

### 3.4 TOD Concept Plans in North West Urban Cluster

#### 3.4.1 Approach

##### 1) Area Characteristics

##### (a) Area Coverage and Profile

3.94 The North West Urban Cluster is composed mostly of western areas of Tay Ho District, part of North Tu Liem and Cau Giay Districts. Wards located entirely or partly in the area within 1 km of UMRT station include Nghia Do Ward, Quan Hoa Ward, Nghia Tan Ward and Dich Vong Ward of Cau Giay District, Xuan La Ward, Bui Ward and Phu Thong Ward of Tay Ho District, Xuan Dinh Ward and Co Nhue Ward of Tu Liem District, Vinh Phuc Ward and Cong Vi Ward of Ba Dinh District. Population in the area is approximately 115,200 and 129,500 in 2009 and 2013, respectively. The demographic growth in this area is high with 3.0%/year. Large scale new developments contribute significantly to this growth, thus the whole area is expected to increase to 150,000 to more than 200,000 when these development projects will be fully developed<sup>1</sup>. Current population growth rates are particularly high in Xuan Dinh, Xuan La, Co Nhue and Phu Thong Wards (See Table 3.4.1-1 and Figure 3.4.1-1).

**Table 3.4.1-1 Population Growth Trend in North West Urban Cluster**

Ward	District	UMRT Station	Coverage (%) <sup>1)</sup>	Population		AGR (%/yr) 09 - 13	Population Density (no/ha)
				2009	2013		
Nghia Do	Cau Giay	C4	100	28,929	30,758	1.5	217
Vinh Phuc	Ba Dinh	C4,(C5)	80	17,238	18,956	2.4	328
Xuan La	Tay Ho	C1,C2,C3,C4	80	15,737	18,608	4.3	108
Xuan Dinh	Tu Liem	C1,C2,C3	60	19,742	23,331	4.3	70
Phu Thong	Tay Ho	C1	60	9,981	13,551	7.9	45
Buoi	Tay Ho	C4	40	9,526	10,363	2.1	383
Nghia Tan	Cau Giay	C4	30	6,706	6,995	1.1	389
Quan Hoa	Cau Giay	C4	30	7,330	6,953	-1.3	275
Total			63	115,189	129,516	3.0	119.9

Source: Worked out by JICA Project Team based on the various sources

1) Coverage refers to % of ward area included within 1km radius of UMRT station

##### (b) UMRT Route and Stations

3.95 The route of Line 2 starts at Nam Thang Long Station (C1) located in CIPUTRA real estate development, to Ngoai Giao Doan Station (C2) in Ngoai Giao Doan real estate development, Tay Ho Tay Station (C3) where new governmental district is planned and to Bui Station (C4). Line 2 depot is also located in this cluster, near Nam Thang Long Station.

<sup>1</sup> CIPUTRA new town is planned to accommodate 50,000 population when fully developed in its 301 ha land area. Large-scale Ngoai Giao Doan and Tay Ho Tay new urban area development projects are also on-going.

**Figure 3.4.1-1 Area Profile of North West Urban Cluster (C1, C2, C3 and C4)**



Source: JICA Project Team

### (c) Socio-economic Conditions

3.96 The area is currently known as the cluster of SMEs including confectionery production, shoes manufacturers, and trading/business establishments and services. Residents of this area are better off than the average population of Hanoi. Ownership of motor vehicles, two and four-wheelers, is higher than the city average.

3.97 Motorcycle and car traffic safety is as key concern of the people in the area. In this area, people think public amenities, entertainment and park with playground equipment and facilities for sports and cultural event are not put in place in a satisfactory level. For example, Hoa Binh Park is the only green space in the urban area, but it lacks of entertainment and other facilities for the use of residents.

3.98 The situation in the cluster has been quickly changing due to extensive development.

### (d) Landuse

3.99 Most of the land in the cluster is classified as urban residential land, followed by agricultural land. A large-scale development is being built for residential, commercial and governmental administrative purposes. Existing urban residential areas are clustered along the Red River and West Lake, and Xuan Dinh Ward.

3.100 Likewise South of West Lake Urban Cluster, the area has many historical sites located on lakeshore of West Lake, i.e. more than 60 temples, shrines and sites, or which 21 of them on lakeshore are designated as national protection sites. It is also a home to many traditional crafts and products, so the area could be one of attractive recreational and tourism spots for domestic and international visitors.

**Figure 3.4.1-2 Current Development Situation in the Area**



### **(e) Transportation**

3.101 In this cluster, only two east-west trunk roads are put in place, i.e. Nguyen Hoang Ton Street in the north and Hoang Quoc Viet Street in the south. Between those trunk roads, developers are to develop trunk and distribution roads according to the detail designs approved by the authorities, yet they are not fully developed. Because of the existing situations, many vehicles use these two roads to go to the city center. As for north-south direction, Ring Road 3 (RR3) is the only trunk road in this area. As a consequence, many vehicles use this road to Dong Anh District through Thang Long Bridge. RR2 between Nhat Tan Bridge to Hoang Quoc Viet Street will be completed in 2015, and connected with Noi Bai extension road toward the north.

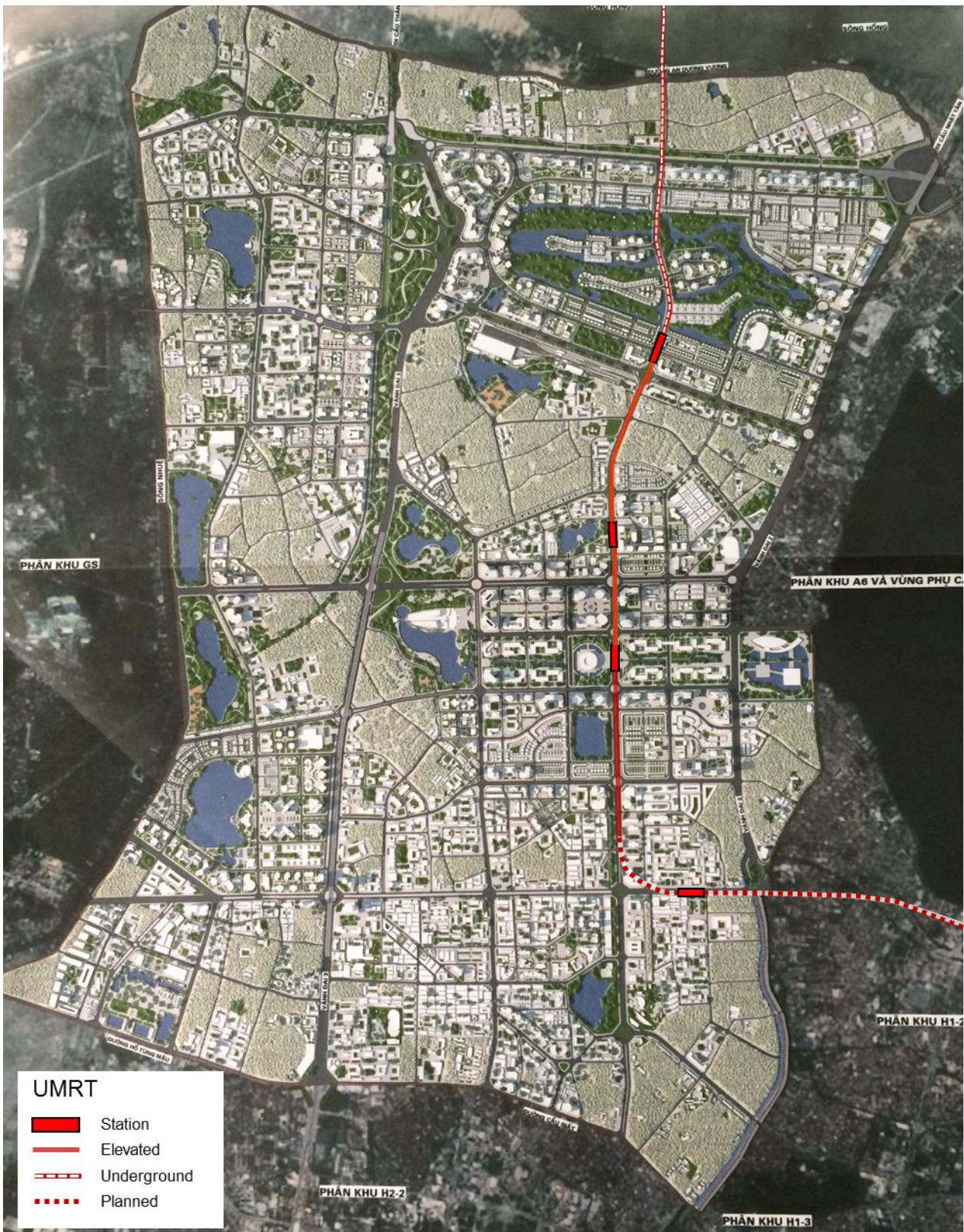
3.102 Bus services mainly pass through trunk roads, and most of routes go through the northern side of the Red River, western area of Pham Van Dong Street, northern area of West Lake to go to the city center. Bus routes from Dong Anh District take Thang Long Bridge to get to the North West Urban Cluster using RR 3. Many passenger uses bus routes along Hoang Quoc Viet street because many universities locate along the street.

### **(f) On-going New Developments**

3.103 There are three large-scale urban development projects including “CIPUTRA New Town”, “Ngoai Giao Doan New Urban Area” and “Tay Ho Tay New Urban Area”.

- (i) The CIPUTRA new town has been under development since 2003 and approximately 33% of the total land of 301 ha is developed mostly for town house and high-rise apartments. When the project has been completed, approximately 50,000 people will reside in the area.
- (ii) Ngoai Giao Doan development project covers 62.8 ha of land with target population of 10,000. The area is preliminary designated as “diplomat district” where embassies, parks, high-rise apartments are to be located. The operation will begin around 2017. The project is implemented by HANCORP under HPC with supervision of MOC.
- (iii) Tay Ho Tay development project adjoins with Ngoai Giao Doan project area is the central part of the entire new urban development in Ho Tay area (see Figure 3.4.1-3). The area is designated as “new financial centre” in Hanoi General Plan, covering approximately 100 ha. The area is broadly classified into two; central government office block in the eastern side of UMRT Line2, and commercial block on the western side. The project is being implemented by private sector initiative (THT Development Co., LTD.).

Figure 3.4.1-3 Approved Zone Plan (H2-1) for the Ho Tay West Area



Source: JICA Project Team

## 2) Impact of UMRT

3.104 The UMRT development will bring in substantial positive impacts on transport, socio-economic and environment aspects, as follows:

- (i) Access to the city center will be significantly improved. One of the most noticeable improvement in transport aspects will be the saved time to reach to the city center. For example, it takes 30 minutes from Xuan Dinh Ward to the north of AQ by bus, which needs one time transfer at Buoï, but only 13 minutes by UMRT. Users of buses, motorcycle and car will be increasingly affected by worsening traffic congestion, and would be encouraged to shift to UMRT.
- (ii) Passengers will also be provided with improved connectivity to the southern and eastern areas along Line 2 and other lines given that they will be developed as a network.
- (iii) Tay Ho Tay (C3) station can become an important public transport gateway terminal by providing extension service of UMRT using special high quality buses to connect the north (Don Anh, Noi Bai, Soc Son) and the west (Phu Tho, Son Tay, Vinh Phuc) areas. While phase 1 section of Line 2 is rather short, integrated development of this type of feeder services is very important to enhance the ridership of Line 2 and benefit the people who are not directly provided with access to UMRT. Among the extension services, the one along planned route of Line 2 must be paid a special attention.
- (iv) UMRT will increase opportunities for urban development in on-going new development areas including CIPUTRA, Ngoai Gial Doan and Tay Ho Tay, especially at and around the UMRT station areas in synergy. The New Developments will benefit from the presence of TOD stations with improved accessibility and additional commercial/business facilities developments, while UMRT itself will contribute to increase ridership.
- (v) The UMRT development is expected to bring about positive impacts on local communities, once proper station area development is carried out. Stations areas will provide great business opportunities for local business. TOD will bridge existing and new communities together. The UMRT development will contribute to an improved living environment, i.e. alleviating air and noise pollutions, lessening traffic accident because of better traffic flow, and lessening traffic volume in general. The development will also bring a symbolic environment, landmark and modern urban landscape to local communities.
- (vi) UMRT will benefit existing communities in many ways. It can provide the people with much improved public transport services alternative to current road transport system which is likely negatively affected with increasing traffic congestions on limited space. UMRT can contribute to improvement of travel safety and comfort as well as air quality. At and around UMRT stations, there will be opportunities for locating additional public facilities and services (i.e. small park and recreational space, community hall, library, local information services, post office), shops/outlets of local products, among others. UMRT station area can also be an icon and symbolic space in the area.

### 3) TOD Planning Directions

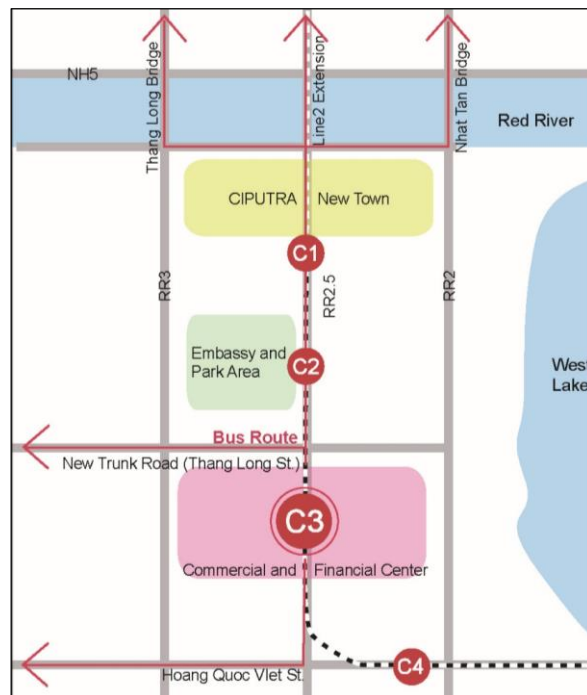
3.105 In order to maximize the positive impacts of UMRT through TOD, it is necessary to address the issues from the viewpoints of transportation, urban development and community improvement as follows:

#### (a) Transportation

3.106 There are three important areas of focus in transportation planning in relation to UMRT development as follows:

- (i) Ensure that UMRT services are extended to the north along the planned route (CIPUTRA - Don Anh - Noi Bai - Soc Son) in integrated service with Line 2 using high quality bus service (such as BRT or equivalent one) on common fare basis. This will encourage the people to use Line 2 and pave way for future extension of Line 2. The extension route of Line 2 to the north will also be a noticeable opportunity for integrated new urban area development in Dong Anh District and even in Soc Son area, which will benefit both from UMRT and urban development in synergy (Farther details of the bus service improvement concept are explained in Chapter 3.9).
- (ii) Provide bus feeder services connecting the west, northwest and north: In addition to the UMRT extension bus service along the planned Line 2 route, other areas such as Tu Liem, Me Linh, Dong Anh, Vinh Phuc, among others, should be provided. Together with (i) mentioned above, a public transport hub could be developed.
- (iii) Develop local roads network in an integrated manner to strengthen connectivity among existing communities, new urban developments and UMRT. Completion of RR2, RR2.5 main urban roads in new development areas will contribute to improved circulation within the cluster and access to UMRT stations. These roads should be connected with other local roads and alleys in existing urban areas to farther facilitate smooth access to UMRT stations with different transport modes.

**Figure 3.4.1-4 Concept of UMRT Extension Bus Network**



Source: JICA Project Team

**Figure 3.4.1-5 Image of New Transport Services applied to New Development Area**



Shuttle bus service sponsored by private companies (Marunouchi, Tokyo)



Electric car and e-charge stand (Kashiwa no Ha New Town, Ibaraki)



Community bicycle station

Source: JICA Project Team

### **(b) Integrated Urban Development**

3.107 Currently on-going urban developments should be more effectively integrated with UMRT, especially at and around UMRT stations. By strengthening facilities and functions of both sides, significant synergy effects are expected. As there is no space for intermodal facilities (station plaza) in front of the UMRT stations, it is strongly recommended that necessary space for adequate intermodal facilities – the key catalyst for integrated urban development – should be spared in on-going urban development area at C1, C2 and C3 stations. Without integrated facilities, both UMRT and New Developments would be negatively affected and station areas would become congested traffic black spots.

### **(c) Integration with Existing Communities**

3.108 Existing communities should be integrated in different ways. One is to ensure smooth access to UMRT stations, especially on foot, by bicycle, and by motorcycle. The station area can also provide local people with space and facilities for shops and businesses, as well as small gathering, recreational activities and civic services.



### 3.4.2 Nam Thang Long Station (C1) Area

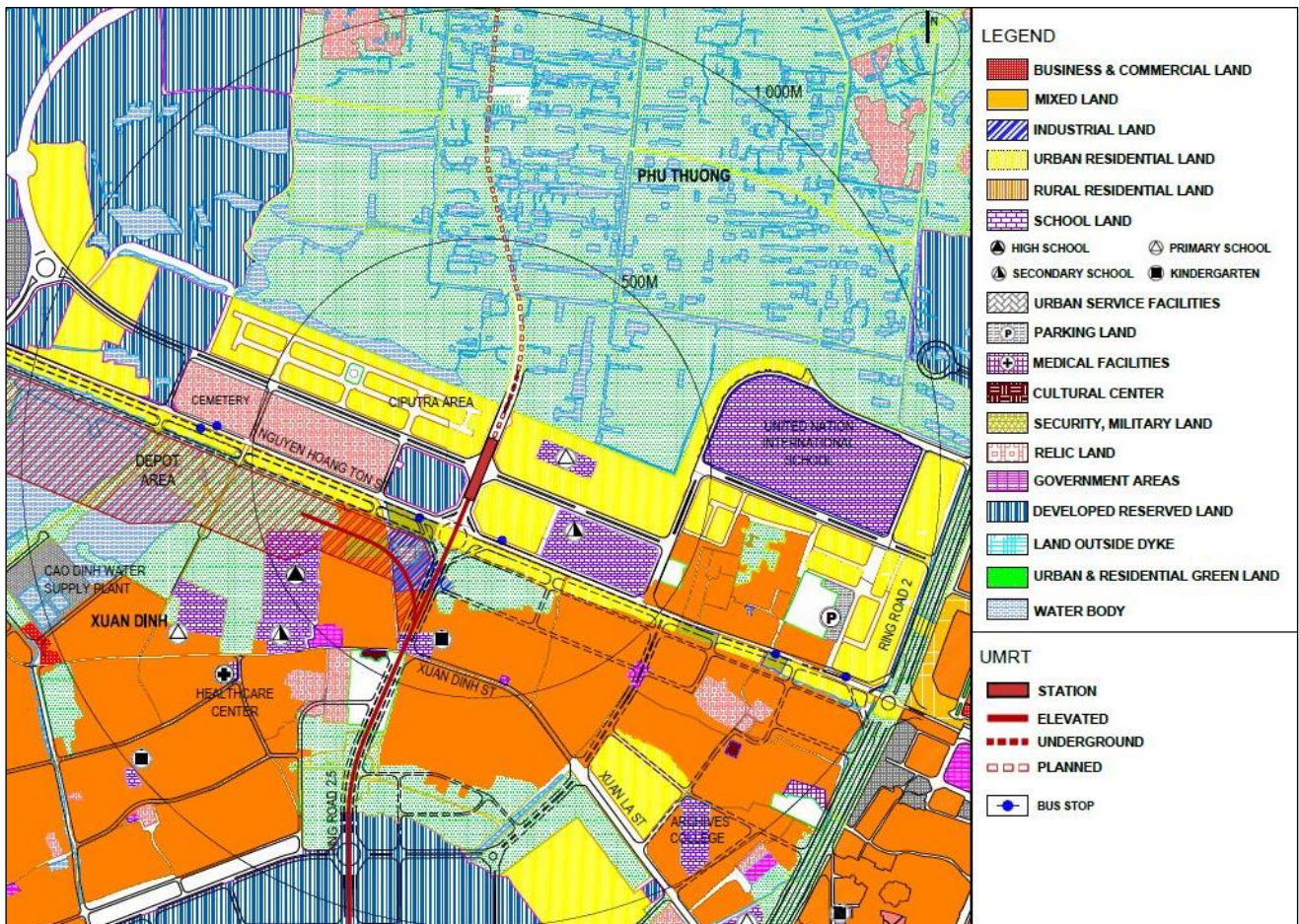
#### 1) Locational Characteristics

3.109 Nam Thang Long Station (elevated), the terminal of phase 1 section of UMRT Line 2, will be located inside CIPUTRA new town project area in the north of Tay Ho Tay new development area. The RR2.5 is planned to be developed along UMRT Line 2 connectivity, which are parallel with RR2 and RR 3. The connection between the north and the south of the city will be strengthened. On the contrary, the connectivity between the east and the west is weak (See Figure 3.4.2-1).

3.110 While there are three trunk roads (RR2, RR2.5 and RR 3) running north-south, Nguyen Hoang Ton street is the only east-west trunk road in the cluster that traffic and buses use. At present, the width of Nguyen Hoang Ton street is only 8m without sidewalk, but it is planned to be widened to 64m in the zone plan. RR2.5 construction has not been started yet in the station area.

3.111 Surrounding areas of the station include detached housing complex, high-rise apartments, hospital, commercial and educational facilities and a park in CIPUTRA area.

**Figure 3.4.2-1 Present Location of Nam Thang Long Station (C1) Area**



Source: JICA Project Team

## 2) Main Planning Consideration and Direction

3.112 In order to maximize the benefits of UMRT through TOD, the following points should be considered:

### (a) Transportation Access Improvement

3.113 Accessibility to and from UMRT stations is important especially in regard with the following (See Figure 3.4.2-2):

- (i) Accessibility between UMRT Existing Communities; Although the station is located within CIPUTRA area, it is important to ensure smooth access between the station and existing communities of adjacent areas, especially on foot, i.e. the sidewalks of main roads but also of alleys and local roads in existing communities. A shortcut road using UMRT depot land could provide a more direct access to Xuan Dinh Ward.
- (ii) Improvement of Accessibility from/to UMRT in CIPUTRA New Town Area: The UMRT system will benefit residents and establishments of CIPUTRA new town. In order to encourage the use of UMRT, improving the access to and from the station is also important. This will encourage the shift from car and motorcycle use to UMRT.
- (iii) Timely Development of Trunk Roads and Related Secondary Roads: It is important to ensure smooth access to the station by all modes of transport, including walking. Timely provision of main roads including RR2.5, RR2, Nguyen Hoang Ton Street and secondary roads in the new development areas, among others, will form for the core of an integrated network of roads and transport services.
- (iv) Provision of Comprehensive Integrated Facilities at the Station: In order to satisfy different needs for accessibility by different modes, it is necessary to provide adequate space, facilities and services at the station area, which is called the “Station Plaza”. Smooth Transfer between UMRT and other transport access modes can be effectively ensured. At present, there is no space available in the area except the land for the planned hospital. Since the hospital will potentially generate huge traffic, it requires its own transport facilities; provision of common facilities in front of the station will benefit both sides in synergy.

### (b) Integrated Urban Development

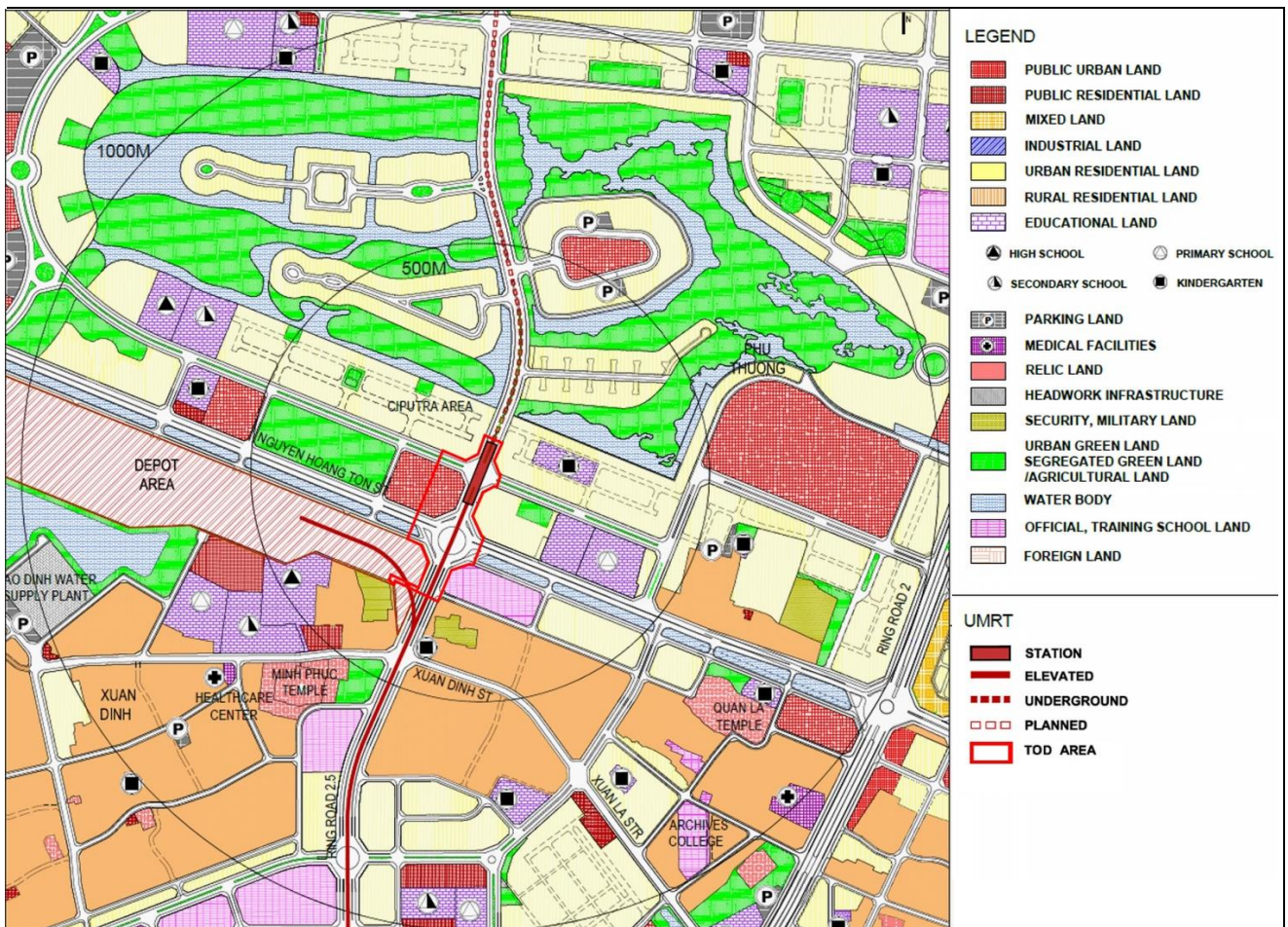
3.114 As space in the station area is limited and located within the planned development, it is recommended that existing plans are reviewed to incorporate the concept of TOD, in order to maximize the benefits of UMRT. The above-mentioned station plaza on hospital land is a typical example. Although it is focused on transport function to develop station plaza, it is also possible and recommended to include urban development scope, especially civic and public services that UMRT users will use on their way (post, public information, registration, etc.).

### (c) Community Improvement

3.115 UMRT development should and could contribute to the improvement of communities in the following ways:

- (i) Improvement of accessibility and mobility within the area through improvement of access facilities to and from UMRT station ;
- (ii) Opportunities for participation to commercial business activities in various TOD;
- (iii) Civic and public services at the station area.

**Figure 3.4.2-2 Nam Thang Long Station (C1) Area in Zone Plan**



**Main Planning Direction**

- (i) Develop primary and secondary road network to ensure connectivity with UMRT
- (ii) Provide walkable road space and environment on primary, secondary and local roads
- (iii) Develop adequate intermodal facilities at the station, including common station plaza on hospital land
- (iv) Promote integrated urban development on TOD concept in existing and new urban areas
- (v) Provide community service facilities at the station area
- (vi) Coordinate with planned hospital area to ensure development of common station plaza

Source: JICA Project Team based on draft Zone Plan

### 3) TOD Concept Plan

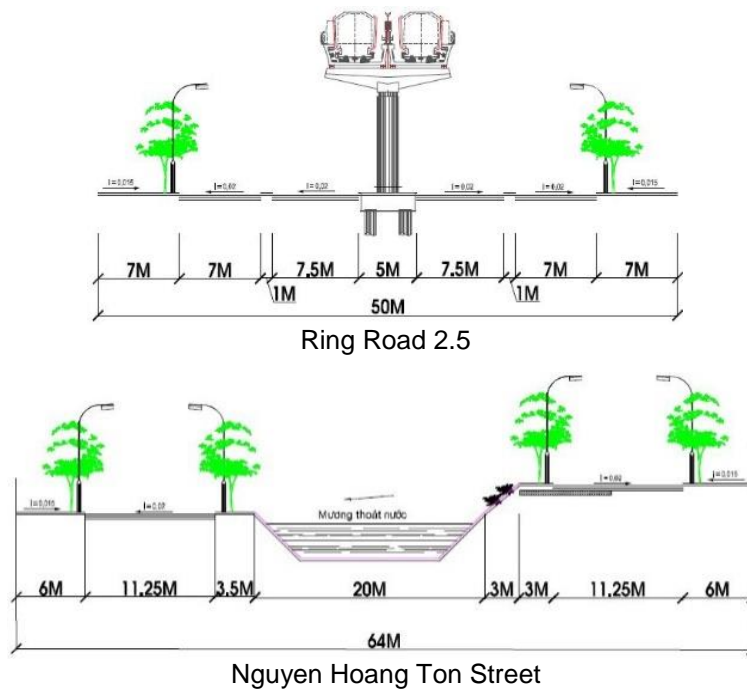
3.116 The main components of the TOD concept plan are the following;

#### (a) Improvement of Accessibility to UMRT Station

3.117 Roads and road space in the influential area are the foundation for successful TOD. They include:

- (i) Development of RR2, RR2.5 and widening of Nguyen Hoang Ton Street: after completion, there will be sufficient access routes (See Figure 3.4.2-3).

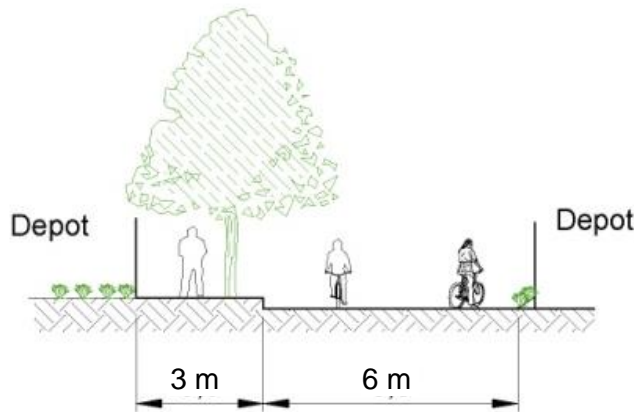
**Figure 3.4.2-3 Cross-section of Main Roads in the Area**



Source: JICA Project Team

- (ii) Development of secondary roads in the area: the above-mentioned main roads should be complemented with secondary roads to be developed in relation with urban development projects.
- (iii) Development of a short-cut road in the depot area: This will facilitate smooth travel between UMRT and Xuan Dinh Ward mainly for walking and bicycle use.

**Figure 3.4.2-4 Profile of Short Cut Road in UMRT Depot**



Source: JICA Project Team

(iv) Improvement of Alleys in Existing Ward

**Figure 3.4.2-5 Improvement of Alleys in Existing Communities**



Current Condition

Improved image

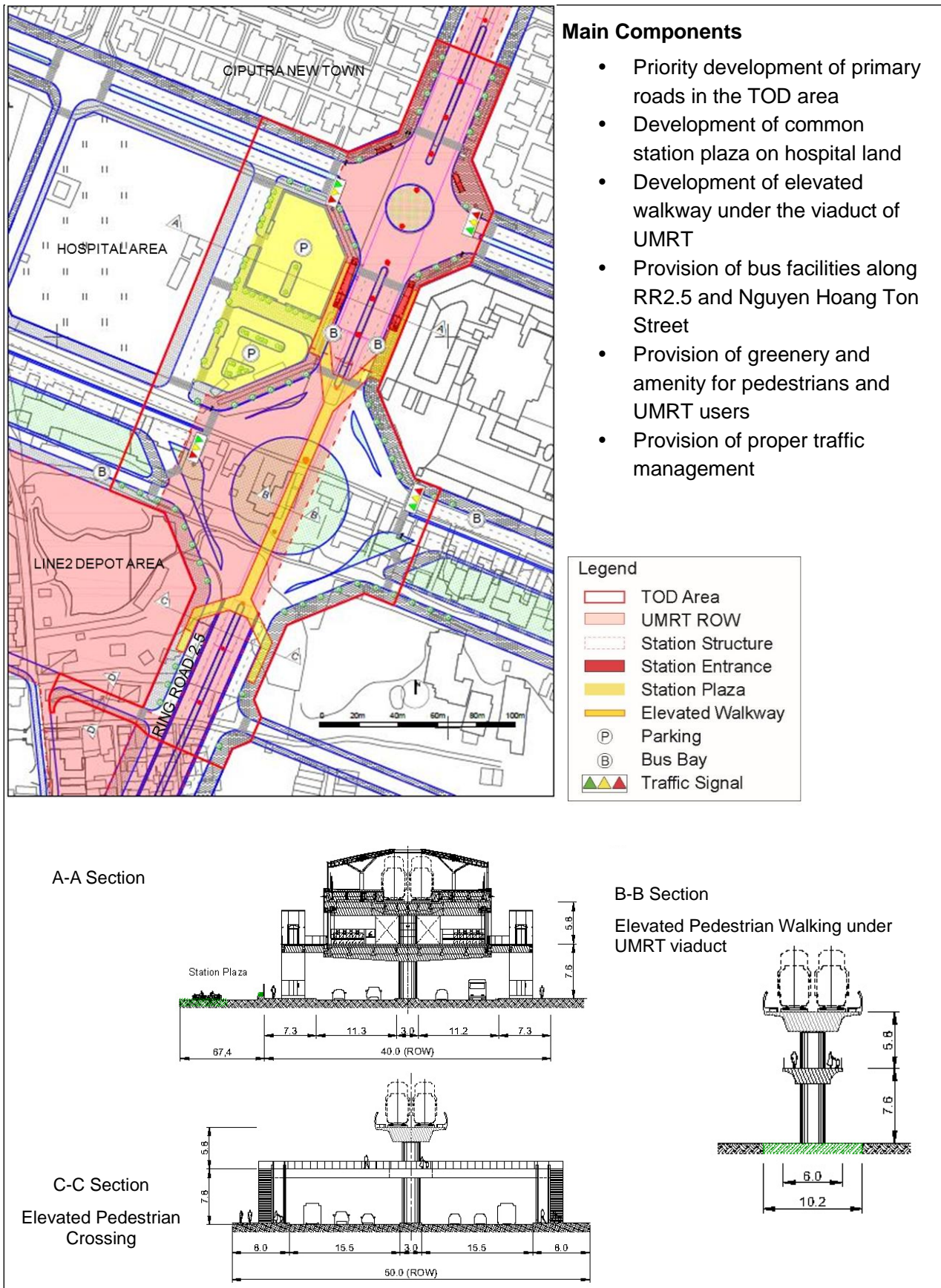
Source: JICA Project Team

**(b) Inter-modal Facility Development at Station Area (TOD Area)**

3.118 To secure accessibility between existing communities and station, and to facilitate traffic flow around station and hospital, proposed facilities are as follows (See Figure 3.4.2-6):

- (i) **Common Station Plaza:** The common station plaza will be developed directly by the station, inside the hospital area, to facilitate smooth transit and traffic flow around the station and the hospital. This station plaza will be used for loading and unloading private and public vehicles, parking space for motorcycles, bicycles and cars. The station plaza is designed in a way that it can provide convenient access both for UMRT and the hospital. It is also recommended to provide elevated barrier free walkway to connect the hospital and UMRT directly. The station plaza is also provided with the space for amenities and landscaping as well as small-scale commercial activities for the benefit of UMRT users and local residents.
- (ii) **Elevated Walkways:** The proposed walkways will enable safe crossing of RR2.5 and its intersection with Nguyen Hoang Tan Street. The walkway along RR2.5 is constructed under the UMRT viaduct, which provides shade and shelter in all weather conditions for a pedestrian-friendly environment.

**Figure 3.4.2-6 Facility Concept Plan at Nam Thang Long Station (C1)**



Source: JICA Project Team

**(c) Feeder Bus Service Improvement**

3.119 There are bus routes under operation along Nguyen Hoang Ton Street. These will be rerouted in a way that connectivity with UMRT is strengthened for better synergy between UMRT and bus operation. But facilities will be provided along RR 2.5 and Nguyen Hoang Ton Street.

**(d) Traffic Management Improvement**

3.120 After UMRT is in operation, both vehicles and pedestrian traffic volume will increase and traffic flow at and around the station will become complex, especially after the planned hospital is opened. Adequate traffic management measures need to be taken, including installation of traffic signals, pedestrian safety facilities, etc.

**(e) Integrated Urban Development**

3.121 Urban development opportunities in the area are scarce except development of common station plaza in coordination with the planned hospital. The common station plaza should be farther reviewed when it is approved and the hospital development plan is formulated.

3.122 Provision of some space for small shops and public services for the convenience of UMRT users and the local residents can be spared in the station and/or station plaza.

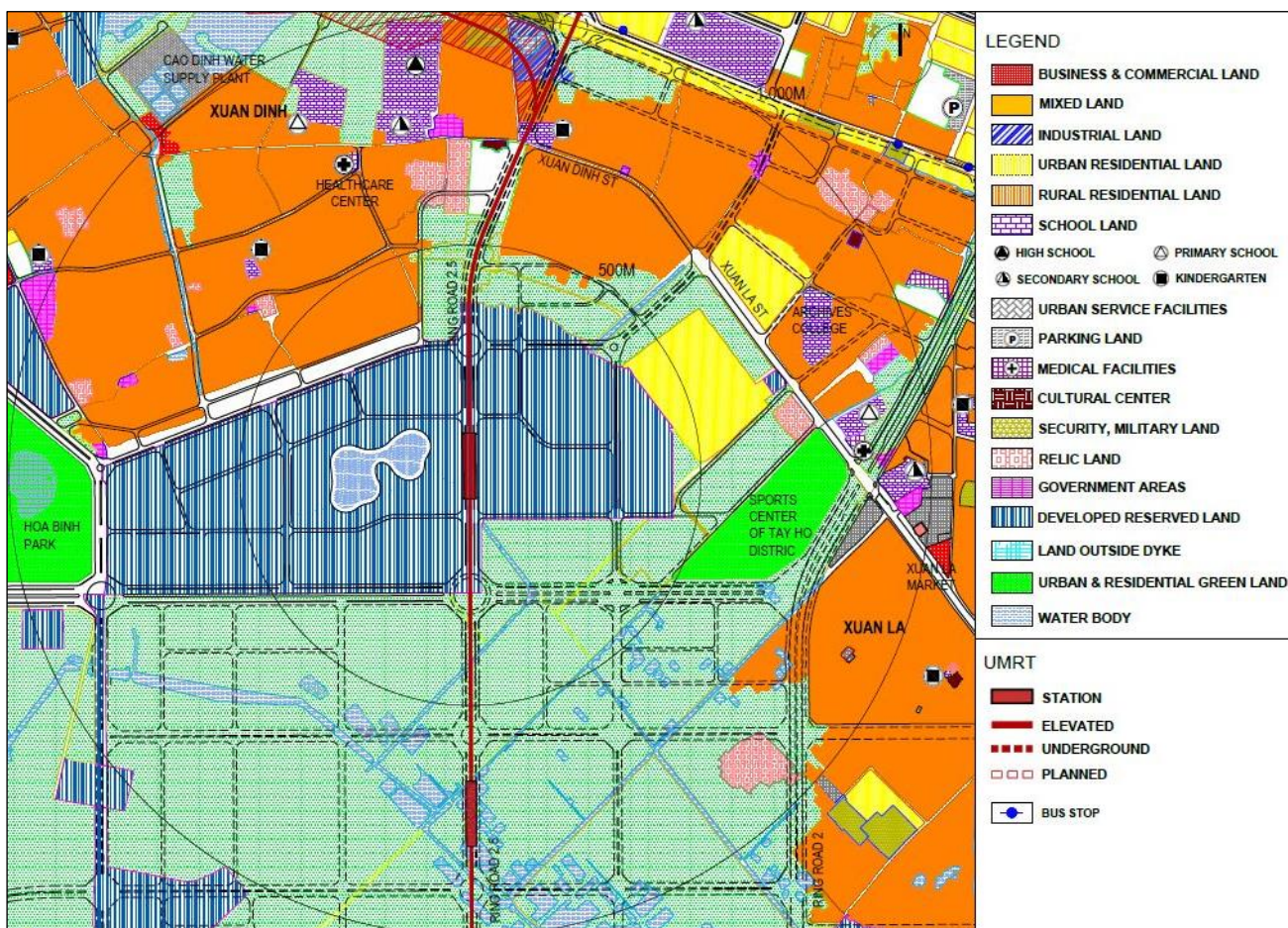
### 3.4.3 Ngoai Giao Doan Station (C2) Area

#### 1) Locational Characteristics

3.123 Ngoai Giao Doan station (C2) is an elevated station that will be located in the Ngoai Gian Doan new development area. The station is quite close to Tay Ho Tay station (C3) both of which will be constructed in green field (See Figure 3.4.3-1). While the influence area of C2 station within 500 meter radius of the station covers mostly the new development area, the area within 1,000 meter radius of the station include existing communities in Xuan La Ward in the east and Xuan Dinh Ward in the west. Hoa Binh Park is located along RR 3 in Xuan Dinh Ward to attract many people from nearby communities.

3.124 The main access roads in the area largely depend on the development of RR2, RR2.5 and the roads planned in the Ngoai Giao Doan new development project. Roads in existing communities are mostly narrow alleys of which conditions for pedestrians and motorcycles traffic are not adequately maintained.

**Figure 3.4.3-1 Present Location of Ngoai Gian Doan Station (C2) Area**



Source: JICA Project Team



## 2) Planning Consideration and Direction

### (a) Transportation Access Improvement

3.125 As the station is constructed in the middle of a new development area, adequate access to UMRT should be incorporated in the planned new development with particular attention to the following:

- (i) Development of roads in the new urban development area in consideration of providing effective access to and from the station.
- (ii) Ensurance of accessibility to UMRT for existing communities adjoining the new development and Hoa Binh Park.
- (iii) Provision of adequate space for station plaza (comprehensive inter-modal facilities) to organize different types of passenger and vehicle traffic which will concentrate at and around the station in close integration with new development project.
- (iv) Provision of adequate traffic management measures for smooth access, to and from the station and local traffic circulation to avoid traffic congestions and accidents.
- (v) Provision of city bus connection at the station along RR2.5.
- (vi) Provision of local feeder services using E-minibus such as circulation service within government office complex, the service within new development area, and shuttle service connecting adjoining communities.
- (vii) Provision of vehicle sharing services using EVs (bicycle, motorcycle and car).

### (b) Integrated Urban Development

3.126 As the station is facing high-rise apartment buildings to the east, a public park to the west, and since it is quite close to C3 station (considered the hub in the cluster), large urban development are not recommended. Nevertheless it is recommended to provide adequate space for small-scale retail shops and public services at and around the station, including the space in the proposed station plaza.

### (c) Community Improvement

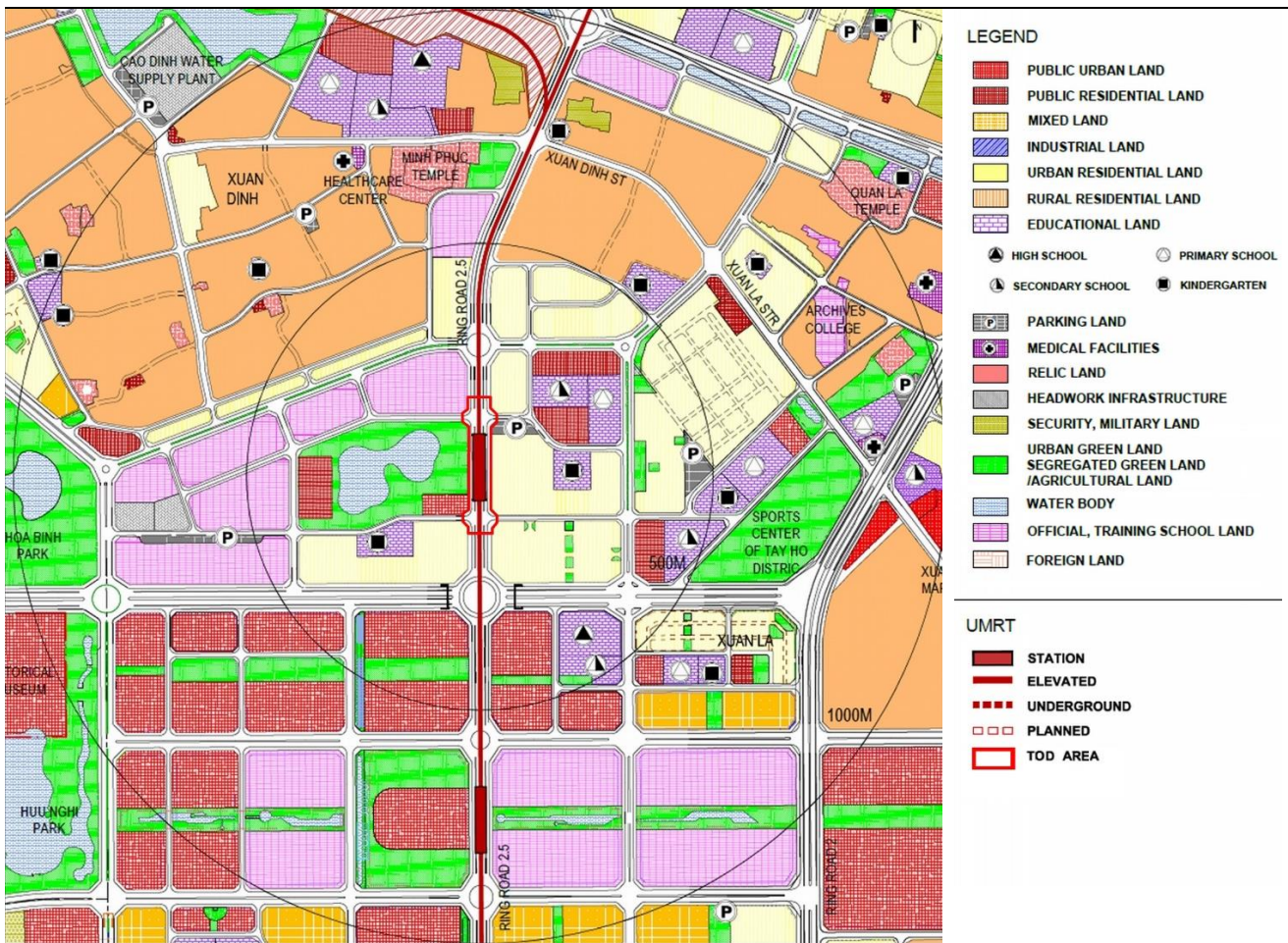
3.127 Although existing communities reside near the station, it is necessary to integrate them with new development through improvement of access roads and transport services, which should be designed in a way that they contribute to the improvement of local traffic conditions. Allocating space for local communities' events in the park will also be considered.

**Figure 3.4.3-2 Roads in the Area**



Source: JICA Project Team

**Figure 3.4.3-3 Ngoai Giao Doan Station (C2) Area in Zone Plan**



**Main Planning Direction**

- (i) Develop roads in new urban development as planned
  - (ii) Ensure accessibility between UMRT and existing communities including Hoa Binh Park
  - (iii) Develop station plaza (comprehensive intermodal facilities) at the station in integration with the park in front of the station
  - (iv) Promote adequate traffic management
  - (v) Provide local feeder services using E minibus and bike share
- Define TOD area to ensure the provision of basic TOD facilities at the station area

Source: JICA Project Team based on draft Zone Plan

### 3) TOD Concept Plan

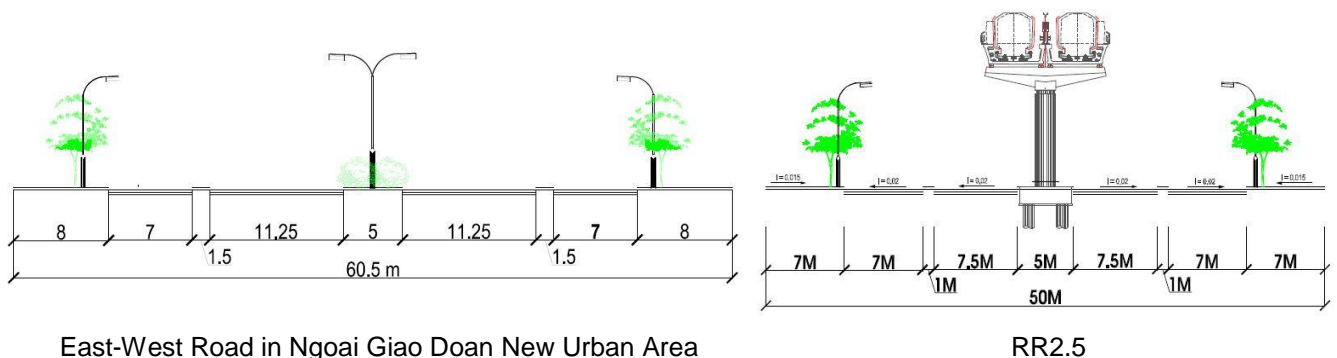
3.128 The TOD concept plan for Ngoai Giao Doan station (C2) includes the following components:

#### (a) Improvement of Accessibility to UMRT Station

3.129 As the station is located in a green field, timely development of the following roads and improvement of road space are necessary.

- (i) Development of RR2.5 and RR2 at the time of the commencement of UMRT operation: Cross sections of RR2.5 and RR2 can be referred to Figure 3.4.3-3.
- (ii) Development of East-West Roads, to connect RR2 and RR 3, as well as development of other related secondary roads.

**Figure 3.4.3-4 Cross Section of Main Roads Related to C2 Station**



East-West Road in Ngoai Giao Doan New Urban Area  
 Source: JICA Project Team

- (iii) Improvement of alleys in existing communities

**Figure 3.4.3-5 Improvement of Alleys**



Current Condition  
 Source: JICA Project Team

Improved Image

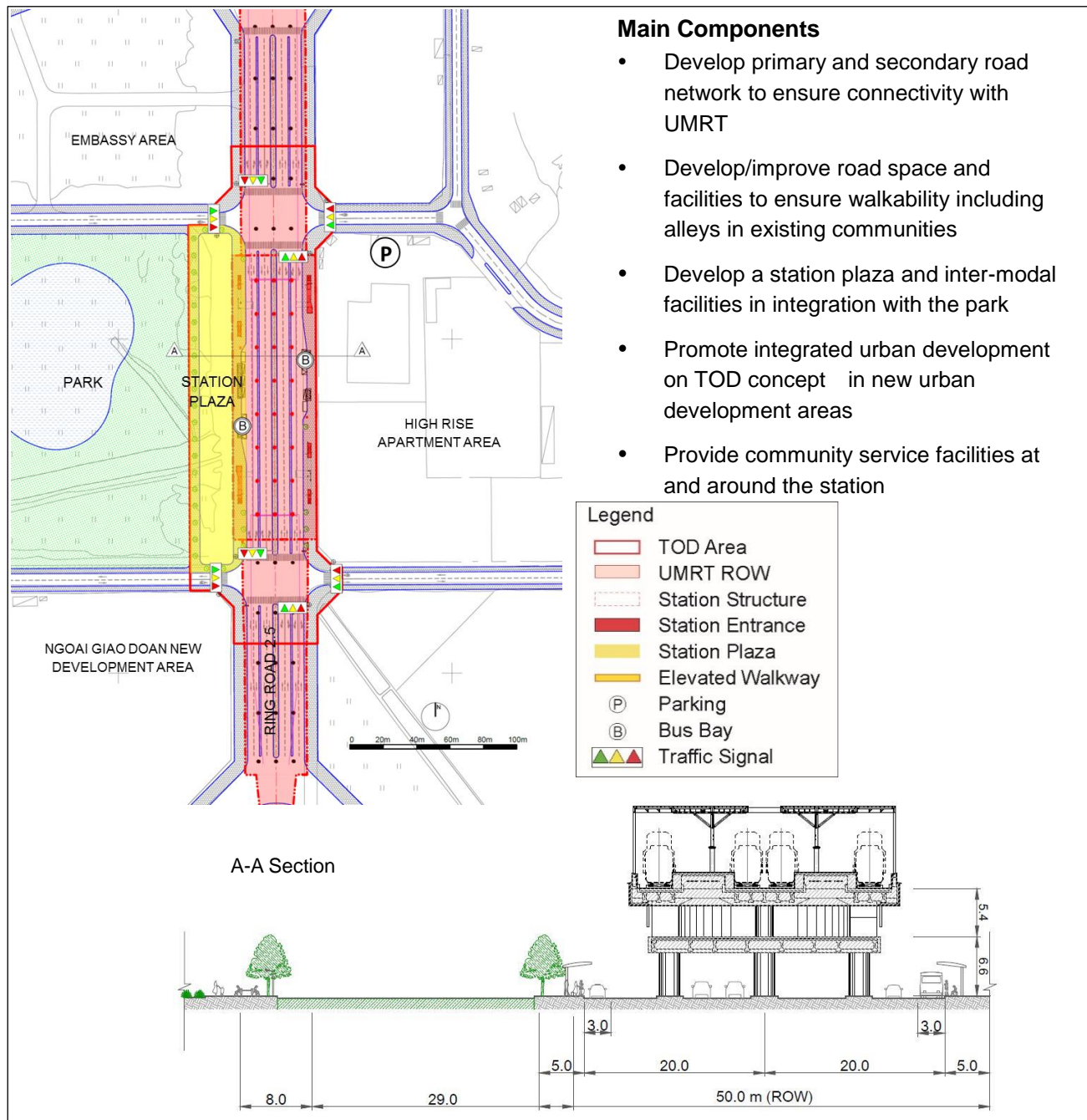
3.130 Alleys in the existing communities should be improved walkability. Measures include permanent, drainage, street lights and signage. Priority should be given to pedestrians and non-motorized Vehicles (NMV)

#### (b) Development of Inter-modal Facilities at Station Area

- (i) Station plaza to be located in the park area: This station plaza should pay particular attention to the users of park in addition to those who reside in and visit to existing communities and new urban areas. As the space is not available in the ROW of UMRT, it is recommended to share plaza to include loading/unloading facilities for public and private vehicles, parking facilities for cars, motorcycles and bicycles, amenities and landscape spaces, safety facilities and space small-scale shops and public services.

- (ii) Elevated walkways: A network of elevated walkways is provided to provide UMRT users with convenient, safe and comfortable access to and from the station (See Figure 3.4.3-5). Pedestrians who have to cross RR2 but not necessarily use UMRT can also benefit from it.

**Figure 3.4.3-6 Facility Concept Plan for Ngoai Giao Doan Station (C2) Area**



Source: JICA Project Team

**(c) Integrated Urban Development**

3.131 Opportunities are scarce for integrated urban development in the areas immediately adjacent to the station. Nevertheless, it is critical to share space of the park for a station plaza, which will benefit not only UMRT users but also visitors to the park. A space for small shops and public services in the station plaza can also be provided.

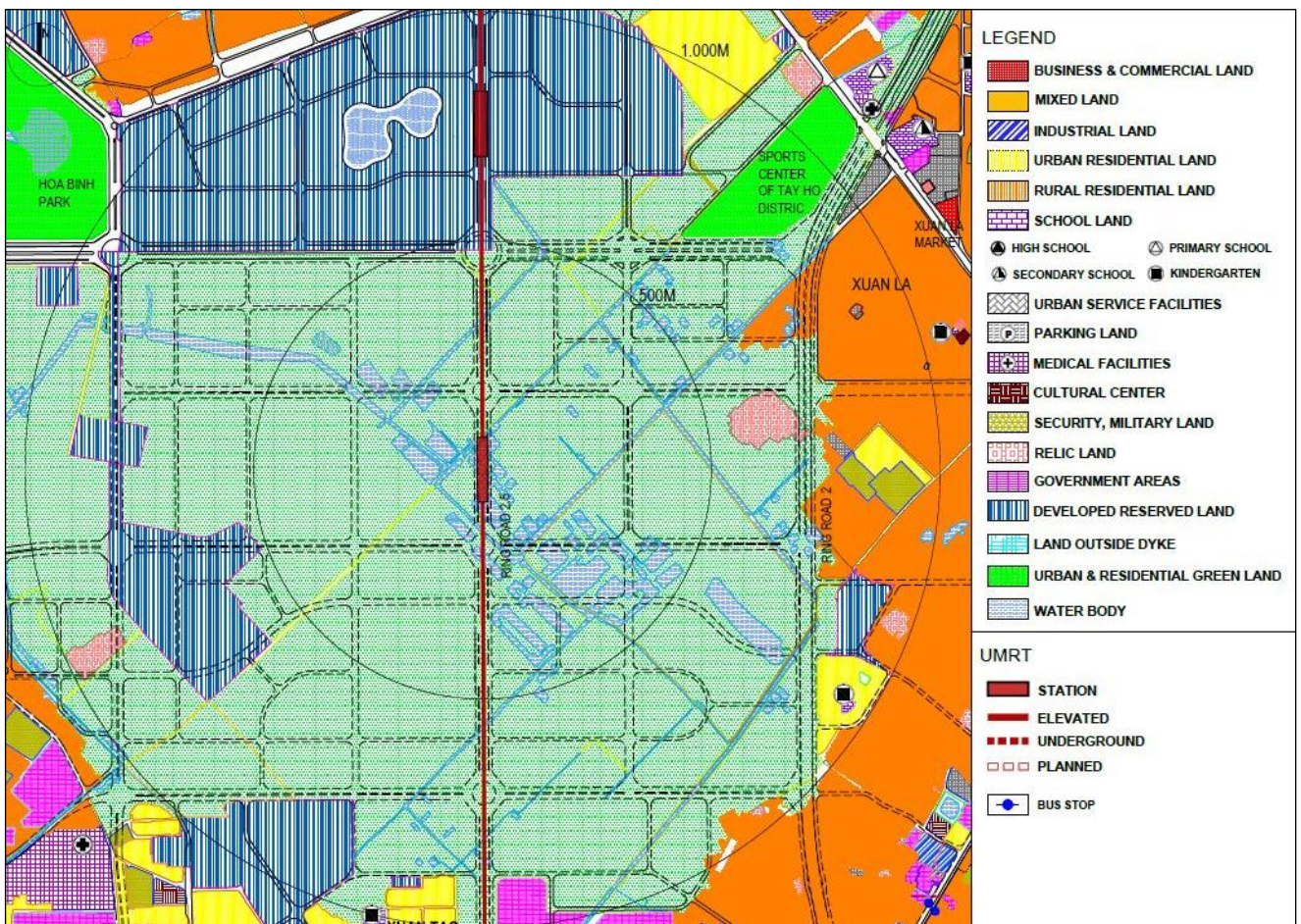
### 3.4.4 Tay Ho Tay Station (C3) Area

#### 1) Locational Characteristics

3.132 Tay Ho Tay station (C3) is elevated and is located in the core of Tay Ho Tay new development area, which will be surrounded with high-rise buildings and a variety of facilities for commercial, business, administrative, recreational and cultural activities and residential purposes. The influence area of C3 is almost entirely a green field. Only a part of Nghia Do Ward on the east of the station is covered in the one-kilometer radius. The station area is provided with a set of high standard north-south roads including RR2, RR2.5 and RR 3, and a couple of new secondary roads running east-west.

3.133 As the area is expected to be a new multi-functional urban core of the city and to generate large volume of traffic, the C3 station area should meet the diversified demand. Unless UMRT takes over substantial traffic volume generated in the area, traffic congestions and conflicts on roads will become a concern.

**Figure 3.4.4-1 Present Location of Tay Ho Tay Station (C3)**



Source: JICA Project Team

## **2) Planning Consideration and Direction**

### **(a) Transport Access Improvement**

3.134 The station is located in the core of a new CBD, with a good road network, which strengthens the connectivity within the new development area but also with other parts of Hanoi. The C3 station offers an ideal location to develop a multi-modal and multi-function transport service hub in the station area in integration with UMRT, including:

- (i) Timely development of main roads in the new urban areas including RR2.5, RR2, and other secondary roads planned in the area with due consideration to smooth traffic flow and walkability;
- (ii) Improvement of alleys in the existing communities which should be properly connected with the roads in the new urban development area;
- (iii) Provision of adequate space for station plaza to organize flow and large volume of traffic generated in the new urban development;
- (iv) Provision of adequate traffic management measures for smooth access to and from the station and local traffic circulation;
- (v) Provision of local low-emission and environmental-friendly feeder services such as E-minibus circulation service and E-bike sharing and other NMV.

### **(b) Integrated Urban Development**

3.135 The station area presents ample opportunities for integrated urban development when the on-going urban developments can be coordinated with the proposed TOD concept. High density and traffic generating facilities should be located close to the station.

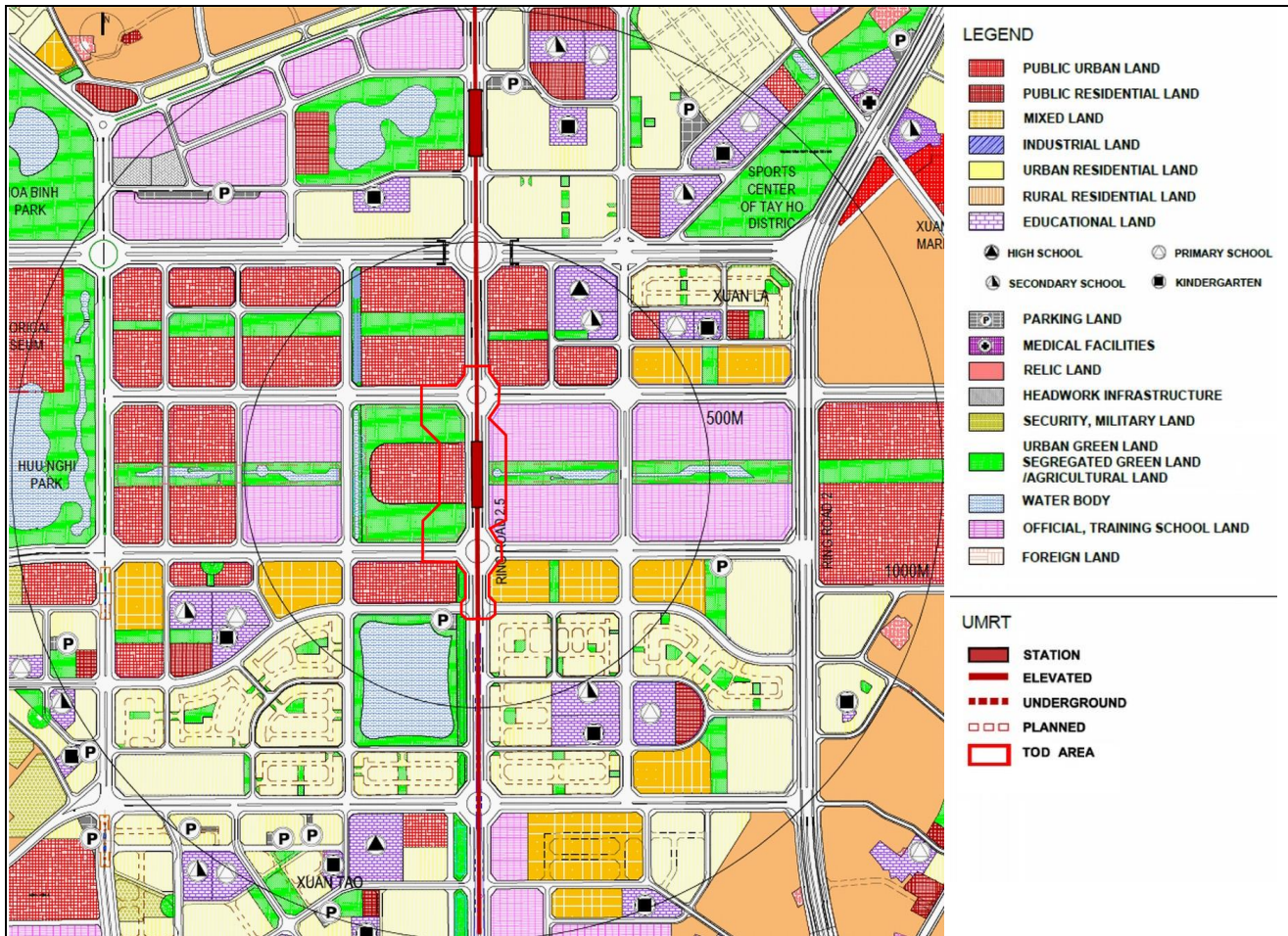
3.136 The space for the proposed station plaza will integrate urban development with the UMRT, and can also be used for urban developments. They will mainly serve UMRT users and communities, including small-scale retail shops such as newspaper stands, kiosks, convenience stores, fast food shops, etc., as well as public and civic service centers.

### **(c) Community Improvement**

3.137 Opportunities to benefit existing communities through TOD can be considered in three ways: (i) improved mobility and accessibility in transport in the area, (ii) expanded commercial and public services, (iii) enhanced image of the area.

3.138 Development of UMRT and new urban development may also facilitate redevelopment of existing communities.

**Figure 3.4.4-2 Tay Ho Tay Station (C3) Area in Zone Plan**



**Main Planning Direction**

- (i) Develop primary and secondary road network to ensure connectivity of UMRT
- (ii) Develop comprehensive station plaza as a transport hub including UMRT relay bus terminal in the cluster in integration with new developments
- (iii) Promote integrated development on urban blocks on the east and west sides of the station
- (iv) Provide local circulation feeder transport service hub using low-emission vehicles

Source: JICA Project Team based on draft Zone Plan

1) UMRT relay bus service is to connect other areas in the north, northwest and west parts of the city with UMRT using high quality bus and integrated fare. This is explained more in detail in **Chapter 3.9**

### 3) TOD Concept Plan

#### (a) Improvement of Accessibility to UMRT Station

3.139 Accessibility to UMRT station is entirely development on how road network will be provided in the new urban area development project. When main roads in the project have been completed in time of the opening of UMRT service, the access to the station will be ensured in the most appropriate manner. While existing communities are not fully covered with the UMRT service, it is necessary to improve alleys to enhance walkability and connectivity with the station.

#### (b) Development of Inter-modal Facilities at Station Area

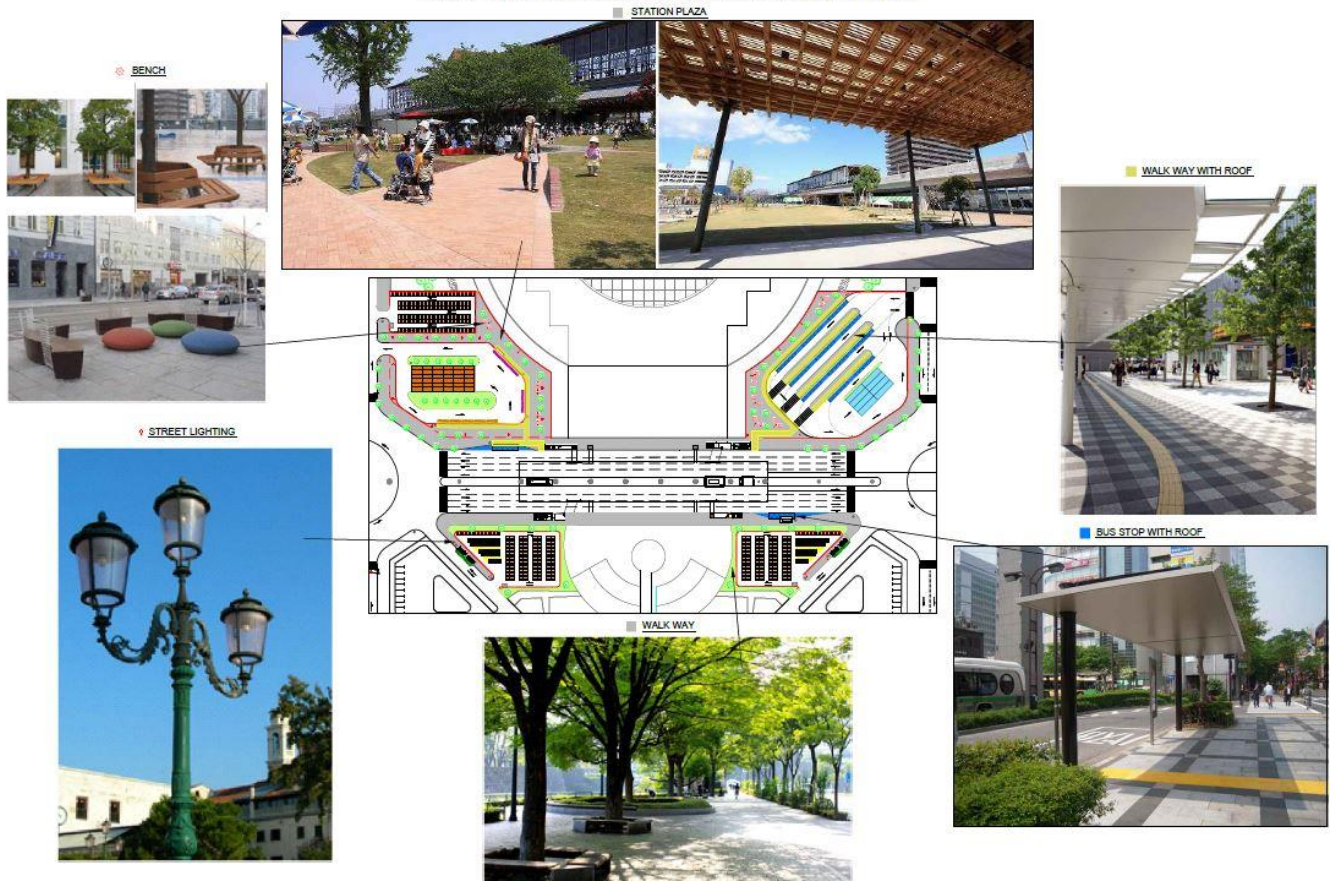
- (i) **West station plaza:** Large-scale parking facilities and taxi pools are required both for station users and commercial area visitors. Underground parking will be developed in Tay Ho Tay development plan, so parking facilities will be commonly used by station users and visitors. Taxi bay and pool will be located between the station and commercial area.
- (ii) **East station plaza:** To facilitate access from UMRT to central government facilities, parking facilities are required for visitors of governments. To promote utilization of UMRT and public transport for government officers, Electricity-circulation buses will be operated in the governmental area to connect various offices each other and with UMRT station.
- (iii) **Elevated Walkway:** As the station will be located in the middle of new urban development areas, a large volume of vehicle and pedestrian traffic is expected. It will concentrate at and around the station, so safety and convenience of pedestrians should be ensured. For this purpose, it is proposed to provide extensive elevated walkway in the station area. Safe crossing at major intersections is also considered.
- (iv) **UMRT Relay Bus Terminal:** In the west station plaza, it is proposed to develop a special bus terminal which provides extension service of UMRT using high quality bus to connect the north along planned section of UMRT Line2 in Don Anh, Noi Bai and Soc Son areas. This bus extension service will be ceased when Line2 is extended to the north. In order to promote the use of UMRT Line 2, the bus extension services will also be provided for the north-west and other areas of the city including Vinh Phuc.





**Figure 3.4.4-4 Facility Image of Tay Ho Tay Station Plaza**

PEDESTRIAN FACILITIES: SMOOTH, SAFE AND ENJOYABLE WALKWAY



Elevated Walkway Connecting Station and Commercial Area, Kawasaki Skywalk



Wide Pedestrian Walkway with Street Furniture, Osaka Garden City

Source: JICA Project Team

### 3.4.5 Buoi Station (C4) Area

#### 1) Locational Characteristics

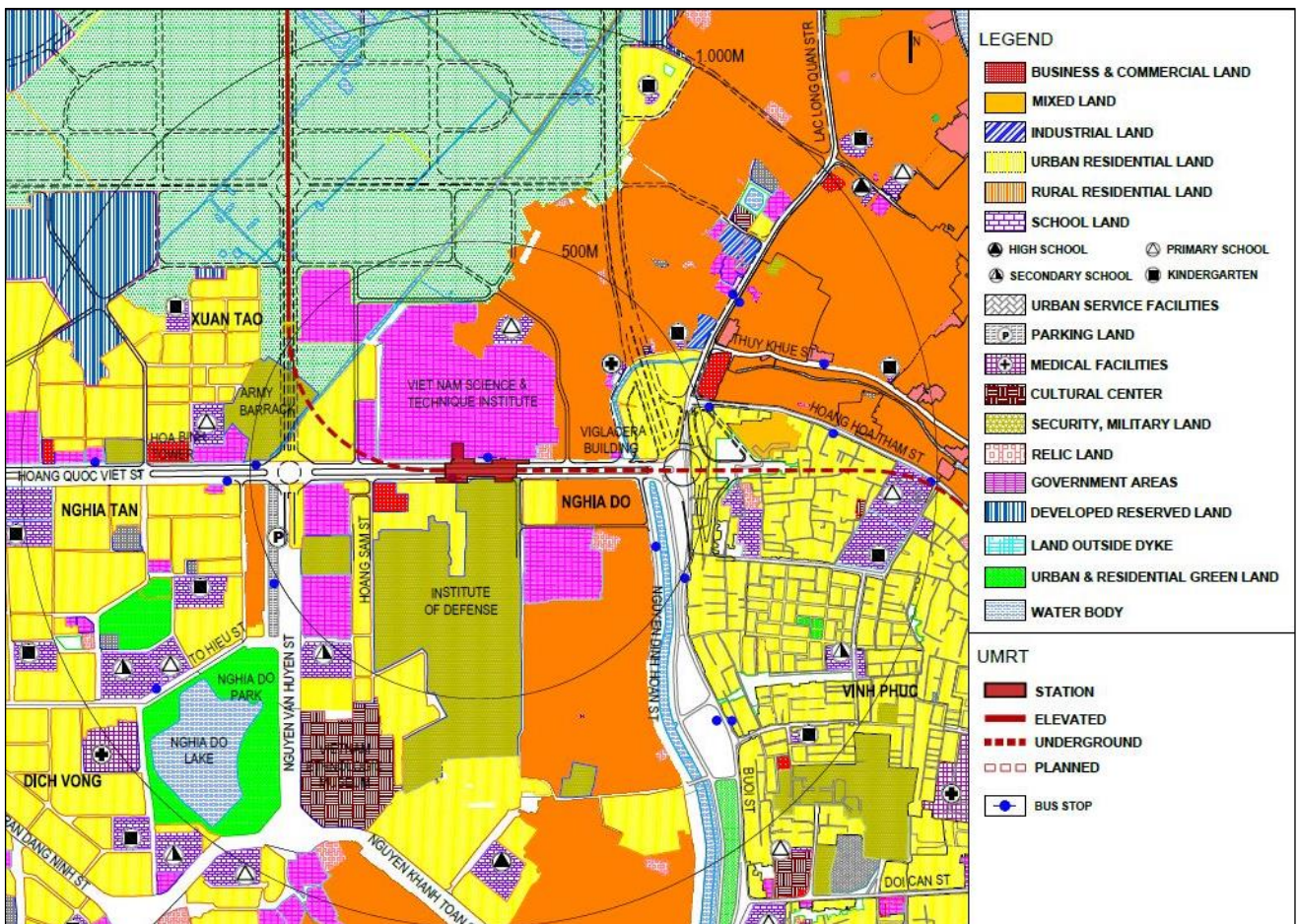
3.140 Buoi station (C4) is underground and will be developed in Nghia Do Ward along Hoang Quoc Viet Street, which is a main corridor to connect the city centre and the west of the city. As Hoang Quoc Viet Street will intersect with the major north-south roads of RR2, RR2.5 and RR 3, it will attract more traffic. The station will be an important road-rail transfer point, especially to and from the west. Furthermore, it is proposed to be an intermodal station between Line2 ring railway in case if Hanoi City Transport Plan (draft) will be approved.

3.141 The station area faces Vietnam Science and Technology Institute (VSTI) to the north and the Institute of Defense to the south. Therefore, space available for UMRT intermodal facility UMRT is constrained, except for the sidewalk of Hoang Quoc Viet street, unless necessary space is provided on VSTI land.

3.142 There is Nghia Do old apartment complex (16 ha) in the eastern side of the Institute of Defense, which may need to be redeveloped. There are also various public facilities, which can be relocated in outer areas (See Figure 3.4.5-1).

3.143 Landuse in the area is composed of different types, while new development area and existing wards extend in Cong Vi and Buoi Wards, traditional urban areas are located in the east in Vinh Phuc Ward. The communities in a part of Nghia Tan and Quan Hoa Wards are also covered in the south of the influence area.

**Figure 3.4.5-1 Present Location of Buoi Station (C4) Area**



Source: JICA Project Team

## 2) Planning Consideration and Direction

### (a) Transportation Access Improvement

3.144 Since space for drop off and pick up is limited at present, connectivity to and smooth transfer along Hoang Quoc Viet Street is indispensable.

- (i) Strengthening inter-modal connectivity and developing necessary facilities along Hoang Quoc Viet Street: An important role of the C4 station is to ensure inter-modal connectivity of UMRT with public transport services, which operate between the city centre and the western areas of the city. If the demand shift to UMRT, it can contribute to reducing traffic congestion along Hoang Quoc Viet Street and in the city centre. While the space to develop intermodal facilities is limited, the use of sidewalk and preferably a portion of VSTI and Institute of Defense is necessary and advisable.
- (ii) Expansion of accessible areas by improvement of local roads, especially for walking and bicycles: As the station is surrounded by large institutions which block access to the station, it is advisable to encourage walking and use of bicycle to strengthen inter-modal connectivity in the area.

### (b) Integrated Urban Development

3.145 Redevelopment of old apartment buildings to multi-functional complex in integration with UMRT becomes highly feasible when it is integrated with UMRT. Accessibility is much improved and commercial/business development opportunities are enhanced. Development of parking facilities in the area will also expand the intermodal function of the station significantly.

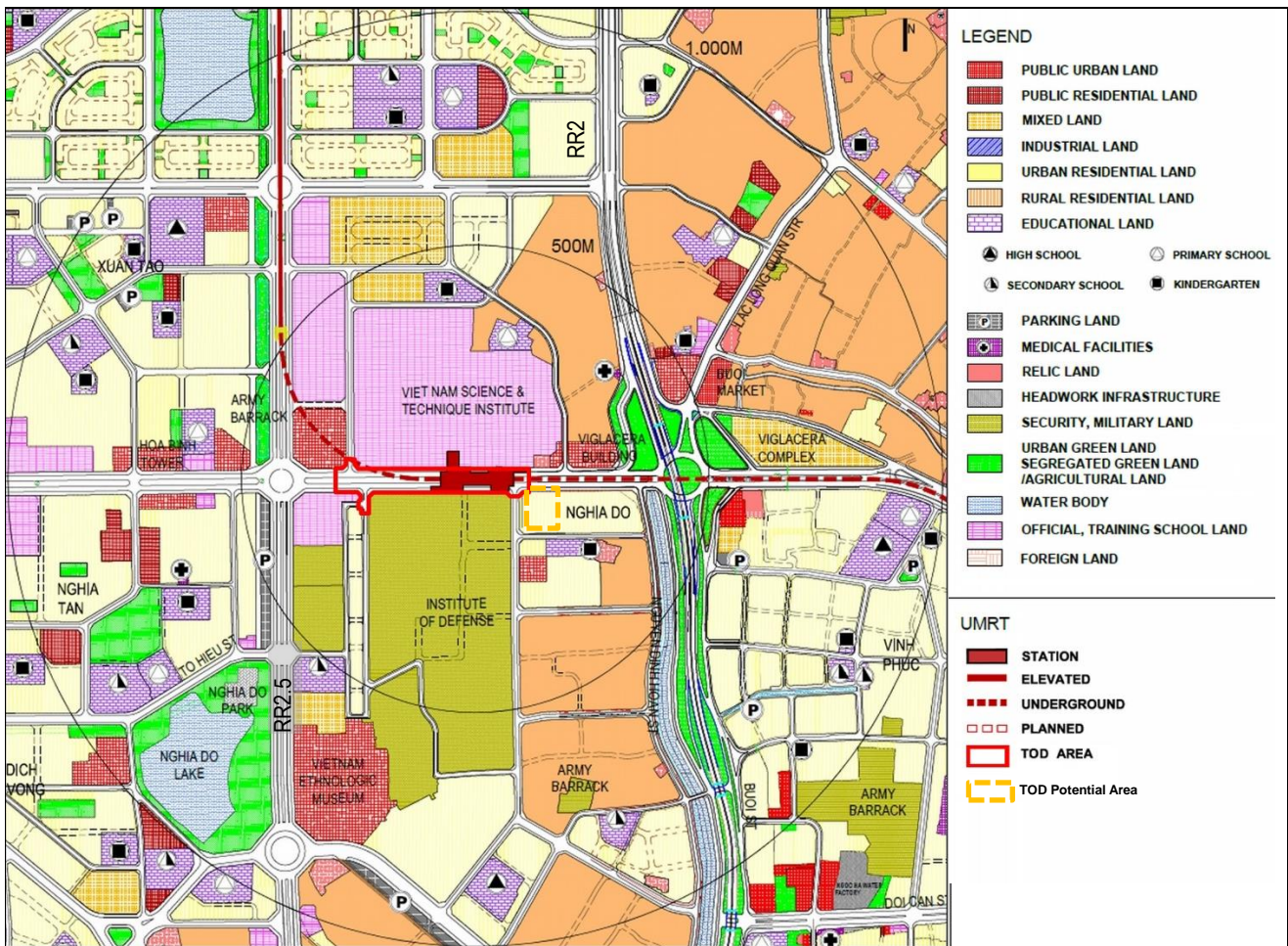
3.146 A part of VSTI compound can also be redeveloped to improve inter-modal function of the station.

### (c) Community Improvement

3.147 As the station will cover extensively communities, they can be benefited from UMRT in following manner;

- (i) Thorough improvement of accessibility to high quality public transport (UMRT): In addition to current bus service along Hoang Quoc Viet Street, UMRT can much improve mobility of the people in existing communities. Improvement of walking conditions of the roads including alleys will farther enhance the effects.
- (ii) Increase in urban development opportunities: With UMRT, value of space and properties in existing communities will increase and therefore generate various opportunities for urban development/redevelopment in the area.

**Figure 3.4.5-2 Buoi Station (C4) Area in Zone Plan**



**Main Planning Direction**

- (i) Develop inter-modal facilities using Hoang Quoc Viet Street space in short-term, and VSTI and old apartment areas in long-term
- (ii) Improve alleys and access roads for pedestrians and bicycles
- (iii) Promote redevelopment around the station including old apartment area
- (iv) Strengthen connectivity with city bus services which are operated along Hoang Quoc Viet Street

Source: JICA Project Team based on draft Zone Plan

### 3) TOD Concept Plan

#### (a) Improvement of Access to UMRT Station

3.148 Walking conditions and safety on access roads should be considered with regard to the following:

- (i) Improvement of sidewalks and walking conditions of Hoang Quoc Viet Street: Although Hoang Quoc Viet Street is provided with wide sidewalks, pavement and space management need to be improved;

**Figure 3.4.5-3 Use of Road Space on Hoang Quoc Viet Street**



Existing Road View



Existing Sidewalk



Improved Sidewalk with Braille Block

Source: JICA Project Team



Improved Parking Management

- (ii) Improvement of Road Space Management: Secondary roads also need to be improved in terms of management of available road space to improve traffic safety for both vehicles and pedestrians.

**Figure 3.4.5-4 Use of Road Space on Hoang Quoc Viet Street**



View of Hoang Sam Street

Source: JICA Project Team



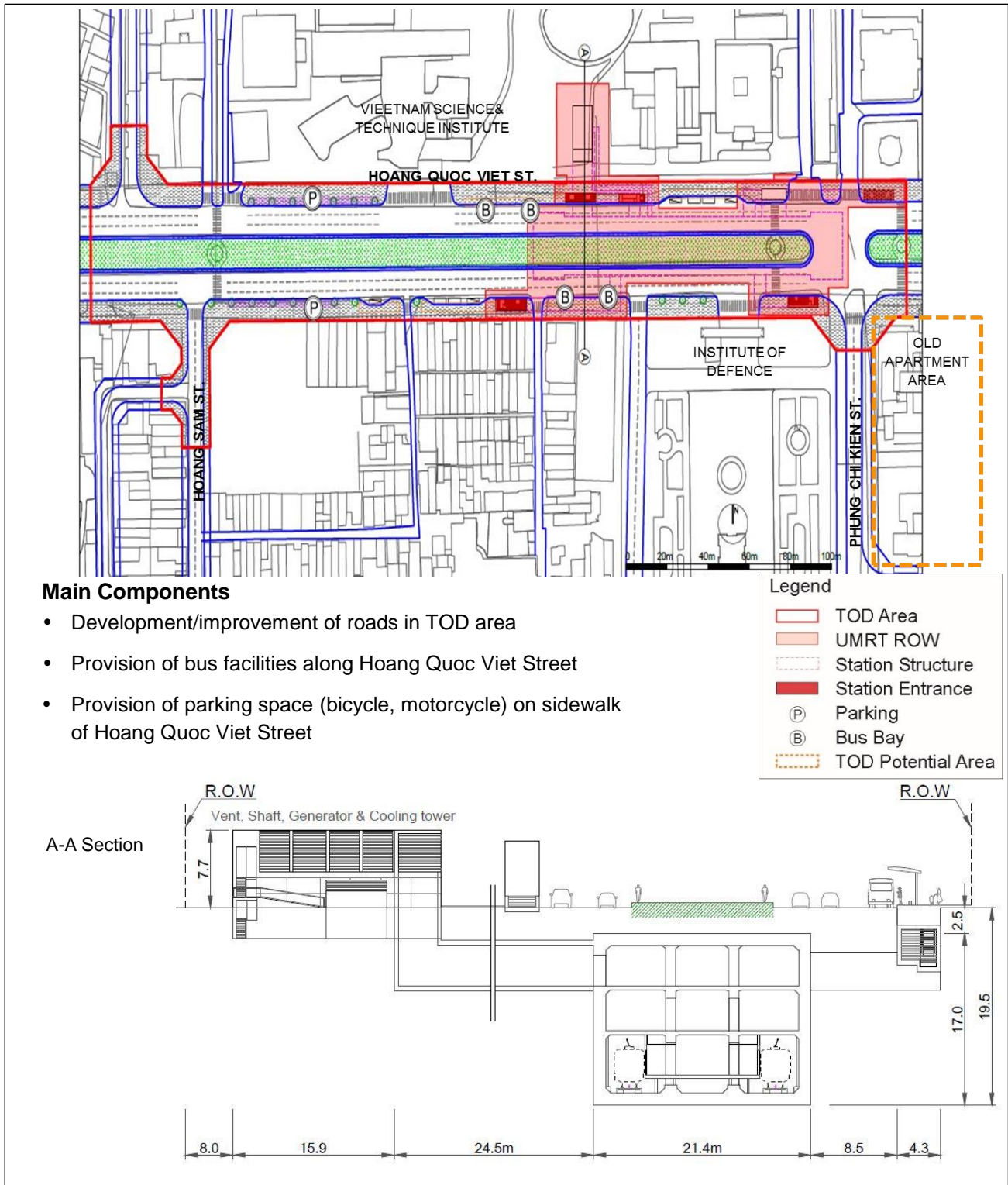
Sample Way of Traffic Management

- (iii) Improvement of Local Roads and Alleys: Other minor roads and alleys should also be improved to facilitate convenient, comfortable and safe access to the UMRT station.

**(b) Development of Inter-modal facilities along Hoang Quoc Viet street**

3.149 In the short-term, intermodal transfer facilities such as bus stops, taxi pools, loading & unloading spaces will be developed using the sidewalk (W=6m), which enables smooth transfer from bus to the underground station. M/C and bicycle parking can be secured along the road by cutting the sidewalks.

**Figure 3.4.5-5 Facility Concept Plan of Buoï Station (C4)**



Source: JICA Project Team

**(c) Integrated Urban Development**

- (i) **Redevelopment of Old Apartment Area:** It is proposed to redevelop old apartment buildings into multi-purpose buildings including (a) underground parking facilities and walkway connecting to the station, (b) commercial and service facilities that station users will use during their commuting time (nursery, bookstore, clinic, restaurant, etc.), and (c) apartments including floors for sales, for original residents to resettle, and for low-income households and resettlements.
- (ii) **Roadside Facility Improvement along Hoang Quoc Viet Street and Nguyen Van Huyen Street:** There are some public facilities along the roads that will be relocated and redeveloped. These roads do not only have a traffic function; they also provide opportunities to improve socio-economic activities and enhance amenities of the sidewalk space especially in the area near the UMRT station.



### 3.4.6 Key Points for Decision by JCC

3.150 B1 (H2-1) Zone Plan is the basis to formulate TOD concept plans of the North West Urban Cluster. In this zone, there are several detailed plans for new development area which have been formulated by developers.

3.151 Key points for decision by JCC are summarized in Table 3.4.2. While TOD concept plans are in compliance with Zone Plan and detailed plans of each project, it is proposed to reflect TOD areas and intermodal facilities in the Zone Plan. The proposed intermodal facilities are located inside development area, so it is necessary to coordinate with investors and developers for plan integration and project implementation.

3.152 At present, HAUPA has coordinated with the developer of west area of C3 Tay Ho Tay (VTV) to apply proposed intermodal facilities into their detailed plan. HAUPA also plans to apply the station plaza of C1 Nam Thang Long, which will be reflected into the detailed plan of the hospital.

**Table 3.4.2 Key Points of North West Urban Cluster for Decision by JCC**

Coverage	Key Points for Decision
Common Issues	<ul style="list-style-type: none"> <li>• Designation of TOD Area and its reflection in Zone Plan</li> <li>• Timely completion of the trunk road projects (Nguyen Hoang Ton Street widening and the Ring Road 2.5)</li> <li>• Coordination with developers of new development projects for road and station plaza development</li> </ul>
C1: Nam Thang Long Station	<ul style="list-style-type: none"> <li>• Planning and development of common station plaza in the planned hospital land for the UMRT and the hospital</li> </ul>
C2: Ngoai Giao Doan Station	<ul style="list-style-type: none"> <li>• Integrated planning and development of the station plaza in the planned park area</li> </ul>
C3: Tay Ho Tay Station	<ul style="list-style-type: none"> <li>• Integrated planning and development of the West and East Station Plazas</li> <li>• Provision of BRT/ updated bus services to the north and west of Red River as extended UMRT Line2 service</li> </ul>
C4: Buoi Station	<ul style="list-style-type: none"> <li>• Possibility of redeveloping potential TOD areas in integration with UMRT</li> </ul>

Source: JICA Project Team

### 3.5 TOD Concept Plans in South West Lake Urban Cluster

#### 3.5.1 Approach

##### 1) Area Characteristic

###### (a) Coverage and Area Profile

3.153 South of West Lake Cluster embraces part of Tay Ho District and Ba Dinh District with a total population of 102,800 in its UMRT influence area, which is defined as the area within 500-meter radius from a UMRT station. The population is still increasing at a rate of 1.6%/year. The cluster is densely populated with average population density of 254 persons/ha. It comprises two different areas with their own characteristics: (i) along the lakeshore, and (ii) the inland area. The lakeshore area is used mostly for residential and institutional purposes and the income level is higher. The inland area is densely inhabited on mixed-use land (See Table 3.5.1-1 and Figure 3.5.1-1).

**Table 3.5.1-1 Population Growth Trend in South of West Lake Urban Cluster**

Ward	District	UMRT Station	Coverage (%) <sup>1)</sup>	Population		AGR (%/yr)	Population Density (no/ha)
				2009	2013	09 - 13	
Ngoc Ha	Ba Dinh	C5,C6,C7	100	19,430	21,739	2.8	281
Doi Can	Ba Dinh	C5,C6	100	15,895	16,156	0.4	394
Truc Bach	Ba Dinh	C7,(C8)	90	7,829	7,924	0.3	257
Quan Thanh	Ba Dinh	C6,C7,(C8)	90	7,835	8,141	1.0	115
Vinh Phuc	Ba Dinh	(C4),C5	60	12,928	14,217	2.4	328
Dien Bien	Ba Dinh	C6,C7,(C8)	60	5,943	5,786	-0.7	107
Cong Vi	Ba Dinh	(C4),C5	40	6,346	6,975	2.4	333
Lieu Giai	Ba Dinh	C5	30	6,302	7,002	2.7	334
Kim Ma	Ba Dinh	C5,C6	30	4,582	4,702	0.6	315
Buoi	Tay Ho	(C4),C5	30	7,145	7,772	2.1	383
Thuy Khue	Tay Ho	C5,C6	15	2,271	2,350	0.9	255
Total			58	96,506	102,765	1.6	254

Source: JICA Project Team

1) Coverage refers to % of ward area included within 1km radius of UMRT station

###### (b) UMRT Route and Stations

3.154 Four stations are located in the cluster, including Buoi station (C4), Quan Ngua station (C5), Bach Thao station (C6), and Ho Tay station (C7). Ho Tay Station is situated in the middle of the Government complex and the gateway to the West Lake. They are all underground stations. The Line 2 is planned to be connected at C5 station with Line 5.

Figure 3.5.1-1 Location of South of West Lake Urban Cluster



Source: JICA Project Team

### (c) Socio-economic Conditions

3.155 While the cluster is densely inhabited, it also attracts people from other areas for employment and study. Daytime-night time ratio for employment and school attendance is high (1.3 to 2.0), indicating that more people come into the cluster than those who stay and go out from the clusters.

3.156 Lack of transport capacities in the area amplifies various traffic problems and degradation of living environment. Their particular concern is traffic congestions, safety, and air pollution, largely because of lack of roads and traffic management. Although the average household income of the people in the area is higher than the city average, they are not satisfied with the current level of infrastructure services, public amenities, greenery and recreational facilities.

### (d) Landuse

3.157 In general, the landuse of the cluster is characterized by high-density residential areas with a mixture of rather small commercial and business areas. However, in the eastern part of the cluster, there is a symbolic political and cultural centre with major governmental buildings, national heritages, the botanical garden, and the gateway to West Lake.

3.158 This cluster has many historical sites located on along the West Lake shore and inland of the Ba Dinh District. There are more than 60 temples and shrines. While many traditional handicraft villages used to be located in this area, more hotels and guesthouses are built to meet the increasing demand of tourists.

**Figure 3.5.1-2 Current Development Situation in the Area**



Typical Street Scene



Ho Chi Minh Mausoleum



Presidential Palace

Source: JICA Project Team

### (e) Transportation

3.159 The network of trunk roads is not appropriately developed in this cluster. There are four main roads, Thuy Khue, Hoang Hoa Tham, Doi Can in the east-west direction, and Hung Vuong and Van Cao streets in the north-south direction. The other roads are mostly narrow alleys, called “Ngo”, that provide direct access for residents. The trunk roads stretching in the east-west direction are narrow and not provided with adequate sidewalk and often crowded because of high volume of through traffic. Van Cao Street is under widening and the construction work will be completed soon. The street will become a new urban axis in the north-south direction.

3.160 Bus routes run mainly along the trunk roads including Kim Ma, Hoang Hoa Tham and Thuy Khue streets. Three routes are operated on Hoang Hoa Tham street, connecting

the North West Urban Cluster and the city center. However, smooth operation of buses is constrained by narrow road space. Accessing the bus stops is not convenient for bus users because of the fact that Hoang Hoa Tham is a one-way street.

3.161 It is much needed to improve accessibility to main traffic generating sources such as West Lake and Truc Bach Lake shores, parks, sports/recreational facilities, hospitals, schools, markets and commercial facilities, among others.

## **2) Impact of UMRT**

3.162 This cluster will be one of the areas that will benefit the most from the major transport infrastructure developments going on: UMRT Line 2 and 3, RR2, Hoang Hoa Tham and UMRT 5, among others. Therefore, how to reorganize the area towards a transit-based, competitive, livable and environmental friendly corridor, based on UMRT Line 2 and 3, is a crucial planning issue to be addressed. The importance of UMRT Line 2 in this cluster is more specifically as follows:

- (i) The UMRT Line 2 together with Line 3 will improve public transport conditions dramatically in the areas, especially along the Thuy Khue and Hoang Hoa Tham streets. The UMRT Line 2 will provide the people with congestion free, safe, comfort and reliable services.
- (ii) The UMRT Line 2 will widen opportunities to access to the West Lake and Truc Bach Lake shores and nearby recreational facilities and tourism attractions.
- (iii) The traditional communities covered with a complex network of alleys will be connected with high-quality public transport services. People can generally walk to the stations. This will give an opportunity for the communities to be transformed into transit-oriented urban areas while traditional values will be preserved.
- (iv) The UMRT provides various opportunities of urban renewal and redevelopment for the areas around the stations.

## **3) TOD Planning Directions**

3.163 In order to maximize the positive impacts of UMRT through TOD, it is necessary to address the issues from the viewpoints of transportation, urban development and community improvement, as follows:

### **(a) Transportation**

3.164 There are key lines for improvement of mobility and accessibility in integration with development of the area:

- (i) Improve walking conditions from/to UMRT stations, especially in the area within more or less 500 meter from the stations. Improvements should be undertaken comprehensively, including roads and alleys in terms of facilities, safety and amenities. Access by bicycle should also be encouraged by providing adequate facilities.
- (ii) Develop underground parking using park space located at Ho Tay Station. This will function not only as intermodal facilities but also as a fringe parking to reduce the number of private vehicles (motorcycles and cars) entering the city centre.
- (iii) Pay attention to the improvement of access conditions for West Lake shore, stadium, hospital and other main traffic generating sources and facilities.

**(b) Integrated Urban Development**

3.165 There are a number of locations that can be promoted to benefit from UMRT development and integrated development/redevelopment. They include (i) Integrated development for West Lake side section of Van Cao Street between Hoang Hoa Tham Street and Ven Ho Street, (ii) Redevelopment of Hanoi Beer Factory, (iii) Redevelopment of Vietnam Women's Center, (iv) Integrated development at C6 station, (v) Integrated Development at Flower Gardens, among others.

**(c) Community Improvement**

3.166 Development of UMRT in the highly densely populated with mixed-use traditional urban areas will affect communities in many ways. Significant improvement in public transport service will benefit daily movement of the people, contribute to reduction in vehicle traffic due to the shift from congested roads to UMRT. Air pollution and traffic noise will also be mitigated. Improvement of alleys and other roads should enhance the effects mentioned above.

3.167 With improved mobility and accessibility, the value of the space will increase, especially in the areas around the station and if good accessibility is ensured. Opportunities will increase for various types of new development and redevelopment of existing communities.

### 3.5.2 Quan Ngua Station (C5) Area

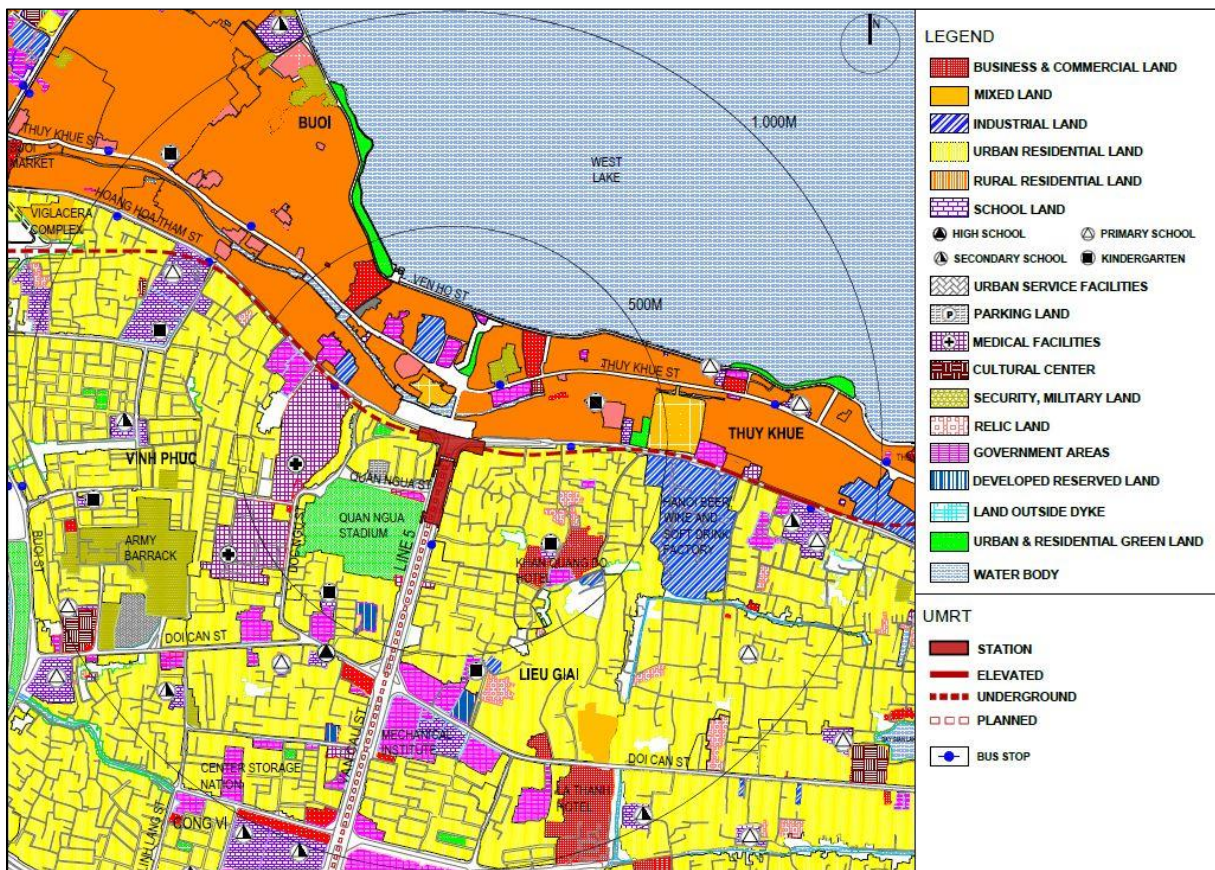
#### 1) Locational Characteristics

3.168 Quan Ngua Station (C5) is an underground station and will be located in the south-west of West Lake, where traditional villages and high-density residential areas are clustered. The intersection above the station is a node of two primary roads of Van Cao Street. Thuy Khue Street runs in parallel to Hoang Hoa Tham Street. Both form the current east-west traffic corridor. Other roads are mainly alleys.

3.169 Around West Lake, there are some traditional villages, pagodas and temples, which attract visitors and tourists. Quan Ngua Stadium, Central Lung Hospital and Hospital 354 are located within 500 meter from the station. Apart from these facilities, there are also urban service facilities and commercial facilities along the main roads.

3.170 The condition of roads is not good in terms of traffic safety and amenities for pedestrians, except Van Cao Street, which is one of the symbolic roads in the city. Walking conditions of Hoang Hoa Tham Street and Thuy Khue Street have been worsened because of encroached shops and motorbike parking on narrow sidewalk.

**Figure 3.5.2-1 Present Location of Quan Ngua Station (C5) Area**



Source: JICA Project Team

## **2) Planning Consideration and Direction**

### **(a) Transportation Access Improvement**

3.171 Transportation access with regard to UMRT in the area is important in the following areas:

- (i) Establishment of an efficient network of primary and secondary roads: While a number of roads improvement projects are ongoing such as widening of Van Cao Street between Hoang Hoa Tham and West Lake shore, Hoang Hoa Tham Street (widening to 53.5 meter), Thuy Khue Street (partly ongoing), flyover at Hoang Hoa Tham and Van Cao Street (completed), it is necessary to improve other secondary roads to be articulated to the main road network.
- (ii) Improvement of alleys and local roads: This is very important in the area because most of the area is composed of densely populated traditional urban areas, without provision of modern roads except alleys. Many different types of alley improvements should be considered: pavement/surface condition, drainage, safety and amenity of traffic space for pedestrians and bicycles, etc. Mixture and conflicts with motorcycles should received particular attention. Among the local roads, those connecting hospitals require special attention.
- (iii) Improvement of bus service: At present, bus services are provided along primary roads connecting between suburban area of west and city centre, and to the south. Bus service which will be overlapped with UMRT will be eliminated and reorganized to serve as a feeder service from the station especially along Van Cao Street.

### **(b) Integrated Urban Development**

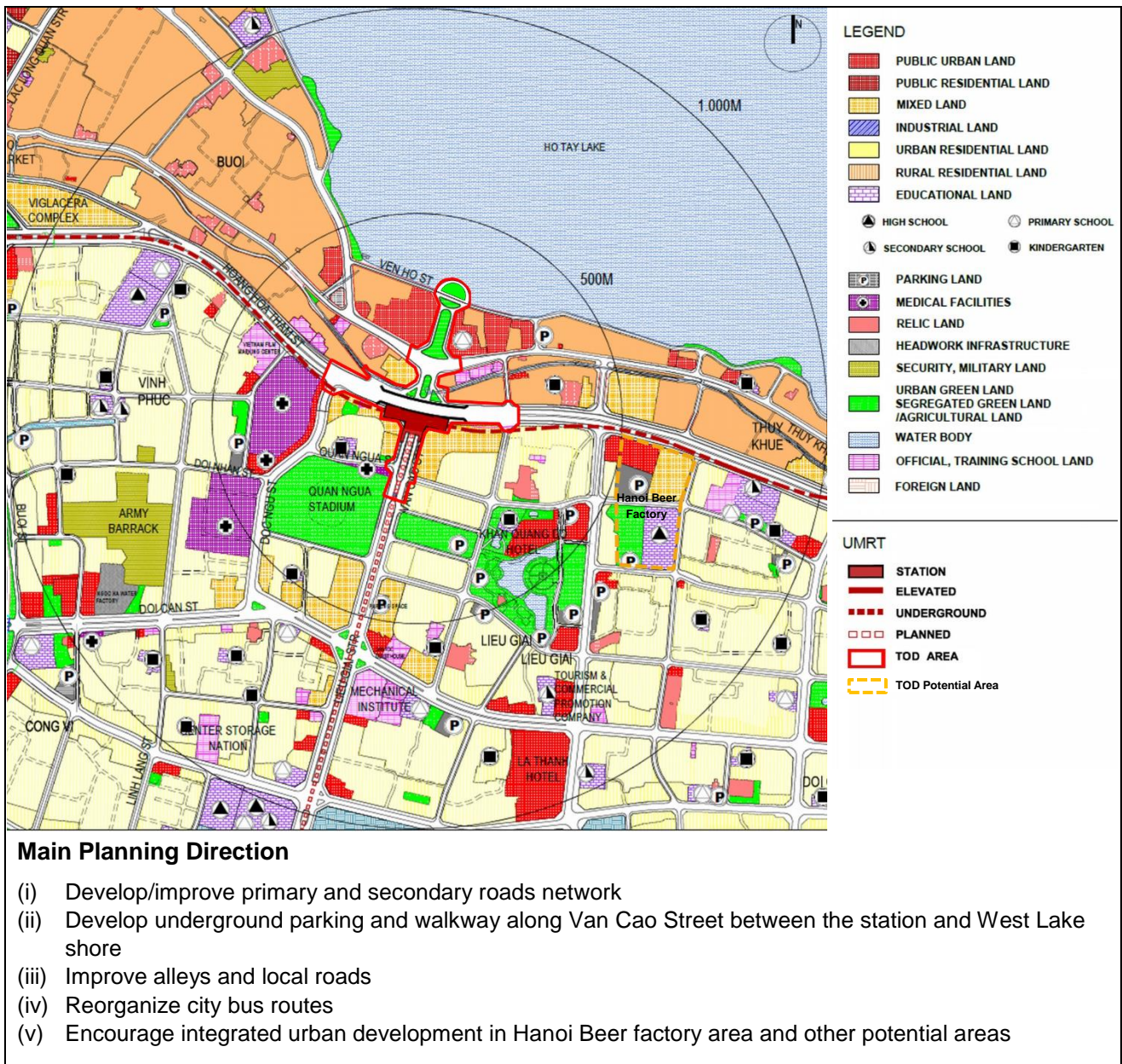
3.172 The area will be transformed to a new innovative urban space when UMRT and planned roads are developed, especially Van Cao Street, which has been extended to the West Lake. The road space between Hoang Hoa Tham and Ven Ho Street can provide the area with a promising opportunity for multi-purpose development in the mixed atmosphere of greenery, water and culture. Underground parking walkway with direct link with UMRT station will enhance the landscape value and image of the area.

### **(c) Community Improvement**

3.173 Existing communities will also be benefited in different ways because of the improved mobility and accessibility due to UMRT and roads improvement.



**Figure 3.5.2-2 Quan Ngua Station (C5) Area in Zone Plan**



Source: JICA Project Team based on draft Zone Plan

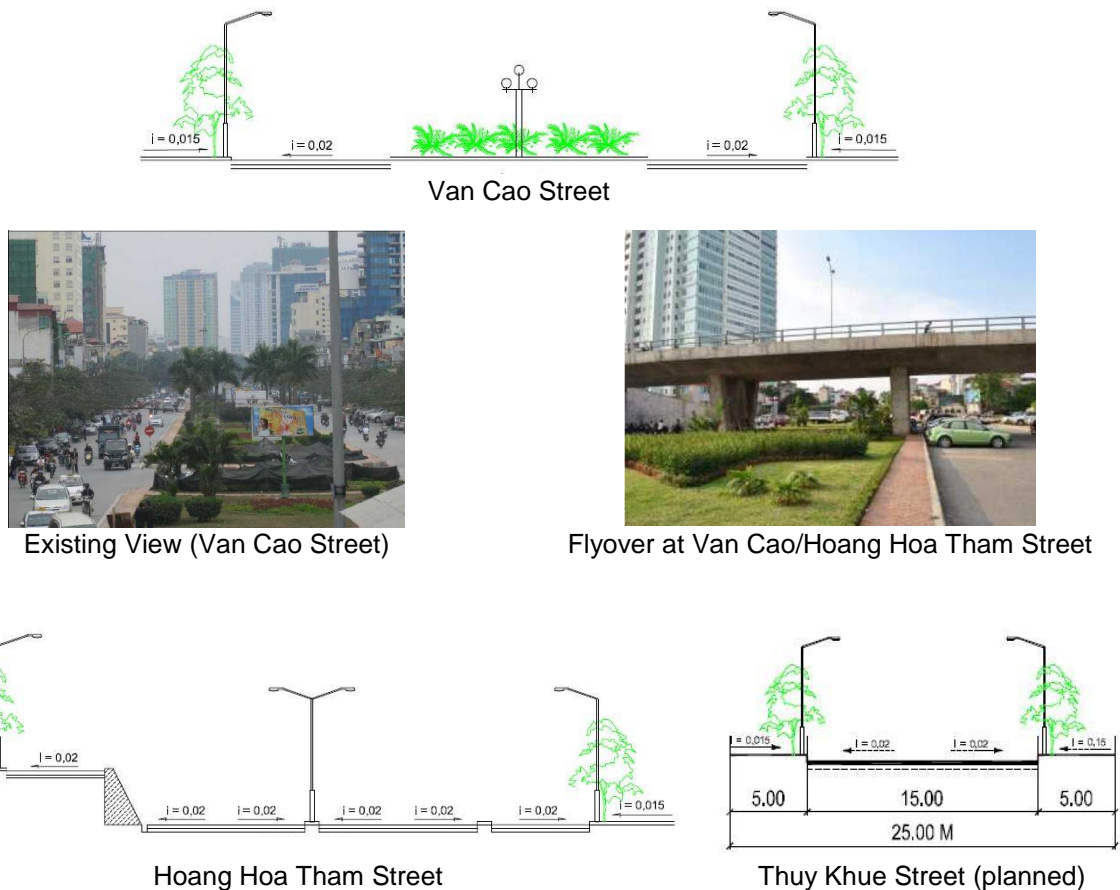
### 3) TOD Concept Plan

#### (a) Improvement of Accessibility to UMRT Station

3.174 In the area, roads that must be improved include:

- (i) Development/Improvement of Main Roads: Existing conditions of main roads are rather poor except for Van Cao Street. The situation will be significantly improved (See Figure 3.5.2-3).

**Figure 3.5.2-3 Planned Profile of Main Roads**



Source: JICA Project Team

- (ii) Improvement of Access Roads to the Stadium and Hospitals: As these facilities generate large traffic volume and demand for good public transport, it is critical to ensure smooth, safe and comfortable accessibility between the facilities and UMRT station. The routes of particular importance include Van Cao Street, Thuy Khue Street, Doc Ngu Street and Quan Ngua Street.
- (iii) Improvement of Local Roads and Alleys: In order to encourage the people to use UMRT in the densely inhabited area, improvement of alleys and walking conditions is critical. This can be started with some basic measures (See Figure 3.5.2-4).

**Figure 3.5.2-4 Basic Traffic Management**



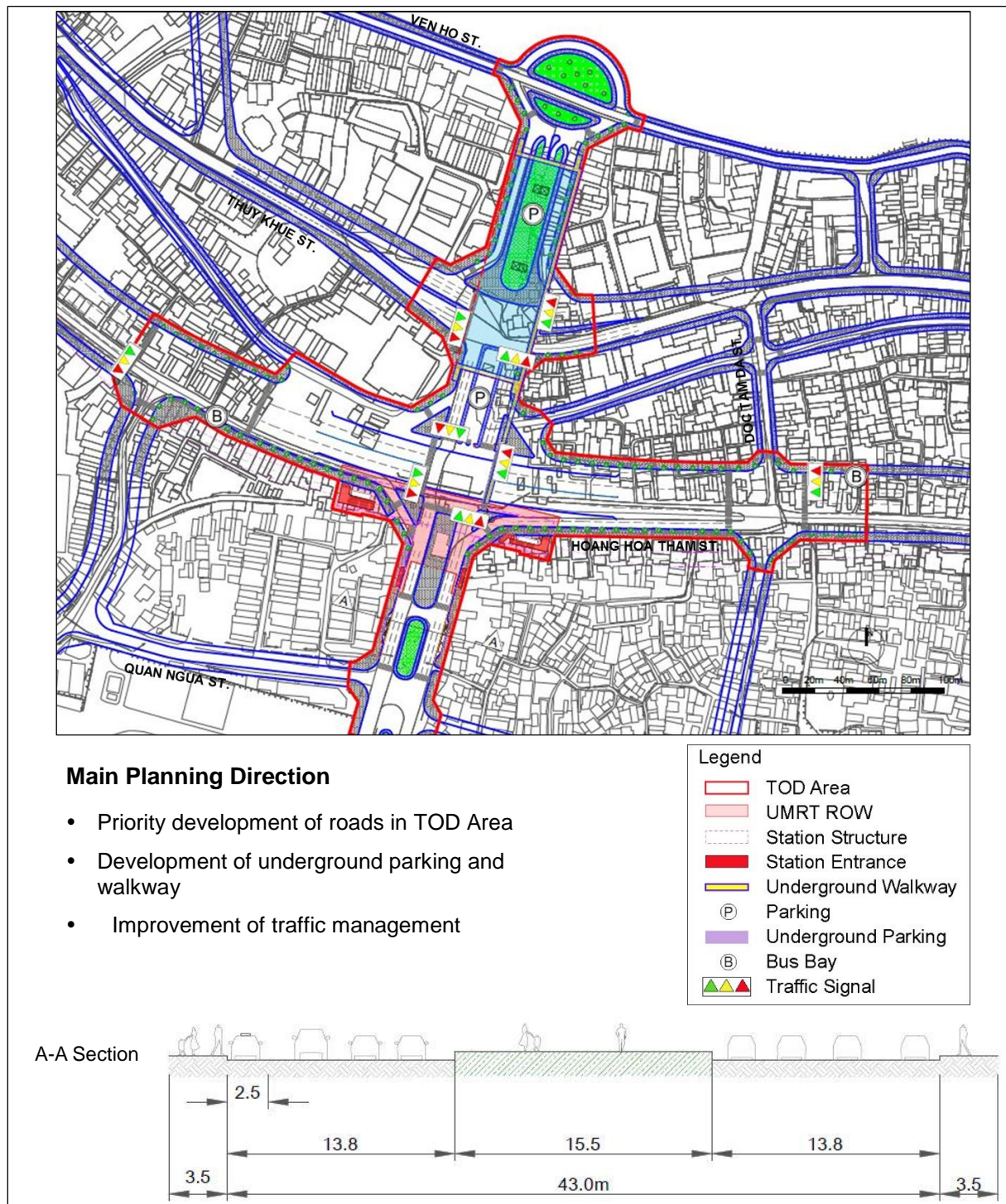
Source: JICA Project Team

### **(b) Development Intermodal Facilities at Station Area**

3.175 Main Inter-modal facilities to be provided at the station include (i) Underground parking and walkway under Van Cao Street, (ii) Loading/unloading space along Van Cao Street, (iii) Parking inside median of Van Cao Street (See Figure 3.5.2-5). As the section of Van Cao Street between Hoang Hoa Tham and West Lake shore will have less traffic except at the intersection with Thuy Khue Street, the wide road space should only be utilized for multi purposes. The space should be friendly for pedestrians, the space should be developed in integration with redevelopment of areas along the road section for commercial and recreational services. The space should be designated in a way that the area can be transformed to a new activity centre with identical image. To make the ground level open, underground space, which provides a direct connection with UMRT station will be developed for underground parking and walkway. The underground walkway helps pedestrians to cross two main roads safely.

- (i) Development of Underground Parking: Approximate scale of underground parking is 7,300 m<sup>2</sup> which can accommodate 300 lots for cars and 1,300 lots for motorcycles on three floors.
- (ii) Development of Underground Walkway and Lake View Terrace: Underground walkway will be provided in integration with underground parking. The length is approximately 300m. At the lake side of Van Cao Street, it is proposed to develop a small park as a rest spot along the West Lake shore by reclaiming the land.

**Figure 3.5.2-5 Facility Concept Plan of Quan Ngua Station (C5)**



Source: JICA Project Team

**(c) Redevelopment of TOD Potential Areas**

3.176 The development of UMRT will trigger urban renewal and redevelopment activities in built-up areas in phase 1, by integrating with road development and socio-economic activities at community level.

- (i) Integrated urban development to formulate an environmental and tourism gateway to the West Lake: After completion of UMRT development and road

projects, the station area between the station and West Lake will not only be a traffic node with UMRT stations and trunk roads, but also a new gateway to the lake to attract tourists, citizens and local communities. Since there are few commercial and business facilities at the moment, attractive facilities such as tourism center, theater, admin service facilities and open space will be clustered to serve the public.

- (ii) Urban renewal and redevelopment of built-up area with access road improvement: Though trunk road network is proposed in the draft Zone Plan, it will take a long time to realize them in such high dense and traditional residential areas. In a short-term, traffic management measures including installment traffic facilities, application of traffic rules will be promoted to utilize available road space and capacity. With political intervention, degraded residential areas will be renewed to secure appropriate road and infrastructure for safety and security.
- (iii) Multi complex development of Hanoi Beer Factory: By utilizing a large-scale factory land, it is proposed to develop a multi complex facility including public services, commercial, residential and open space. Distribution roads will be developed as a part of the project implemented by the project investor.. They are designated in the draft Zone Plan along with other public facilities such as social housing for low-income group and resettlement households.

**Figure 3.5.2-6 Image of Urban Redevelopment of Beer Factory Land  
(Yebisu Garden Place, Ebisu, Station Area, Tokyo)**



Development area using beer factory  
(app. 40ha)



Facilities including high-rise commercial  
and business facilities, residential  
complex, beer restaurant, park, etc.



Pedestrian deck (sky walk) connecting  
from JR Ebisu Station to Yebisu  
Garden Place

Source: JICA Project Team

### 3.5.3 Bach Thao Station (C6) Area

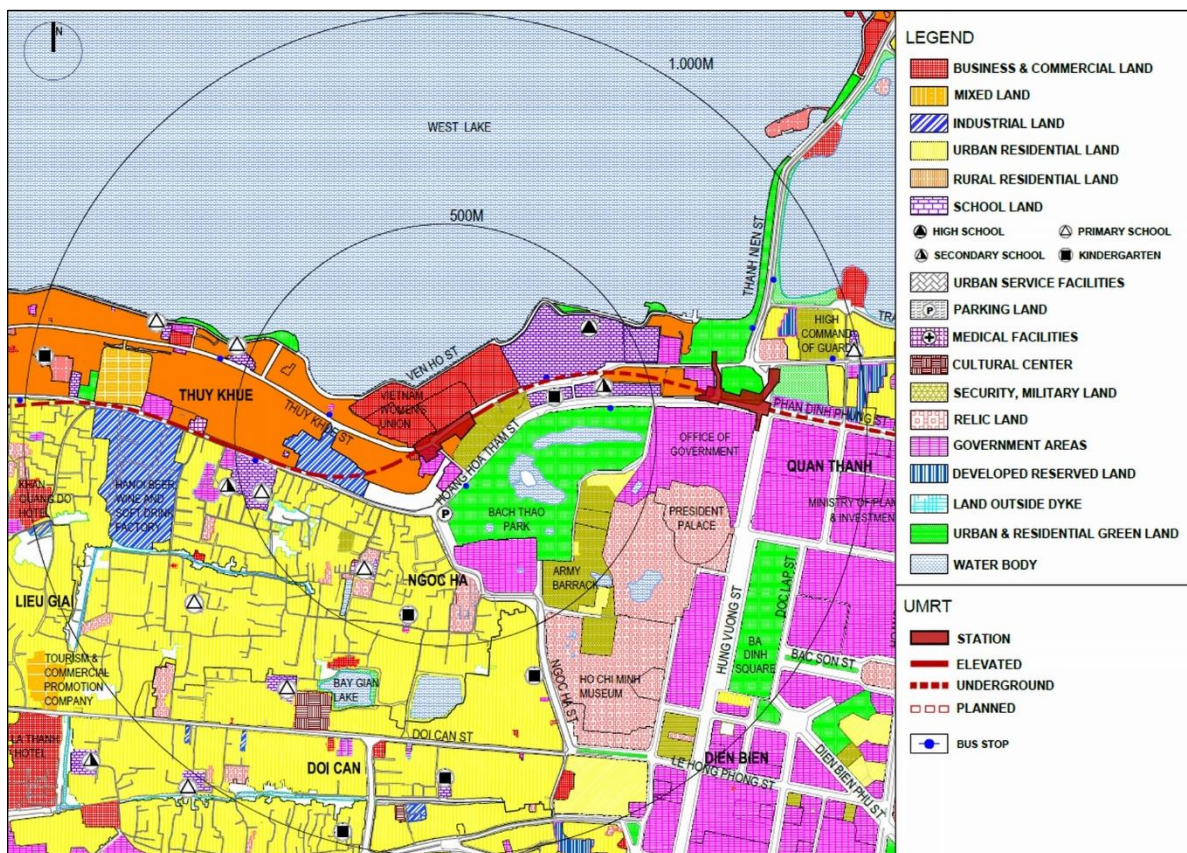
#### 1) Locational Characteristics

3.177 Bach Thao Station (C6) is an underground station. It will be located in the south of West Lake, where traditional villages and high-density residential areas are clustered. There are two east-west trunk roads in parallel, Hoang Hoa Tham Street and the lakeside. Existing communities in Ngoc Ha Ward are mostly covered by unorganized network of alleys.

3.178 In the south-east of the station, there are Bach Thao Botanical Garden and government facilities such as the Ministry of Agriculture and Rural Development, Ho Chi Minh Museum, Ho Chi Minh Mausoleum, the Governmental House, among others. To the west, the land use is mostly mixed-use with residential facilities and shops. Main facilities such as exclusive apartments, Women’s Centre and schools are located along Thuy Khue Street and Hoang Hoa Tham Street.

3.179 Transport connectivity between the south and the north is very weak. Ngoc Ha Street is the only connecting trunk road in this station area. Connectivity between Hoang Hoa Tham Street and Thuy Khue Street is also limited. Only one-way street near the Women’s Centre exists due to this road network characteristics, the traffic generated in the area tends to concentrate on Hoang Hoa Tham Street and Thuy Khue Street and cause traffic congestions and conflicts on these roads. The deficit in sidewalks along the roads also aggravates the traffic situation.

**Figure 3.5.3-1 Present Location of Bach Thao Station (C6) Area**



Source: JICA Project Team

## **2) Planning Condition and Direction**

### **(a) Transportation Access Improvement**

3.180 Transportation access in this area involves the following three important aspects:

- (i) Providing smooth access between the station and existing communities in Ngoc Ha Ward, Doi Can Ward and Thuy Khue Ward.
- (ii) Providing smooth access between the station and the areas along Hoang Hoa Tham Street, Thuy Khue Street and Ven Ho Street.
- (iii) Providing smooth access to public facilities including the Botanical Garden, the Government House and West Lake commercial and recreational centre. Improvement of Ngoc Ha Street can improve accessibility in the area and benefit communities and facilities located along the road.

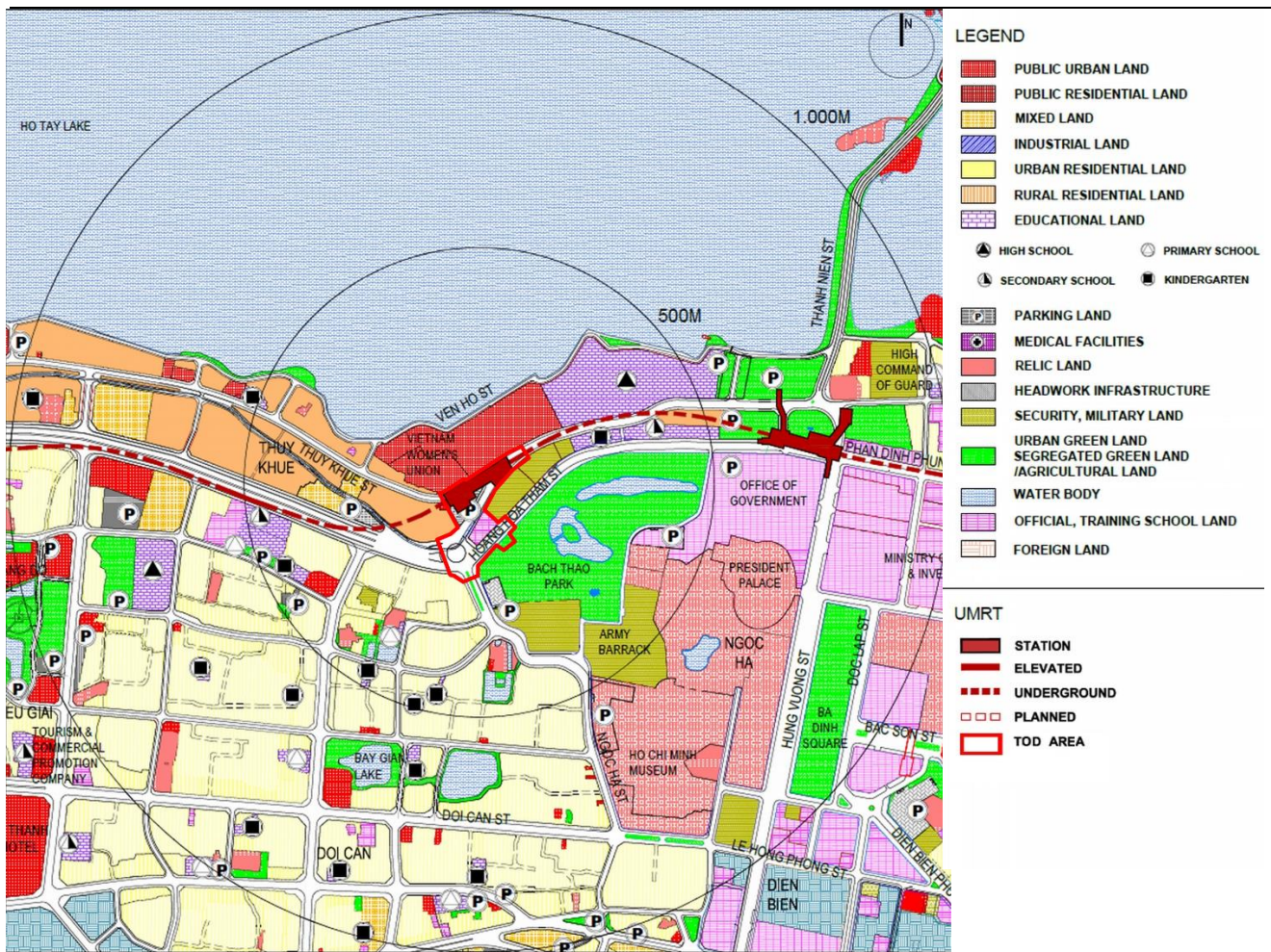
### **(b) Integrated Urban Development**

3.181 Opportunities for integrated urban development include redevelopment of the area around the station, degraded apartments and facilities along main roads. Women's Centre could also be a potential site for redevelopment.

### **(c) Community Improvement**

3.182 Existing communities can also be renewed together with improvement of alleys.

**Figure 3.5.3-2 Bach Thao Station (C6) Area in Zone Plan**



**Main Planning Direction**

- (i) Upgrade Hoang Hoa Tham Street and Thuy Khue Street according to the plan including the section which connect Hoang Hoa Tham and Thuy Khue Streets.
- (ii) Improve Ngoc Ha Street as a main secondary road
- (iii) Improve alleys and local roads
- (iv) Develop underground parking and walkway across Hoang Hoa Tham Street which is integrated with commercial development
- (v) Facilitate urban renewal and improvement of living environment in existing wards

Source: JICA Project Team based on draft Zone Plan



### 3) TOD Concept Plan

#### (a) Improvement of Accessibility to UMRT Station (500-m radius Area)

3.183 At present, the roads are poorly provided along the shore and in the north-south direction. However, after planned improvement are in place on Thuy Khue Street and Ngoc Ha Street, the area will be provided with a good set of main roads, which will also contribute to the improvement of access to UMRT station.

- (i) Improvements of Main Roads: Planned widening and improvements of Hoang Hoa Tham Street and Thuy Khue Street should be implemented in time with the UMRT station and improve overall traffic situation in the area

**Figure 3.5.3-3 Improvement of Main Roads**



Thuy Khue Street



Hoang Hoa Tham Street



Ngoc Ha Street

Source: JICA Project Team

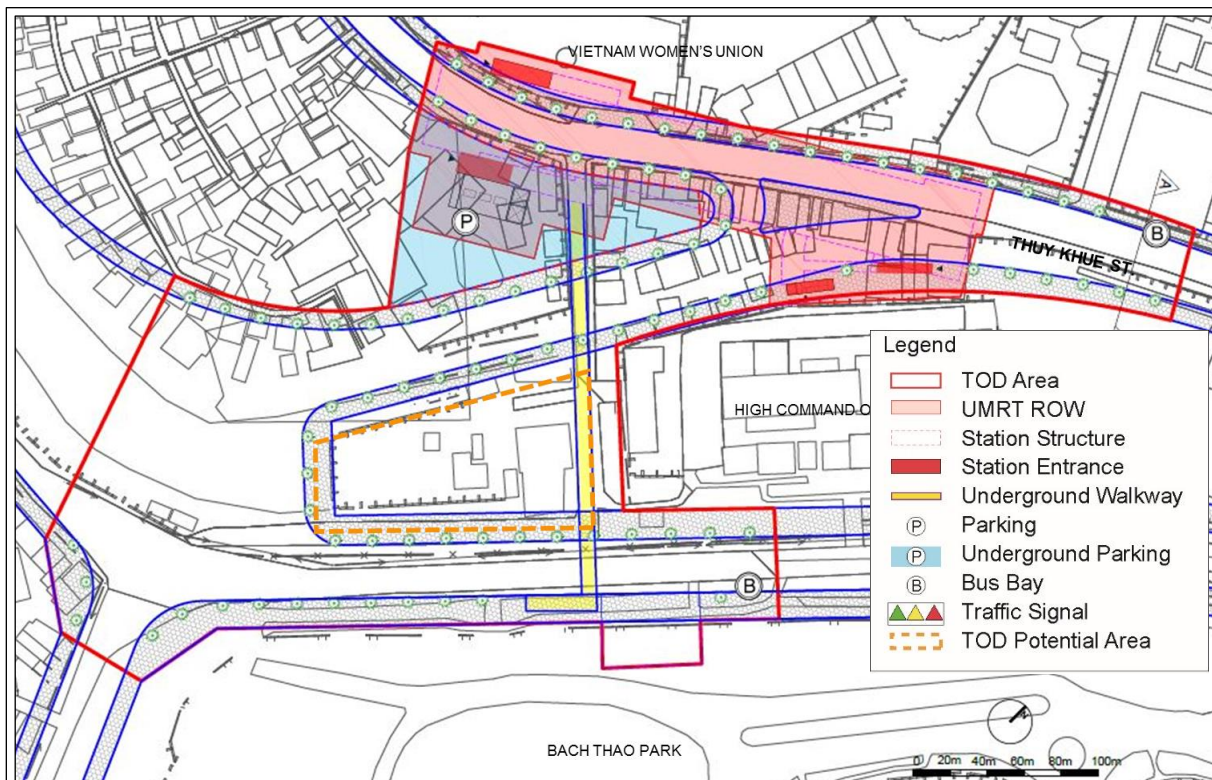
- (ii) Improvement of Local Roads and Alleys: Although the Zone Plan indicates that the area will be provided with a network of secondary and local roads in the future, it is important to improve existing local roads and alleys before the opening of UMRT.

#### (b) Inter-modal Facility Development at Station Area

3.184 Although available space is limited, the area can offer a good example of TOD at underground UMRT station. The proposed plan intends to connect the main corridors of Thuy Khue and Hoang Hoa Tham both for vehicles and passengers where the UMRT station area functions as a node. The plan includes the following components (See Figure 3.5.3-4);

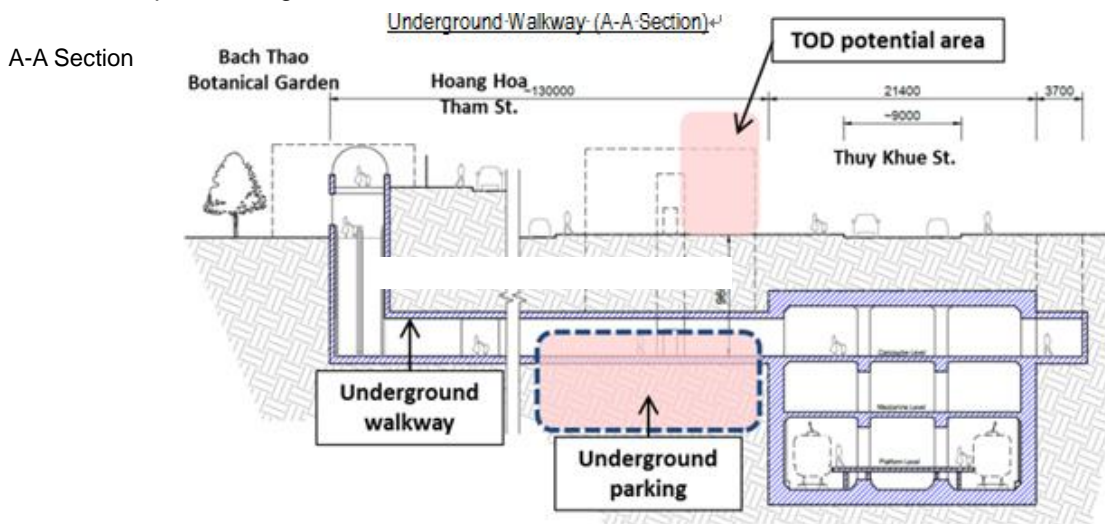
- (i) Development of the section of Hoang Hoa Tham Street, Thuy Khue Street and connecting road before opening of UMRT
- (ii) Development of underground parking and walkway to connect the station with the Botanical Garden area without crossing the traffic flow
- (iii) Development of commercial and urban facilities on the space in-between by Hoang Hoa Tham Street and Thuy Khue Street

**Figure 3.5.3-4 Facility Concept Plan of Bach Thao Station (C6)**



**Main Planning Direction**

- Priority development of Hoang Hoa Tham Street and Thuy Khue Street including connecting road
- Development of underground parking and walkway
- Development integrated commercial/urban facilities



Source: JICA Project Team]

**(c) Integrated Urban Development**

3.185 Approximately 1.6 ha of land will be made available after the road projects will be completed. With direct connection with UMRT and roads, the area can considerably enhance its potential for urban development.

### 3.5.4 Ho Tay Station (C7) Area

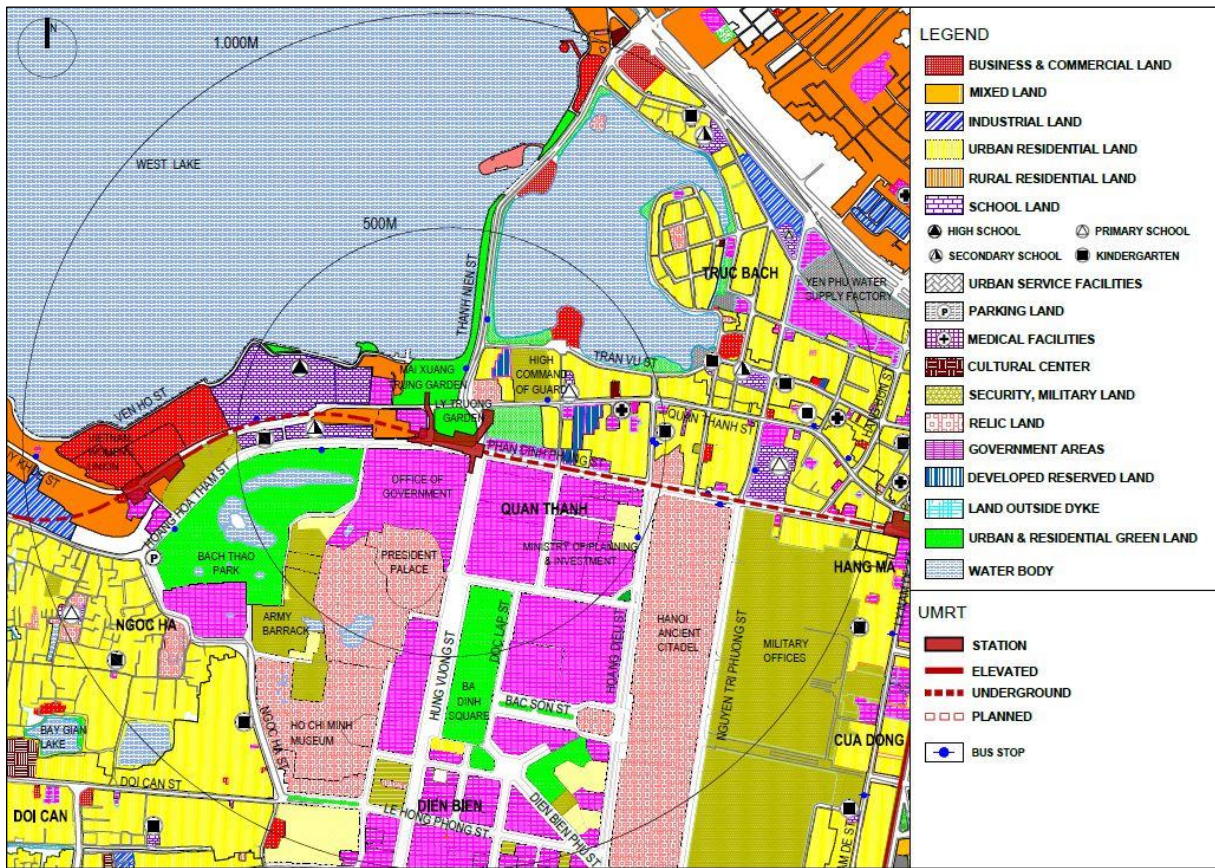
#### 1) Locational Characteristics

3.186 Ho Tay Station (C7) is an underground station located at the gateway of West Lake and Truc Bach Lake, one of the most popular recreational and tourism spots for the people as well as tourists. Traffic is quite heavy during the weekends and evenings, though traffic is also heavy on Thanh Nien Street. The area is also a gateway to the Ancient Quarter via Phan Dinh Phong Street. Therefore the intersection at the location of UMRT station is congested throughout the day.

3.187 Landuse in the area is mainly composed of commercial facilities mixed with residential areas on the lakeside, and public facilities such as the Governmental House, Ho Chi Minh Mausoleum, Ba Dinh Square, Quanh Thanh Temple, Tran Quac Temple, Mai Zuan Truong Flower Garden, Ly Thu Trong Flower Garden, Bach Thao Residential Garden.

3.188 The UMRT station and TOD involve great opportunities to improve the traffic situation in this important area.

**Figure 3.5.4-1 Present Location of Ho Tay Station (C7) Area**



Source: JICA Project Team

## **2) Planning Conditions and Directions**

### **(a) Transportation Access Improvement**

3.189 The traffic situation in the area is quite complex and the intersection where a number of main roads including Hoang Hoa Tham, Thuy Khue, Hung Vuong and Thanh Tien Streets suffers from chronic traffic congestions throughout the day due to a large number of thorough traffic and attraction of visitors in the lake area. Traffic is also heavy in the evening and weekends.

3.190 Improvement of accessibility to UMRT station is critical for the area. The area is already congested due to heavy and complex flow of traffic, The opening of UMRT will add a large pedestrian traffic in the area which may worsen the situation. On the other hand, when additional intermodal facilities are added in integration with UMRT development, there will be ample opportunities to improve the situation and enhance the traffic capacity, safety and convenience in the area. Improvement measures include following;

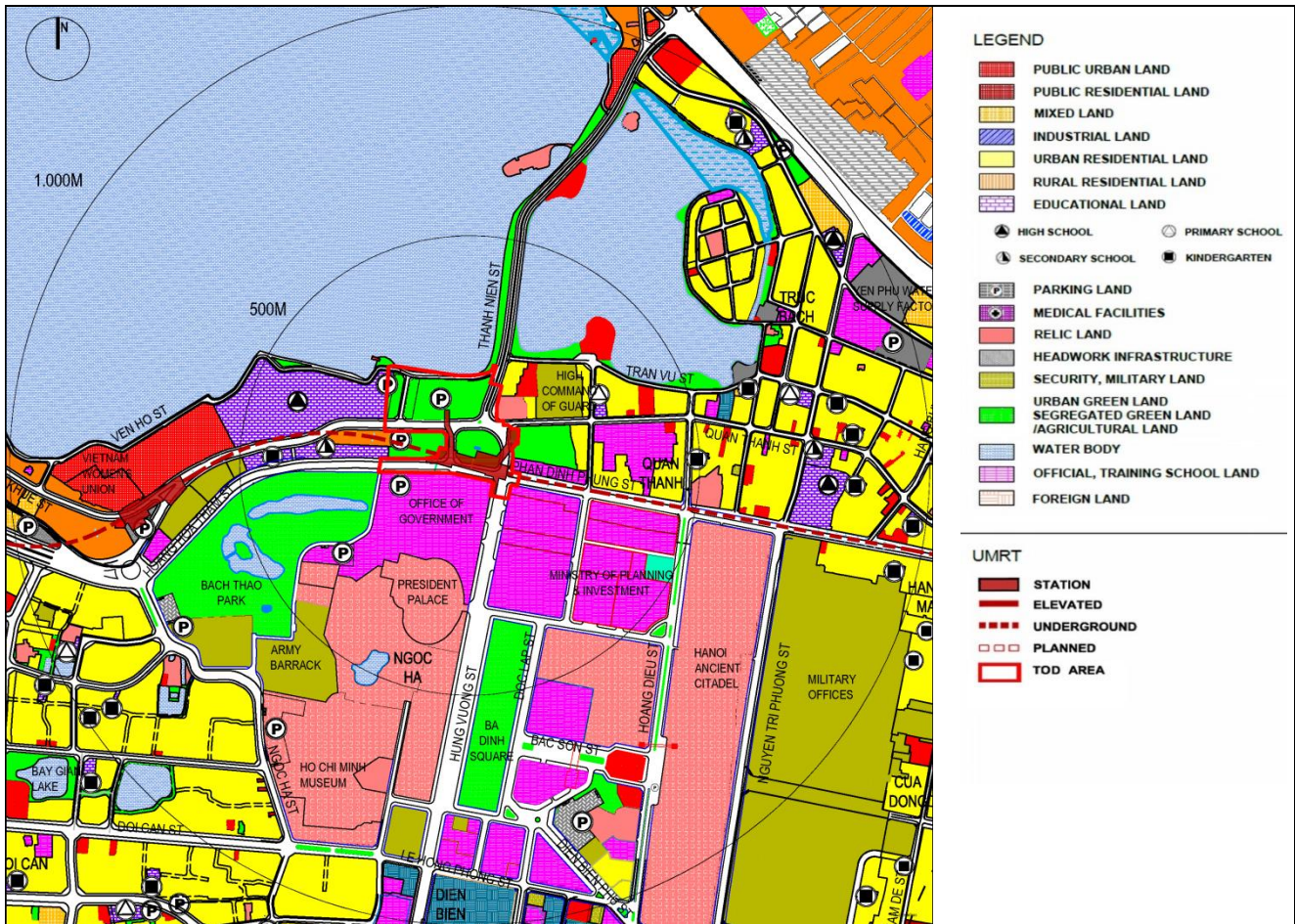
- (i) Improve Hoang Hoa Tham Street and Thuy Khue Street;
- (ii) Develop underground parking and walkways using the space of Ly Thu Truong Flower Garden and Vietnam Film Company
- (iii) Improve traffic circulation and management of the intersections in integrated manner including underground pedestrian walkway at Thanh Nien and Hung Vuong Streets. Through these measures, it is expected that vehicle traffic flow is regulated, safety and amenity for pedestrians increase, and accessibility to the lake areas for not only UMRT users but also non-users is improved.

### **(b) Integrated Urban Development**

3.191 There are various opportunities for integrated urban development in the area such as:

- (i) Commercial and shopping space in the underground space of flower gardens in integration with station, parking facilities and underground pedestrian walkway.
- (ii) Redevelopment of commercial facilities located in the lake side areas near the station
- (iii) The area of Vietnam Film Company while a new road and parking are included in Zone Plan, the area involves ample opportunities for commercial and recreation purpose development.
- (iv) Children Sports Center: The area can be directly connected with the UMRT station. Opportunity to redevelopment the area as a multi-purpose commercial and public service complex including sports facilities if high.

**Figure 3.5.4-2 Ho Tay Station (C7) Area in Zone Plan**



**Main Planning Direction**

- (i) Improve main roads including Hoang Hoa Tham Street and Thuy Khue Street
- (ii) Develop underground parking and walkways using the space of Flower Gardens
- (iii) Improve traffic circulation and management at the intersections of the area

Source: JICA Project Team based on draft Zone Plan

### 3) TOD Concept Plan

#### (a) Improvement of Accessibility to UMNRT Station (500 meter Radius Area)

3.192 More specific measures to improve overall traffic situation and accessibility to the UMRT station include the following:

- (i) Timely Development of Main Roads: It is critical to improve main roads located in the area and defined in Zone Plan in coordination with UMRT development. At least, the sections included in TOD Area should be completed before the opening of UMRT
- (ii) Improvement of Traffic Management: With improved road sections at the intersection area, traffic management can farther be improved to ensure smooth vehicle traffic flow
- (iii) Improvement of sidewalks: Sidewalks and walking environment should be improved to enhance walkability and extend tolerable walking distance farther.

3.193 This component include the following:

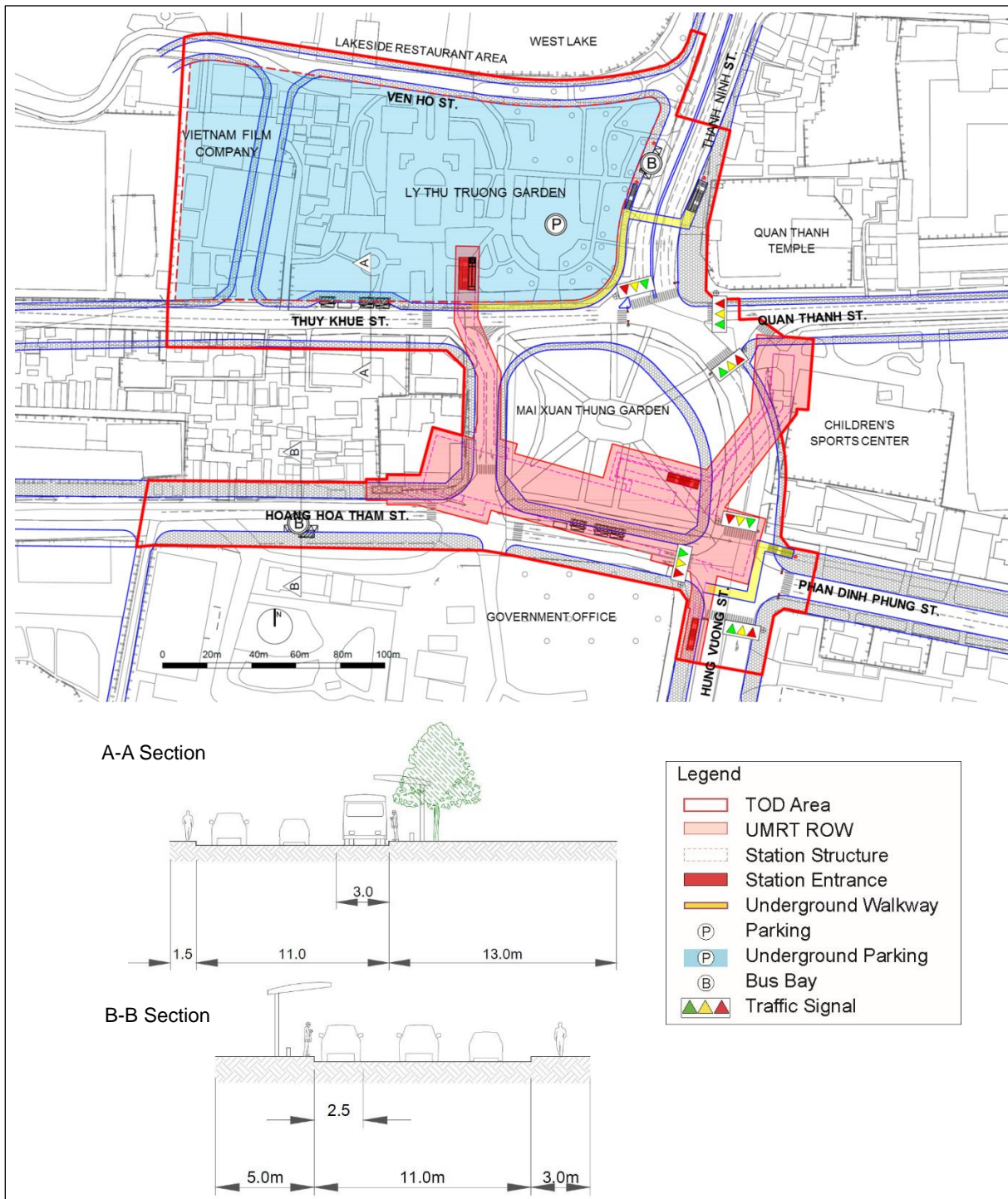
- (i) Improvement of sidewalks
- (ii) Local traffic circulation
- (iii) Improvement of access point space

#### (b) Development of Intermodal Facilities at the Station

3.194 This component includes the following (See Figure 3.5.4-3);

- (i) Development of underground walkway: Underground walkway will be provided at two locations where the entrances of the UMRT station are located. (See Figure 3.5.4-3). They will facilitate UMRT passengers and other pedestrians to cross heavily trafficked intersections safely.
- (ii) Development of Underground Parking: Underground parking will be developed under the Flower Gardens. While underground parking in Ly Tu Trong Flower Garden is included in Zone Plan, it is proposed that another underground parking in Mai Xuan Thuong Flower Garden will also be developed as an integrated underground parking. With this the UMRT station can be directly connected with underground space which can also provide opportunities for underground commercial development and farther facilitate pedestrian movements.
- (iii) Provision of Other Intermodal Facilities: In the TOD Area, space and facilities for city bus, taxi and other vehicles will be provided. Bicycle sharing will be an attractive service for tourists and visitors who can enjoy various facilities and attractions distributed along the lakeshore. The facilities can be conveniently provided in underground parking space.

**Figure 3.5.4-3 Facility Concept Plan of Ho Tay Station (C7)**



Source: JICA Project Team

**(c) Integrated Urban Development**

3.195 This component includes the following;

- (i) Development of renewal of commercial facilities on the lake side areas near the station

### 3.5.5 Key Points for Decision by JCC

3.196 A6 and A7 (H1-2) Zone Plans are the basis to formulate TOD concept plans of the South of West Lake Cluster. A6 Zone Plan has been approved.

3.197 Key points for decision by JCC are summarized in Table 3.5.2. While TOD concept plans are in compliance with Zone Plans, it is proposed to reflect proposed TOD areas and intermodal facilities in the Zone Plan. While development land is limited in this cluster, underground development should be promoted to develop intermodal facilities, and road development projects should be implemented effectively with UMRT development.

3.198 At present, HAUPA plans to apply proposed underground parking projects into the Zone Plan. Proposed underground parking plans shall be reflected into the Parking Plan of Hanoi City which has been prepared by DOT.

**Table 3.5.2 Key Points of North West Urban Cluster for Decision by JCC**

Coverage	Key Points for Decision
Common Issues	<ul style="list-style-type: none"> <li>• Designation of TOD Area and its reflection in Zone Plan</li> <li>• Coordinated development of related road widening/improvement projects (Hoang Hoa Tham Street, Thuy Khue Street, Van Cao Street)</li> <li>• Development/ improvement of secondary and community roads in existing densely inhabited communities</li> <li>• Promotion of underground parking development</li> <li>• Identification and implementation of potential urban redevelopment projects (to be included in TOD area)</li> </ul>
C5: Quan Ngua Station	<ul style="list-style-type: none"> <li>• Approval of underground parking development</li> </ul>
C6: Bach Thao Station	<ul style="list-style-type: none"> <li>• Harmonization of road development (connecting road between Hoang Hoa Tham St. and Thuy Khue St.) with UMRT development</li> <li>• Integration of urban development within the area of the connecting road</li> </ul>
C7: Ho Tay Station	<ul style="list-style-type: none"> <li>• Prioritization and coordination of underground parking development projects planned by DOT</li> <li>• Provision of underground walkways</li> </ul>

Source: JICA Project Team