixed-use land use to utilize the impact of station development.

Source: Study Team

Table 14.1.2 - Items Stipulated in the Architectural Management Guideline

Items	Principle of Amendment / Preparation
Intermodal facilities	- Setting the functions and size of intermodal facilities (a station plaza, a parking facility, etc.).
Pedestrian facilities	- Location and size of the pedestrian deck, elevators and pedestrian pathways.
Other public facilities and open spaces	- Scale and specification of an open space and a park within private property.
Commercial functions	- Designation of commercial functions (retail, restaurant, etc.) in the rooms facing pedestrian malls to create an active atmosphere.
Other regulations	- Other regulations to control and promote urban development according to the TOD concept

Source: Study Team

2) Case Study for Amendment (or Preparation) of Urban Plans for Station Areas

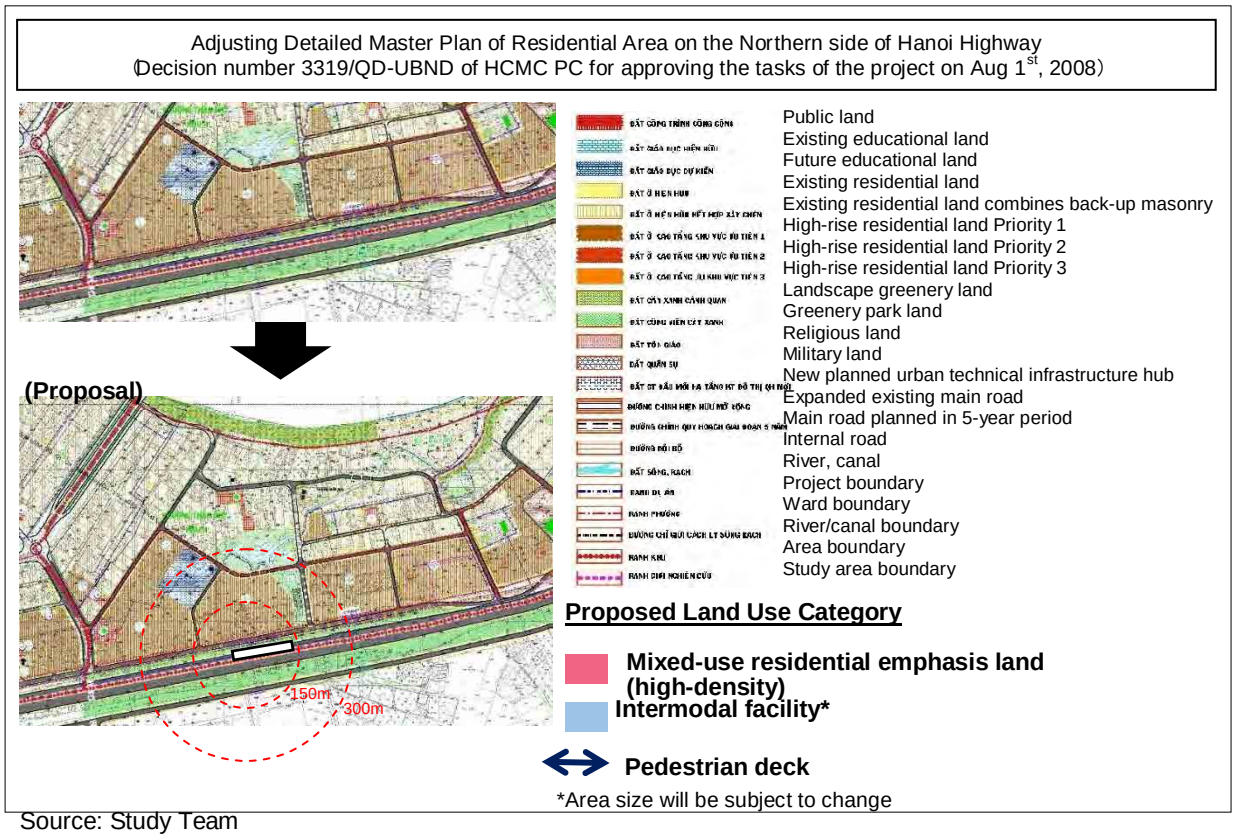
(1) An Phu Station

I. Northern Side of An Phu Station

For the area of 8 ha on the northern side of An Phu Station, the detailed plan in a scale of 1/500 has already been approved, in some portions, construction work has already started. According to the city authority, however, the project scheme for the block contiguous to the station has yet to be defined. It is expected that the zoning and detailed plans are modified to control and promote urban development in accordance with the proposed concept plan in the study.

Amendment of the Zoning Plan

In the planning framework approved in 2008, the area near the station is mainly designated as high-rise residential land. Since there is no land use category for mixed-use and intermodal facilities in the planning framework, the zoning plan has to be amended by adding such categories (see the figure below).

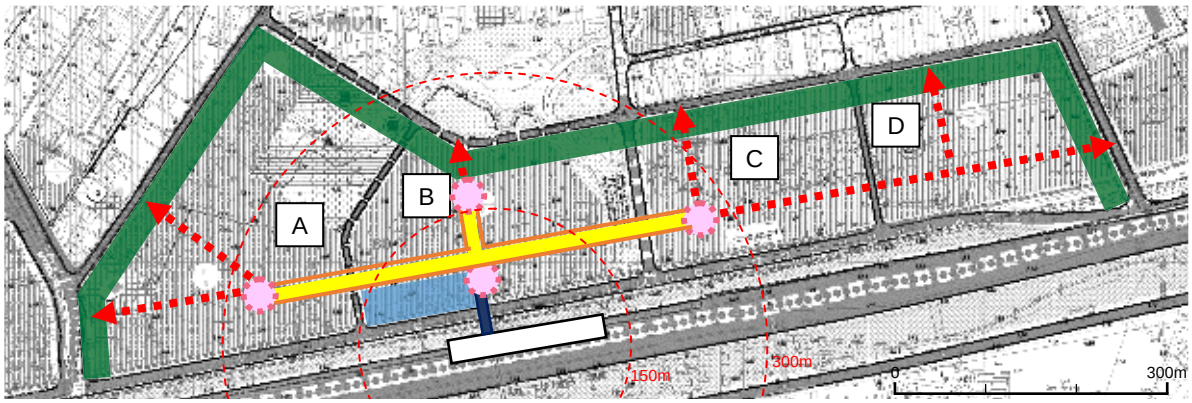


Source: Study Team

Figure 14.1.1 - Proposed Amendment of the Zoning Plan for the Northern Side of An Phu Station

Preparation of an Architectural Management Guideline

The functions and size of intermodal facilities and the pedestrian facilities, such as pedestrian decks and elevators, which are not indicated in the approved detailed plan on a scale of 1/500, have to be stipulated in an architectural management guideline (see the figure below).



Legend		Criteria	Note
	Intermodal Facility	-	Function and size of Intermodal Facility will be decided by the discussion with relevant authorities, which might include bus berths, taxi berths, pool for bus and taxi, car and motorcycle parking, etc.
	Pedestrian Deck	W=over 3m L=about 30m	The Pedestrian Deck shall be on the same level as the gate of the station with barrier-free facilities, on which elevators linking between the ground floor and Intermodal Facility shall be installed.
	Walkway A	W=over 3m L=about 350m	Walkway A shall be on the same level as the Pedestrian Deck with barrier-free facilities linking between Blocks A, B and C. Location of Walkway A will be decided by the discussion with relevant authorities, which can be installed inside buildings.
	Walkway B	W=over 3m	In each block, Walkway B shall be installed to connect between Walkway A and the ground level of the outside the block with Elevator. Walkway B can be installed inside buildings.
	Elevator	-	In block A, B and C, elevators with the barrier-free concept shall be installed to connect between pedestrian deck and Walkway A and the ground floor. Location of elevators will be decided in consideration of the connectivity and convenience of users.
	Building Line	2nd level (Can be inside building)	70% of frontage shall be commercial use (retail or restaurant).
	Landscape Walkway	W=10m	Buildings shall be set-backed with the designated width. The setback space shall be planted and walkable.

Source: Study Team

Figure 14.1.2 - Proposed Architectural Management Guideline for the Northern Side of An Phu Station

Amendment of the Detailed Plan

The approved detailed plan has to be amended in accordance with the proposed zoning and architectural management guideline. The figure below indicates the proposed amendment of the detailed plan.

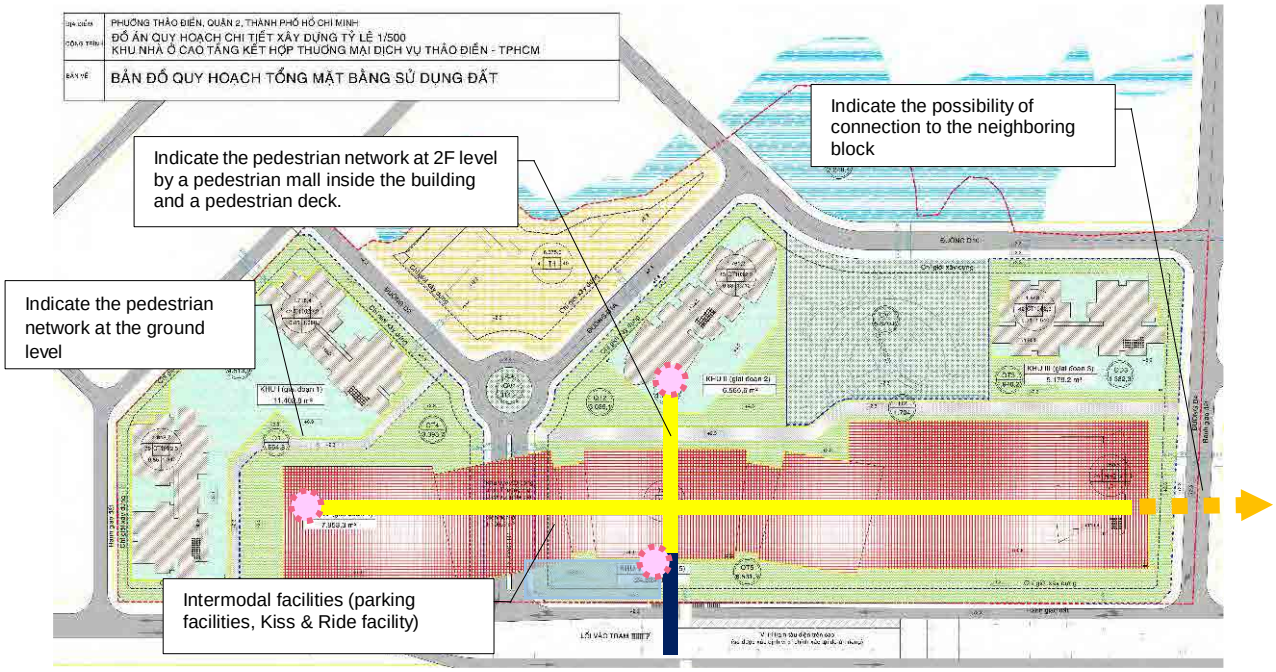


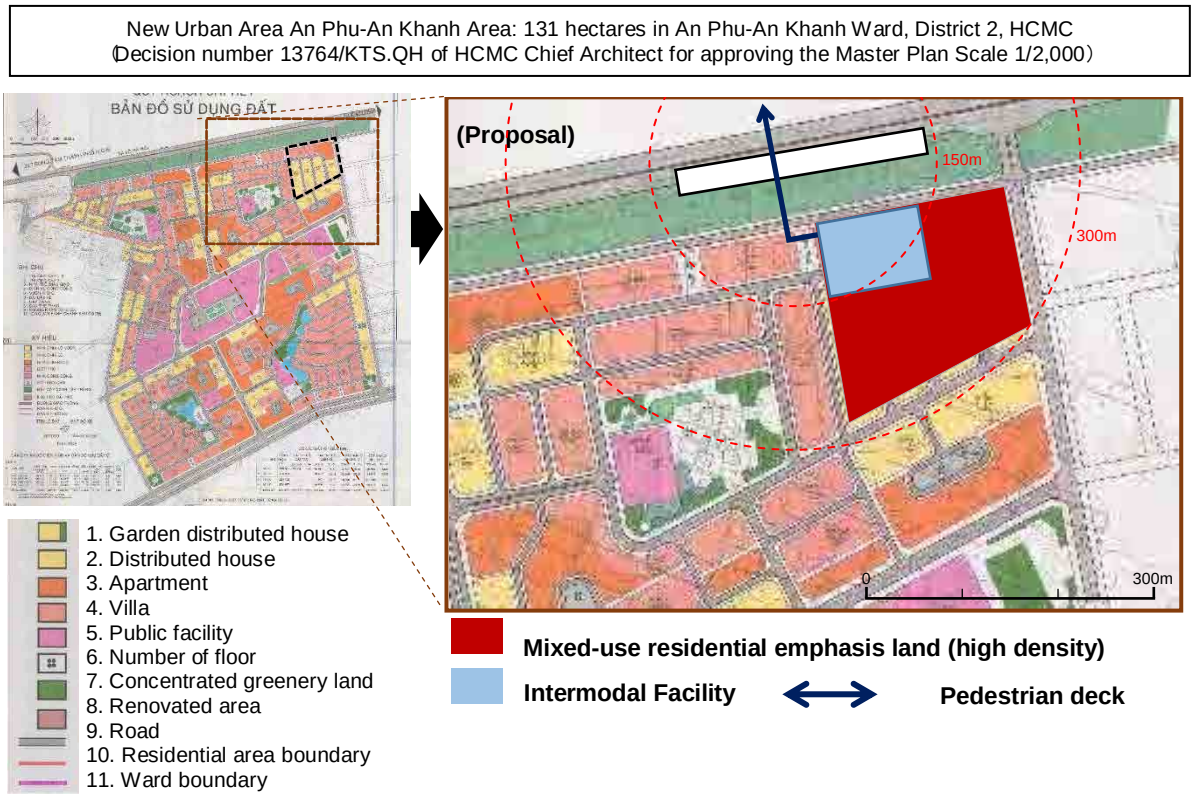
Figure 14.1.3 - Proposed Amendment of the Detailed Plan for the Northern Side of An Phu Station

II. Southern Side of An Phu Station

For the area in the southern side of An Phu Station, in which a large-scale supermarket is located and mixed-used medium-density urban development projects are in progress, intermodal facilities and a pedestrian network are needed to utilize the impact of station development.

Amendment of the Zoning Plan

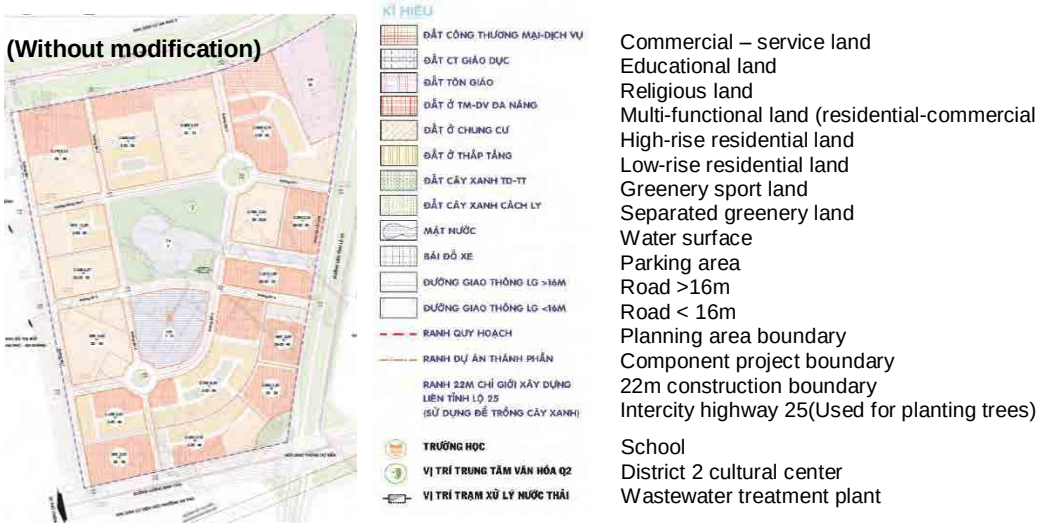
The southern side of An Phu Station is divided into two parts: the southwestern part of An Phu-An Khan Area with an area of 131 ha and the southeastern part of An Phu Urban Area with an area of 87 ha. Since the former area is designated as an area for detached houses, the zoning plan for the area near the station has to be amended as a medium-density mixed-use land use area to utilize the impact of station development (see the figure below). Since the latter area has already been designated as per the land use criteria, the amendment of the zoning plan is not needed.



Source: Study Team

Figure 14.1.4 - Proposed Amendment of the Zoning Plan for the Southwestern Part of the Southern Side of An Phu Station

Adjusting An Phu Urban Area: 87 hectares in An Phu Ward, District 2
(Decision number 11339/QD-UBND of HCMC People's Committee for approving the tasks of project, scale 1/2,000; on Aug 14th, 2009



Commercial – service land
Educational land
Religious land
Multi-functional land (residential-commercial service)
High-rise residential land
Low-rise residential land
Greenery sport land
Separated greenery land
Water surface
Parking area
Road >16m
Road < 16m
Planning area boundary
Component project boundary
22m construction boundary
Intercity highway 25(Used for planting trees)

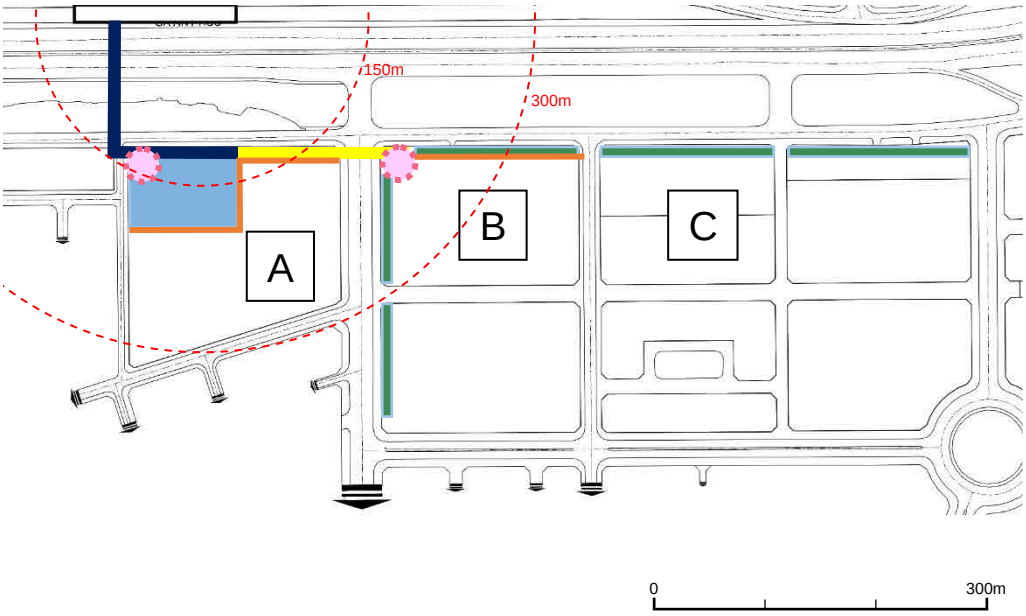
School
District 2 cultural center
Wastewater treatment plant

Source: Study Team

Figure 14.1.5 - The Zoning Plan for the Southeastern Part of the Southern Side of An Phu Station

Preparation of an Architectural Management Guideline

In order to develop intermodal facilities and pedestrian facilities for the southeastern side of An Phu Station, such facilities have to be stipulated in an architectural management guideline. The figure below shows the proposed guideline for the area near the station. Since the high-rise apartment buildings were recently completed in Block C, only a pedestrian network on the ground level is indicated in this block.



Legend		Criteria	Note
	Intermodal Facility	-	Function and size of the Intermodal Facility will be decided by the discussion with the relevant authorities, which might include bus berths, taxi berths, pool for bus and taxi, car and motorcycle parking, etc.
	Pedestrian Deck	W=over 3m L=about 200m	The Pedestrian Deck shall be at the same level as the gate of the station with barrier-free facilities. Elevators connected to the Intermodal Facility shall be installed.
	Walkway A	W=over 3m L=about 150m 2nd level	Walkway A shall be flat and barrier-free from the Pedestrian Deck to Block B.
	Elevator	-	In Block B, a barrier-free elevator shall connect Walkway A and the Landscape Walkway. Location of elevators will be decided for the connectivity.
	Building Line	2nd level in Block A and 1st level in Block B Can be inside building	70% of frontage shall be commercial use (retail or restaurant).
	Landscape Walkway	W=10m	Buildings shall be set-backed for the surrounding residential area. The set-back space shall be walkable with abundant green.

Source: Study Team

Figure 14.1.6 - Proposed Architectural Management Guideline for the Southern Side of An Phu Station

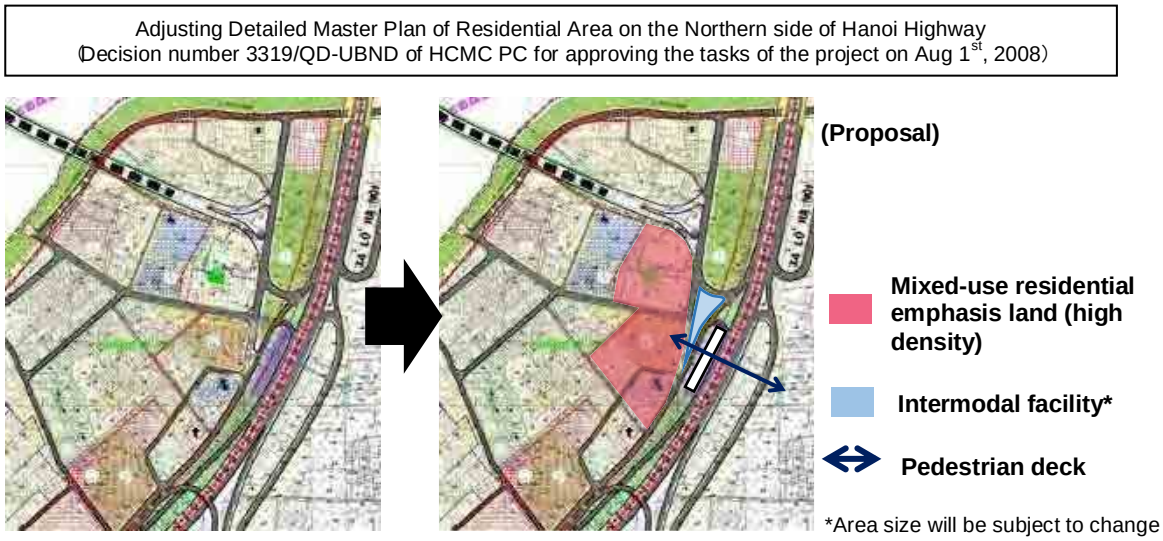
(2) Rach Chiec Station

I. Western Side of Rach Chiec Station

On the western side of the Rach Chiec Station Area, residential and industrial facilities are located with some green areas. In the approved zoning plan, the bridge linking with Binh Quoi-Thanh Da Area is indicated, by which the traffic volume of this area is expected to increase drastically. Therefore, the urban plans have to be modified and prepared to secure the walkability of the area near the station.

Amendment of the Zoning Plan

The zoning plan indicated in the previous part of the northern side of An Phu Station also covers the western side of Rach Chiec Station. For the area near Rach Chic Station, therefore, the approved zoning plan has also to be amended by adding the new land use categories of mixed-use and intermodal facilities to utilize the impact of station development.

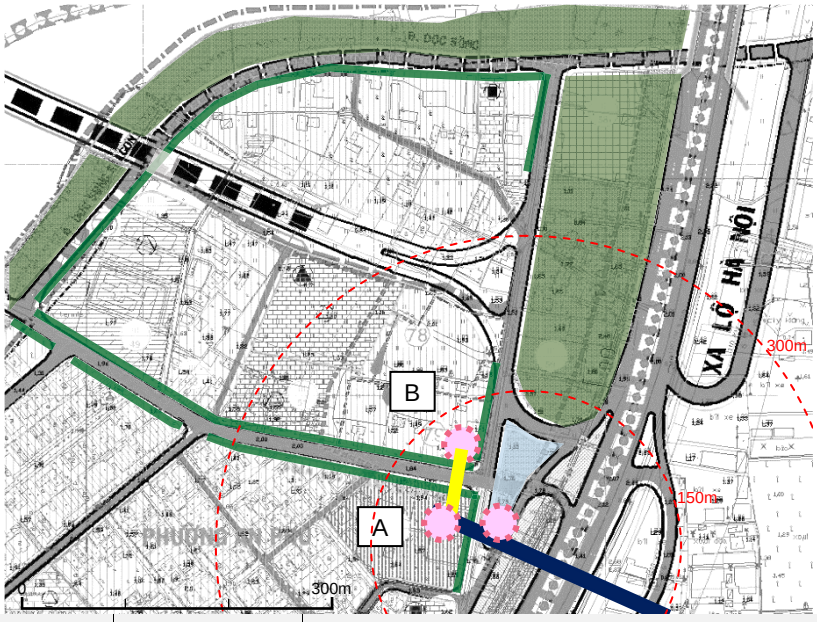


Source: Study Team

Figure 14.1.7 - Proposed Amendment of the Zoning Plan for the Western Part of Rach Chiec Station

Preparation of an Architectural Management Guideline

In order to deal with the increase in the traffic volume due to the bridge development, including those of cars and motorbikes, an architectural management guideline is needed, in which pedestrian facilities, such as pedestrian decks and elevators, are stipulated for the creation of a walkable environment.



Legend		Criteria	Note
	Intermodal Facility	-	Function and size of Intermodal Facility will be decided by the discussion with relevant authorities, which shall include bus berths, taxi berths, pool for bus and taxi, car and motorcycle parking, etc.
	Pedestrian Deck	W=over 3m L=about 200m	The Pedestrian Deck shall be at the same level as the gate of the Station with barrier-free facilities. Elevators connected to Intermodal Facility shall be installed.
	Walkway A	W=over 3m L=about 30m 2nd level	Walkway A shall be flat and barrier-free from the Pedestrian Deck to Block B.
	Elevator	-	Barrier-free Elevators shall connect Walkway A and Landscape Walkway. Location of Elevators will be decided for connectivity.
	Landscape Walkway	W=about 5m	Buildings shall be set-backed with the designated width. The setback space shall be planted and walkable.
	Park	W=over 50m	Width of Park along Saigon River shall be over 50m.

Source: Study Team

Figure 14.1.8 - Proposed Architectural Management Guideline for the Western Side of Rach Chiec Station

II. Eastern Side of Rach Chiec Station

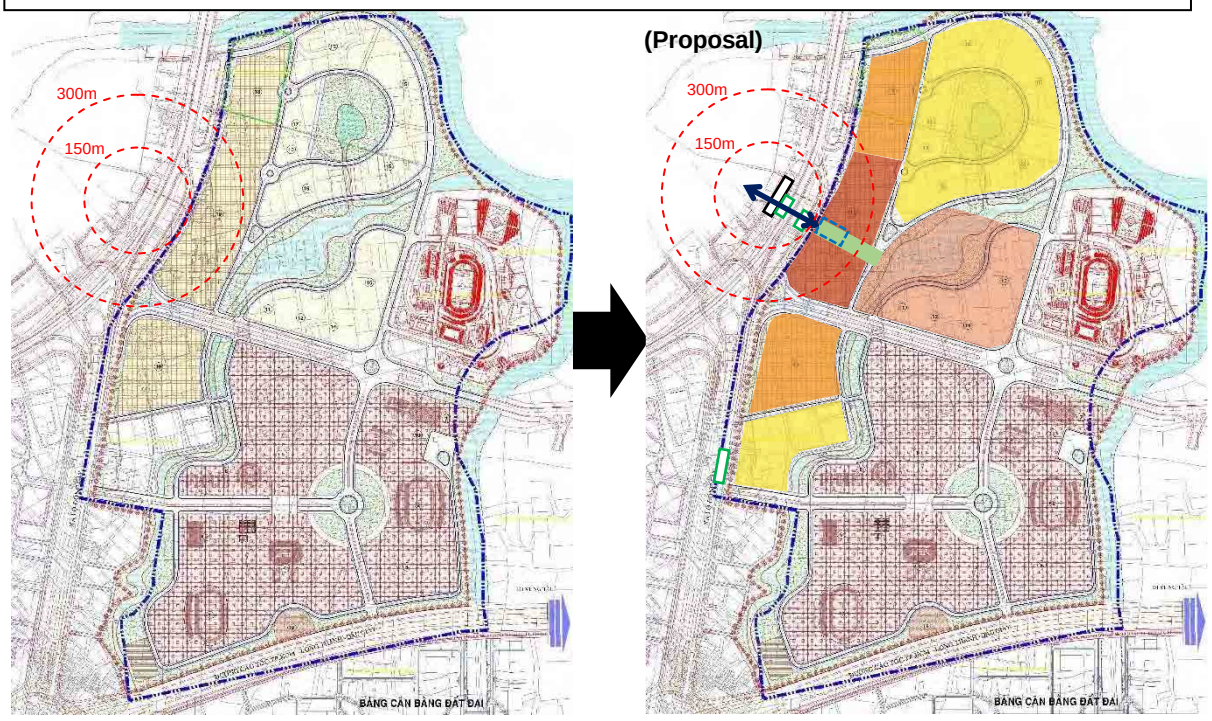
In the eastern side of the station, Rach Chiec Sports Complex Area with an area of 227 ha is planned by the city authority, for which the planning framework of the zoning plan was approved in 2010 (The zoning plan itself has yet to be prepared). The zoning plan has to include the pedestrian network considering the UMRT station, the BRT

project that is in the planning stages and a large-volume of pedestrians coming from the sports facilities, and a land use plan with a high or medium-density and mixed-use urban functions.

Amendment of the Zoning Plan

In the approved planning framework of the zoning plan, sports and relevant service functions, such as commercial and business, are designated as urban functions. However, considering the area location and implementation of the sports facility project, which could not be a beneficial project, a high or mixed-density residential function has to be included as a mixed-use land use category. In addition, in order to promote the utilization of public transportation, intermodal facilities and spaces for pedestrians have to be allocated near the station, and large-scale sports facilities have to be carefully allocated 500-600 m away from the station so as to not cause severe congestion in case of sports events. The planning framework and the zoning plan have to be amended and prepared accordingly.

Rach Chiec National Complex Sport Area (An Phu Ward) (Decision number 3721/QD-UBND of HCMC People's Committee for approving the tasks of the project, scale 1/2,000 on August 23rd, 2010)



Sport facility land
Sport serving facility land
Service facility land
Technical infrastructure land
Monument land
River, canal
Greenery park land
Transport land
New planning boundary
Old planning boundary (2002)

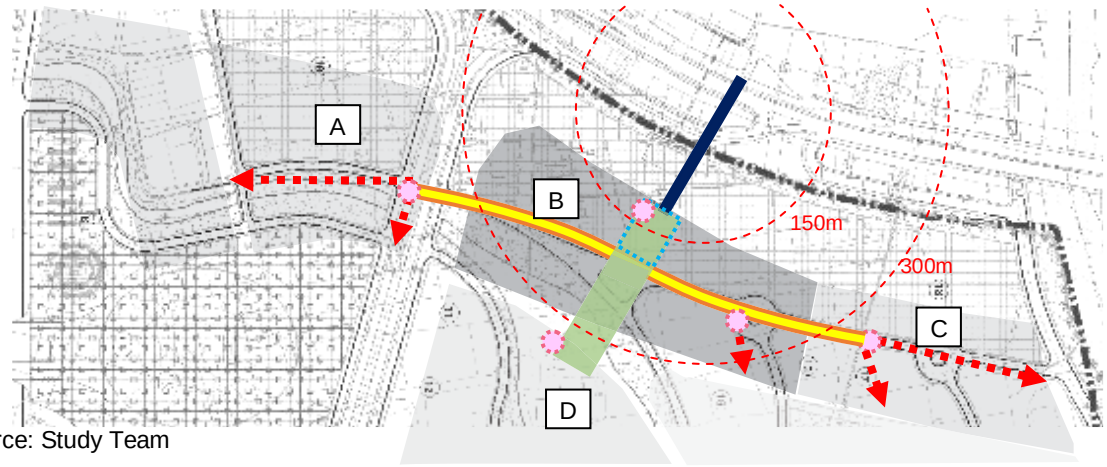
Mixed-use emphasis land (high-density)
Mixed-use residential emphasis land
Sports service & residential land
Intermodal Facility
Pedestrian Plaza
Pedestrian deck
UMRT Station
BRT Station

Source: Study Team

Figure 14.1.9 - Proposed Amendment of the Zoning Plan for Rach Chiec Sports Area

Preparation of an Architectural Management Guideline

The functions and size of intermodal facilities and the pedestrian facilities, such as pedestrian decks and elevators, have to be stipulated in an architectural management guideline. Large-scale open space for pedestrians are proposed as a symbolic access from the station to the sports facility which could accommodate the large number of volume of pedestrians when there are sports events.



Source: Study Team

Legend		Criteria	Note
	Intermodal Facility	-	Function and size of Intermodal Facility will be decided by the discussion with relevant authorities, which might include bus berths, taxi berths, pool for bus and taxi, car and motorcycle parking, etc.
	Pedestrian Deck	W=over 3m L=about 200m	The Pedestrian Deck shall be at the same level as the gate of the Station with barrier-free facilities.
	Pedestrian Plaza	-	The Pedestrian Plaza shall be at the same level as the Pedestrian Deck with barrier-free facilities. Elevators connected to the Intermodal Facility and the ground level of Block D shall be installed. The size of the Pedestrian Plaza will be decided by the consideration of maximum pedestrian traffic on a sport event.
	Walkway A	W=over 6m L=about 1000m 2nd level	Walkway A shall be flat and barrier-free from the Pedestrian Plaza to Block A and Block B.
	Walkway B	W=over 3m	In each block, Walkway B will be installed to connect between Walkway A and the ground level of the outside the block with Elevators. Walkway B can be installed inside buildings.
	Elevator	-	Barrier-free Elevators shall connect Walkway A and the ground level. The location of Elevators will be decided for the connectivity.
	Building Line	2nd level	70% of frontage shall be commercial use (retail or restaurant).

Figure 14.1.10 - Proposed Architectural Management Guideline for Rach Chiec Sports Area

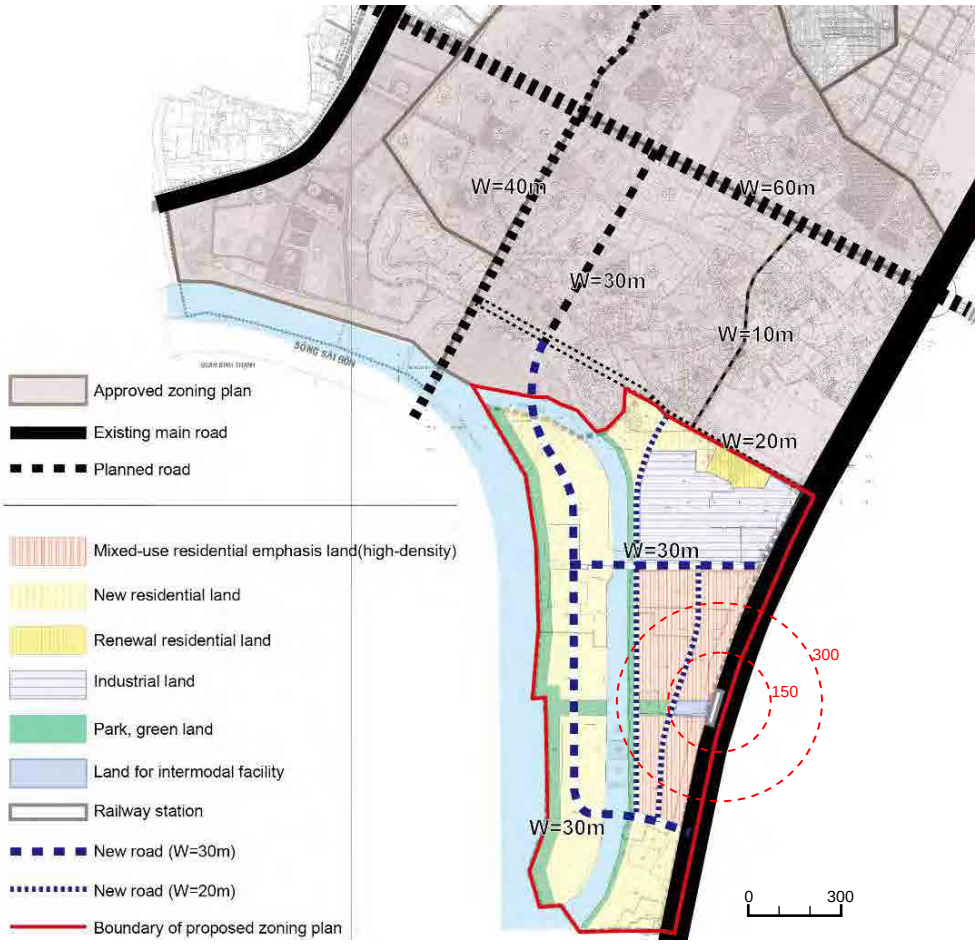
(3) Phuoc Long Station

I. Western Side of Phuoc Long Station

According to the master plan of Thu Duc District, the land use of the western side of Phuc Long Station is transformed from industrial to residential. Since the lower level urban plans (a zoning plan and a detailed plan) of the area have yet to be formulated, urban planning from a basic planning policy to planning criteria have to be prepared.

Preparation of the Zoning Plan

The figure below shows the proposed zoning plan of the area, which indicates the allocation of access roads linking with the Hanoi Highway and the roads designated in the zoning plans of the surrounding area. Mixed-use function with an emphasis on residential and medium-density criteria near the station are indicated as a land use. Parks and green spaces are allocated along the river and the canal according to the Ho Chi Minh City's set-back regulation (50 m from the Saigon River and 20 m from others).

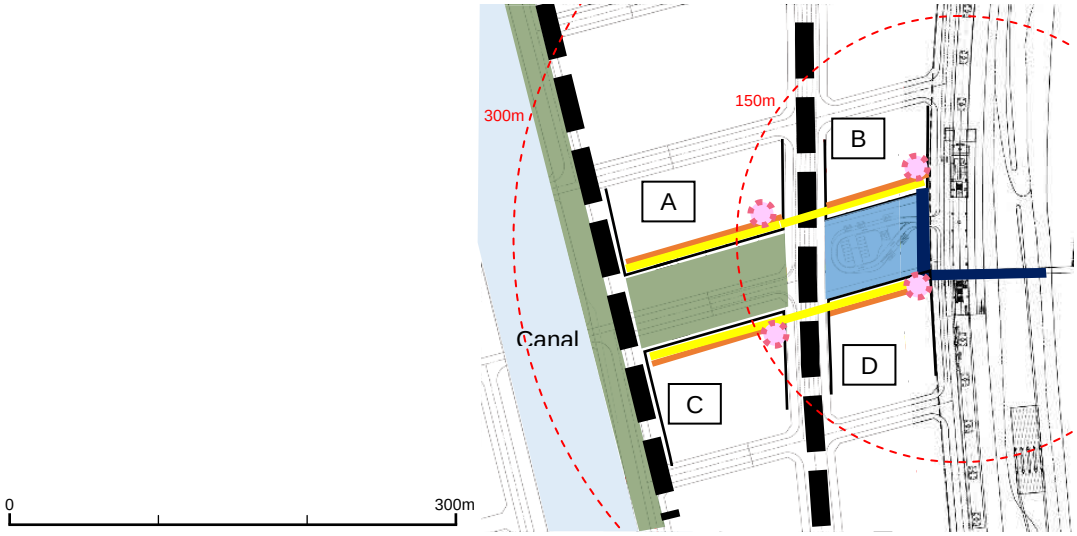


Source: Study Team

Figure 14.1.11 - Proposed Zoning Plan on the Western Side of Phuoc Long Station

Preparation of an Architectural Management Guideline

To utilize the impact of station development, the functions and size of intermodal facilities and the pedestrian facilities, such as pedestrian desks and elevators, have to be stipulated in an architectural management guideline. Along the routes leading to the canal, allocation of commercial functions is defined to create an active atmosphere.



Legend		Criteria	Note
	Intermodal facility	-	Function and size of the Intermodal Facility will be decided by discussion with relevant authorities, which might include bus berths, taxi berths, pool for bus and taxi, car and motorcycle parking, etc.
	Pedestrian Deck	W=over 3m	The Pedestrian Deck shall be on the same level as the gate of the Station with barrier-free facilities, on which the Elevator linking between the ground floor and Intermodal Facility will be installed.
	Walkway A	W=over 3m	Walkway A shall be at the same level as the Pedestrian Deck.
	Elevator	-	In Blocks A, B, C and D, barrier-free Elevators shall connect the Pedestrian Deck and station plaza, park, or other public facilities of the ground level.
	Building Line	2nd level	70% of frontage shall be retail or commercial use (retail or restaurant)
	Park	W=over 20m along canal	Park shall be walkable between the station and waterfront.

Source: Study Team

Figure 14.1.12 - Proposed Architectural Management Guideline for the Western Side of Phuoc Long Station

II. Eastern Side of Phuoc Long Station

Amendment of the Zoning Plan

On the eastern side of Phuc Long Station, there is an approved zoning plan which was formulated based on the existing urbanized area. Although the drastic transformation of land use and road allocation seems to be difficult, intermodal and pedestrian facilities are proposed in a zoning plan for the area near the station to utilize the impact of station development (see the figure below).

Planning Adjustment Residential Area of Block 1 to Block 6 (Phuoc Long A Ward)
QĐ 3790/QĐ-UBND ngày 12/7/2013

NGOÀI ĐƠN VỊ Ở	Public center land outside residential unit
ĐƠN VỊ Ở	Public center land in residential unit
ỤC	Educational land
Ư HIỆN HỮU	Existing residential land
DỰNG MỚI (CAO TẦNG)	New constructed residential land (high-rise)
DỰNG MỚI (THẤP TẦNG)	New constructed residential land (low-rise)
ỢP	Mix-used land
ANH TDTT	Sport greenery land
ANH CÁCH LY	Separated greenery land
ÁO	Religious land
O THÔNG HIỆN HỮU	Existing road
O THÔNG DỰ KIẾN	Future road
	Railway
N KHU	Zoning boundary
VỰC QUY HOẠCH	Planning area boundary
ÀN	Project boundary
N	Power line

(Proposal)

Mixed-use residential emphasis land (high-density)

Intermodal facility*

Pedestrian deck

Area size will be subject to change.

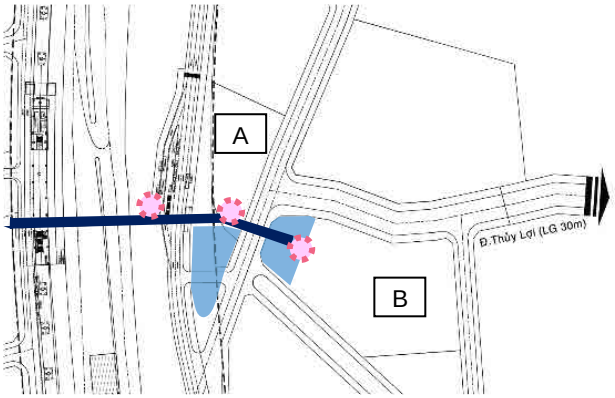
0 300m

Source: Study Team

Figure 14.1.13 - Proposed Amendment of the Zoning Plan for the Eastern Side of Phuoc Long Station

Preparation of an Architectural Management Guideline

As in the case of the other station areas, an architectural management guideline is proposed for the designation of the functions and size of intermodal facility, such as a station plaza and a parking facility, in the area near the station in accordance with the proposed zoning plan (see the figure below).



Legend		Criteria	Note
	Intermodal facility	-	Function and size of Intermodal Facility will be decided by discussion with the relevant authorities, which might include bus berths, taxi berths, pool for bus and taxi, car and motorcycle parking, etc.
	Pedestrian Deck	W=over 3m	The Pedestrian Deck shall be at the same level as the gate of the Station with barrier-free facilities, on which the Elevator linking between the ground floor and Intermodal Facility will be installed.
	Elevator	-	In Blocks A and B, barrier-free Elevators shall connect the Pedestrian Deck and station plaza, park, or other public facilities of the ground level.

Source: Study Team

Figure 14.1.14 - Proposed Architectural Management Guideline for the Eastern Side of Phuoc Long Station

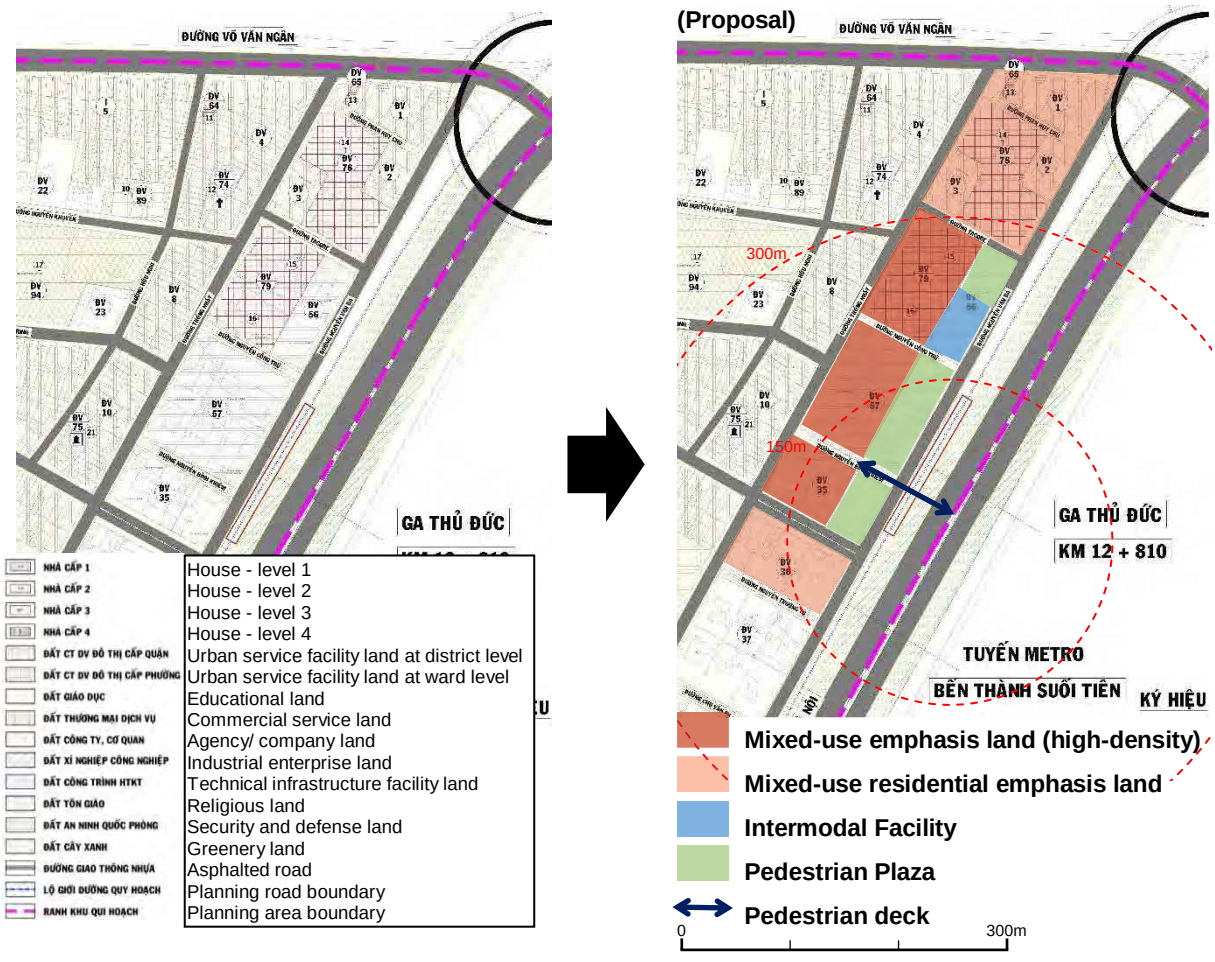
(4) Thu Duc Station

I. Western Side of Thu Duc Station

On the western side of Thu Duc Station, several public facilities are located along the Hanoi Highway, and on the back side is a residential area with a historical urban environment.

Amendment of the Zoning Plan

In the area near the station, high or medium-density mixed-use functions, including administration, residential and commercial, is proposed as a land use to utilize the impact of station development. In the proposed zoning plan, intermodal facilities are indicated in the northern part of the station (see the figure below). The pedestrian network is planned at the ground level because the car and motorbike traffic volume will not be high.

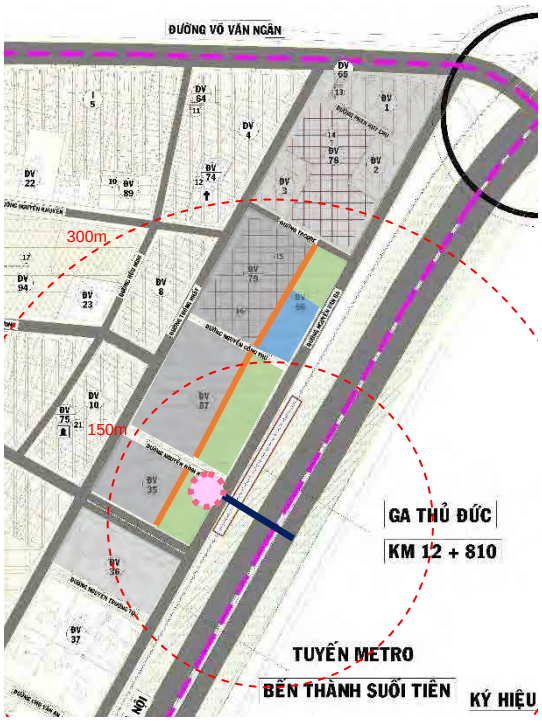


Source: Study Team

Figure 14.1.15 - Proposed Amendment of the Zoning Plan for the Western Side of Thu Duc Station

Preparation of an Architectural Management Guideline

The scale and functions of the public facilities stipulated in the proposed zoning plan, which include a station plaza, a pedestrian deck and a pedestrian plaza, are stipulated in an architectural management guideline (see the figure shown on the right).



Legend		Criteria	Note
	Intermodal Facility	-	Function and size of the Intermodal Facility will be decided by discussion with the relevant authorities, which might include bus berths, taxi berths, pool for bus and taxi, car and motorcycle parking, etc.
	Pedestrian Deck	W=over 3m	The Pedestrian Deck shall be at the same level as the gate of the Station with barrier-free facilities, on which the Elevator linking between the ground floor and Intermodal Facility will be installed.
	Pedestrian Plaza	-	The Pedestrian Plaza shall be at the same level as the Pedestrian Deck with barrier-free facilities. Elevators connected to the Intermodal Facility shall be installed. The size of the Pedestrian Plaza will be decided by considering the maximum pedestrian traffic.
	Elevator	-	Elevators with barrier-free consideration shall be installed to connect between the Pedestrian Deck and the Pedestrian Plaza at the ground level. Location of Elevators will be decided in consideration of the connectivity and convenience of users.
	Building Line	2nd level (Can be inside building)	70% of frontage shall be commercial use (retail or restaurant).

Source: Study Team

Figure 14.1.16 - Proposed Architectural Management Guideline for the Western Side of Thu Duc Station

II. Eastern Side of Thu Duc Station

Many factories are located along the Hanoi Highway on the eastern side of Thu Duc Station. The land use is expected to transform to non-industrial after station development.

Amendment of the Zoning Plan

The approved zoning plan indicates the public facilities along the Hanoi Highway. Considering the utilization of the impact of station development, however, mixed-use functions are desirable. For the land use of the area near the station, therefore, high-density mixed use with intermodal facilities and new road allocation is proposed as the amendment of the zoning plan.

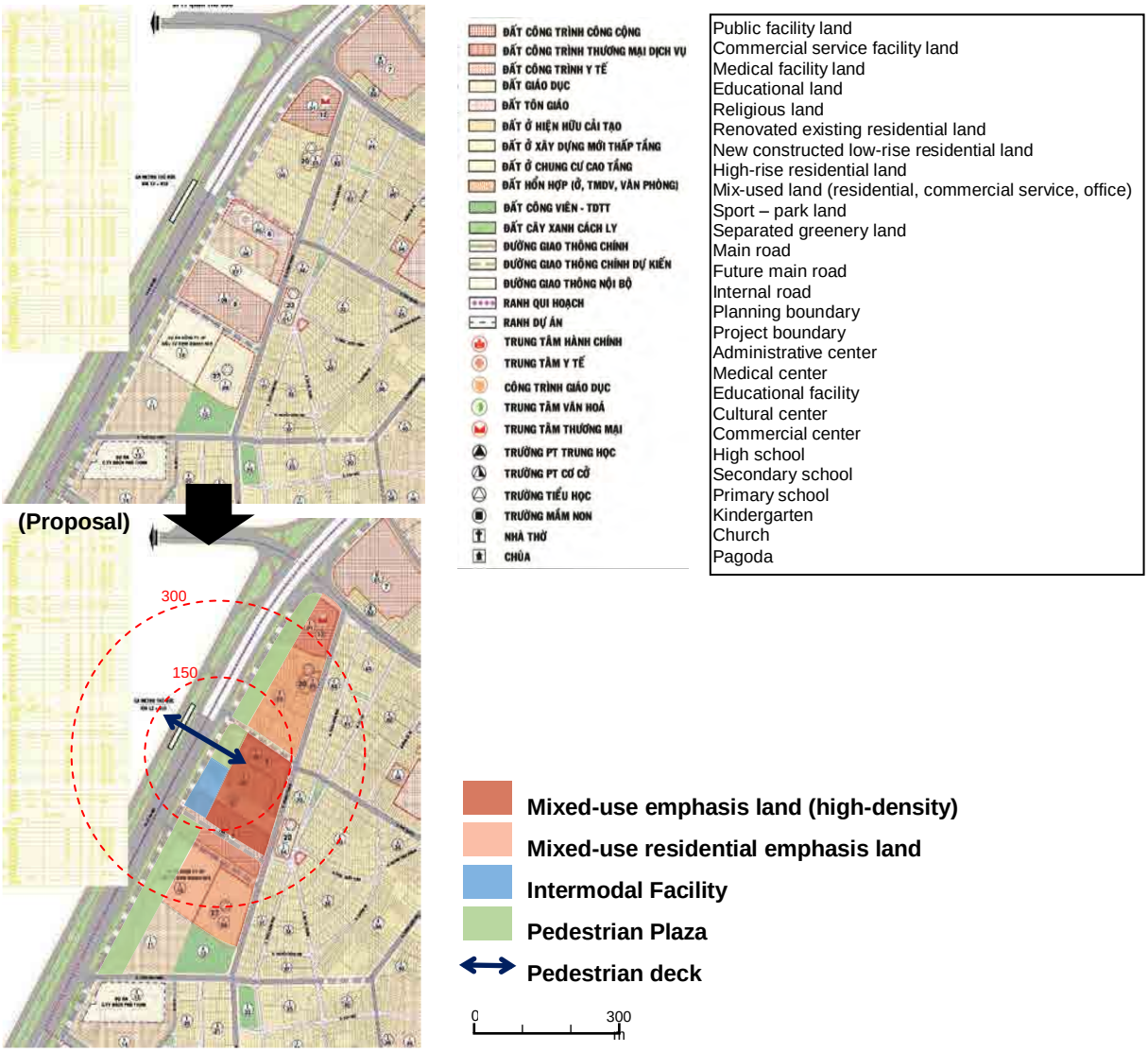
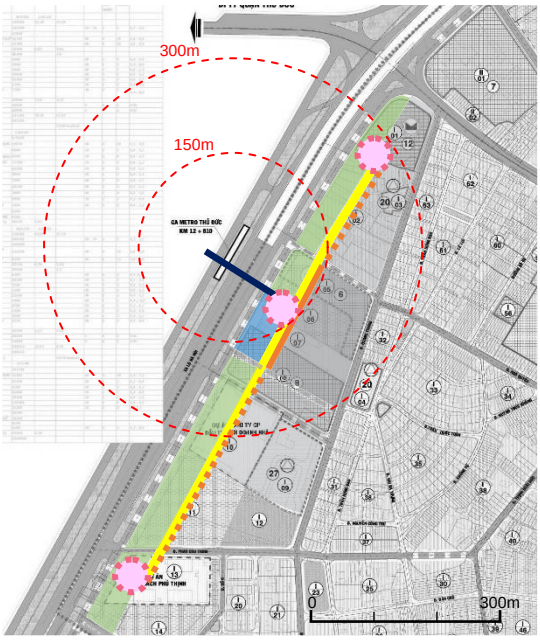


Figure 14.1.17 - Proposed Amendment of the Zoning Plan for the Eastern Side of Thu Duc Station

Preparation of an Architectural Management Guideline

The detailed functions of the public facilities stipulated in the proposed zoning plan, which include a station plaza, a pedestrian deck at the second floor level with elevators and a pedestrian plaza, are stipulated in an architectural management guideline (see the figure shown on the right).



Legend		Criteria	Note
	Intermodal Facility	-	Function and size of the Intermodal Facility will be decided by discussion with relevant authorities, which might include bus berths, taxi berths, pool for bus and taxi, car and motorcycle parking, etc.
	Pedestrian Deck	W=over 3m	The Pedestrian Deck shall be at the same level as the gate of the Station with barrier-free facilities, on which the Elevator linking between the ground floor and Intermodal Facility will be installed.
	Pedestrian Plaza	-	Elevators connecting with the Intermodal Facility shall be installed. The size and level of the Pedestrian Plaza will be decided by considering the pedestrian traffic.
	Walkway A	W=over 6m L=about 800m 2nd level (or ground level)	Walkway A shall be at the same level as the Pedestrian Deck with barrier-free facilities (some portion could be at the ground level). Location of Walkway A will be decided by discussion with relevant authorities, which can be installed inside buildings.
	Elevator	-	Elevators with the barrier-free concept shall be installed to connect between the Pedestrian Deck, Walkway A and Pedestrian Plaza. Location of Elevators will be decided in consideration of the connectivity and convenience of users.
	Building Line	2nd level (Can be inside building)	70% of frontage shall be commercial use (retail or restaurant).
	Building Line	2nd level (Can be inside building)	30% of frontage shall be commercial use (retail or restaurant).

Source: Study Team

Figure 14.1.18 - Proposed Architectural Management Guideline for the Eastern Side of Thu Duc Station

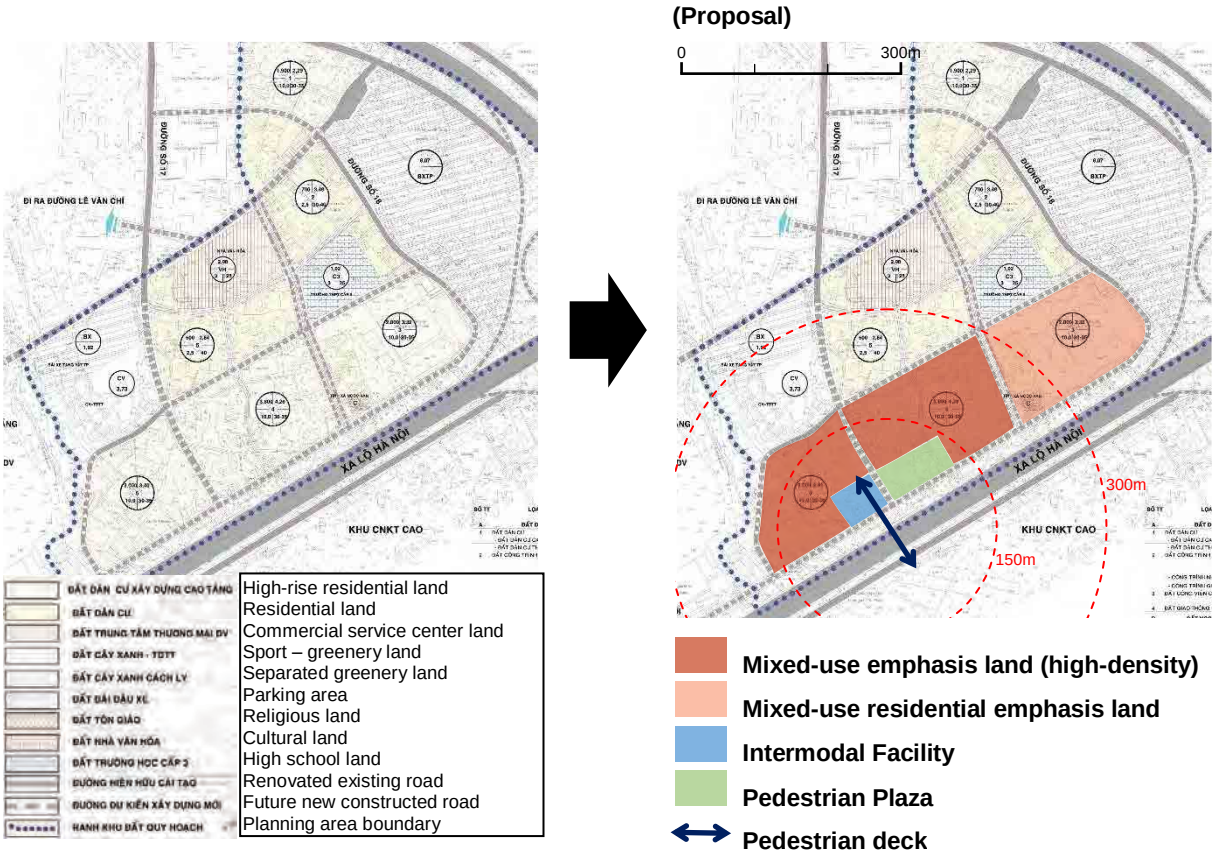
(5) High-Tech Park Station

I. Northern Side of High-Tech Park Station

On the northern side of the High-Tech Park Station, the existing urbanized area with low-density residential and industrial facilities has been developed.

Amendment of the Zoning Plan

In the approved zoning plan, the high-density residential function is indicated. In order to utilize the impact of station development more effectively, mixed-use functions, intermodal facilities and a pedestrian plaza are proposed as an amendment of the land use of the zoning plan for the area near the station.

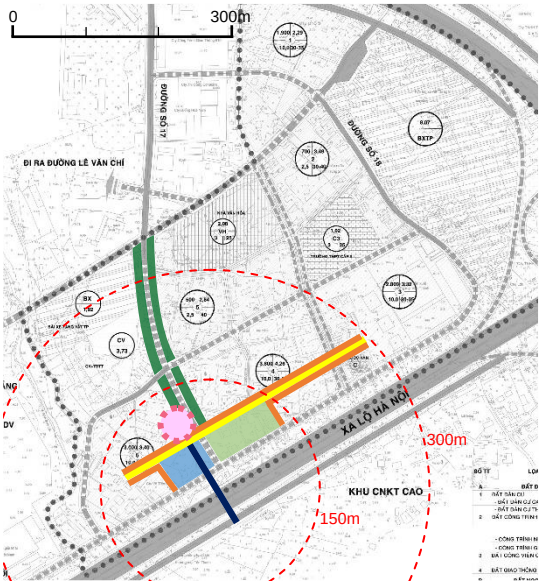


Source: Study Team

Figure 14.1.19 - Proposed Amendment of the Zoning Plan for the Northern Side of the High-Tech Park Station

Preparation of an Architectural Management Guideline

The scale and functions of the public open space and facilities for the area near the station stipulated in the proposed zoning plan, which include a station plaza, a pedestrian deck at the second floor level with an elevator and a pedestrian plaza, are stipulated in an architectural management guideline (see the figure shown on the right). Along the pedestrian plaza, the allocation of commercial functions are defined to create an active atmosphere.



Legend		Criteria	Note
	Intermodal Facility	-	Function and size of the Intermodal Facility will be decided by discussion with relevant authorities, which might include bus berths, taxi berths, pool for bus and taxi, car and motorcycle parking, etc.
	Pedestrian Deck	W=over 3m	The Pedestrian Deck shall be at the same level as the gate of the Station with barrier-free facilities, on which the Elevator linking between the ground floor and Intermodal Facility will be installed.
	Pedestrian Plaza	-	The Pedestrian Plaza shall be at the same level as the Pedestrian Deck with barrier-free facilities (some portions of it could be at the ground level). Elevators connecting with the Intermodal Facility shall be installed.
	Walkway A	W=over 6m L=about 400m 2nd level (or ground level)	Walkway A shall be at the same level as the Pedestrian Deck with barrier-free facilities (some portions of it could be at the ground level). Location of Walkway A will be decided by discussion with relevant authorities, which can be installed inside buildings.
	Elevator	-	Elevators with the barrier-free concept shall be installed to connect between the Pedestrian Deck and Intermodal Facility and the ground floor. Location of Elevators will be decided in consideration of the connectivity and convenience of users.
	Building Line	2nd level (Can be inside building)	70% of frontage shall be commercial use (retail or restaurant).
	Building Line	2nd level (Can be inside building)	30% of frontage shall be commercial use (retail or restaurant).
	Landscape Walkway	W=3m	Buildings shall be set-backed for the surrounding residential area. The set-back space shall be walkable with abundant greenery.

Source: Study Team

Figure 14.1.20 - Proposed Architectural Management Guideline for the Northern Side of High-Tech Park Station

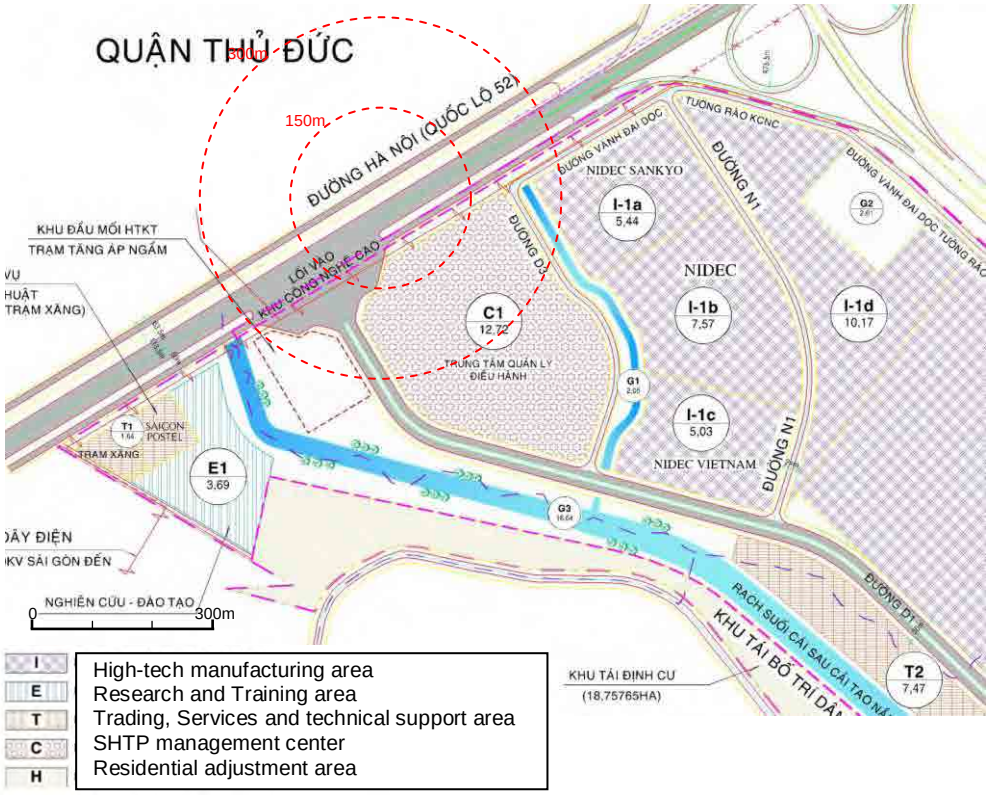
II. Southern Side of the High-Tech Park Station

The development of the Saigon High-Tech Park has been implemented based on the development master plan as shown in the figure below.

Development Master Plan of Saigon High-Tech Park

The development master plan of Saigon High-Tech Park in a scale of 1/5000 is the sole legal plan for the implementation of the high-tech park area's urban development (without formulating a zoning plan). Considering this area's specific legal status, modification of the development master plan seems to be difficult. Therefore, only the implementation measure by an architectural management guideline is proposed for the utilization of the impact of station development.

According to the development master plan, the blocks near the station (within a 300 m radius) are the Saigon Park Management Center and Technical Support Zone, both of which are currently vacant land. The former block is planning to be developed by a Singaporean developer.

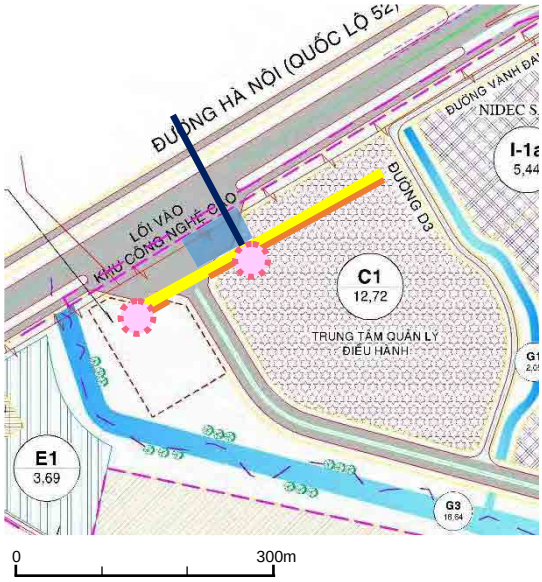


Source: Study Team

Figure 14.1.21 - Development Master Plan for the Saigon High-Tech Park

Preparation of an Architectural Management Guideline

The scale and function of the intermodal and pedestrian facilities, which include a station plaza, a pedestrian deck with an elevator and a walkway at the second floor level, are stipulated in an architectural management guideline (see the figure shown on the right). Along the walkway, the allocation of commercial functions are defined to create an active atmosphere.



Legend		Criteria	Note
	Intermodal Facility	-	Function and size of the Intermodal Facility will be decided by discussion with the relevant authorities, which might include bus berths, taxi berths, pool for bus and taxi, car and motorcycle parking, etc.
	Pedestrian Deck	W=over 3m L=about 200m	Pedestrian Deck shall be at the same level as the gate of the Station with barrier-free facilities, on which the Elevator linking between the ground floor and Intermodal Facility will be installed.
	Walkway A	W=over 6m L=about 1000m 2nd level (or ground level)	Walkway A shall be at the same level as the Pedestrian Deck with barrier-free facilities (some portions of it could be at the ground level). Location of Walkway A will be decided by the discussion with relevant authorities, which can be installed inside buildings.
	Elevator	-	Elevators with barrier-free consideration shall be installed to connect between the Pedestrian Deck and Intermodal Facility and the ground floor. Location of elevators will be decided in consideration of the connectivity and convenience of users.
	Building Line	2nd level (Can be inside building)	70% of frontage shall be commercial use (retail or restaurant).

Source: Study Team

Figure 14.1.22 - Proposed Architectural Management Guideline for the Saigon High-Tech Park

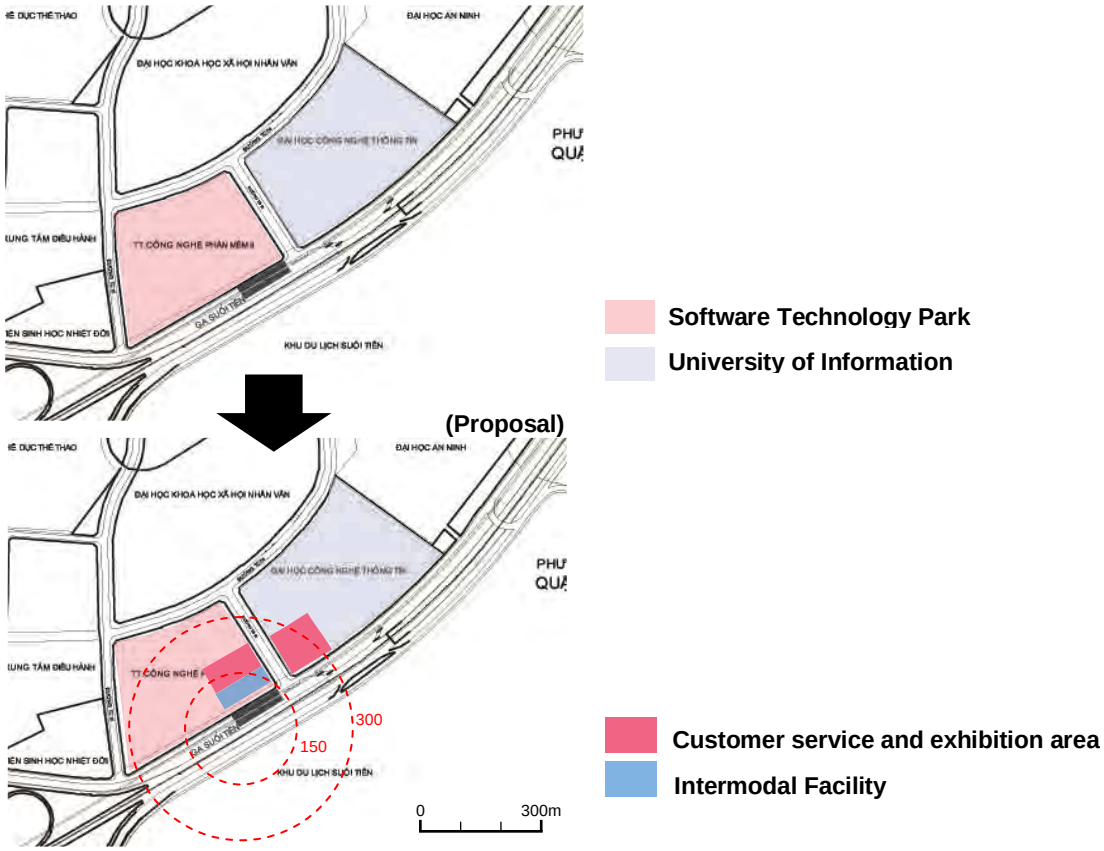
(6) Suoi Tien Station

I. Northern Side of Suoi Tien Station

The northern side of Suoi Tien Station belongs to the National University Area. The development master plan of the university in a scale of 1/2000 was approved in March 2014 by the Prime Minister, in which the blocks adjacent to the station are designated for the Software Technology Park and the University of Information.

Amendment of development master plan

As mentioned above, the development master plan was not formulated by considering the utilization of station development. Therefore, the land use for intermodal facilities and customer service and exhibition center in the blocks adjacent to the station is proposed as an amendment of the land use plan (see the figure below). Since the development master plan has just been recently approved, the amendment of the plan seems to be difficult for a while. Under the current regulation, measures to control urban development for the utilization of station development is also needed.

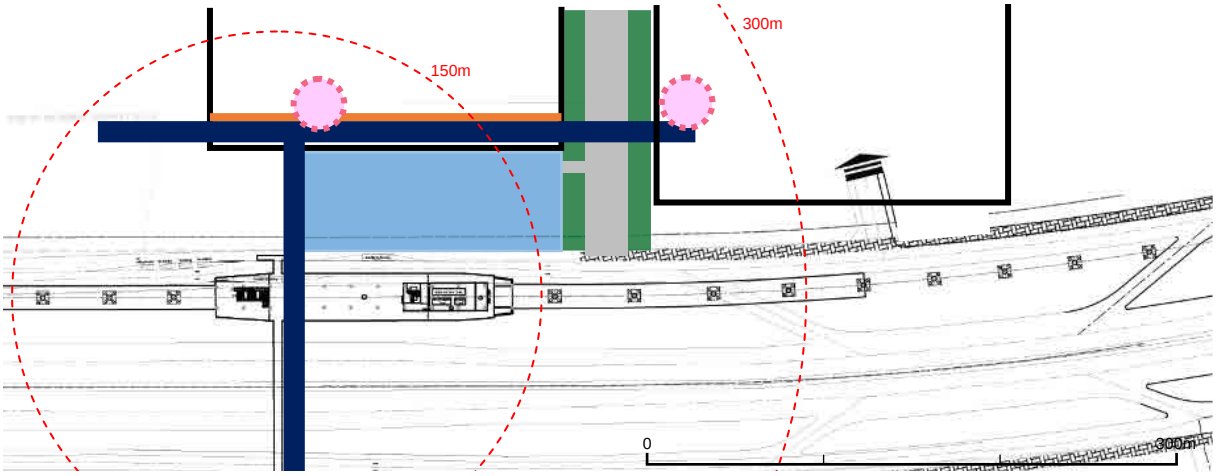


Source: Study Team

Figure 14.1.23 - Proposed Amendment of the Master Plan of the National University Area

Preparation of an Architectural Management Guideline

The functions and size of the intermodal facility, such as the station plaza and parking facility, and the pedestrian facilities, including a pedestrian deck with elevators and landscape walkway leading to the center of the campus, are stipulated in an architectural management guideline (see the figure below).



Source: Study Team

Figure 14.1.24 - Proposed Architectural Management Guideline for National University Area

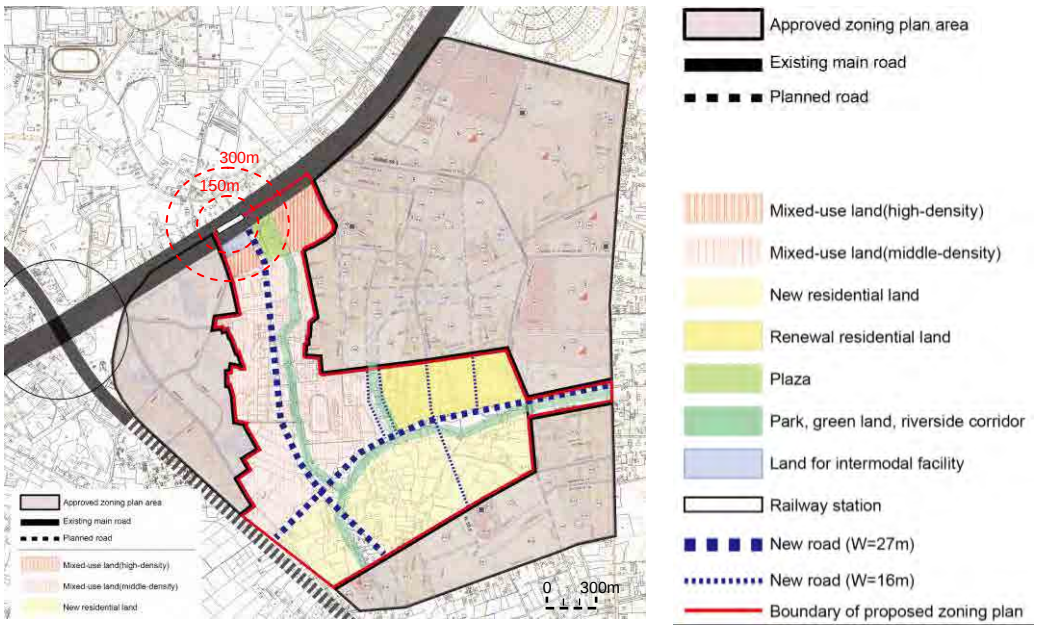
Legend		Criteria	Note
	Intermodal Facility	-	Function and size of the Intermodal Facility will be decided by discussion with the relevant authorities, which might include bus berths, taxi berths, pool for bus and taxi, car and motorcycle parking, etc.
	Pedestrian Deck	W=over 3m L=about 150m	The Pedestrian Deck shall be at the same level as the gate of the Station with barrier-free facilities, on which the Elevator linking between the ground floor and Intermodal Facility will be installed.
	Elevator	-	Elevators with the barrier-free concept shall be installed to connect between the Pedestrian Deck and Intermodal Facility and the ground floor. Location of elevators will be decided in consideration of the connectivity and convenience of users.
	Building Line	1st level and 2nd level	70% of frontage in front of Intermodal Facility and Entrance Plaza shall be retail, commercial use or customer service.
	Landscape Walkway	W=10m	Symbolic pedestrian walkway with abundant greenery linking from the station to the center of the university campus.

II. Southern Side of Suoi Tien Station

On the southern side of Suoi Tien Station, there is a popular amusement park called the Suoi Tien Water Park, which is planning to be redeveloped and expanded to include a residential complex with the existing amusement functions. The zoning plan does not exist for the planned complex area.

Preparation of the Zoning Plan

The figure below shows the proposed zoning plan for the newly redeveloping and expanding residential complex area, the surrounding of which the zoning plan has already been approved based on the existing urbanized area. In the proposed zoning plan, high-density mixed-use land use and intermodal facilities are designated in the area near the station to utilize the impact of the station development. In addition, the arterial roads which could deal with the traffic to be generated from the new development are indicated in the figure.

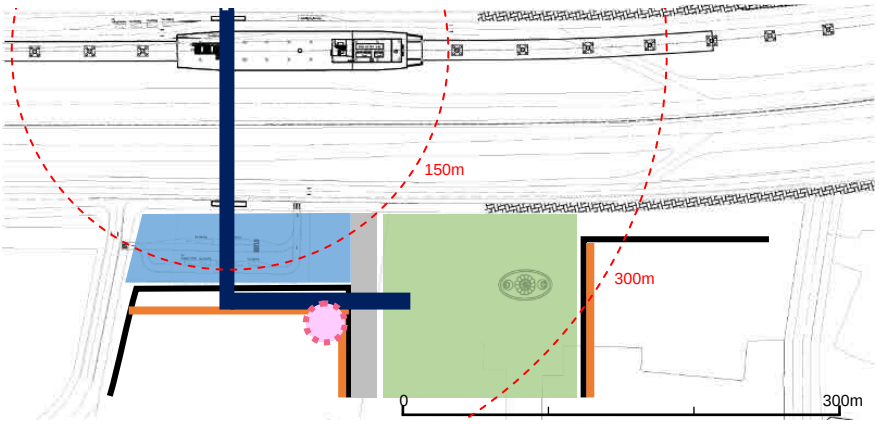


Source: Study Team

Figure 14.1.25 - Proposed Zoning Plan for the Southern Side of Suoi Tien Station (for New Development Area)

Preparation of an Architectural Management Guideline

The functions and size of the intermodal facility, such as the station plaza and the parking facility, and the pedestrian facilities, including a pedestrian deck with an elevator and a pedestrian plaza, are stipulated in an architectural management guideline (see the figure below).



Legend		Criteria	Note
	Intermodal Facility	-	Function and size of the Intermodal Facility will be decided by discussion with relevant authorities, which might include bus berths, taxi berths, pool for bus and taxi, car and motorcycle parking, etc.
	Pedestrian Deck	W=over 3m	The Pedestrian Deck shall be at the same level as the gate of the Station with barrier-free facilities, on which the Elevator linking between the ground floor and Intermodal Facility will be installed.
	Entrance Plaza	-	The Entrance Plaza will be developed at the ground level connected with the Pedestrian Deck
	Elevator	-	Elevators with the barrier-free concept shall be installed to connect between the Pedestrian Deck, Intermodal Facility and the ground floor. Location of the Elevators will be decided in consideration of the connectivity and convenience of users.
	Building Line	1st level and 2nd level	70% of frontage in front of Intermodal Facility and Entrance Plaza shall be retail, commercial use or customer service.

Source: Study Team

Figure 14.1.26 - Proposed Architectural Management Guideline for the Southern Side of Suoi Tien Station

14.2 Issues and Procedure on the Legalization of the Proposed Urban Plans

1) Issues on the Legalization of the Proposed Urban Plans

(1) Issues on the Legalizing Procedure

In the previous section, the zoning plans and the architectural management guidelines were proposed for the implementation of the concept design for the areas near the station. To practically utilize these proposed urban plans for controlling and promoting urban development, these urban plans have to be legalized by modification or formulation. However, for the reasons indicated below, legalizing these urban plans is not an easy task.

- Since the legalizing procedure of urban plans requires greater coordination with land owners (lease holders) and relevant authorities of the city and district governments, it will take a lot of time and effort.
- Since urban development projects and the railway development project are conducted and managed by different entities and legal frameworks, the current railway development schedule does not have a direct influence on the urban planning formulation.
- The areas near the station for which proposed urban plans were examined in the study are mainly non-public lands. In order to legalize the proposed urban plans for such lands, strong initiative taken by the city government (the people's committee) is needed.
- Since urban planning based on the TOD concept is a new policy for the city government, consensus building for such an idea among the city authorities has to start in the first place.

(2) Issues on Ownership of Facilities Designated in the Urban Plans

The ownership of facilities designated in the proposed urban plans is an important issue for the sustainable management of the station area. The facilities which have an important role in the effective functioning of the station area have to be owned by the public entities, which include a station plaza to be composed of a bus berth, taxi berth, taxi and bus pools and a kiss & ride space, and a pedestrian deck and plaza linking between public facilities. On the other hand, there are facilities which could be owned by non-public entities, including walkways and parks developed inside private properties and car and motorcycle parking spaces. Table 14.2.1 show the ownership pattern of facilities designated in urban plans.

Table 14.2.1 - Ownership Patterns for the Facilities Designated in the Urban Plans

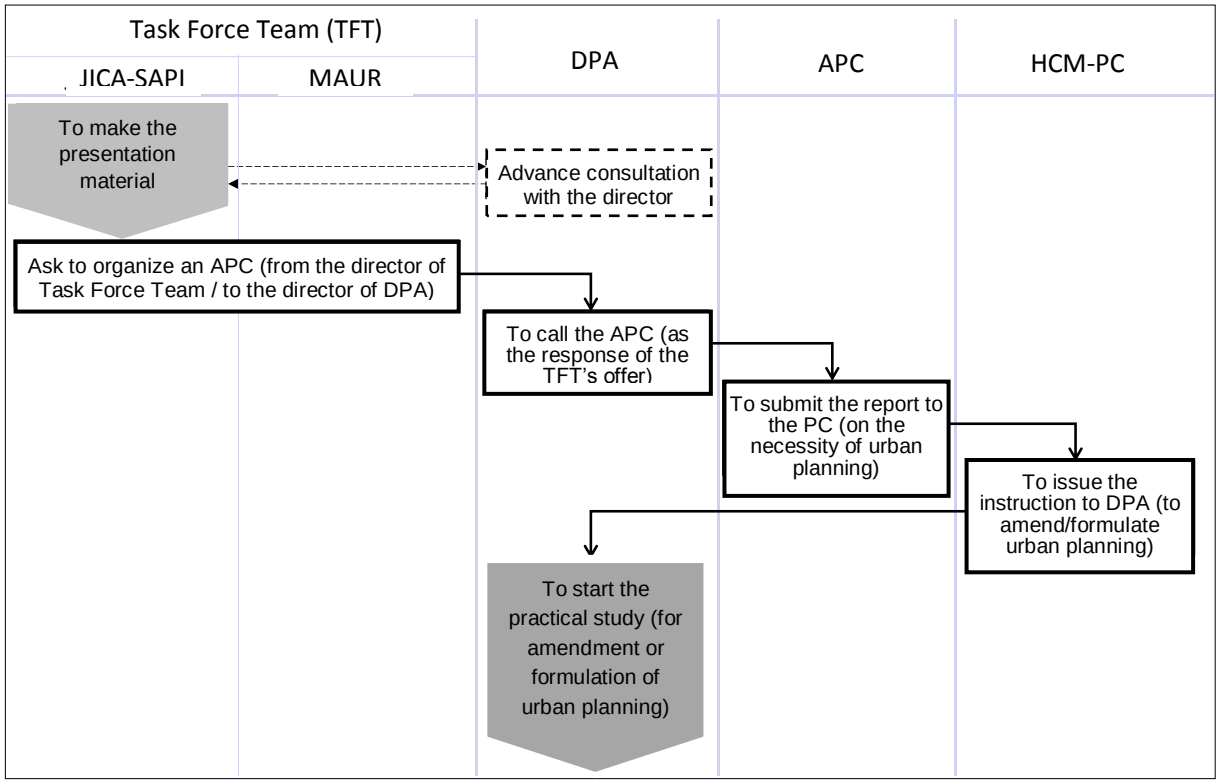
	Facilities Designated in the Urban Plans
Public ownership is desirable	- Intermodal facilities (a station plaza to be composed of a bus berth, taxi berth, taxi and bus pools, kiss & ride space) - Elevator attached to public facilities - Pedestrian decks linking between the station and intermodal facilities - Pedestrian plaza (parks and green spaces) which has a function of linking public facilities
Non-public ownership is possible	- Walkway - Elevator attached to non-public facilities - Car and motorcycle parking spaces - Parks and green spaces which belong to non-public facilities

Source: Study Team

2) Procedure on the Legalization through the Architectural Planning Committee

Under the aforesaid difficult situation of legalization of urban plans, the Department of Planning and Architecture (DPA) suggested the procedure through an Architectural Planning Committee (APC) for the legalization of proposed urban plans for station area development. The APC is a committee which examines a large-scale or an important architectural or urban development projects in Ho Chi Minh City, which is presided by the director of the DPA. The member of the committee include the city government authorities related to a project, such as the DPA, DOC, DOT and District leaders, and the experts of architecture and urban planning, such as university professors and members of the architecture association. The DPA's suggested procedure is as follows (see Figure 13.2.1).

1. To ask the director of the DPA to organize an Architectural Planning Committee (APC) on urban planning for the station area development by the Task Force Team.
2. To submit the report by the APC to the People's Committee (HCMC-PC) on the necessity of amendment or formulation of urban plans for the station area development.
3. To issue the instruction to the DPA to amend or formulate urban plans for station area development by the HCMC-PC.
4. The DPA amends or formulates urban plans for station areas.



Source: Study Team

Figure 14.2.1 - Procedure for Legalization of Proposed Urban Plans

Besides the aforesaid procedure initiated by the public sector, there could be a case that the private entities (developers or investors) develop an intermodal and other related facilities to take advantage of the increased potential by the station development. In such a case, the private entities will consult with the DPA and prepare urban plans by themselves. For this case, the DPA has to prepare a guideline on urban planning for the station area, which includes the ownership of the facilities designated by the urban plans and the rule of the burden of facility development.

14.3 Proposed New Schemes for Station Area Urban Development

1) Proposed Land Redevelopment Scheme

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

Land Readjustment (LR) is an integrated urban development measure including land re-plotting and infrastructure construction (see Figure 14.3.1). 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 a typical function, it has the land re-plotting system to consolidate land lots. Basically, land owners within the LR site can secure their own land use rights during the project. In other words, LR is one of the urban renovation measures by citizen participation with consensus building.

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 to fund the project cost as a self-sufficient financing system.

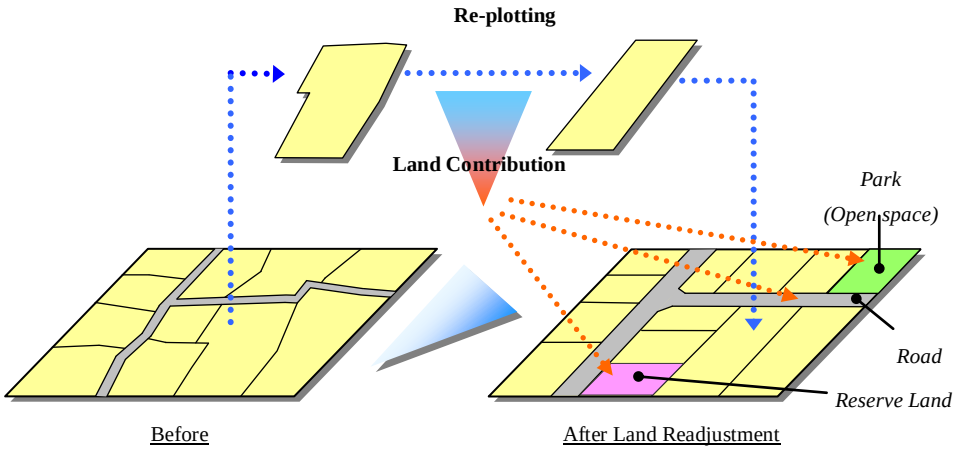


Figure 14.3.1 - Schematic Model of Land Readjustment (LR)

2) Proposed Urban Redevelopment Scheme

Urban Redevelopment (UR) is one of the reconstruction measures using the land use right conversion system. This measure is used to combine of plural individual land to a collective land to construct new apartments and large-scale buildings, which existing owners can resettle in (see Figure 14.3.2). Original land use right holders secure their land use right during the project implementation period, and their land use rights will be distributed to sectional ownership of the new building. There is also a self-financing system to secure the reserved floor for sale to recover the construction cost.

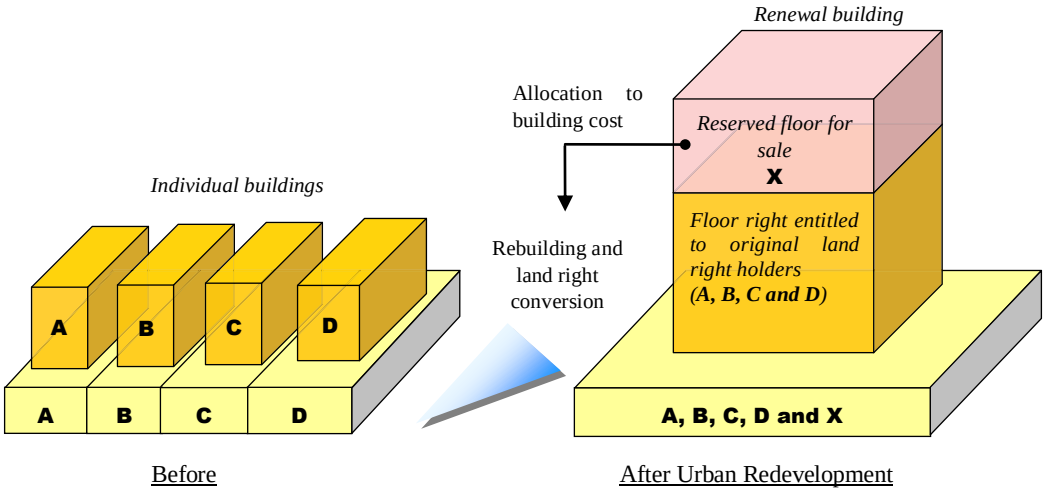


Figure 14.3.2 - Schematic Model of Land Readjustment (LR)

3) Proposed Land Banking System

In order to implement LR and UR effectively, “Land Banking (LB)” is a measure of priority in land acquisition as an initial investment for future urban development. In the case that private land will be disposed of by the owner, the public sector acquires the land as an initial investment. In the future urban development, the public sector uses the land as a seed lot for the consolidation of large land lots for urbanized land use and public facilities. The measure is widely practiced in the world and has 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.

4) Proposed Urban Development Scheme using LR and UR

LR and UR schemes can be applied to urban development project with infrastructure development such as for road and intermodal facilities. The 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 for on-site resettlement
- Encourage effective land use

The implementation process of the proposed hybrid scheme of LR and UR is as follows:

i) Define a project boundary for road development, which is wider than the ROW
ii) PC announces and requests for participation of the project to land use owners inside the project boundary.
iii) Participants who agree with the project will convert the land use right to floor right of the new apartment by the Urban Redevelopment scheme
iv) Non-participants will exchange land with participants by the Land Readjustment scheme
v) Participants will construct a new apartment and move to the plotted housing
vi) Roads will be developed by subsidies from the public sector
vii) By using profits of the Urban Redevelopment Project of the new apartment, open space will be developed.

The proposed urban development scheme using LR and UR is as follows (see Figure 14.3.3):

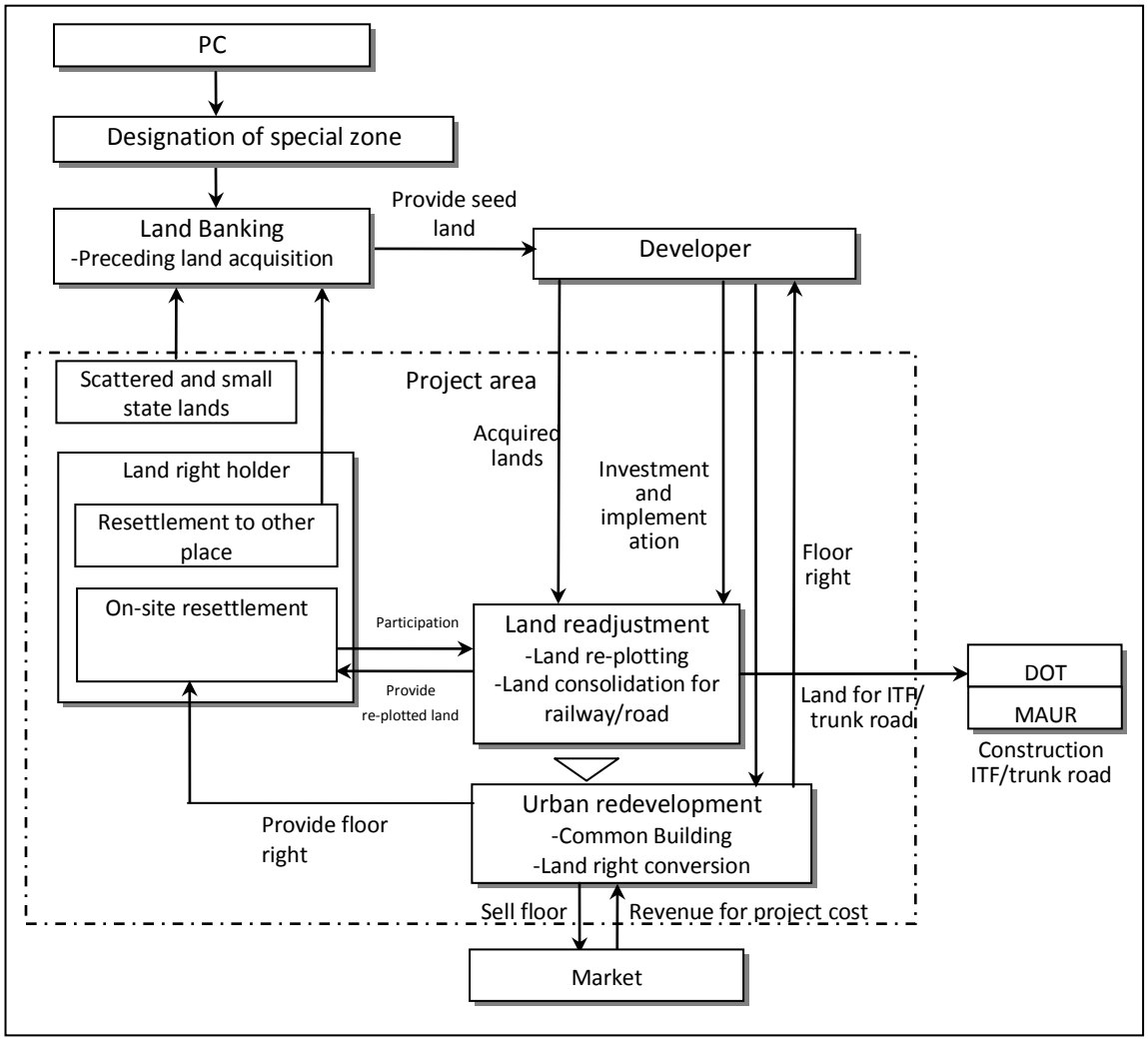


Figure 14.3.3 - Proposed Urban Development Scheme using LR and UR

Proposed measures for land preparation and urban development will be applied to various types of projects for the UMRT and station area urban development (see Table 14.3.1).

Table 14.3.1 - Implementation Measure for Station Area Urban Development

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	●	-	-	●	○	-	-	●	-
	Shifting Existing Bus terminal	●	-	-	-	-	-	-	●	-
	Urban Redevelopment	-	●	-	-	○	○	-	-	●
	New Urban Development	-	●	-	●	-	-	-	-	●
	Urban Renovation	●	○	-	●	○	○	-	●	○
	Living condition improvement	●	-	-	●	-	-	-	●	-

Legend ●: Basic measure, ○: Optional Measure, -: None

5) Feasibility of the Proposed Implementation Scheme using LR and UR

Preceding Land Acquisition: Regarding land acquisition, the proposed implementation measure adopts the land banking system using the preceding land acquisition. It is useful for securing the seed of land for infrastructure and urban development and for managing and controlling development by the private sector. However, in the 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, the infrastructure project and urban development project are separated in the existing legal system, so the land acquisition should be separated into each project purpose. Therefore, it is difficult that one organization acquire land for both purposes of infrastructure and urban development.
- **Difficulty of land acquisition for urban development by the PC:** The PC is permitted to engage in only public activities and is not able to implement profitable activities such as commercial development. Therefore, the PC cannot acquire land for urban development which generates profits. It needs to use an umbrella organization or company to do this.

For land banking and preceding land acquisition, the designation system of special zones will be proposed. This system includes the following functions:

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

Exchange of Land use Right (Land re-plotting and land right conversion): The typical feature of the LR and UR measure is the 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 land use right conversion in the existing legal system in Vietnam, there is a possibility to implement a proposed measure for on-site resettlement.

In general, there are three types of compensation and resettlement measures such as i) paying compensation money, ii) providing residential lands and iii) providing housing. Under the present legal situation, land re-plotting and land right conversion will be implemented as resettlement of providing residential land and apartments. In this scheme, the developer provides land lots or floor rights after the urban development as compensation to the original land use right. In other words, this scheme is maybe similar with the 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 a contractual basis without being consistent with the normal stipulated procedures.

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

However, it is because there has been no preceding example of this right conversion. New systems and methodologies should be proposed and to set a benchmark for the new way of right conversion in urban development.

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

Implementation body for LR and UR: The private developer will be able to implement the urban development project with LR and UR under the aforesaid resettlement legal

framework. A Special Purpose Company (SPC) who has the right to implement urban development projects are also able to implement LR and UR projects. However, the PC is not permitted to implement profitable activities including urban development, but an umbrella company is permitted. Therefore, the private developer, SPC with a PC umbrella company would be able to implement LR and UR.

Table 14.3.2 - Feasibility of the Proposed Implementation Scheme with LR and UR

Proposed Scheme	Feasibility in the Existing Legal System	Proposal on Legal Improvement	Feasibility
Preceding land acquisition	・ Difficulty of land acquisition before project approval ・ Difficulty of land acquisition with the combined of purpose for public infrastructure and urban development ・ Difficulty of land acquisition with commercial purpose by the PC	・ Establish project boundary designation system for land banking and preceding land acquisition before project approval. ・ Permission to the PC of land acquisition within designated special zone.	Impossible
Land re-plotting	・ Possible to implement as one of the resettlement measures ・ Only for residential land ・ Unclear of commercial purpose resettlement	・ Addition resettlement method for commercial and business purpose land ・ Or establish new legal scheme for land re-plotting	Possible with conditions
Land use right conversion	・ Possible to implement as one of the resettlement measures ・ Only for apartment projects ・ No legal basis of sectional ownership for commercial buildings	・ Addition resettlement method for commercial and business purpose land ・ Establish sectional ownership scheme for commercial and business purpose building ・ Establish new legal scheme for land use right conversion	Possible with conditions
Legal power of land re-plotting and land right conversion plan	・ Possible to provide legal power by official decision of urban development plan including resettlement plan	・	Possible
Implementation body	・ Possible of LR and UR by private sector or SPC with PC umbrella company ・ Difficult for PC directly to implement LR and UR project with commercial purpose	・ Permission to PC of land acquisition within designated special zone.	Possible with conditions