5. Candidate Sites for TOD in the Tehran Metropolitan Area

5.1 Candidate Sites in Urban Areas

This section proposes TOD approaches that may be applied in the urban areas of Tehran. Potential candidate sites described herein include the following:

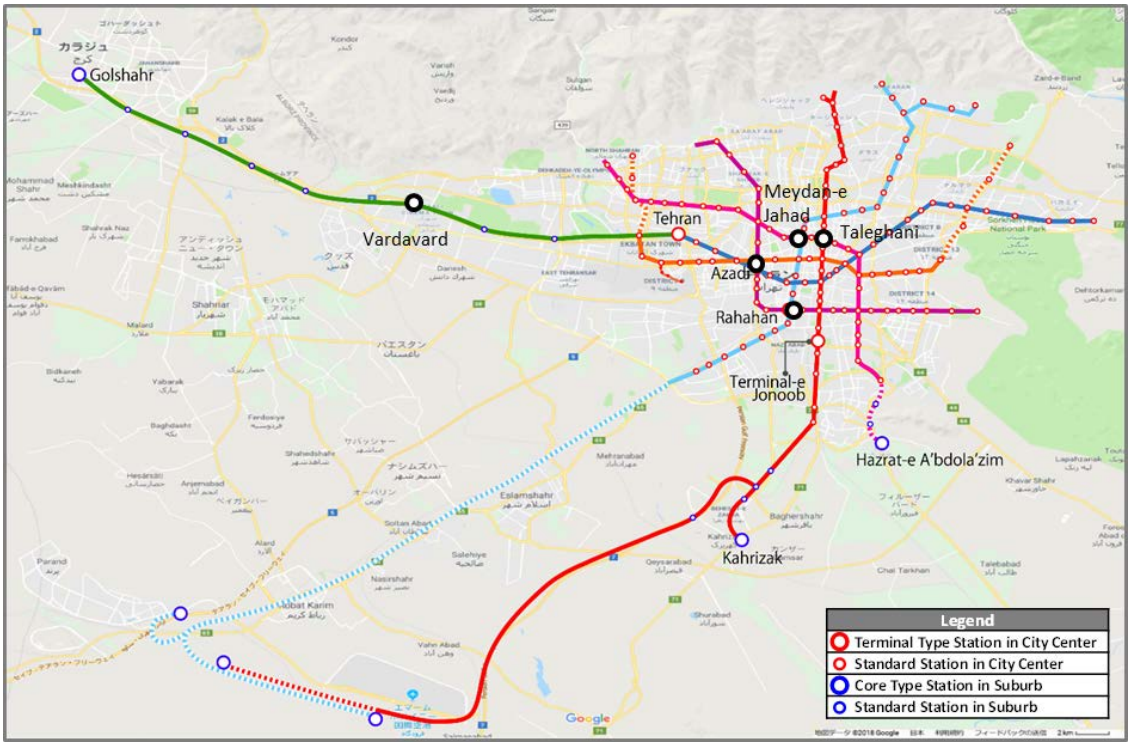
- Large transport terminals with intermodal transfer functions: Rah Ahan (Tehran Station) and Azadi Square Station.
- Metro stations in urban areas: Taleghani Station on Metro Line 1 and Meydane e Shohada Station on Metro Line 3.
- Stations along the suburban railway lines: Vard Avard Station on Metro Line 5.

Table 5-1 Hierarchy of Station in the TOD Guidelines and Candidate Sites shows candidate sites categorized into station types indicated in 4.2.3

Table 5-1 Hierarchy of Station in the TOD Guidelines and Candidate Sites

Type of Station	Overview and Requirements	Candidate Sites
a) Terminal Type Station in City Center	Transfer terminal type station with multiple intersecting lines located in the center of the city. Recommended for use as a city base through high-volume and mixed use.	Rah Ahan (Tehran Station) Azadi Square Station
b) Standard Station in City Center	Station located in city center. Although its potential drops in comparison with transfer terminal type stations, it is recommended for this type of station to be developed into a base for mixed use that can accommodate the number of passengers.	Taleghani Station on Metro Line 1 Meydane e Shohada Station on Metro Line 3.
c) Core Type Station in Suburb	Core type station with multiple intersecting lines located in the suburbs. Recommended for residential, commercial, and business functions to be concentrated in medium to high density in this type of station.	-
d) Standard Station in Suburb	Station located in the suburbs. Recommended to have suitable functions in place to support daily life, with the main application of low- to medium-rise housing.	Vard Avard Station on Metro Line 5.

Source: JICA Study Team



Source: JICA Study Team

Figure 5-1 TOD Candidate Sites in Tehran Metropolitan Area

5.1.1 Rah Ahan (Tehran Station)

Source: JICA Study Team

Figure 5-2 Tehran Station – Current Situation

The open space in front of the central railway station is utilized generally for the taxi operation, and there is no open pedestrian access to cross the station. The figure above shows the current situation of the Tehran Station, and a detailed description is provided below.

1: Tehran main passenger gate.

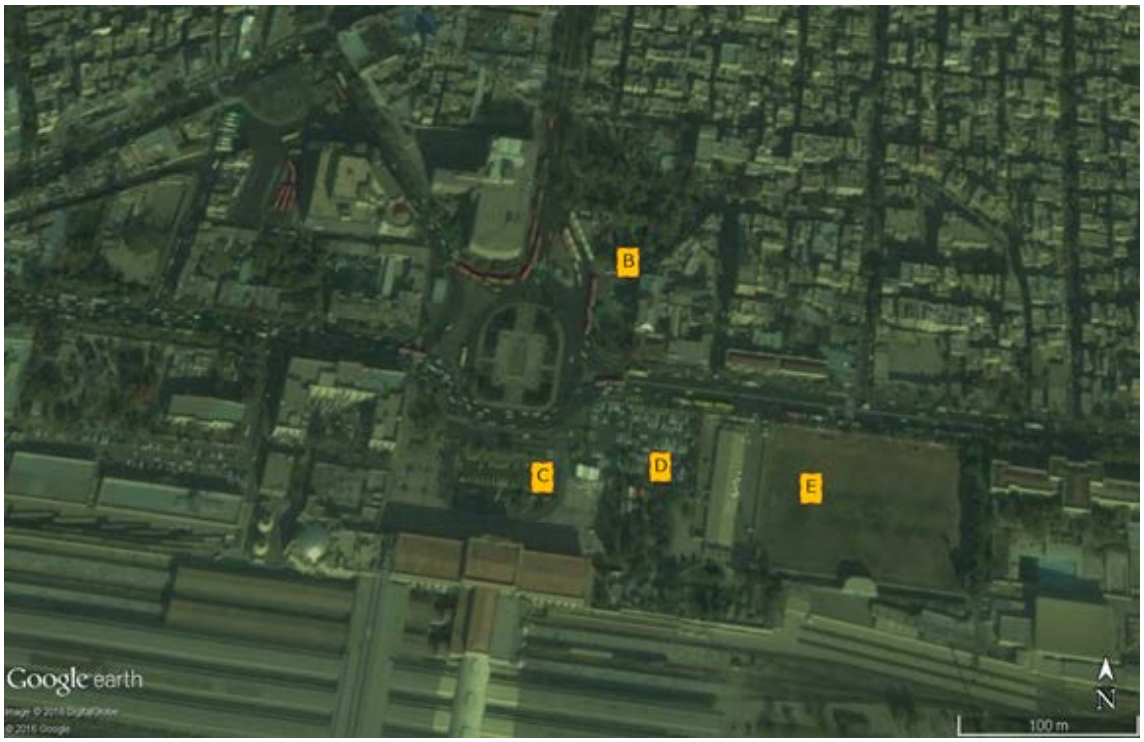
2, 2A, and 3: Three metro entrances. The underground passage for the metro is not directly connected to the concourse of the central station. Currently, major passenger flows are seen from the main passenger gate 1 to entrance 2A, which was opened in 2017. Before 2017, passengers had to exit from exits 2 or 3 and walk to entrance 1. Entrance 2 is not facing south. Entrance 3 faces the station; the space in front of the entrance has been expanded.

4: The BRT terminal for Line 7 is 200 m away from the central station and 100 m away from the metro, and passengers need to cross the roads to access the terminal.

5: The taxi bay is located at a very convenient place, but business is slow. The area was redesigned in 2017, and taxi bays were moved out of this area.

6: Another bus terminal.

7: Private car parking area.



Source: JICA Study Team

Figure 5-3 Reorganization of Tehran Station in Consideration of TOD

Reorganization of Tehran Station in consideration of TOD

B: Construct a metro entrance integrating with the BRT for metro passengers.

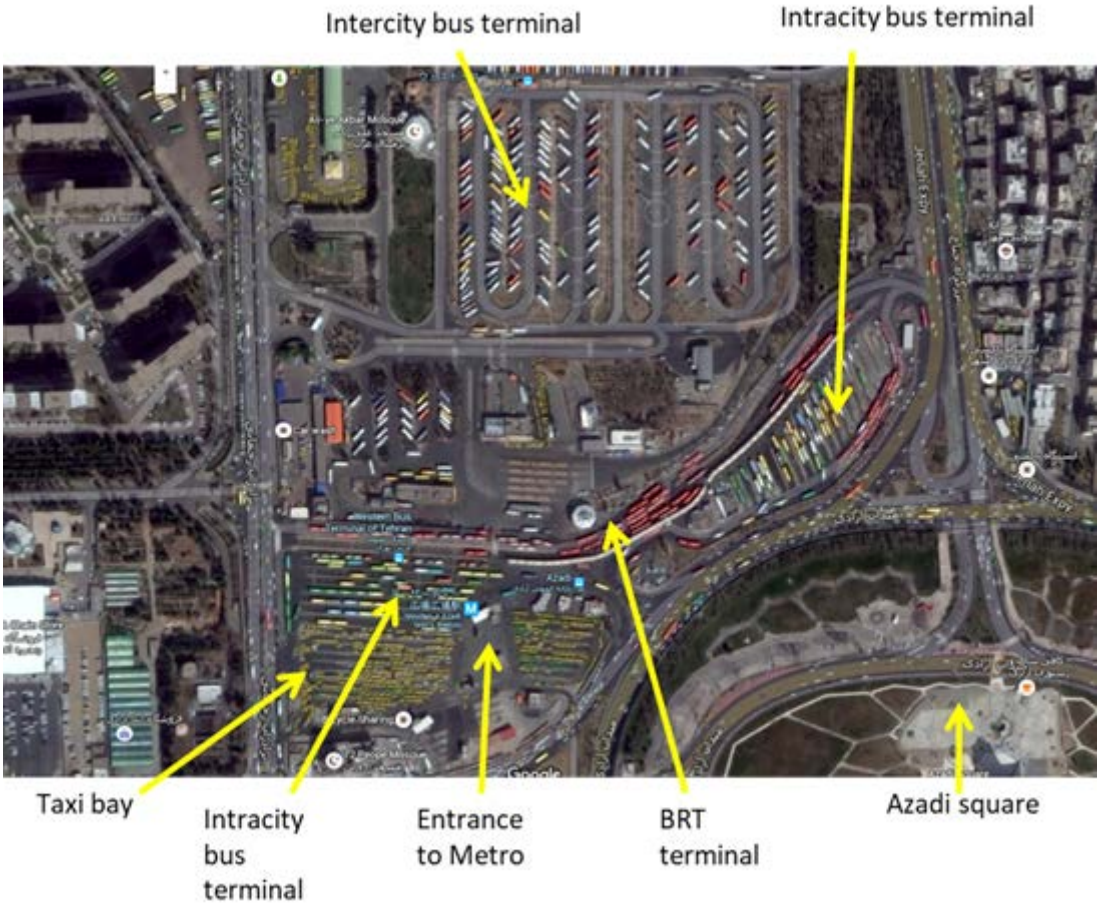
C: Remove the taxi bay, and possibly create a BRT bay as well as those in B above.

D: Remove the private parking and relocate the taxi bay; and apply the shotgun assignment method.

E: Use this area for urban development purposes to decrease the volume ratio.

Overall: Area development regulations can be softened. As mentioned in the Tehran Central Station masterplan, the railway yards can be developed for commercial and residential areas.

5.1.2 Azadi Square



Source: JICA Study Team

Figure 5-4 Azadi Bus Terminal – Current Situation

The Azadi Bus Terminal, also called the western bus terminal, accommodates intracity buses, intercity buses, taxis, and Metro Line 2. All transport functions are connected at the surface level and are accessible to all transport modes. The terminal is surrounded by multilane roads with heavy traffic. The neighboring districts on the western side are mostly 10-15 stories residential apartments, but no access functions connecting to the residential area are available.

The Study Team proposes the application of an integrated development including a commercial hub development, express line terminal development, as well as zoning relaxation and volume regulation in this district. In particular, the intercity bus terminal area is utilized as a parking for intercity buses and is operated inefficiently.

There are several bus terminals with an open area at the edge of the urban area in Tehran. These locations may be utilized to accommodate the terminals of the proposed express lines.

5.1.3 Taleghani Station on Metro Line 1

Source: JICA Study Team

Figure 5-5 Taleghani Station on Tehran Metro Line 1 – Current Situation

Taleghani Station on Tehran Metro Line 1; Typical single station in the CBD

1: The metro station is located at the 4-leg intersection, but the entrance is open at the northwest corner only, which has the entrance facing north. The US embassy is located in the area behind the station, and its wall stretches 200 m each direction from the corner.

2: The largest demand in this area is expected at the southeast corner, but passengers utilizing the metro need to cross the street. The passengers crossing the street at the surface level may increase conflict with the vehicle traffic, causing accidents and congestions.

3: There is a large hospital complex nearby, and patients must cross the busy street to access the metro.

4: A large sports complex is located north of this block.

Source: JICA Study Team

Figure 5-6 Reorganization of Tehran Metro Line 1 Taleghani Station in Consideration of TOD

Reorganization of Tehran Metro Line 1 Taleghani Station in Consideration of TOD

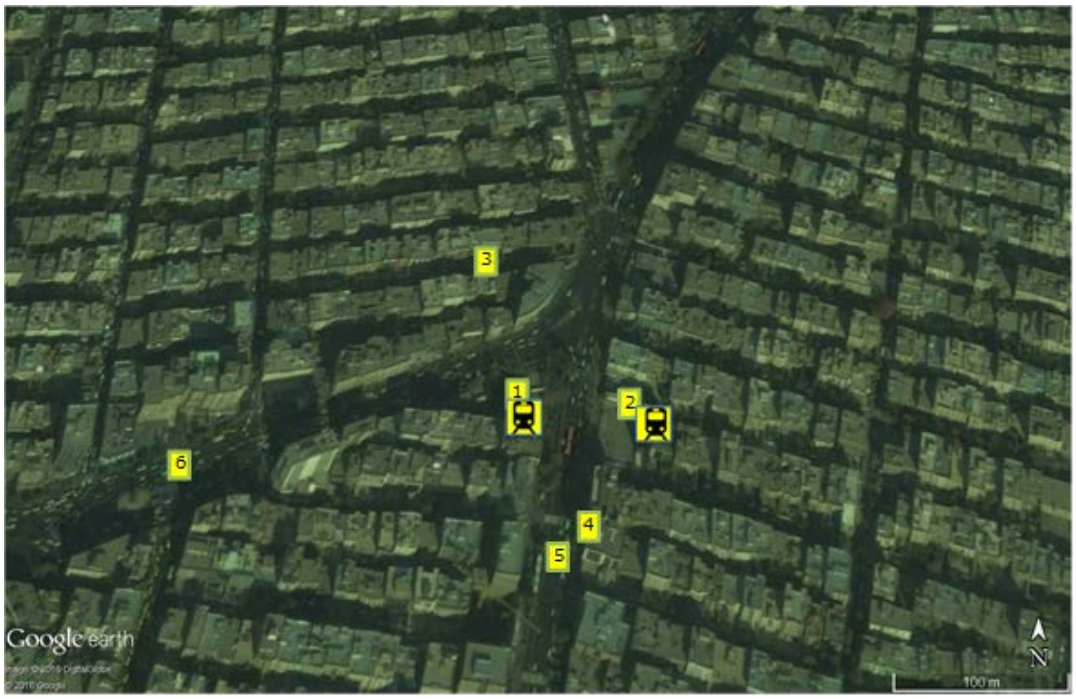
A/B/C: Open new entrances at each corner to minimize the need to cross the street. In terms of priority, A is first, followed by B (see Figure 5-5).

B: Implement a barrier-free (normalization) design for hospitals users.

D: Improve pedestrian accessibility for hospital users.

E: If possible, push back the area and develop a taxi bay at the corner.

5.1.4 Meydane e Shohada (Fatemi Sq.) Station on Metro Line 3



Source: JICA Study Team

Figure 5-7 Meydane e Shohada Station on Tehran Metro Line 3 – Current Situation

Meydane e Shohada Station on Tehran Metro Line 3; in the shopping district

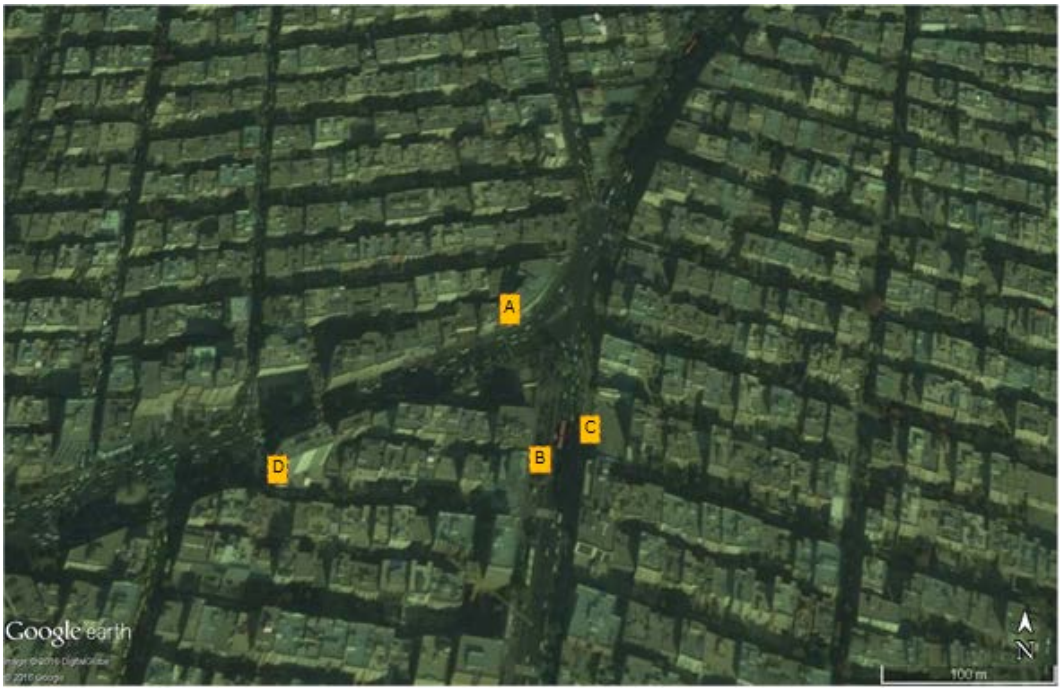
1: The metro station is located at the 3-leg intersection, with two entrances. In Figure 5-6 above, 1 indicates the location of the main entrance, which has up and down escalators.

2: Other entrance has no escalator.

3: The passengers in this district cannot access the metro entrance without crossing the busy street. In 2017, a pedestrian bridge was developed, connecting 3 (see above figure) with the main station's entrance.

4/5: The bus stops of BRT Line 7 are located along Vali-e-asr Street, forcing passengers to walk 50 m from the station. Meydane e Shohada station is the transit point for Metro Line 3 and BRT Line 7.

6: Fatemi Square. Another area for taxi services is located here, but there is no proper approach for pedestrians.



Source: JICA Study Team

Figure 5-8 Reorganization of Tehran Metro Line 3 Meydane e Shohada Station in Consideration of TOD

A: Open another entrance to improve the accessibility to metro services rather than the bridge for pedestrians that was developed.

B/C: Integrate the BRT and metro. Improved information exchange as well as physical integration can be expected.

D: Improve the pedestrian approach to Fatemi Square for taxi users.

5.1.5 Vard Avard Station on Metro Line 5

Source: JICA Study Team

Figure 5-9 Vard Avard Station on Tehran Metro Line 5 – Current Situation

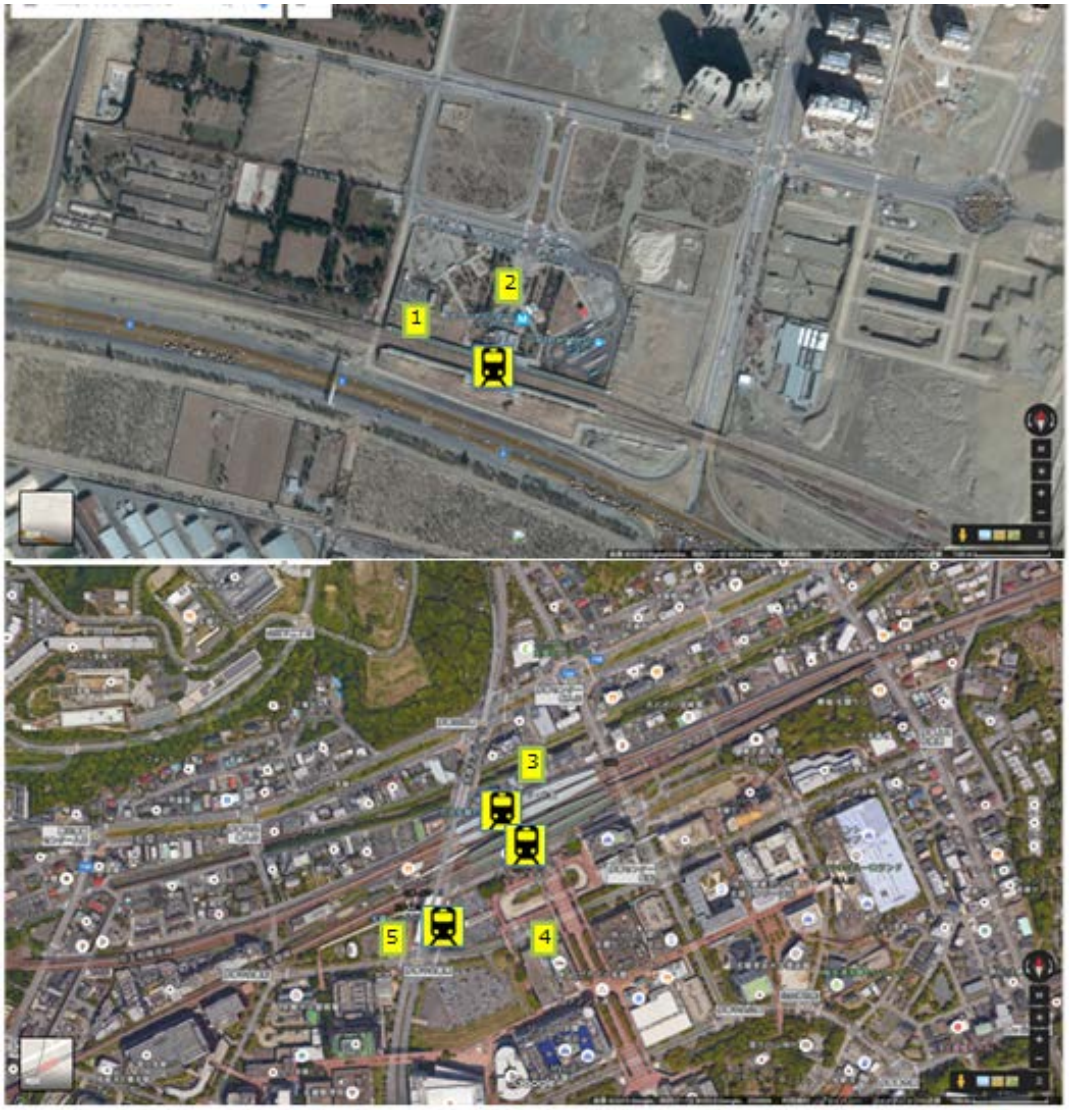
Vard Avard Station on Tehran Metro Line 5; Typical suburban station

1: The metro station is located near the Karaj freeway and is affected by the freeway demand.

2: Property development has not been started yet in the accessible areas from the metro station.

3: New town development can be seen along the main corridor from the accessible areas to the Karaj freeway.

4: Another freeway is located nearby, which is attracting more development.



Source: JICA Study Team

Figure 5-10 Vard Avard Station on Tehran Metro Line 5 – TOD approach (Above) and Comparison with Tama Center Station in Tokyo, Japan (Below)

Possible improvements to the Vard Avard Station of Tehran Metro Line 5 with TOD approaches is described below. In addition, the station is compared with the Keio Line Tama Center Station, located in the suburbs of Tokyo in Japan, which has similar characteristics to the Vard Avard Station.

1: The open space in front of the station has already been developed, but the development of the area within accessible distance from the station has not made much progress.

2: Vehicle accessways are surrounding the open space in front of the station, and therefore the sidewalk lacks continuity.

3: Development of the residential area can be seen in both sides of the Tama Center Station, which is not seen in the Vard Avard Station and other suburban stations of Line 5.

4: Sidewalk continuity is seen.

5: A monorail line was developed for a broad feeder service, not relying on motorized transport such as taxis/buses.

5.2 Candidate Sites in the Suburbs (Parand New Town)

In this section, the TOD approach for the railway development in Parand is considered as one of the approaches for the implementation of TOD in the suburban regions of Tehran.

5.2.1 Possibility of Implementation of TOD in Parand

Source: JICA Study Team

Figure 5-11 Parand Housing Development and Its Rail Services

Parand is located 35 km away from the border of Tehran, 50 km away from the center of Tehran, and 55 km away in railway distance to the Tehran Station. The railway station for commuter services is located at the very edge of the city entrance, which forces passengers to access the station by other transport modes and does not attract pedestrians. The RAI rail infrastructure is operated by a single track to Tehran. The size of the housing development is about 25 sq. km in total.

There are 7 districts, phases 0 to 6, in the City of Parand. Phases 0 to 4 are developed by Iranian developers, providing residents with 1- to 5-story housing for the middle class. The development started in 2010 and the communities seem to be well-structured already. On the other hand, phases 5-6 (the area indicated by red in the above figure) are being developed by the Turkish contractor KUZU, providing 10- to 15-story apartments that are affordable to low income residents. These

apartments are expected to accommodate 300,000-500,000 people, but the districts are far from the railway station.

5.2.2 Reference: Tama New Town as TOD in Tokyo, Japan

Source: JICA Study Team

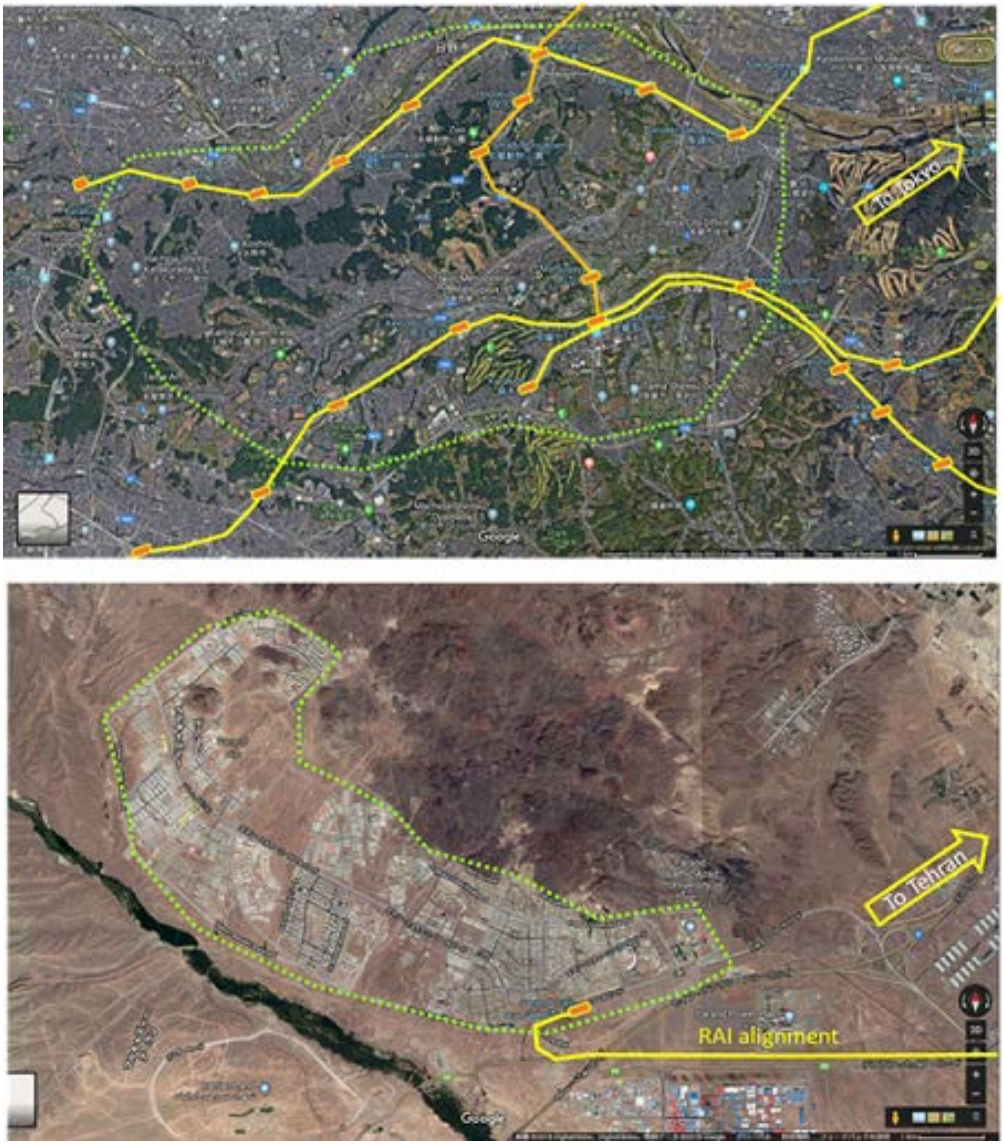
Figure 5-12 Tama New Town in Tokyo, Japan

The Tama New Town (Tama NT) is the largest housing and new town development undertaken in the suburbs of Tokyo. The area is 35 km away from the center of Tokyo, with 22.5 sq. km development area in total, as shown in the green dotted line in the figure above. It was initiated and implemented during the 1960s to '80s to accommodate the growing population in the suburbs of Tokyo and succeeded to create new housing capacities. The Tama NT development concept had incorporated TOD aspects.

The major rail-based transport services for the commuters to the center of Tokyo are connected by the two urban heavy rail services with double track rails, as shown in the yellow lines in the figure above. The new railway access from the area to the center of Tokyo was operated within 30 to 40 minutes in the 1970s. Since the 1990s, the monorail services, shown in orange, have been added to the network as an internal network within the Tama NT. In the 1970s to '80s, the people fully relied on road-based transport for the movement within the area and suffered from road congestions due to the increase in the number of private cars. The elevated monorail lines constructed in the median of the roads gave additional capacity to the roads and provided smooth transport services for the residents.

The housing development was initiated by public entities (the Urban Housing Public Corporation of Japan), Tokyo Metropolitan Government, and the local government. The railway development was coordinated by private railway companies (Odakyu Corporation and Keio Railway Corporation). The public entities invested in the infrastructure and housing, based on the expected gains from land value. The railway companies were provided with tax incentives for their railway investments. The Monorail was developed with the assistance of the road development fund.

5.2.3 Comparison: Parand and Tama New Town



Source: JICA Study Team

Figure 5-13 Comparison of Tama NT and Parand in Rail-based TOD Aspects

The figure above shows the comparison of Parand and Tama NT in the same scale. The rail network is also shown in the map. The magnitude of the development of the residential area (shaped in green dotted lines) are similar for both (20-25 sq. km).

This comparison could suggest the following:

- For Parand, the rail network service can be directly connected to the residential area to improve the accessibility in the districts with higher population density, as conducted in Tama NT.
- For Parand, multiple rail connections to Tehran can be developed, not only with RAI but also with other suppliers.
- For Parand, internal feeder rail services including LRT or Monorail can also be developed.

5.2.4 Possible Proposals for Parand

Source: JICA Study Team

Figure 5-14 Proposal of Potential Feeder Service in Parand

The potential proposals for Parand are summarized as follows:

- Double tracking to Tehran: the present RAI single track could be doubled and electrified to cover further demand from the corridors to Tehran.
- Extension of the rail lines within the City of Parand (as an example, the yellow line and several stations shown in the figure above): The railway can be extended within the city districts to catch the urban population. New stations should be located at the center of community of each district to maximize the catchment area.
- Elevated LRT for feeder services (as an example, the orange line in the figure above): Monorail/AGT/LRT services could be proposed to cover the area with high population density.
- Feeder services by buses and taxis could be provided within the city districts.

5.2.5 Proposed Open Access Policy for Suburban Railway Services

(1) Need for an Integrated Development of Suburban Railway Services

As mentioned earlier, there are overlapping plans for the development of the suburban railway services along Tehran–Eslamshahr–Parand. These include the extension of Metro Line 3, Express Line 4 proposed in the 2013 Tehran transport masterplan, and the suburban services currently provided by RAI.

In the implementation of Line 3 extension, Tehran Metro is considering the development of a new alignment. However, there are difficulties in land acquisition, as similarly experienced in the Metro Line 1 extension. On the other hand, RAI owns the land for the right-of-way and tracks of the existing line that runs between the Tehran Central station and the major cities along the line including Eslamshahr and Parand, and it can provide the existing local residents with access to railway services. However, although RAI and Raja have experiences in intercity rail operation, they do not have much experience in the urban transport services. For example, its current

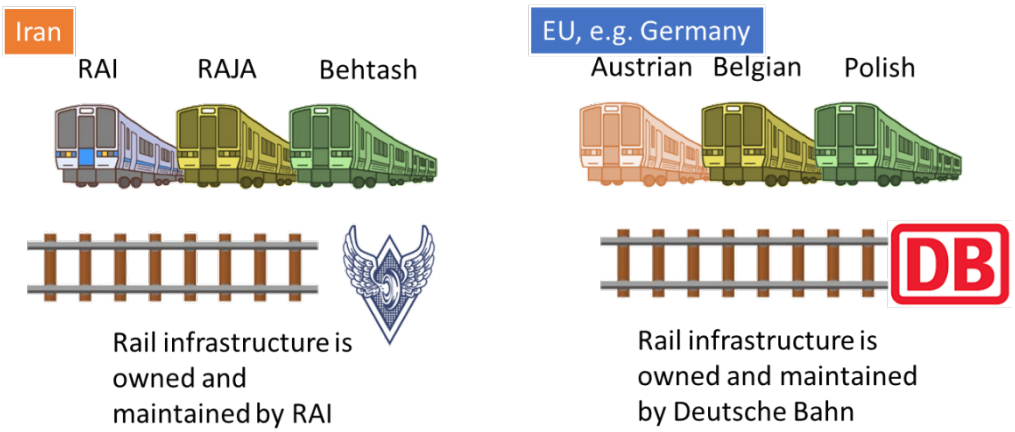
operation of suburban rail services is much less frequent than that of Metro Line 5, a suburban railway line operated by Tehran Metro.

The Study Team recommends the integration of railway development with the implementation of the open access policy described below.

(2) Open Access Scheme of Railway Operation

The open access scheme is commonly incorporated in the intercity rail operation among the EU countries as well as in Iran. The ownership of the railway is maintained by the National Railway company and the operation of the railway services is undertaken by several operating companies, private or public. The operators pay the access fee to the owner of the railway infrastructure.

In Iran, the railway infrastructure is owned by RAI, and RAI, Raja, Behtash, etc. have access to the rail and can operate their passenger railcars and freight services. In Germany, the Deutsche Bahn (DB, German National Railway Corporation) owns the railway infrastructure, and several companies of surrounding countries have access to the DB railway network. In order to allow access to the network by foreign train operators, it is essential to standardize the railway technologies, including signaling, communication, and specification of track and safety requirements. This open access scheme would improve the intercity railway services, attract intercity passengers that travel in private cars, and decrease the consumption of fossil fuel in the EU market. Therefore, the EU made large investments in the standardization of signals and train communication since the 1990s. Also, the open access scheme can attract decent train service operators to enhance the quality of services, and the owner of railway infrastructure can focus its resource in the maintenance of the infrastructure.



Source: JICA Study Team

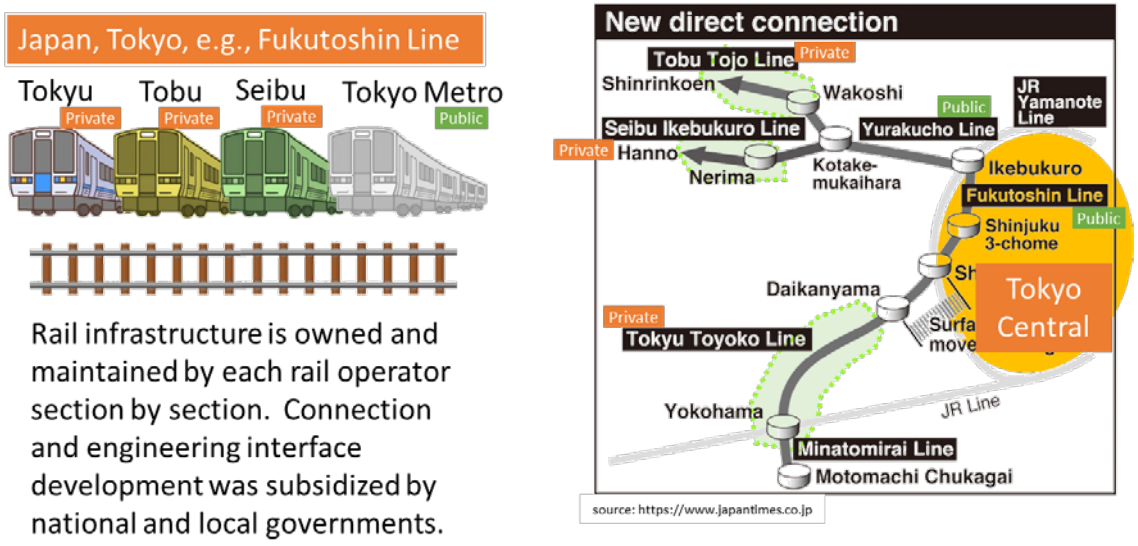
Figure 5-15 Open Access Scheme

(3) Open Access Scheme for Metro and Suburban Railway Services in Japan

Tokyo's urban railways, operated by several private suburban railway companies as well as public metro companies, have unique market characteristics; in particular, these companies apply the open access scheme for the operation of the metro and suburban railways.

An example is the Fukutoshin Line. This Line was constructed as the 13th Tokyo Metro Line (public company) in the central area of Tokyo, connected to three other private suburban railways, i.e., Tokyu, Tobu, and Seibu railways. The Fukutoshin Line applies the open access policy to allow the access and operation of those three lines. The passengers are not required to transfer at the terminal stations, and the train operators have been able to expand their catchment areas.

Moreover, the transport planners in the government have been able to realize region-wide services with minimum investment. It should be noted that the connection of railway infrastructure and engineering interface, including signaling standardization, has been subsidized by the National and Local governments.



Source: JICA Study Team

Figure 5-16 Open Access Scheme Applied in Tokyo Metro and Suburban Railways

(4) Application of the Open Access Scheme to Eslamshahr–Parand Line

The Study Team proposes the following action plans for the implementation of railway services in the Tehran–Eslamshahr–Parand Corridor.

- Application of the open access policy to RAI's Eslamshahr–Parand right of way, allowing access of Line 3 extension and Express Line 4.
- Careful assessment of the engineering policy of track opening. There are two options for open access: i) open the right of way, and accept the individual new track construction owned by Tehran Metro, or ii) open the railway access, and improve RAI's railway track to be compatible to Tehran Metro Line 3.
- If option ii) is applied, electrification of the RAI rail is required to accommodate Metro Line 3, as well as connection, double tracking, and signalization[1]. The additional investment can be subsidized by the national and local governments as it is expected to reduce fuel consumption and contribute to the decrease in fossil fuel subsidies.
- Extension of Metro Line 3 with minimum expenditure for the land acquisition by Tehran Metro: Tehran Metro shall make the lease payment to RAI in accordance with the use of infrastructure. Moreover, with RAI's alignment running close to the existing urbanized areas, Tehran Metro can increase the number of passengers without any feeder services.
- Continuation of rail operation by RAI and Raja. Passengers along the alignment should be able to directly access the stations of Metro Line 3 and Tehran Central Station.

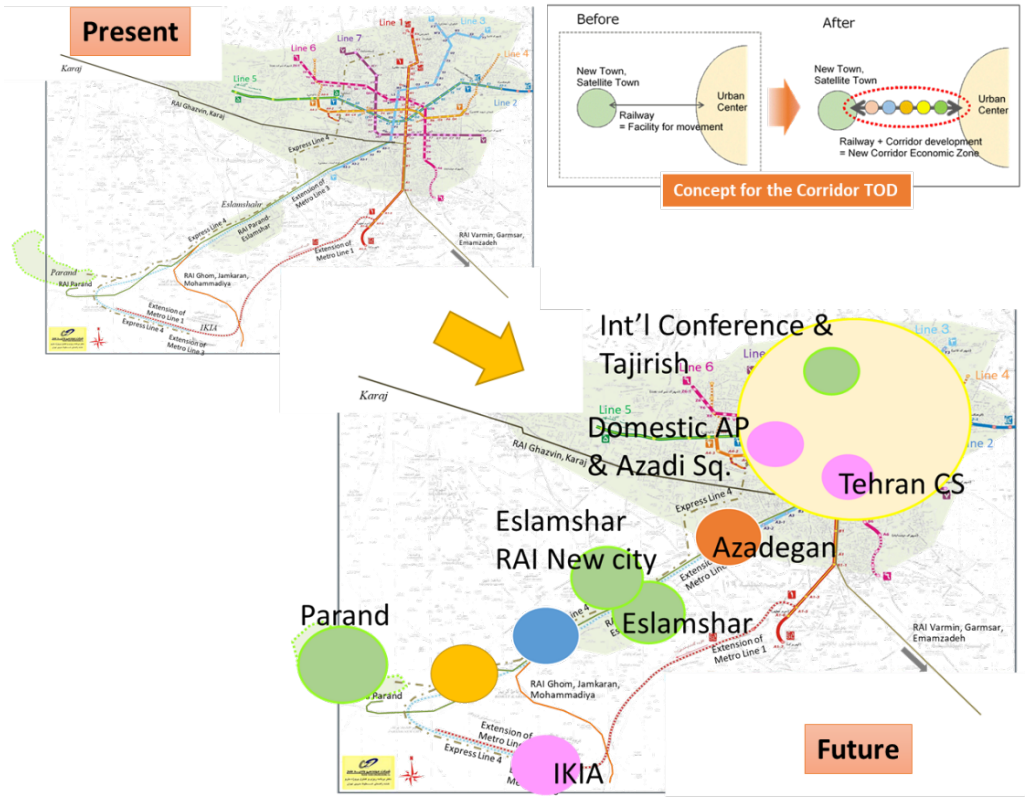
[1] It should be noted that there are disadvantages of the integrated operation. For example, it may induce larger system failure in the railway network when any failure of one rail company happened along the shared track sections with other rail companies.

- Consideration of the technical standards of the railway to accommodate Express Line 4 in the future. Express Line service standards shall be formulated and should be compatible to the future standards of Metro Line 5 and the other Express Lines.
- Development targeting RAI's vacant lands along the corridors for further TOD development. RAI would be able to recover the increase in land value, which then should be used for its network improvement.
- Development of qualified housing and urban functions in the suburbs by urban planners in the government, to absorb the informal settlements with efficient transport accessibility.
- Realization of the Metro Line 3 extension and the Express Line 4 functions by the Tehran Municipality and development of effective settlements in the suburbs to absorb the saturated population, particularly in the southern area. This will be consistent concept of the Corridor Level TOD, presented in the Section 4.2.2.

5.2.6 TOD in the Eslamshahr - Parand Corridor

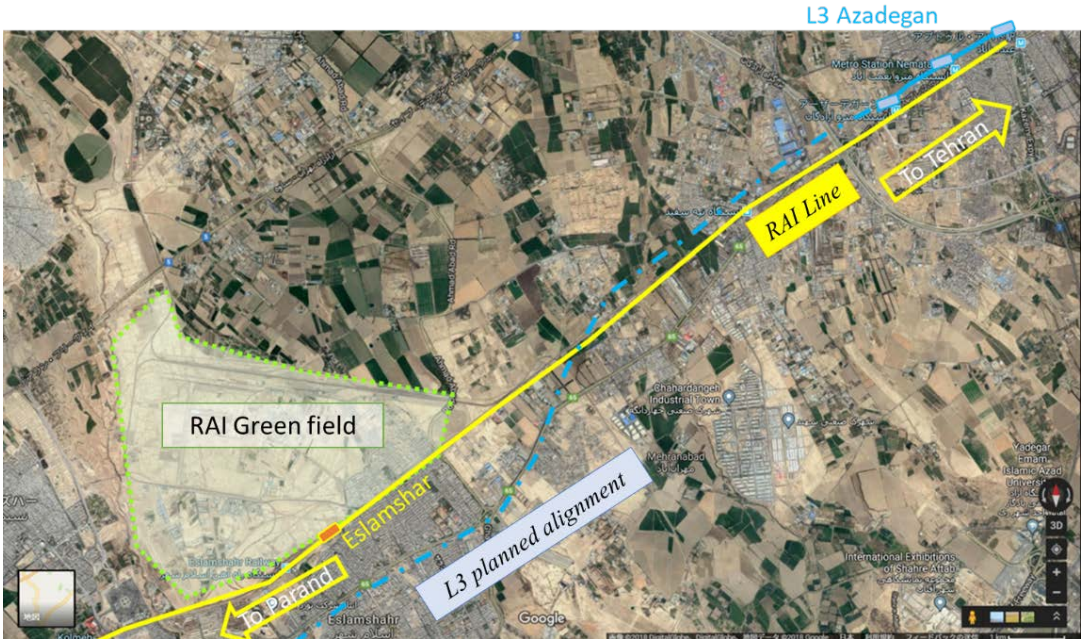
As previously discussed, the actual case study based on the open access scheme is proposed to realize the corridor development with TOD approaches along the Eslamshahr - Parand Corridor, which has a large gap in the demand and supply as well as growth potential due to its proximity to the international and domestic airports. The concept is depicted in Figure 5-17.

The base of this concept is attributed to the land owned by RAI close to the Eslamshahr. The value capturing approach can be applied to this land, to recover the railway infrastructure investment, which can justify the investment by RAI. Moreover, the overlapped railway plans among RAI, Tehran Metro, and NTDC can be integrated to minimize the total investment. The location of RAI's land and planned alignment of the Metro Line 3 extension are depicted in the Figure 5-18.



Source: JICA Study Team

Figure 5-17 Application of Corridor TOD concept to the Parand Corridor

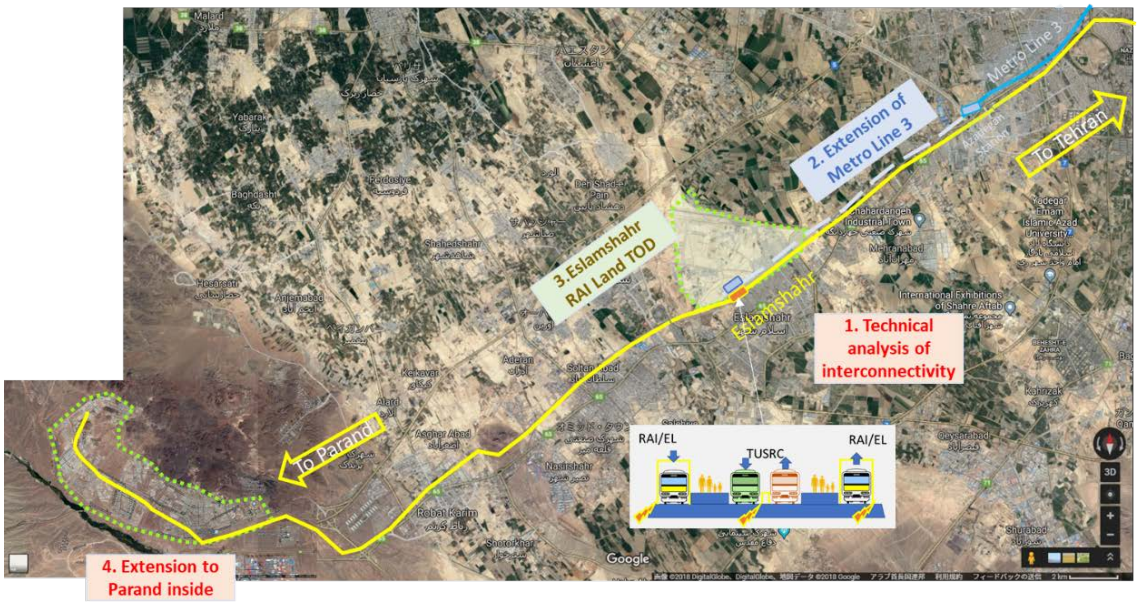


Source: JICA Study Team
Note: The shape and location of the RAI owned land is not accurate.

Figure 5-18 RAI's Green Field and Alignment overlapping the Tehran Metro Line 3 Extension

(1) Phase 1: Initial Approaches

The first phase would consist of four projects as follows:



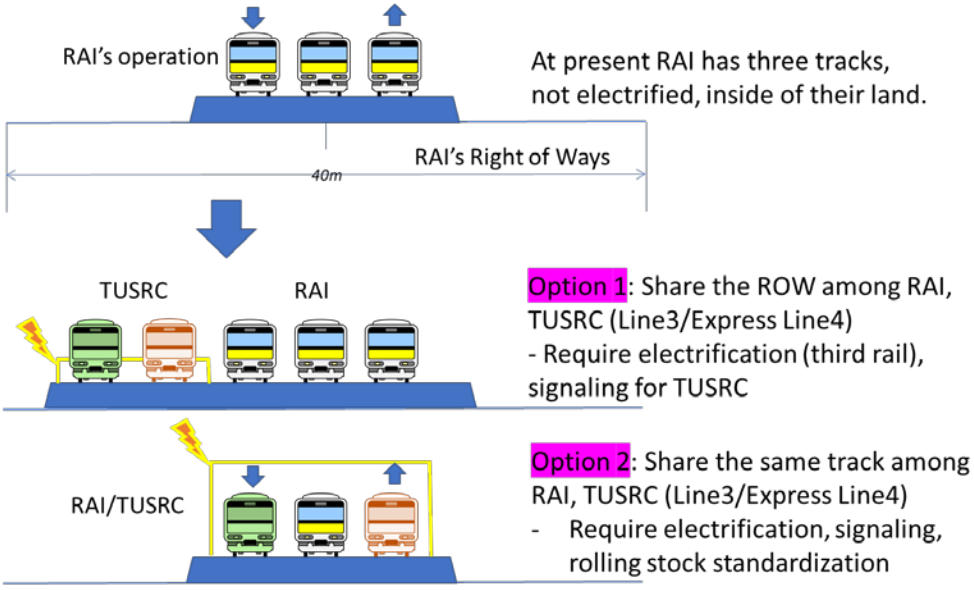
Source: JICA Study Team

Figure 5-19 Phase 1 for Eslamshahr - Parand Corridor TOD

1. Technical analysis and planning of interconnectivity

This study will include the following analysis and technical planning:

- Analysis on the engineering policy of track development and consensus building among stakeholders: i) make only the right of way available and accept the construction of new tracks by Tehran Metro, or ii) open the railway access and improve railway tracks owned by RAI to be compatible with Tehran Metro Line 3. (Figure 5-20)



Source: JICA Study Team

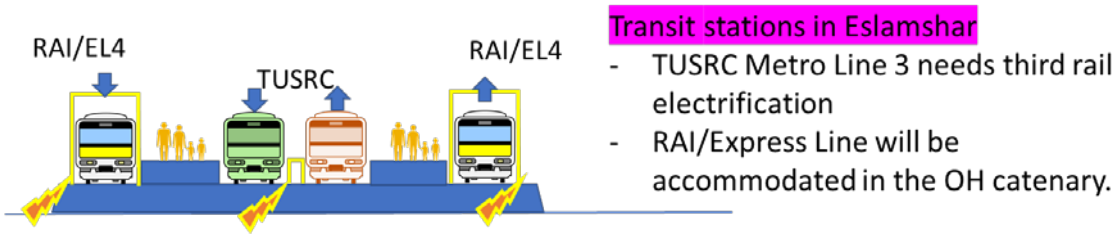
Figure 5-20 Phase 1 for Eslamshahr- Parand Corridor

- Designing of the double track
- Preparation of the technical standards including the following:
  - If option i) is applied, the technical standards of Tehran Metro Line 3 shall be applied.
  - Conceptual designing of the transferring station which will accommodate Line 3 and RAI's commuter rail transfer at the same platform.
  - If option ii) is applied, electrification of the RAI rail is required in order to accommodate Metro Line 3, as well as connection, double tracking, and signalization.
  - The technical methodology to extend Metro Line 3 at the Azadegan Station needs to be considered.
  - In the future, the new technical standard should be considered to realize the interconnectivity of Express Line 4 on the same track.
- Formulation of an operation plan of Line 3 and RAI's commuter services.
- Analysis of economic and financial feasibility.
- Preparation of the plan for long term and phased extension.

2. Extension of Metro Line 3

The construction of Metro Line 3 has been completed up to the underground Azadegan Station at the edge of the Tehran municipality. As proposed in the initial phase, the Study Team proposes the realization of metro service extension up to Eslamshahr Station with electrified double track. The project shall also include the implementation of the new extended section.

- One of the stations between Azadegan Station and Eslamshahr Station can be designed to accommodate the transfer function between the Commuter Rail and Metro Line 3. The station should have 2 island-type platforms to accommodate the two lines (Figure 5-21). The metro lines shall be separated at the northern side and connected to the subgrade sections leading to the Azadegan Station. The RAI lines shall be operated at the surface level to the Tehran Central Station.
- Designing and implementation of the extended section.



Source: JICA Study Team

Figure 5-21 Concept for Transit Station in Eslamshar

3. TOD in land owned by RAI in Eslamshahr

RAI owns a large unused land connected to the northern side of the railway tracks. An urban development plan to connect the RAI commuter rail service and Metro Line 3 and improve accessibility shall be formulated and implemented. The plan should include the following:

- Possibility of the usage of the existing RAI rail track in the vacant land for feeder service to the TOD development area.
- Designing of the institutional mechanism to capture land value.
- Preparation of the detailed plans for land use, transportation, infrastructure, etc.
- Invitation of private contractors for development of urban infrastructure and housing.
- Designing of the urban service operation plan

4. Extension of the Parand Internal Rail

The extension of the rail infrastructure in the Parand district proposed in the Section 5.2.4. shall be implemented in the first phase.

(2) Phase 2: Further Expansion

The second phase would consist of four projects:

Source: JICA Study Team

Figure 5-22 Phase 2 for Eslamshahr- Parand Corridor TOD

5. Extension of Metro Line 3 up to IKIA and Parand

Metro Line 3 operation can be extended to the IKIA and/or Parand if its feasibility is confirmed. This extension can be altered by the Express line 4 service or RAI commuter services.

6. Development of Express Line 4

Express Line 4 shall be branched out at certain locations between Azadegan station and Eslamshahr station, connecting to the domestic airport and the International Convention Center. The alignment should be planned to be properly integrated with Metro Line 3 and RAI commuter services.

7. TOD in Azadi Square Bus Terminal

The Express Line 4 is planned to pass the Azadi square bus terminal, in which a TOD potential has been suggested in the section 5.1.2. The development plan of the station for the express line 4 at the Azadi square bus terminal can be formulated and integrated with urban subcenter function redevelopment of the Tehran itself, as a case of regional TOD shown in the chapter 4 to realize the multi core urban structure.

8. Feeder Transport Services Development in Parand

Proposed as the section 5.2.4, the feeder transport services in Parand can be developed if it is feasible. Due to the steepness terrain in Parand, a transport mode with rubber-tire can be considered rather than steel-wheel basis transport.

6. TOD Promotion in Iran and Activities in Qazvin

6.1 TOD Target City Designation

The city of Qazvin is recognized for having advanced approaches to TOD implementation. MRUD has issued a letter for TOD promotion, and PBO and MRMO have issued a letter approving the budget for the TOD study in Qazvin.

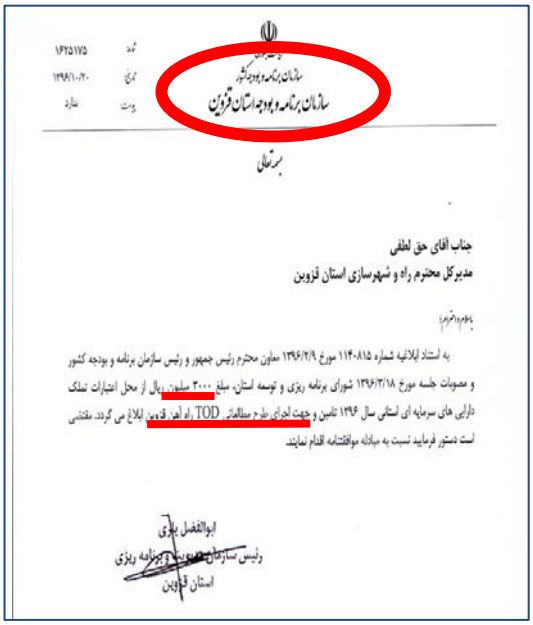
جناب آقای دکتر آخوندی
مقام عالی وزارت راه و شهرسازی

با سلام

احتراماً توسعه مبتنی بر حمل و نقل عمومی یکی از تکامل یافته ترین دیدگاههای توسعه شهری است که بر ارتباط متقابل حمل و نقل عمومی و توسعه شهری تاکید دارد. این رویکرد از ویژگیهایی چون ارتقای کیفیت طراحی محله ای- افزایش کاربری های مختلط- گسترش تعاملات اجتماعی- کاهش استفاده از اتومبیل و گسترش روشهای جابجایی سازگار با حمل و نقل عمومی مانند دوچرخه و پیاده روی است.

در جنوب شهر قزوین مرکز راه آهن می تواند محلی برای اجرای این امر و به عنوان یک تقسیم کننده راه های ریلی باشد. با توجه به دو خطه شدن محور تهران - قزوین و افتتاح راه آهن قزوین به رشت در آینده نزدیک پیشنهاد می شود مرکز راه آهن قزوین همزمان بازآفرینی شده و از این فرصت استفاده نموده و محله مذکور که جزء محلات هدف بازآفرینی است به یک نقطه توقف و استفاده مسافرین و گردشگران تبدیل شود و همچنین با عنایت به مطالعات جامع حمل و نقل و ترافیک شهر قزوین و در نظر گرفتن BRT به عنوان مد اصلی حمل و نقل عمومی شهر قزوین و با توجه به مفهوم TOD می توان ایستگاه دیگری را در سبزه میدان پیاده سازی نمود.

استدعا دارد در این خصوص دستورات لازم را مبذول فرمائید./



سازمان برنامه و بودجه استان قزوین

جناب آقای حق لطفی
مدیرکل محترم راه و شهرسازی استان قزوین

ابوالفضل یاوری
رئیس سازمان برنامه و بودجه
استان قزوین

Letter from Qazvin Provincial MRUD office to MRUD minister, requesting TOD promotion in Qazvin. Showing the importance of integration of transport planning with city heritage conservation, importance of BRT installation, etc. The Secretaries of the MRUD substantiated the letter to approve the promotional activities of

Letter of Qazvin Provincial PBO office to the Qazvin Provincial MRMO, approving the 3000 million Rial (approx. 80 thousand USD) for the promotional study of TOD in Qazvin, dated May 2017

Source: City of Qazvin

Figure 6-1 TOD Promotion Approvals by National Agencies for Qazvin

The Study Team has visited Qazvin to observe the state of the practice of TOD in Qazvin.

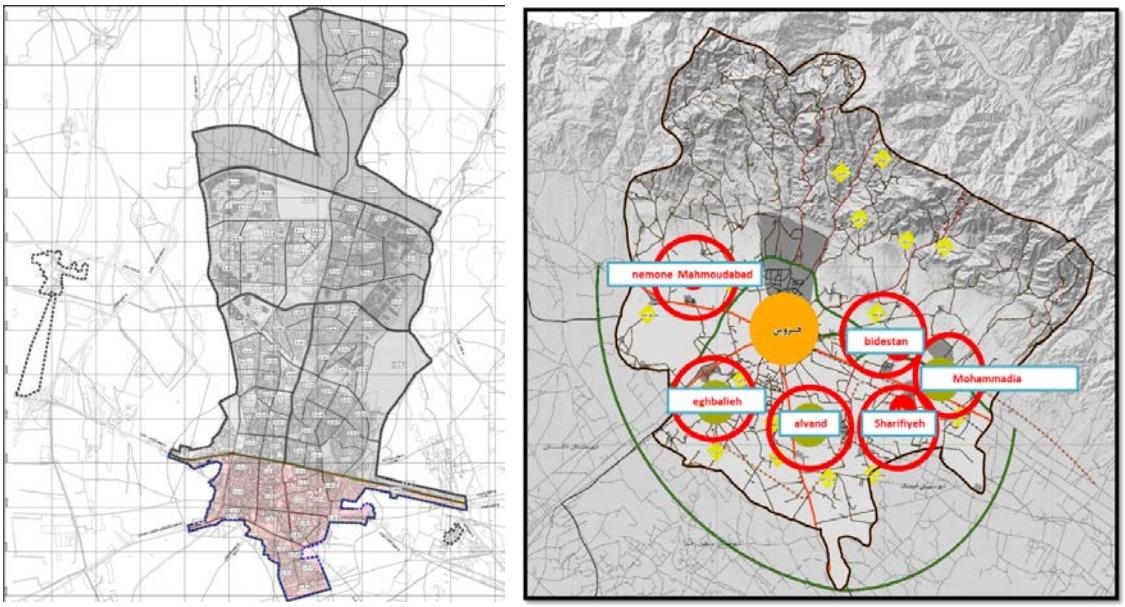
6.2 State of the Practice of TOD in Qazvin

(1) Outline of the Qazvin City

The City of Qazvin is located 160 km west of Tehran, at the intersection of corridors connecting Tehran to Tabriz, and Zanjān and Tehran to the Caspian Sea. It is the capital of the Qazvin province.

The population of the city is around 300 thousand; however, the population of the whole metropolitan area including surrounding industrial and residential cities is approximately 1.30 million. The city has Alborz Industrial Zone, which was developed and opened in 1968 as the first industrial zone in Iran. The city boasts 12 universities and colleges with 130 thousand students.

Being the old capital of Iran in the 16th century, Qazvin has a rich history and maintains various cultural heritages and archeological sites within its boundaries. Its urban functions are well-organized and concentrated in the center. Urban sprawl has been controlled by the historical green-belt in the southern end of the city.

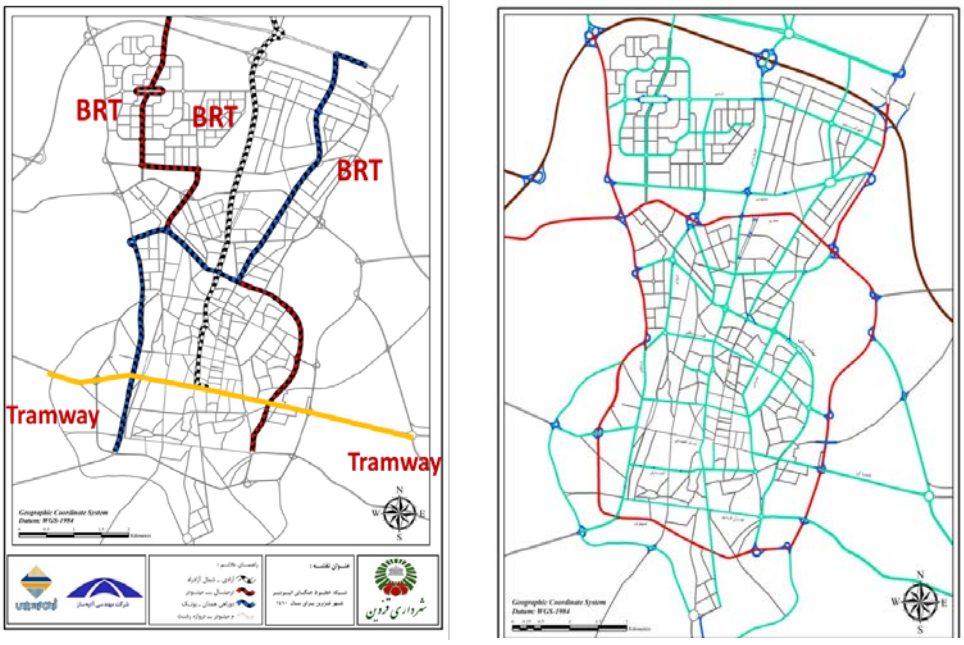


Source: City of Qazvin

Figure 6-2 Urban Planning of Qazvin and Its Metropolitan

(2) Transport Masterplan in 2014 and TOD Promotion

Qazvin city developed its transport masterplan in 2014 and prepared an investment plan to develop the railway, LRT, BRT and road network including the ring road, as shown below.



Source: City of Qazvin

Figure 6-3 Public Transport and Road Network Proposals in the Masterplan 2014

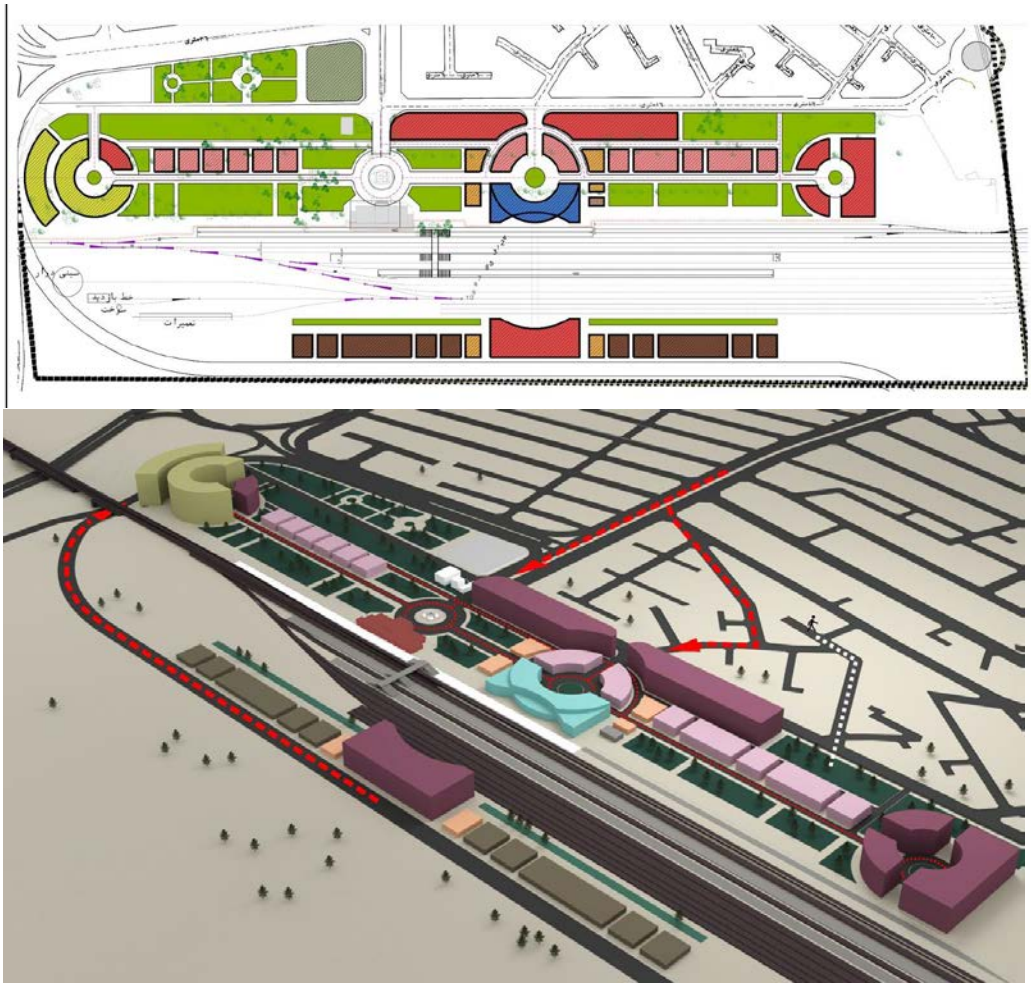
The urbanization of Qazvin is expanding to the north. The three lines of BRT were proposed extending to the north and south, and the tram line was proposed to cross the southern side of the city, where the population density is relatively higher and the road density is lower than the northern side. The three BRT lines cross each other in the northern side of the city and connect the large universities in the north. The masterplan and the BRT and LRT lines have been approved by the high traffic council, and it is planned that the BRT lines shall be developed from 2018 to 2020. The LRT development is targeting the opening by 2025. French private groups including Alstom have shown interest in LRT development in Qazvin. At the same time, the ring road development and city arterial road network development have been proposed in the masterplan.

The LRT lines are proposed in the masterplan to be extended to the surrounding cities including the Alborz Industrial City and Hashtgerd New Town, which have populations of 150 to 200 thousand.

Qazvin city administration is open to implementing advanced and integrated approaches for TOD promotion. TOD promotion in Qazvin was initiated in 2015 by the leadership of the Governor of the Qazvin Provincial Government and the Parliament Member of Qazvin. They confirmed that the Transport Masterplan already contains essences of TOD promotion in Qazvin, and that necessity of TOD should be incorporated into it. A committee for TOD promotion in Qazvin was organized in 2016, including the provincial offices of PBO, MRUD, MRMO, RAI, and municipality of Qazvin. 6 coordination meetings were held by March 2018, 18 items related to TOD, including promotional activities targeting the National Government.

The TOD planning study for Qazvin is on-going and being undertaken by RAI with assistance of a local subcontractor. The major proposals of the TOD plan can be summarized as follows:

- Development plan of RAI Qazvin station and surroundings
- Evaluation of current land use, urban function, architecture, public space and social economic infrastructure
- Passengers of the RAI rail services and its analysis
- Evaluation of the pedestrian network and pedestrian traffic volume
- Proposals for necessary infrastructure, street development, amenity improvement
- Multi modal connectivity improvement at the station.
- Proposals for the permanent car-free street development, and the transit mall development



Source: City of Qazvin

Figure 6-4 Qazvin RAI Station and TOD plan – Current Proposal

6.3 Qazvin for TOD Pilot Project

The state of practice of TOD trials in Qazvin can be reviewed as follows:

- Institutionally, organizations related to MRUD, responsible for urban planning and intercity transport, and organizations related to MOI and MRMO, responsible for urban transport, jointly develop the TOD planning. Moreover, PBO has authorized the budget for the initial TOD planning.
- The TOD concept in Iran is applicable not only to large cities and surrounding cities of the mega cities, but also medium and small cities with population of less than 1 million. Qazvin is the top runner of the TOD application of the medium and small class cities.
- The present TOD plan is prepared for the districts adjacent to the RAI Qazvin station; however, the plan itself does not seem attractive as the passenger volume of the RAI rail services are small. On the other hand, further TOD approaches can be considered in the central districts of the Qazvin, where several touristic and historical attractions and urban functions shall be connected with the BRT, LRT and permanent car-free streets in the near future. Moreover, public transport connectivity improvement with the suburban satellite cities can be essential to TOD in Qazvin.

- Considering above, it is reasonable to include the city of Qazvin and its surroundings to the TOD pilot project sites if JICA's further studies for Iranian TOD would be implemented.

The following aspects can be considered for the further TOD planning in Qazvin.

- Development of the pedestrian network, urban districts and urban function for cities with populations of 300 to 500 thousand.
- Inter-modal connection development between the RAI rail station and other transport modes.
- Inter-modal connection development between taxis and buses.
- TOD development connecting satellite cities, and public transport service development without depending on private car usage.
- Railway network development utilizing the existing RAI rail network to the Metropolitan region.

7. Issues and Recommendations on TOD in Iran

7.1 Issues on TOD in Iran

The issues related to TOD in Iran are summarized as below:

- TOD is a new concept in Iran; therefore, policy tools to promote it at the national level, such as guidelines, are needed.
- In the suburbs of major cities, housing development has been progressing including new towns promoted by the public sector; however, public transportation systems which are expected to support the residents of those suburbs have not sufficiently been developed. In particular, the development of a suburban railway connecting the city center and the suburbs is delayed.
- At the metro stations in the Tehran Metropolitan Area, it is inconvenient to connect with other transport modes such as the bus, BRT, and taxi. In addition, the number of entrances and exits is limited at many metro stations, and the pedestrian network to major facilities around the station is not adequately developed.
- To promote TOD, a comprehensive approach is necessary. However, sectional divisions in the authorities at the central and local level administrations, including between urban planning and traffic planning departments, is hindering the planning and implementation of TOD.
- For TOD promotion, close cooperation between the public and private sectors is necessary. However, laws and regulations to implement TOD related projects through cooperation of the public and private sectors have yet to be established.

7.2 Recommendations for Promoting TOD in Iran

(1) Formulation of a Practical TOD Guideline

In order to promote TOD in all levels in the country in the future, the TOD guidelines currently under formulation in Iran need to be developed based on the actual situation and challenges of its cities. As explained in Chapter 4, these guidelines broadly organize the TOD concept and describe such matters as the basic role of TOD stakeholders and the direction of measures grounded on Iran's planning system. These guidelines are believed to be beneficial for Iran, where the concept of TOD is not necessarily shared. However, the content of the guidelines is limited to basic concepts and directions. In order to actually advance TOD-related projects in Iran, practical guidelines that set forth detailed methodologies giving due consideration to the real conditions of Iran's cities are needed.

The proposed TOD guidelines discussed in Chapter 4 of this report set forth methodologies to advance TOD by three levels: regional level, corridor level, and station level, which were outlined in the guidelines currently under formulation in Iran. Based on this proposal, it is hoped that practical TOD guidelines that can be applied in Iran will be prepared.

(2) Elaborating on the TOD Guideline through a Pilot Project

In order to add detail to the abovementioned practical TOD guidelines, it would be necessary to advance this task by applying the guidelines in an actual TOD-related pilot project. The actual implementation of specific development projects in the area around a station in a city in Iran, for instance, the construction of a station plaza, pedestrian network, and other facilities mentioned in the section on intermodal facilities in the station level guidelines of Chapter 4, would reveal many

matters that should be fed back to the guidelines. It is believed that the practical TOD guidelines can be elaborated through this process of applying the guidelines to a pilot project.

Chapter 5 of this report sets forth candidate locations for the pilot project in the urban center and suburbs of the Tehran Metropolitan Area. Qazvin City indicated in Chapter 6 could also be included as a candidate site, which is designated by the government of Iran (MRUD) as a city promoting TOD. In order to advance elaboration of the practical TOD guidelines, the implementation of TOD-related development projects in areas, including these candidate locations, and reflection in the guidelines of the lessons and methodologies gained through the pilot project should be an ongoing process.

(3) Establishment of Policy and Plan Formulation System to Promote TOD

In order to actually advance TOD-related projects using the TOD guidelines, other than formulating the abovementioned practical guidelines that outline detailed methodologies, it would also be necessary to build a system and organizational framework for its operation.

Chapter 4 of this report indicated the necessity of having local rules such as a TOD policy and plan, implementation plan and incentive policy formulated on the local metropolitan area level based on the TOD guidelines prepared on the central government level, as well as the importance of establishing an organizational framework such as a council to implement these local rules and, moreover, an area management organization to enhance the area's attraction and property value. As were the abovementioned TOD methodologies, these proposals were also studied based on the TOD experience and expertise of Japan and the world. In order to apply these proposals to Iran's cities, their contents need to be elaborated through the formulation of guidelines and relevant policies that consider Iran's actual situation, and through the implementation of a pilot project.

Through the interviews with the relevant departments of the city of Tehran in this study, it was revealed that coordination between urban and transportation planning has not been properly executed. That is, in formulating the city plan of Tehran (Comprehensive Urban Planning Master Plan and Detailed Plans), the process to reflect the transportation policies and plans, such as he traffic master plan, was not sufficiently secured. In order to promote TOD, it is necessary to integrate the planning process and to implement TOD related plans through close corporation between urban and transportation planning agencies. Breaking down this kind of sectional division in Iran is needed for TOD promotion.

(4) Establishment of a Framework for Public-private Partnership to Promote TOD

Currently almost no system exists in Iran for the public and private sectors to cooperate to implement projects related to TOD; however, in order to promote TOD, public and private sector cooperation at all levels is necessary. For example, urban development by private enterprises is necessary to make full use of the enhanced urban development potential and form a corridor economic zone through railway development by the public sector. Also, in order to make the station areas comfortable and convenient, it is necessary for the private sector to make some contributions such as development of business and commercial facilities and open and green spaces, by following the TOD guidelines as shown in Chapter 4. With regard to the metro entrance and exit in the city center, although there is a security problem, if private facilities and private land could be utilized including the underground space, the convenience of metro users would be greatly improved. Therefore, to promote TOD in Iran, it is necessary to urgently establish an institutional framework for public and private cooperation on TOD related projects.

(5) Integration with Rail and Transport Sector

As explained in Chapter 3, the level of service of the road transport and private vehicle utility are quite high in Tehran and the surrounding cities. Promotion of TOD will require further integration of public transport services including railway network development. The pilot projects mentioned above should cover the railway and transport sector as well as urban development. The followings can be suggested as necessary further actions.

- There is still institutional barrier to materialize consecutive railway network connecting railways in and outside of the city. It is necessary to overcome the institutional barrier by applying the concept of TOD.
- In particular, the integration of railway planning including the express lines and commuter rails should be properly considered, to avoid unnecessary investment.
- The mechanism of value capturing to recover the railway investment should be adopted.
- Regarding the private operator involvement in the railway market suggested in the five-year-development plan, it is necessary to clarify in which sector this is needed. Also, institutional arrangement of the public sector to arrange and promote such involvement is required.
- The importance of taxi in the market cannot be ignored in Iran. Creating a TOD specific to Iran's needs, including the role of taxi, will be necessary.
- The tariff and price of the transport services, particularly for the lower rate of the railway services, should be re-considered to promote foreign investment. The present low rate of the tariff cannot recover the investment without public subsidy.