

Data Collection Survey on Kamalapur Station Area Redevelopment



Final Report

March 2022

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- 2. Review of Related Plans and Current Status
- 3. Prerequisites for the Kamalapur Station Area Redevelopment, Development Issues, and Basic Concept
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- 7. Proposed Implementation Plan

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Introduction

Data Collection Survey on Kamalapur Station Area Redevelopment

1. Introduction Background and Objectives of the Survey

Background

The "Conceptual Proposal" of the Kamalapur Station Area Redevelopment prepared by SWG, which was led by a Private Company, is being developed.

 The conceptual Proposal was presented in the 3rd Bangladesh-Japan Joint PPP Platform Meeting on March 2019. Further progress was presented in the 4th Joint PPP Platform Meeting in March 2021, under the framework for the PPP projects established by PPPA and MLIT.

Since the Conceptual Proposal implies considerable public investment, in addition to private investment, **public interests** should be ensured along with any private interests.

- Past discussions for the Kamalapur Station Area Redevelopment, as a potential PPP project, were conducted by SWG (Kajima Co. as the Leading Company and OCG+NK as the Core Members).
- The JICA survey team (OCG+NK) will keep the continuity from prior discussions and maintain the relationships with the Bangladesh Government established by SWG.

Objectives of the Survey

The JICA survey supports BR (and the relevant organizations in Bangladesh) to ensure the feasibility of the Kamalapur Station Area Redevelopment from the viewpoint of "publicness".

To benefit public/ governmental organizations in Bangladesh, support private developers, and address remaining issues, the Conceptual Proposal by the SWG" are to be evaluated.

- Role-demarcation between the public and private sectors is clarified.
- Consensus building between the related organizations in Japan and Bangladesh is promoted

1. Introduction Basic Concept of Development Priorities (Proposed by SWG)

SWG presented the **Basic Concept of Development Priorities** and they have been shared by the relevant organizations in Bangladesh. **The Draft Concept of this JICA Survey is prepared based on the Basic Concept.**

Re-confirmation of Achievement Targets for Kamalapur MmTH = Expected Contributions



1 Solutions to Urban Challenges

(Congestions ⇒ Integration)

- an integrated and efficient program to conquer the urban challenges of Dhaka (e.g. traffic congestions, environmental burdens, separation of the east and west zones etc.)
- **2** Development of Dhaka as a "World Class City"
 - urban dignity of the capital and national gateway functions from social, cultural and commercial development perspectives
- **3** Economic Successes
 - = maximum cashflow for sustainable operation of the MmTH as the traffic and transport core

Source: KMmTH SWG

1. Introduction

How the JICA Survey will Contribute to Deepen the Conceptual Proposal

The JICA survey will provide supplemental information to the conceptual proposal by SWG

Referring the Visions of the Conceptual Proposal by SWG for a Integrated Multimodal Transport Hub;

- ✓ Issues are re-identified and the conceptual proposal is evaluated.
- Engineering and Planning issues, which have not been fully considered in the Conceptual Proposal, will be studied and proposed to promote the Kamalapur Station Area Redevelopment.

The JICA survey puts emphasis on "public" benefits and responsibilities.

- 1. A feasible sequence of implementation is studied by considering and/or solving the development issues, so that public responsibilities and burdens will be clarified.
- 2. Public Benefit has been considered by SWG, as one of the major outcomes of the Kamalapur Station Area Redevelopment. Continuously, Public Benefit will be re-evaluated.
- 3. Role-sharing between public and private sectors to include Necessary actions will be clarified.

The Final Report has been prepared based on information collected and discussions made by the JICA survey team, <u>as of December 2021</u>.

It is expected that the contents and proposals described in the Final Report are to be used for further discussion between BR/the relevant organisations in Bangladesh and SWG, to formulate Master Plan of Kamalapur Station Area Redevelopment and implementation plan.

1. Introduction Outputs of the Survey

The JICA survey clarifies:

- 1) Points which are needed for further discussions by providing the 2 different layout plans, and
- 2) Necessary actions for Bangladesh Government Organizations.

Output of the JICA Survey

- **"Draft Concept For Kamalapur Station Area Redevelopment",** based on Evaluation of the Conceptual Proposal
- Recommendation for
 "Organization Structure for Implementation",
- Recommendation for
 "Implementation Method",
- Recommendation for "Overall Implementation Plan"
- Proposal of "Draft Action Plan", which serves as the guidelines for the stakeholders

- Conceptual Plan of Railway Maintenance Facilities are proposed as it affects entire layout.
- **2 Layout Plans** prepared in order to provide **points** which are needed for further discussions between BR/relevant organizations in Bangladesh and SWG.
- Implementation Structure and Method are proposed. As the Kamalapur Station Area Redevelopment is a PPP project, it is to be finalized between BR and the major private developer.
- Necessary actions by relevant organization and timing are clarified for smooth implementation
- Especially it is important to clarify the actions which need to be taken by the Bangladesh public side in the first few years.







1. Introduction Previous Discussions for the JICA Survey

Interim Report Presentation

by the JICA Survey Team (September 9th, 2021)

- Participants: BR, RAJUK, DTCA, DMTCL, BRTC, DSCC, BBA, PPPA, and JICA.
- The development issues and prerequisite to formulate the Draft Concept of the JICA survey were confirmed.
- Major comments and actions were;
- ✓ DMTCL will provide the latest drawing of the MRT line 1 and 6.
- ✓ BBA mentioned that coordination is required for the Dhaka Elevated Expressway, and requested to reflect the latest information.
- DTCA requested to include the list of stakeholders as DTCA is the coordination authority regarding a transport facilities.

Progress Report Presentations

by the JICA survey team (October 24th, 2021)

- The presentations were made separately for BR, DMTCL, RAJUK, and DTCA.
- The first draft concept of the JICA survey, draft implementation plan, and actions plan were presented.
- Major comments received;
 - BR: Necessity to formulate a "comprehensive plan" for the railway facilities.
 - ✓ DMTCL: Integrated Plan of the MRT stations at Kamalapur
 - RAJUK: Importance of mixed land use concept that creates active urban area in daytime as well as night time (including service apartment function)
 - ✓ DTCA: <u>Necessity of coordination</u> between all transport modes which are introduced at Kamalapur, and <u>consideration for traffic</u> <u>impact</u> generated by the development

- "Conceptual Plan" of Railway Maintenance Facilities are provide. It is expected that the conceptual plan is used for the basis of the "Comprehensive Plan"
- There are no objections for the "Integrated Plan" of the MRT lines at Kamalapur prepared by DMTCL. However, further improvement is proposed.
- Mixed Land use concept is adopted in the layout plans. There is a slightly different ideas whether housing development is included or not.
- **The coordination role of DTCA** is emphasized.
- "Traffic Impact Assessment" will be one of the important actions, which should be done to formulate the Master Plan of Kamalapur in the next stage.

1. Introduction **Area / Framework of JICA Survey**

Project Area





Project Organization for the JICA Survey



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Review of Related Plans and Current Status

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2. Review of Related Plans and Current Status Review of National and Urban Plans

Redevelopment of Kamalapur should be in line with the Existing Policies and Plans

National Plans

Perspective Plan of Bangladesh 2021-2041: Making Vision 2041 a Reality (2020)

The importance of urban transport is emphasised in the context of economic development, and decreasing traffic congestion.

Five Year Plan (FY2021-2025)

One of the priorities is given to the integrated planned development of national multimodal infrastructures. PPP Scheme is also emphasized.

Urban Plans for Dhaka Metropolitan Area

Dhaka Structure Plan 2016-2035 (DSP)

- Vision: "Making Dhaka a Liveable, Functional & Resilient Metropolis Respecting Local Socio-Cultural Fabric & Environmental Sustainability"
- One of the Spatial Growth Strategies describes "Integration of Spatial Development with Transport Corridors"
- Enhancing the cityscape (with urban design and landscape architecture) is also one of the major goals regarding the manifestation of the liveable city, including encouraging the development of new landmark buildings or complexes at key locations.

Development of Kamalapur will be a Major "TOD" Practice

Detailed Area Plan (2016-35) (DAP)

Promotion of TOD is one of the major strategies

- Key Guidelines for TOD
 - Application of policy for high-density populated areas
 - Securing smooth and safe movement of pedestrians
 - Creation of public space for the citizens
 - Transit-oriented, high-rise residence, commercial or mixed-use
 - Well-planned transit, vehicle and parking facilities in the intersection location, etc.
- Areas for transit-based development are selected with the help of RAJUK/DTCA/DSCC.
- No detailed policies regarding the development of Kamalapur were described in DAP. It is necessary to discuss with RAJUK when development scale (BCR, FAR, height, etc.) is finalized.

Land Use Zoning

Kamalapur is designated as "Transport and communication zone" at present.



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2. Review of Related Plans and Current Status Review of Transport Projects

Coordination is required with the other urban transport lines (MRT and Subway)

- Revised Strategic Transport Master Plan (2016) >>>
- Preparatory Study on The Dhaka Mass Rapid Transit Development Project (2018, JICA)
- Main Issues and Policies for Development of Kamalapur
- Development of station plazas
- Improving accessibility between MRT 1 and 6:
- Alleviating traffic congestion by traffic management
- Improving accessibility and urban development by land readjustment
- Urban development through relocation of ICD



Bangladosh Railway Kamalapur Station Matiline 2 Matiline 1 Matiline 1 Matiline 2 Matiline 1 Matiline 2 Matiline 3 Matilin

MRT and Subway Projects

DMTCL

- MRT Line 6 Extension (On-going); Alignment and Station location has been finalized.
- MRT Line 1 (On-going); Alignment and Station location need to be coordinated since some BR facilities are affected.
- MRT Line 2 (Proposed): One of the PPP projects, under preliminary study stage.
- MRT Line 4 (Proposed): From Kamalapur towards south.

BBA

2 lines of Subway (Proposed): Under planning stage by BBA

Kamalapur Station Area Development supports the other Projects of BR

ICD	• As the Kamalapur Station Area Redevelopment will use a part of the land where the ICD is currently located, the relocation of ICD is required.
3 rd and 4 th Gauge Link	 Capacity of Kamalapur Sta. should be enhanced to support the 3rd and 4th Gauge Link. The commissioning date is set in February 2023
Padma Link	 Padma Link is connected from the south to the Kamalapur Station by double lines, and Construction is scheduled from Jan. 2016 to Jun. 2024.
HSR	 Kamalapur Sta. of HSR is a terminal station with 4 platforms and 8 tracks, connected to Chittagong. Elevated structure will be constructed.
Dhaka – Comilla Chord Rail	 Dhaka– Comilla Chord Line Project is specified as a new County Operations Business Plan (COBP) for Bangladesh issued by ADB.
BR Master Plan	 Current BR's Master Plan was formulated in Oct. 2017, with the support of ADB. "Remodeling of Kamalapur Railway Station including station area, wash pit line and sick line" and "Construction of Multi Modal Transportation Hub at Kamalapur Railway Station" are identified the proposed projects in Phase 2, targeted by 2025

2. Review of Related Plans and Current Status

Review of Current Status around Kamalapur Station Area

Kamalapur should create a centrality with the surrounding areas

Project Area

- Kamalapur Station Area Redevelopment will create a strong centrality with the surrounding CBD and bring opportunities to the eastern area
- It will become a transportation node possessing high potential for transit-oriented development.



Contribution against Natural Disaster is expected

Natural Disaster

- There would be risks by earthquake and flood.
- [Flood] As the elevation of the east area is lower than that of the west area, Kamalapur can have disaster management function and evacuation space.



Master Plans should be implemented to meet the Projected Demands

Utilities		grad (Ph-II) 2(59 (Ph-II) Kair Khilgaon
Water	 Completion of Saidabad Phase 3 will be a requirement for provision of sufficient water supply. 	i i i i i i i i i i i i i i i i i i i
Electricity	 A substation will be required when the project needs more than 20-30MW 	Motificel
Drainage	 Capacity is insufficient to meet future demands, depending on the capacity of Kamalapur pump station, and Segunbagicha box culverts needed to be cleaned and widened. 	19h 20 1918 17 16 16 16 15
Sewerage	 Kamalapur Station is in the catchment area of Pagla STP and the area has been prioritised by 	saidabad SWTP
SWM Solid Waste Management	• A massive amount of waste in Dhaka is not collected because of lack of funds, infrastructure, and transportation vehicles.	Shyampur Distribution Network for Saidabad SWTP

Road Congestions are observed around Kamalapur

Road

- All roads around Kamalapur are managed by DSCC (not RHD).
 Major roads have 4 lanes for both directions.
- Traffic Congestions are observed at the entrance of Kamalapur Station, the railway crossing under Khiligaon Flyover, etc.



Outer Circular Road (Entrance to Kamalapur Sta.)



Railway Crossing Under Khilgaon Flyover

2. Review of Related Plans and Current Status

Review of Current Status of the Railway Facilities.

Possible to rearrange the BR facilities for efficient usage of the BR Land

Station Facilities

Many types of maintenance work have been conducted within Kamalapur site

Facilities	PD Housing Quarter	
(1) Diesel Workshop	 Conducting "G (3 years) & F (1.5 years) schedule" maintenance. Planned to relocate, but the location has not been decided yet. 	N N
(2) Diesel loco shed	 Conducting "A (per trip), C (1.5 months), D schedule (3 months) & E schedule (6 months) schedule" maintenance. 	
(3) Passenger Carriage shed	 Conducting "Trip inspection (per trip) & B (3month) schedule" maintenance. 	
(4) Wash pit	 Conducting the "Trip inspection & A inspection" of BG/MG carriages per trip 	
(5) DEMU shed	• No maintenance has been conducted.	
Others	• Maintenance of BG trains have been conducted at platform lines.	



Operation (Passenger)

- 70 intercity trains / 20 mail express trains / 24 ٠ commuter trains and local trains (per day).
- Transportation capacity is about 1500 persons per ٠ train set.

Station Buildings/ Other Building Facilities

- Station building and Mosque are the facilities for passengers.
- Other facilities such as Admin. Building, signaling ٠ buildings etc. are for BR operation.



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2. Review of Related Plans and Current Status

Review of Transport Demand Forecast

Peak hour transfer passengers are forecasted to confirm the spaces as the Multimodal Transport Hub

Forecast 2040

Passengers at Kamalapur Station are preliminarily forecasted based on the data of previous studies

[Methodology]

- Based on the Travel Demand Model of RSTP, It is updated with reference to the other MRT-Line studies.
- All the MRT lines and BRT lines proposed in RSTP will be operated by 2040.
- MRT Passengers has been estimated considering how much percentage of the users could be shifted to MRT in 2040 and the transfer passengers between other MRTs are calculated based on the travel demand between the zones
- Peak ratio for the MRT lines is calculated as 20% (based on the inter-zonal trips from the previous studies)
- BR passengers are forecasted based on the past growing trend for 5 years (2013-2018)
- Present capacity of the trains in operation also considered to forecast the number of trains



- Daily MRT users of Kamalapur will be approx. 1 million
- Peak Hour Transfer between MRT stations will be approx. **68,000** (Maximum, MRT line 2 – other MRT lines)
- Peak Hour Transfer between MRT and BR will be approx. 15,000
- Peak Hour Transfer between MRT and other modes will be approx. 100,000

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Prerequisites for the Kamalapur Station Area Redevelopment, Development Issues, and Basic Concept

3. Prerequisites for the Kamalapur Station Area Redevelopment, Development Issues, and Basic Concept Confirmation of Prerequisites

- 1. Relocation of ICD
- 2. Relocation of Railway Facilities
- 3. Construction of HSR/Chord Line

4. Coordination with the Other Urban Transport Modes

In principle, the JICA survey will follow the decisions to be made by Bangladesh Government (PMO, BR, DMTCL, etc.) regarding the locations of the MRT Lines and Stations. The station locations of MRT Line 1 and 6 has been finalized.

5. Coordination with DEE

The conceptual proposal by SWG aimed to minimise the width by relocating a part of the toll gate to the south, and cancel the ramp way at the Motijheel side.

The coordination about the location of the ramp way has been done between BR and BBA; It was decided that the underpass will be implemented by BR instead of the ramp way. BBA will re-design the DEE.



Source: KMmTH SWG

3. Prerequisites for the Kamalapur Station Area Redevelopment, Development Issues, and Basic Concept Relocation of ICD and Railway Facilities, and Construction of HSR/Chord Line



- ✓ It is possible to create large lands for the multimodal transport facilities as well as private developments in the western side.
- ✓ It is possible to construct the new station while BR is regularly operating the railway services.
- Technical considerations for the BR railway facilities were not fully made to determine the required land size and location yet.

BR station is relocated to the eastern side.

Relocations of ICD and BR Maintenance Facilities (workshop) is a prerequisite.

- By relocating the BR Station, large lands for the multimodal transport facility and private developments are secured. Furthermore, it is possible to create attractive urban landscapes and achieve economic success.
- On the other had, the construction of the new station can be started only after relocation of ICD and BR facilities
- **HSR/Chord Line station structure is constructed together with the new BR station.**
 - When the HSR/Chord Line is implemented in future, the structure is utilized for the HSR/Chord Line Station, which will be integrated with the Multimodal Transport Hub.
 - In order to create the integrated multimodal transport hub and ensure safety during the construction, the HSR/Chord Line station structure should be designed and implemented with the new conventional railway station.

3. Prerequisites for the Kamalapur Station Area Redevelopment, Development Issues, and Basic Concept Relocation of ICD and Railway Facilities, and Construction of HSR/Chord Line

There is an alternative option for the location of the new railway station and facilities. However, there are trade-offs.





Relocation of BR Station Facilities to East to create large lands for private development.

- **Relocation of ICD and workshop** is a prerequisite.
- It is necessary to construct together with the HSR/Chord Line structure
- BR station is relocated to the eastern **side to create large lands for private development in Motijheel side**.
- It is possible to construct the new station while BR regularly operating the railway services.





Utilizing and Extension of the Existing BR Facilities

- Relocation of ICD is not fully required
- HSR station can be separately constructed after upgrading of conventional railway station.
- As BR Station and railway tracks is located in the middle of the land, it is not possible to have large enough lands for private development in Motijheel side.
- Major issue is construction of HSR, which has to be done on top of the conventional railways while BR trains are operating.

3. Prerequisites for the Kamalapur Station Area Redevelopment, Development Issues, and Basic Concept Open Issues and Additional Issues for Kamalapur Station Area Redevelopment

"Open Issues" addressed by SWG

I. Priorities of basic concepts for the Kamalapur Station Area Redevelopment

- i. Solution of Urban Issues
- ii. Development as a "World Class City"
- iii. Economic Impact

- II. Arrangement with DEE
- III. Arrangement with MRT6
- IV. Arrangement with Other MRT and Subway Lines
- V. Future Bus Terminal



Overall Development Issues

- 1. Need for Overall Urban Development Concepts (Priority Basic Concepts)
- 2. Arrangement with Other Transport Modes MRT Line 1, 6, 2, and 4 / Subway Lines / DEE / Bus (Bus Terminal) / Transport Square
- 3. Convenience of Transferring to/from Public Transport
- 4. Necessary Railway Facilities at Kamalapur and Relocation
- 5. Feasible Implementation Schedule including Relocation of BR Station Facilities
- 6. Improvement of Urban Infrastructure Road and Other Infrastructure (Electricity, Water, Sewerage, Drainage)
- 7. Improvement of Urban Environment for Public and Pedestrians
- 8. Consideration for Disaster Risk
- 9. Scale of Private Development
- 10. Separation of the Eastern and Western Areas

3. Prerequisites for the Kamalapur Station Area Redevelopment, Development Issues, and Basic Concept Necessary studies for the Overall Issues

Issues		Past discussions and Studies done by the JICA survey			
1.	Need Overall Urban Development Concept (Priorities of Basic Concept)	The "Priorities of Basic Concept" has been proposed by SWG. The JICA survey followed and developed the overall urban development concept and major policies.			
2.	Arrangement with Other Transport Mode MRT Line 1, 6, 2, and 4 / Subway Lines / DEE / Bus (Bus Terminal) / Transport Square	SWG has been putting a lot of effort to coordinate with the other transport modes. The JICA survey proposed concepts, but ccontinuous discussions is required.			
3.	Convenience of Transferring Public Transport	"Transferring" has not been fully examined yet by SWG. The JICA survey study confirmed that appropriate spaces and routes for transferring passengers are available in the layout plan.			
4.	Necessary Railway Facilities at Kamalapur and Relocation	Necessary Railway Facilities at Kamalapur, considering future developments of BR, are still vague. The JICA survey proposed concepts by assuming the necessary function. But further studies are required.			
5.	Sequence of Implementation including Relocation of BR Station Facilities	Technical considerations regarding the railway facilities in the "Implementation schedule" have not been fully studied yet by SWG. The JICA survey proposed a possible sequence of the implementation.			
6.	Improvement of Urban Infrastructure Road and Other Infrastructure (Electricity, Water, Sewerage, Drainage)	"Urban Infrastructure" has not yet been fully examined by SWG. The JICA survey collected information and proposed necessary upgrades of the urban infrastructure.			
7.	Improvement of Urban Environment for Public and Pedestrians	The conceptual proposal by SWG included the concept to improve public spaces and environment. The JICA survey followed the concept and proposed spaces for public and pedestrians.			
8.	Consideration for Disaster Risk	The conceptual proposal by SWG provides a concept against disaster risks. The JICA survey followed the concept and proposed spaces for evacuation and disaster risk management with preliminary studies.			
9.	Scale of Private Development	Development scale has not been finalized yet. The concepts by the JICA survey were prepared by an assumption. However, the master developer will determine the development scale.			
10.	Separation between East and West	Connection between east and west has been emphasized by SWG, however there will be a structural barrier. The JICA survey proposed measures to provide better connectivity.			

Note: Item which SWG has been studied, but continuous discussion will be required. Item which SWG has not been fully studied, and the JICA survey will study to improve the concept.

Data Collection Survey on Kamalapur Station Area Redevelopment

3. Prerequisites for the Kamalapur Station Area Redevelopment, Development Issues, and Basic Concept Basic Policies for Kamalapur Station Area Redevelopment

Overall Development Issues

- 1. Need Overall Urban Development Concept (Priorities of Basic Concept)
- 2. Arrangement with Other Transport Mode MRT Line 1, 6, 2, and 4 / Subway Lines / DEE / Bus (Bus Terminal) / Transport Square
- 3. Convenience of Transferring Public Transport
- 4. Necessary Railway Facilities at Kamalapur and Relocation
- 5. Feasible Implementation Schedule including Relocation of BR Station Facilities
- 6. Improvement of Urban Infrastructure Road and Other Infrastructure (Electricity, Water, Sewerage, Drainage)
- 7. Improvement of Urban Environment for Public and Pedestrians
- 8. Consideration for Disaster Risk
- 9. Scale of Private Development
- **10.** Separation between East and West

1. Create a Sophisticated Urban Environment to Support the Socioeconomic Activities of the World Class City of Dhaka

- Creating an urban landscape to solve urban issues and promote the economy of Dhaka
- Developing basic urban infrastructure to support economic activities
- Creating an inclusive society by providing high-quality urban environment
- 2. Materialize a Highly Convenient Multimodal Transport Hub by Integrating All Transportation Modes
 - Connecting all transportation modes functionally and Creating an urban facility which interlinks transport function, private development and public spaces as the first advanced TOD case
- **3.** Consolidating Railway Facilities and Promoting Effective Land Use Creating Space for Private Development
 - Creating surplus land for new urban development by rearranging railway facilities
- Improving the railway facilities and operation of BR by appropriate investment
- 4. Improve Urban Infrastructure and Promote Urban Development around Kamalapur Station
 - Connecting both side of the Kamalapur Station by improving road networks
 - Spreading the effect of the Redevelopment to Surrounding Areas and Improving Infrastructure.

5. Provide the Safety and Comfortability of Urban Spaces for Pedestrians and Public

- Improving accessibility within the redevelopment and surrounding areas
- Developing public facilities creating new destinations for Dhaka Citizens
- Contributing to disaster management by providing open spaces and facilities

3. Prerequisites for the Kamalapur Station Area Redevelopment, Development Issues, and Basic Concept Major Challenges and Overall Development Concepts

Overall Development Concepts are provided as solutions to the urban development issues, or challenges.

Challenges indicating in the National-level Plans *

Develop economic activities at the capital city of Bangladesh

Promote usage of public transport to reduce traffic congestion on the roads

Create an inclusive society

Provide basic urban infrastructure for highstandard urban activities **Concepts of Kamalapur Station Area Redevelopment Plan** (as contributions towards the challanges)

 Spaces for economic activities are prepared by providing commercial floors on the unused land. These contribute to boost the economy, and upgrading the transport function gives more opportunities by spill-over effect to the city as well as the country.

- Interrelated transport function by BR (mass inter-regional transport), MRT and the subway (urban transport), bus (regional as well as feeder transport), and individual transport (including taxis), increase efficiency and convenience and result to mitigation of traffic congestion.
- Although major land use will be commercial oriented, mixed-use development and public facilities & spaces are installed for all people contributing to an inclusive society.
- There will be a discussion whether housing development is included or not.
- High-quality infrastructure and utilities are installed with connection to the surrounding area. Insufficient supplies are covered by the development itself. Maintenance system is also set to keep the high-standard urban condition.

Note:* "Challenges" are summarized as urban development issues and referred from the national level plans by the JICA survey team

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Proposal for Railway Maintenance Facilities

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Maintenance Facilities (Supporting Facilities)

- Not only Dhaka, but there are also many maintenance facilities in Bangladesh.
- Diesel Workshop : 3 nos.
- Loco shed (eastern) : 8 nos.
- ➢ Loco shed (western) ∶ 8 nos.
- Carriage Depot (eastern) : 9 nos.
- Carriage Depot (western) : 15 nos.

Main idea is to relocate some facilities from Dhaka to outside of Dhaka



Maintenance Facilities (Supporting Facilities)

• Following facilities might be possible to relocated to the outside of Dhaka.

Possible facilities for relocation	Reasons of possible relocation	Relocation method and issues
Diesel workshop*	Since Diesel Workshop is a facility for heavy maintenance and it takes a long time to complete, it is just <u>rational to</u> <u>conduct maintenance outside of Dhaka</u> .	Facilities should be relocated and installed at the bulk land. Therefore, <u>a large scale of land will be required</u> .
Wash pit (Partially)	It is assumed that <u>wash pit can be</u> <u>relocated at each hub station outside of</u> <u>Dhaka partially</u> .	Car washing should be completed within a revenue operation. Thus, <u>the wash pit facilities</u> <u>should be distributed to each hub area</u> . Consequently, it is <u>difficult to manage all wash</u> <u>pits and to share spare parts, maintenance tools,</u> <u>human resources, etc.</u>

Note: * BR has a plan to relocate Diesel Workshop, but the location has not been decided yet.

Maintenance Facilities (Supporting Facilities)

- Remaining facilities shall be located within Dhaka district.
- Some facilities should be located at Kamalapur, other facilities should be located at outside of Kamalapur.



- The relocated site shown as option 1 is an example.
- Additional maintenance facilities will be required in the case of Option 2 and 3, when increasing train operation is considered for future.

Maintenance Facilities (Supporting Facilities)

List of maintenance facilities and its relocation possibilities

Facilities	Possibility	Contents and necessity of the relocation		
Diesel workshop	(1)	Possible to relocation outside of Dhaka.	(1) Possible to releast	
Wash pit	(1)	Possible to relocation outside of Dhaka partially.	at <u>outside of Dhaka</u>	
Loco shed	(4), (3)	Better to locate all facilities at Kamalapur because locomotives have important mechanical parts and need to be maintained properly. If locate separately, human resource will also be separated, and organization management system will be changed accordingly. For example, site manager at Kamalapur and new location will be necessary.	(2) Possible to <u>totally</u> relocate in the adjacent area of Kamalapur station	
Carriage shed	(2)	Relocate the facilities at Tongi sta. because of the long enough vacant land to park the long train set.	(3) Possible to <u>partially</u> relocate the	
Stabling line/ sick line	(4)	should be installed at Kamalapur area as the land will allow to secure the operation redundancy.	adjacent area of Kamalapur station	
Container line	(2)	Relocated to Dhirasram with ICD relocation project	(4) <u>Not possible</u> to	
Parcel line	(2)	Utilize the Tejgaon Goods Yard Line instead of Kamalapur area.	relocate	
Fuel facility	(4)	Necessary at Kamalapur area during diesel operation		
Other lines	-	Engine escape line and shunting neck are necessary in line with station layout		

Maintenance Facilities (Supporting Facilities)

- There is a vacant land at Tejgaon station and might be utilized for Diesel loco shed.
- Goods Yard Line might be utilized for parcel line.



For partial loco shed or other purposes

*Drawing is given by 3rd/4th gauge project

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Maintenance Facilities (Supporting Facilities)

• There is a vacant land at Tongi station and might be utilized for Carriage shed.



For Carriage shed/Diesel Workshop

*Drawing is given by 3rd/4th gauge project

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4. Proposal for Railway Maintenance Facilities Implementation Steps on Railway Facilities

(1st: Relocation of ICD)



(2nd : New development of the maintenance facilities of conventional railway and partial private development)



(3rd : demolition of the existing workshop facilities)



Note: Although some of private developments are possible to start construction at the 2nd Step, phases of private development need to be defined considering to maximize the development potential. It need to be discussed with SWG, or the major private developer. Or some lands after relocation of ICD can be used for temporal BR maintenance facilities

 $(4^{th}: Construction of a new railway station$



 $(\mathbf{5}^{\text{th}}:$ Demolition of the existing conventional station and facilities



(6th : Construction of private buildings



4. Proposal for Railway Maintenance Facilities

Proposed Layout Plan of New Station Area (Option1)

5 platforms and 10 lines are proposed. Total width of "New Station Area" is approx. 125m (from the edge to the edge) Pier of HSR are located between each track with minimum clearance.



4. Proposal for Railway Maintenance Facilities Layout of Supporting Facilities (Option1)

Supporting facilities are accommodated within allocated area proposed by Conceptual proposal of SWG. Maximum set of supporting facilities are proposed to be laid within the designated area.



4. Proposal for Railway Maintenance Facilities

Maximum maintenance capacity in the proposed layout (Option1)

Maximum maintenance capacity in the proposed Layout is calculated based on the current maintenance schedule of BR.

Facilities	Maintenance schedule	Maximum maintenance capacity (per day per track)	Inspection interval	No. of tracks	Maximum no. of Locos & Carriages for maintenance
Diesel locomotives	A schedule	8 locos	Per trip	5 tracks	40 locos *4 times
	C schedule	3 locos	1.5 months	1 track	135 locos
	D schedule	3 locos	3 months	1 track	270 locos
	E schedule	1 loco	6 months	1 track	180 locos
Passenger carriages	Trip inspection	8 carriages	After running	5 tracks: wash lines 4 tracks: carriage shed	40 carriages for wash line 32 carriages for carriage shed
	B schedule	3 carriages	3 months	2 tracks: Stabling lines	270 carriages
* Not considering the length of each track and human resource					

Note: It is an assumed option by the JICA survey team. It should be finalized through discussion with BR and SWG.

Data Collection Survey on Kamalapur Station Area Redevelopment

4. Proposal for Railway Maintenance Facilities

Proposed Layout Plan of New Station Area (Option2, same as Option1)

5 platforms and 10 lines are proposed. Total width of "New Station Area" is approx. 125m (from the edge to the edge) Pier of HSR are located between each track with minimum clearance.



Note: It is an assumed option by the JICA survey team. It should be finalized through discussion with BR and SWG.

4. Proposal for Railway Maintenance Facilities Layout of Supporting Facilities (Option2)

Supporting facilities are accommodated within allocated area proposed by Conceptual proposal of SWG. Maximum set of supporting facilities are proposed to be laid within the designated area.



Note: It is an assumed option by the JICA survey team. It should be finalized through discussion with BR and SWG.

4. Proposal for Railway Maintenance Facilities

Maximum maintenance capacity in the proposed layout (Option2)

Maximum maintenance capacity in the proposed Layout is calculated based on the current maintenance schedule of BR.

Facilities	Maintenance schedule	Maximum maintenance capacity (per day per track)	Inspection interval	No. of tracks	Maximum no. of Locos & Carriages for maintenance
Diesel locomotives	A schedule	8 locos	Per trip	2 tracks	16 locos
	C schedule	3 locos	1.5 months	0 track	0
	D schedule	3 locos	3 months	0 track	0
	E schedule	1 loco	6 months	0 track	0
Passenger carriages	Trip inspection	8 carriages	After running	2 tracks	90 carriages
	B schedule	3 carriages	3 months	0 tracks	0
Note: It is an assumed option by the JICA survey team. It should be finalized through discussion with BR and SWG.					

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Draft Concept for Kamalapur Station Area Redevelopment

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5. Draft Concept for Kamalapur Station Area Redevelopment Overall Urban Development Concept

2 options were prepared to clarify different ideas of each discussion topic.

- It is understood that the finalisation of the Concept for Kamalapur Station Area Development is to be done by BR in collaboration with the other government organization and SWG.
- The JICA survey provides the 2 options with the different ideas. In each discussion topic, further discussions are expected to obtain consensus between all stakeholders.

Discussion Topics	Option 1: Moderate Mixed Development	Option 2: High Economic Activities as the new CBD
Major Focus of Development Concept	Convenience of public transport and inclusive urban environment. (It will bring public benefit in terms of user-friendly spaces.)	Private development which lead to economic success to be a world-class city. (More effective cash flow from the development can be expected.)
Railway Facilities (Rearrangement of railway maintenance facilities are required for both options.)	Larger railway maintenance facilities	Minimum railway maintenance facilities
Urban Transport (MRT and Subway)	All urban transport stations are located closely, instead of smaller private development lands.	Balance between public transport function and private development is emphasized.
Land Use	Housing developments are to be integrated to create better mixed use and inclusive society.	Major land use is for business and commercial function, not for housing.
Development Phases	Some private developments can be constructed before completion of new BR station (after relocation of ICD).	MmTH bldg. is the first private development, which can be constructed after completion of new BR station.

2 Options

Major Differences

- 1. BR Maintenance Facilities: Option 1: Wider area Option 2: Narrower area
- 2. Area for Private Development (Southern Area) Option 1: Limited area Option 2: Larger area
- 3. Arrangement of the Urban Transport Stations (MRT/Subway) Option 1: All stations at same place Option 2: All MRT stations are at same place, but Subway station is located at different place

 Mixed Land Use Concept: Option 1: Housing development included Option 2: Commercial development only (included hotels and service apartments)

Note: The 2 options for the Draft concept prepared by the JICA survey team provide further discussions to finilise the development concept by BR coordinated with the relevant organizations/agencies and SWG.





5. Draft Concept for Kamalapur Station Area Redevelopment Arrangement with Other Transport Mode (MRT and Subway Lines)

Spatial arrangement of transport facilities will create highly efficient multi-modal function to promote public transport.

At the same time, it is preferable to maximize the potential of commercial development.

For all the options, coordination between BR, DMTCL, and BBA is required to locate the all stations of the proposed MRT and Subway lines.







Subway

All MRT and Subway stations are located according to the current proposal by DMTCL and BBA.

- Long walking distances are needed to transfer from/to each transport mode.

All the stations come at one area close to BR station.

- + All transport stations are closely located for smooth transfer.
- It requires large spaces where no buildings can be built on the ground (within 75m). It minimize the area for private development.

Relocate the MRT Line 4 Station close to the other MRT lines.

- + It provide better passengers' transfer between MRT and BR lines
- + Area for private development is secured within 55m from Outer Circular Road.
- Longer distance is required to transfer from/to the subway.
- Construction of the subway line is difficult as it needs to be constructed under BR maintenance facilities.

Data Collection Survey on Kamalapur Station Area Redevelopment

Arrangement with Other Transport Mode (MRT and Subway Lines)

Spatial arrangement of transport facilities will create highly efficient multi-modal function to promote public transport. At the same time, it is preferable to maximize the potential of commercial development.

For all the options, coordination between BR, DMTCL, and BBA is required to locate the all stations of the proposed MRT and Subway lines.



All the stations come at one area close to the BR station.

- + All transport stations are closely located for smooth transfer.
- It requires large spaces where no buildings can be built on the ground (within 75m). It minimize the area for private development.



Relocate MRT Line 4 Station close to the other MRT lines.

- + It provide better passengers' transfer between MRT and BR lines
- + Area for private development is secured within 55m from Outer Circular Road.
- Longer distance is required to transfer from/to the subway.
- Construction of the subway line is difficult as it needs to be constructed under BR maintenance facilities.



All MRT and Subway stations are located according to the current proposal by DMTCL and BBA.

- Long walking distances are needed to transfer from/to each transport mode.



MRT Line 1 is directly extended to MRT Line 4

 The same Pros/Cons described in the Option 2. In addition, interferences with the BR's land will be minimized.)

BR proposed this option to DMTCL for further discussions.

Arrangement with Other Transport Mode (MRT and Subway Lines)

The Latest Plan of MRT Lines at Kamalapur DMTCL (as of 18th Oct 2021)

The integrated MRT-Line Plan can be accommodated with the draft concept for Kamalapur Station Area Redevelopment.

- Preferably, the station of MRT line 4 is relocated closer to the MRT line 1 & 6.
- Passengers" access route from the MRT stations to the BR station and major MmTH function should be secured.



Data Collection Survey on Kamalapur Station Area Redevelopment

Arrangement with Other Transport Mode (Transport Square)

It is considered that enough spaces can be provided for the transport in front of the BR station. However, further discussions are required to finalize the function and design.

Transport Square

- As a reference, a transport square is designed in front of BR station and the MmTH building.
- The location is close to the all transport mode (BR, MRT/Subway lines, Bus Terminal) for convenience of all transport users.
- Symbolic Open Spaces for people can be secured, with the existing station building.

Feeder Bus	Providing transport for the areas around Kamalapur. 2 arrival bays and 4 departure bays are installed separately. Waiting area is also secured.
Taxi / CNG	Drop-off and Pick-up areas are installed separately. Only short-time stay should be allowed. Waiting areas are installed inside the transport square.
Passengers' Car	Drop-off and Pick-up areas are installed separately. Only short-time stay should be allowed.
Rickshaw	Temporarily located along the outer circular road. In the future, it can be removed.
Entrance	The entrance to the transport square is proposed on the outer circular road. An appropriate junction design is needed.



Option 1 Option 2

Reference Design of Transport Square Note: For both options, same configuration is applied.



Arrangement with Other Transport Mode (Bus Terminal)

A bus terminal is proposed in the structure of HSR/Chord line. However, further discussions are required to finalize the function, size and design.

Bus Terminal

- Bus Terminal is located above the BR maintenance facilities (ground level), and below HSR/Chord Line (2nd level).
- The bus terminal reference design draws max. number of bus bays to understand the size and capacity.
- The design is determined by the location of pillars which are put according to the layout of the BR maintenance facilities on the ground.

Departure Bays	24-28 bays are available. A total of 144 - 168 buses can depart per one hour (by simple calculation, 1 bus depart per 10 minutes/1 bay.)			
Arrival Bays	Around 15 bays are available			
Bus Waiting Area	Short-time waiting areas are installed along bus route to/from the bays.			
Passengers' Area	Near BR station, passengers area (ticket booth, waiting areas, kiosks) can be installed. Convenient pedestrian accesses are secured.			
Entrance Slope	 It is possible to locate only at the southern part of the BR land. Option 1: Slope gradient is 5% but larger area is occupied. It might be interfered with the underpass of Kamalapur South Road. Option 2: Slope gradient is 10% and a simple slope is available. (It complies with Japanese standard). 			

Further discussions are necessary for:

1) Roles and size of the bus terminal, and 2) Commercial facilities at the bus terminal



Data Collection Survey on Kamalapur Station Area Redevelopment

5. Draft Concept for Kamalapur Station Area Redevelopment Convenience of Transferring to/from Public Transport

Spaces of the transferring route between all transport facilities are ensured by calculating the number of transferring passengers.

Horizontal and Vertical Transferring Space

 The horizontal and multiple vertical lines on three levels (underground, ground, and elevated levels) will disperse pedestrian transfer lines and solve the congestion problem in the station



Example of Vertical Transportation Line (Shibuya Station)



Transfer Diagram and Assumed Numbers of Transferring Persons at Peak Hour. The figure is drawn based on the Option 1. In the case of the Option 2, the subway station is located under the BR maintenance facility, and it required additional underground passage.

Improvement of Urban Infrastructure (Road Network)

Proposed Roads will contribute for better traffic circulation in/around the development area

Road Development Concept

- Basically, The 2 concept share the same concepts.
- "Kamalapur South Road" will have a role to access DEE. An appropriate 4-lane underpass road is proposed.
 - Straight Alignment is studied (Slope gradient is 6.1%)
 - Curved Alignment according to the lates proposal by BR (Slope gradient is 5%)
- In the BR housing area, a 4-lane road is installed to provide better traffic circulation.
- In the southern area, service roads are installed.
- It is recommended that Intersections connecting to the exiting roads need to be properly designed.



Data Collection Survey on Kamalapur Station Area Redevelopment

Improvement of Urban Infrastructure (Preliminary Study on Underpass)

An appropriate design of the underpass need to be done with careful coordination with BBA (DEE)

Straight Alignment

By preliminary assessment, vertical gradient of 6.1% is needed. It complies with the Japanese standard, but applicability in Bangladesh needs to be scrutinised.

• Drainage pump facility is needed.



Profile View (Track Width: 25 m and Vertical Gradient: 6.12%)



Curved Alignment (Present Proposal by BR)

- The proposed design complied with the geometric design requirements for the design speed of 40 km/h.
- The sharp-angled intersections require the bigger size and length as well as the longer pedestrian crossings which will reduce the traffic capacity of the intersection.
- The intersection design interfere with the piers designed for DEE.
 - The intersection design shall be finalised after DEE's design is completed. Or preferably, BBA and BR coordinate with each other to finalise the both designs
- The vertical gradient at the approach section to intersection should be gentle as much as possible in order to ensure traffic safety.
- The construction cost and implementation plan should be carefully studied.



Received from BR on 29th Nov 2021



Technical review by JICA Survey team (Oct, 2021)

Data Collection Survey on Kamalapur Station Area Redevelopment

5. Draft Concept for Kamalapur Station Area Redevelopment Improvement of Urban Infrastructure (Utility)

If the each utility master plans are implemented, basically the supplies will meet the Projected Demands.

Utility	Current Situation / Requirements for Development *
Water Supply	• Saidabad water treatment plant, which has entered into its third phase of development, will increase the total capacity (450 million liters/day), and can cover the demand in the development area. (Ref.: Water Supply Master Plan for Dhaka City, 2014, and Project information of Saidabad water treatment plant – Phase 3)
Sewerage	• According to the 2035 Sewage Master Plan, some pumps (on Bashaboo and Galapbagh) were selected as prioritised projects in order to improve the current situation. The sewage should be connected to the sewer located in the western part of the planning area. (Ref.: Dhaka Sewerage Master Plan, 2012)
Urban Drainage	• Since the current capacity cannot deal with projected storm drainage volumes, the Segunbagicha box culvert must be cleaned and any associated canals will need to be widened. (Ref.: Updating / Preparation of the Stormwater Drainage Master Plan For Dhaka City, 2016)
Electricity	 There is a 33/11 kV substation in the northern side of planning area (Railway Colony) Substation. One more substation should be located in the southern part to cover the development. (ref.: Interview with DPDC, and Power System Master Plan, 2016)

Note:* Information were obtained from the Master Plans of each utility and interviews with the relevant authorities.

Concept Plan of Urban Utilities

- Utilities are places under the planned road within the redevelopment area, with connecting to the eastern side of the existing networks.
- According to the proposed layout plan, the length will be **4,700 m.**

Note: There is a proposal of Common Utility Tunnel from RAJUK. Although it provides a modern utility services, it requires much higher implementation cost and additional coordination with relevant agencies.



Option 1 Option 2

Proposed Network Note: The 2 options share the same concept

Improvement of Urban Environment for Public and Pedestrians

Public Open Spaces and Pedestrian Spaces compose the walkable network, which materialize the smooth accessibility to/from the transport function.

3 different types of **Open Spaces** are proposed

- Station Plaza: The central open space in front of BR Kamalapur Station
- Open Terrace: In front of the office building in the southern part of the area
- **Pocket Parks:** Small public space proposed in the residential area.

The open spaces are connected by **Pedestrians' Network**, which smoothen circulation in the development area and surrounding areas.

- Sidewalk : Wide sidewalks for pedestrians and bicycles are installed along the proposed road
- Green Stripes: Exclusive spaces for pedestrians are connecting small parks, and the entire development area from north to south.
- Open Deck on the Commercial Buildings: In the lower part of the buildings, open decks are proposed that will also provide pedestrian spaces, connected to the MmTH Building with BR station.
- Pedestrian Path to Connect Each Transport Mode, and Free Passage: Transfer spaces are provided from underground level to the 1st floor level for all transfer passengers.
- **Pedestrian Path in the South Edge:** Next to the underpass, a pedestrian path is also proposed to connect both east and west sides.
- Pedestrian Decks: Connecting east and west.

The proposed pedestrian and public open spaces can work as evacuation spaces and disaster management function.



Data Collection Survey on Kamalapur Station Area Redevelopment

5. Draft Concept for Kamalapur Station Area Redevelopment Land Use Plan

After discussions with RAJUK, it was decided to introduce Mixed Land Use Concept. Although the 2 options provide deferent ideas, the both options aims to create a high-standard urban environment.

Option 1: Moderate Mixed Development

- Residential Development is planned in the northern part of the redevelopment area as "Mixed Development", next to BR housings.
- Moderate environment will be creating by coexistences of business, commercial, and residential facilities.



Option 2: High Economic Activities as the new CBD

 More commercial and business functions are planned to activate economic value as the new CBD of Dhaka. It will boost the economy of Dhaka to be a world-class city.



• Hotels and service apartments are planed in the mixed development area

Land Use Pattern should be based on the "Future Vision", which is shared with the all stakeholders.

5. Draft Concept for Kamalapur Station Area Redevelopment Phased Development

2 different ideas are provided. It is recommended that BR should discuss with the main private developer to obtain economic benefit, and how to maximize development potential.

Option 1: Moderate Mixed Development

• Immediately after the ICD relocation, private development can be started partially in order to recover the initial investment at earlier stage.

Option 2: High Economic Activities as the new CBD



- Private development will start from the central commercial facility, namely, MmTH Building next to the new BR station.
- It aims to maximise development potential and economic success.

Note: Development are assumed by the JICA survey team. Further discussions should be done as Development Phase is needed to be defined to maximize the private development impacts and achieve successful development.

Urban Development Density and Usage of Floors

Relatively high-dense occupancy land use allows to achieve appropriate profits, and ensure the attractive development

Option 1: Moderate Mixed Development

Ratio of Developed Floor Area to Land Area 568%

300%

4,494,200 sqm / 791,518 sqm(Road use excluded)

1,195% (Railway Land excluded)

4,425,271 sqm (BR office and Bus transp. excluded)/ 370,268 sqm (Railway and Road use excluded)

		Floor	Floor Land		Floor Area (Each Occupancy) [sqm]						
	STAGE	Area [sqm]	Area Area [sqm] [sqm]		Office	Residential (BR)	Residential (Private)	Public			
1	2027-2030	1,397,000	488,768	188,460	319,525	754,348	0	134,689			
2	2031-2035	778,900	194,420	76,232	596,777	0	0	105,855			
3	2036-2040	869,900	144,556	208,671	489,429	0	131,200	40,600			
4	2041-2045	1,123,000	137,977	160,429	962,571	0	0	0			
5	2046-2050	325,400	29,781	133,200	0	0	192,200	0			
	TOTAL	4,494,200	995,500	766,991	2,368,302	754,348	323,400	281,144			

Option 2: High Economic Activities as the new CBD

Ratio of Developed Floor Area to Land Area 599%

4,805,425 sqm / 802,329 sqm(Road use excluded)

1,180% (Railway Land excluded)

4,750,610 sqm (BR office and Bus transp. excluded)/ 402,515 sqm (Railway and Road use excluded)

STAGE		Floor	Land	Floor Area (Each Occupancy) [sqm]						
	STAGE	[sqm]	[sqm]	Commer cial *	Office	Residential (BR)	Residential (Private)	Public		
1	2027-2030	982,108	431,888	107,185	0	754,348	0	120,575		
2	2031-2035	525,772	166,272	15,600	399,559	0	0	110,613		
3	2036-2040	1,347,170	185,991	422,749	883,821	0	0	40,600		
4	2041-2045	1,455,850	181,944	221,841	1,234,009	0	0	0		
5	2046-2050	494,525	29,406	419,905	74,620	0	0	0		
	TOTAL	4,805,425	995,500	1,187,280	2,592,009	754,348	0	271,788		

Note: * Service apartment is included

Note: Each Occupations of the floor area are assumed by the JICA survey team. Land Use (Usage of Building Floors) is needed to be defined after discussions to achieve the redevelopment in the view of creating a world class city, as well as an appropriate PPP/Private development scheme.

5. Draft Concept for Kamalapur Station Area Redevelopment Role Demarcation

Appropriate role demarcation needs to be discussed for a PPP Project.

Spatial Demarcation

Same concept is applied for both options.



Public (BR)Basically, Private developer will implement the area for
Private development and the core MmTH function
including infrastructure.
Pure Transport Facility (Railway, MRT, etc.) will be
implemented by public sector.

Note: Further Study and Discussions are needed to establish PPP scheme;

- Appropriate demarcation of land rights and implementation
- Profit Allocation / Cost and Risk Allocation

Role Demarcation for Construction Responsibility

Item	Public	Private
Land Preparation	BR: Area for Railway Facilities	Private Developer : Area for Private Development
BR railway and station facilities*	BR: Including land preparation	
Bus Terminal	* Further study is needed to define the responsible body of implementation, operation and management	
MRT and Subway Stations	DMTCL/BBA: Underground Spaces and Structures	
Transport Square	* It can be a responsibility of BR as it is considered as a part of BR railway station	Private Developer : as a supporting facility for MmTH function
Roads	BR for DSCC: Intersections to enter the redevelopment area on the existing roads	Private Developer: within the private development area as a part of the entire private development area
Road (Underpass)	BR: Need coordination between BR, BBA, and Private Developer	
Utilities (electricity, water, sewerage, drainage)	BR: Below BR maintenance facility and connection to the existing main lines	Private Developer: As a part of the entire private development area
Open Space, Parks, Public Facilities	* Some facilities are implemented by public sector	Private Developer: As a part of the entire private development area
Pedestrians' paths and Bridges	BR: within BR station DMTCL/BBA: within MRT and subway stations	Private Developer: As a supporting facility for MmTH function and other connection to the city.
BR Housings		Private Developer
Private Dev.		Private Developer

Note:* HSR/Chord line is included.

DRAFT

5. Draft Concept for Kamalapur Station Area Redevelopment Risk Allocation and Mitigation

It is important to identify potential risks which could be obstacles to the delivery of the project and which entities should bear the said risks.

Risk Category	Description	Risk Allocation	Mitigation
Land acquisition and site risk	Delay of relocation of existing railway facilities and improvement works due to various reasons (e.g., environmental, archaeological issues, and protest of neighbourhood communities)	Mainly Public	Public entities should implement detailed ground environmental, social assessment
Design risk	The project is not designed adequately for that purpose	Both	(According to the role demarcation for Construction responsibility)
Construction and completion risk	Damage and troubles during construction period and delay of completion and/or quality of infrastructure does not satisfy minimum requirement from public entities	Both	(According to the role demarcation for Construction responsibility)
Demand risk	Demands on profit-making portions are below the expected level. As a result, project delivery could be stopped.	Mainly Private	Risk mitigation in the case of political risk and force majeure could be considered (e.g., extension of contract duration).
Maintenance risk	Quality of infrastructure and related facilities in the area is deteriorated and does not attract private investment.	Private	In the case concerned infrastructure is maintained by a public entity, intervention of contract agency could be required.
Exchange and interest rate risk	Fluctuation of currency exchange and interest risk would worsen the project feasibility	Both	Private should bear the said risk to the extent. On the other hand, if it exceeds the threshold level, support from public entities might be expected.
Early termination risk	The project contract is terminated earlier than its original terminated dates. Contract reasons could be classified into three categories: public entity default, non-default termination, and private partner default	Depending on the cause of early termination	In the case of public entity default, level of compensation should be agreed between public and private entities in advance.

Source: Global Infrastructure Hub (2016), "Allocating Risks in Public-Private Partnership Contracts", modified by the JICA survey team

6

Cost Estimation and Economic Analysis

Basis of Cost Estimation

The cost estimation is a preliminary level calculated by unit cost per area.

Reference Sources for Unit Cost

Urban Development	Sources	Remarks
Architecture Facilities	 Dhaka Metro Project Pre- Study Consultant Metro L Final Report (2019), and t information from MRT lin Previous studies on urbar development and real est 	FeasibilityProject cases of other countries for the purpose of validating the certainty of the unit above
Roads	 Other project information Bangladesh PWD Schedule of Rates for 	• Utilities are included or Civil Works
Railway Facilities	Sources	Remarks
Track work	3 rd /4 th Gauge Link Project	New installation of tracks and turnouts
Civil/Architectural Work	3 rd /4 th Gauge Link Project, MRT Line 1 & 5 FS, projects of other countries	Construction of station building, new platform construction/renovation
Demolition	Dhirasram ICD FS and projects of other countries	Demolition of existing buildings, tracks, platforms and clearing/grubbing
Signal/ Telecommunicatior	3 rd /4 th Gauge Link Project and Dhirasram ICD FS	Including design, supply, testing, commissioning, etc.
Mechanical	MRT Lines 1 & 5 FS	Including air conditioning, plumbing system, and station electric equipment

Items for Cost Estimation

Architecture Faculties and Urban Development

- BR housing
- Private development (Commercial and Business facilities, Hotels, etc.)
- Public Facilities (Schools, Colleges, etc.) / Market
- Transport Square, Parks, Open Spaces, and Pedestrians Spaces
- Bus Terminal
- Road, Underpass (Utilities are included)*

* The unit cost of water, sewage, and electricity is assumed to be buried under the road, and the unit cost is set at 18 USD per square meter of the road area. The unit cost for road construction is expected to be 36 USD per square meter separately from the above utilities.

Other Cost

- Consultant Services (10%)**, Government Administration Cost (5%), Physical Contingency (5%)**, and Price Contingency (5%)
- Inflation is considered, but taxes are not included.

** The figures for "Consulting Service" and "Physical Contingency" were taken as those used for other railway projects and general construction projects. However, due to the scale, complexity, and difficulty of the Kamalapur Station Area Redevelopment Project, and the length of the project period, a certain buffer should be taken into consideration.

Cost Estimation

Option 1

- Note
 The cost estimation is a preliminary level calculated by unit cost per area.
 - Inflation is considered, but taxes are not included.
 - The sources of the unit cost are; the MRT projects (MRT Line 1, 5, and 6), BR's projects (3rd/4th Gauge Link Project and Dhirasram ICD FS), and project cases of other project to validate the certainty.

Private Development (including BR Housing Quarter)

to be invested mainly by GOB

BR Station Facilities

to be invested roughly by the Private Sector

* Road and Utility costs are included in "Arch. Facilities and Urban Development"

Direct Cost (Mil. BDT)				Indirect Cost (Mil. BDT)						
	Stage	Railway Facilities	Arch. Facilities and Urban Development	Sub Total	Consultant Services	Gov. Admin. cost	Physical Contingency	Price Contingency	Total	
	2026	2,515	-							
	2027	3,655								
1	2028	9,584	67 090	83,866	8,387	4,193	4,193	1,677	102,317	
	2029	123	67,989	07,989						
	2030	-								
2	2031-2035	-	40,038	40,038	4,004	2,002	2,002	801	48,847	
3	2036-2040	-	43,171	43,171	4,317	2,159	2,159	863	52,669	
4	2041-2045	-	48,283	48,283	4,828	2,414	2,414	966	58,905	
5	2046-2050	-	14,556	14,556	1,456	728	728	291	17,758	
Tota	al (Mil. BDT)	15,877	214,037	229,914	-	-	-	-	280,496	
Tot	al (Mil JPY)	21,061	283,920	304,981					372,078	
Tota	al (Mil USD)	191	2,568	2,759					3,366	

Data Collection Survey on Kamalapur Station Area Redevelopment

Cost Estimation

Option 2

- Note
 The cost estimation is a preliminary level calculated by unit cost per area.
 - Inflation is considered, but taxes are not included.
 - The sources of the unit cost are; the MRT projects (MRT Line 1, 5, and 6), BR's projects (3rd/4th Gauge Link Project and Dhirasram ICD FS), and project cases of other project to validate the certainty.

Private Development (including BR Housing Quarter)

to be invested mainly by GOB

BR Station Facilities

to be invested roughly by the Private Sector

* Road and Utility costs are included in "Arch. Facilities and Urban Development"

		Direct Cost (Mil. BDT)								
	Stage	Railway Facilities	Arch. Facilities and Urban Development	Sub Total	Consultant Services	Gov. Admin. cost	Physical Contingency	Price Contingency	Total	
	2026	2,515	—							
	2027	3,655								
1	2028	9,178	20 106	53,657	5,366	2,683	2,683	1,073	65,461	
	2029	123	38,186	58,180						
	2030									
2	2031-2035	-	39,925	39,925	3,993	1,996	1,996	799	48,709	
3	2036-2040	-	64,066	64,066	6,407	3,203	3,203	1,281	78,160	
4	2041-2045	-	62,656	62,656	6,266	3,133	3,133	1,253	76,440	
5	2046-2050	-	22,723	22,723	2,272	1,136	1,136	454	27,722	
Tota	al (Mil. BDT)	15,471	227,556	243,027	_	-	-	-	296,492	
Tot	al (Mil JPY)	20,522	301,853	322,375					393,297	
Tota	al (Mil USD)	186	2,732	2,916					3,558	

Data Collection Survey on Kamalapur Station Area Redevelopment

Economic Internal Rate of Return (EIRR): Assumption

Assumptions

Item	Value	Description
Base Year	2021	Project benefits and costs were valued in 2021 constant prices
Inflation Rate	5.8%	2021 annual inflation rate projection for Bangladesh from Asian Development Bank (ADB)
Evaluation Period	50 years	From 2021 until 2070
Base Currency	BDT	Bangladeshi Taka
Social Discount Rate	9.0%	Based on ADB
Consultant Services	10.0%	Proportional to the direct costs for architectural and railway facilities
Government Admin. Cost	5.0%	Proportional to the direct costs for architectural and railway facilities
Physical Contingency	5.0%	Proportional to the direct costs for architectural and railway facilities
Exchange Rate	USD 1 = BDT 83.23	Based on JICA's exchange rate for June 2021 (USD 1 = JPY 109.811, BDT 1 = JPY 1.31942)
Shadow Exchange Rate Factor	1.05	Based on the average rates used for recent ADB projects
Shadow Wage Rate Factor	0.76	Based on the average rates used for recent ADB projects
Construction Period	5 Phases	Phase 1: 2026-2030 Phase 2: 2031-2035 Phase 3: 2036-2040 Phase 4: 2041-2045 Phase 5: 2046-2050
Residual Value	-	Proportional to the direct costs for architectural facilities of each construction period

6. Cost Estimation and Economic Analysis EIRR: Methodology for Calculating Economic Benefits

Economic viability of the project was assessed by estimating the gap in the expected benefits and costs between with (w/) and without (w/o) project scenario. The w/o project scenario includes (1) implementing the public transportation projects as currently proposed, whilst the w/ project scenario includes, in addition to (1), (2) ensuring better alignment of the public transportation networks at Kamalapur Railway Station, and; (3) Kamalapur Railway Station area redevelopment. The differences in the benefits and costs between these scenarios, namely, (2) and (3), are attributed to the implementation of the proposed project

Hedonic Pricing Method

Assuming land values of the beneficiary areas reflect wider project benefits, they were quantitatively calculated based on Hedonic Pricing Method (HPM), which is an econometric approach to identifying the increase in land values due to a project intervention by developing land value function including newly installed commercial, business and othervalue added facility spaces as explanatory variables

Whilst the expected decrease in travel time to the CBD area due to the better public transportation networks is the only factor to boost the land value under the w/o project scenario, the provision of various facilities at the project site will further increase the area attractiveness



Assumed Beneficiary Areas

As the public transportation projects will eventually connect suburban areas in Dhaka with the Kamalapur Railway Station even under the w/o project scenario, areas within the 5-km radius of the Kamalapur Railway Station, which will be covered by the public transportation networks once completed, were identified as the beneficiary areas (indicated by green circle in the diagram)

Sample land value data to estimate the developed land value function were collected across Dhaka (indicated by red dots)



6. Cost Estimation and Economic Analysis **EIRR: Result**

The project's baseline EIRR is 36.6% for the Option 1 and 37.9% for the Option 2, respectively, at the social discount rate of 9.0% per annum.

Sensitivity analysis testing adverse impact on the project indicates that EIRR of both options are resilient to these potential fluctuations to the project costs and benefits

EIRR Results

No.	Scopario	Variation	EIRR (%)				
	Scenario	(%)	Option 1	Option 2			
0	Base case	0	36.6	37.9			
1	Cost increased	+ 5	36.0	37.3			
2	Benefit decreased	- 5	36.0	37.3			
3	Scenario 1+2	+/- 5	35.5	36.8			
4	Cost increased	+ 10	35.5	36.9			
5	Benefit decreased	- 10	35.4	36.8			
6	Scenario 4+5	+/- 10	34.4	35.8			

Comparative Assessment

Higher EIRR is expected under the Option 2 because:

- Phasic cost structure of the Option 2, where total CAPEX expenditure in the earlier phases of development is smaller, is more favorable to EIRR albeit it is more expensive overall
- The Option 2 puts more emphasis on commercial development, whilst the Option 1's focus tilts more towards inclusive urban environment. As such, under the Option 2 larger proportion of land is reserved for commercial and business functions development, the parameters to boost economic benefits

7. Proposed Implementation Plan Recommendation for Organisational Structure for Implementation

SWG has already proposed a PPP structure, and provided to the relevant organisations and agencies in Bangladesh. Based on the proposed PPP structure by SWG, the JICA survey slightly modified and proposed the organisational structure for implementation.

- The main private developer will be the master developer, and a Special Purpose Company (SPC) is formed for the development.
- The SPC and BR sign a PPP agreement, which ensure the cooperation between the public and private sectors by a BOT contract for the land and development, and a right which the SPC is to formulate the master.
- BR, as the main organisation implementing the project, unify the relevant organisations and agencies and establish the governmental committee to proceed the project



7. Proposed Implementation Plan Recommendation for Implementation Method

Master SPC Master PPP BR **PPP Agreement** Developer Management Master Development Agreement **Contractual Partner** Master Plan and Management Land Owner of Overall Development Land Ownership / Construction Sub Developer **NEW BR Station &** Station Facilities Construction Property **BR Housing** Ownership Construction Land Ownership **Basic Infrastructure** (Lease) / Public Facilities Construction/Ownership MmTH Bldg. **BOT Contract** Main Station Building Construction/Ownership Private Development **BOT Contract** By Master Developer Construction **Private Development /Ownership BOT Contract** By sub developer Gov. Expenditure / Other Partners / Japanese **Public Fund** Investors Partners Joint Investment Loan / Equity Note: A Draft prepared by the JICA survey team in reference to the conceptual proposal by SWG.

While BR and the master developer play the centre role for the entire development, each development component is conducted utilising separate implementation methods. However, all components of development are integrated in the master plan.

- The master developer will formulate the entire development plan (Master Plan) with BR and the relevant organisations and agencies.
- The master developer grants rights to supervise all aspects of development and implement the major private developments based on the PPP agreement signed with BR.
- While BR and the master developer play the centre role for the entire development, each development component is conducted utilising separate implementation methods considering each development condition, implementation body, and operation and management body.

Recommendation for Overall Implementation Plan

The implementation of the railway facilities, including ICD relocation, composed the critical path, and it is the major condition which affects the other construction schedule.

Draft Overall Implementation	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	203	31 2032~
MRT6 (Extension)	D/D	Land Acquisition	Tender	Construction								
MRT1	D/D*	Construction										
MRT2	Pre-Study	FS/ BD	DD		Tender	Constriction	<u> </u>					
MRT4		FS/ BD	DD		Tender	Constriction						
ICD	Preparation of Reloca	ation *		Relocation	<u> </u>	Demolish						
							17					
BR Facilities at Kamalapur	Planning *			FS/BD	DD	Tender	Construction	Demolish				
- (BR Facilities outside)			Land Acquisition **			Construction						
BR Station (and HSR Structure)	Preparation of Conce	nt Master Pla	an	ES/ BD		Ten	er	Construction				
Brocaton (and Hore of deale)	T reparatori or conce								1		╈	
Driveta (MmTH Duilding)	Droporation of Conce	nt Maatar Die		Coordination / Dropor	iofon			of Dovelaner / Land [Iranaratan			apatrustian
Privale (Mirri A Building)	Preparation of Conce			Coordination / Prepar			F S/BD/DD / Selection	Tor Developer / Land F				
Private Development (Initial Part)	Preparation of Conce	pt Master Pla	an	FS/BD/DD / Selection	of Developer	Building + Basic Infras	sructure Construction					
				Dhasing Danalasana		Duran fair						
Private Development (Other Part)	Preparation of Conce	pt Master Pla	an	Phasing Developmen	t Plan	Preparation	FS/BD/DD / Selection	of Developer / Land F	reparation	· · · · · · · · · · · · · · · · · · ·	Construction	on (Phase by Phase)
Road (Under pass)	Coordination for DEE			FS/BD	DD	Tender	Construction					
Bus Terminal				Coordination / Prepar	ination / Preparation			FS/BD DD Tender		Construction		
BR Housing	Preparation of Conce	nt Master Pla	an	Negotiation with Resid	lences							
Bit flogsing												
- (temporal relocation housing)***		FS/BD/DI	D / Selection of Develop	per / (Land Acquisition)	Construction	Moving*	•					
- (BR housing Phase 1)		Phasing D	evelopment Plan	FS/BD/DD) / Selection of Develop	per	Construction		Moving*			
- (BR housing Phase 2)							FS/BD/DD / Selection	n of Developer	Construct	on		Moving
- Private Dev. In BR Housing Area									FS/BD/DD / Selection	n of Developer		Construction

Note: In the case of the Option 2, "Private Development (initial part) is omitted.

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Recommendation for **Overall Implementation Plan**

The implementation of the railway facilities, including ICD relocation, composed the critical path, and it is the major condition which affects the other construction schedule.

Draft Overall Implementation	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031 2032~		
MRT6 (Extension)	D/D	Land Acquisition	Tender	Construction	1 1								
MRT1	D/D*	Construction							lt w	ill take nearl	v 10 years		
MRT2	Pre-Study	FS/ BD	DD		Tender	Constriction			+:11 +		, , uilding and		
MRT4	FS/ BD 202			Tender Constriction			ictc2026						
						2020		0	— maj	or private de	evelopment —		
ICD	Preparation of Relocat	ion *		ICD Relo	ocation / De	emolition		0	star	t constructio	on.		
BR Facilities at Kamalapur	Planning *			FS/BD	DD	BR	Facilities	9					
- (BR Facilities outside)			Land Acquisition **			Construction					2031		
BR Station (and HSR Structure)	Preparation of Concep	t Master Pla	an a	FS/ BD	DD		er	↓ BR	Station / D	emolition			
Private (MmTH Building)	Preparation of Concep	t Master Pla paration of	Concept	Coordination / Prepar	ration		FS/BD/DD / Selection o	f Developer / Land Pr	eparation		MmTH Bldg.		
Private Development (Initial Part)	Preparation of Concep	t Master Pla	an	FS/BD/DD / Selection	n of Developer	(Part	of) Private	Dev					
Private Development (Other Part)	Preparation of Conce	ster-Plan	an a	Phasing Developmen	it Plan	Preparation	FS/BD/DD / Selection o	f Developer / Land Pro	eparation		Private Dev.		
Road (Under pass)	Coordination for DEE			FS/BD	DD	Tender	Construction						
Bus Terminal				Coordination / Prepar	ration		FS/BD [DD	Tender	Construction			
BR Housing	Preparation of Concep	t Master Pla	an	Negotiation with Resid	dences								
- (temporal relocation housing)***		FS/BD/DI) / Selection of Develop	r / (Land Acquisition)	Construction	Moving*							
- (BR housing Phase 1)		Phasing D)evelopment Plan	FS/BD/DI	D / Selection of Develor	ber	Construction		Movina*				
- (BR housing Phase 2)							ES/BD/DD / Selection of	f Developer	Construct	ion	Moving		
									Construct				
- Private Dev. In BR Housing Area									FS/BD/DD / Selection	n of Developer	Construction		
	NOTE: It is	s possible to stan	rt a part of privat	e development i evelopment wh	in 2026. However	r, it depends on t ned by the maste	he entire	1 1 1		• ' ' '			

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Proposal of Draft Action Plan : Major Actions for BR and MOR



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Proposal of Draft Action Plan : Major Actions for BR and MOR

Org. Major Actions

BR BR should take the major role for the Kamalapur Station Area Redevelopment as the land owner of the development.

Together with the active cooperation of SWG, **BR is expected to initiate the project** and has to communicate with the other relevant organisations and agencies for all the coordination requirements.

MOR As the main ministry who supervise and controls the overall development and implementation process.

> Approvals of the all plans, implementation and financing decision (including the land acquisition for ICD) are also MOR's responsibilities.

Actions needed for the first few years (BR)

Relocation of ICD (A prerequisite of the Development)

- Land Acquisition / Land Preparation
- Securing budget for implementation of the ICD at Dhirasram (for design as well as construction) *construction can be done by PPP or loan from development partners.

Rearrangement of BR Maintenance Facilities (A prerequisite of the Development)

Preparation of a plan to rearrange the BR maintenance facilities at Kamalapur

Preparation to Formulate the Master Plan of Kamalapur Station Area Redevelopment

Coordination / Basic Agreement required before the Master Plan (Preferably)

- Coordination for MRT and Subway Lines
 - Location of station and civil structure (Basically agreed)
 - Agreement for land use right
- Coordination for DEE
 - Finalization of (re)design of DEE / Agreement for land use right
 - Design of Underpass (Necessary to coordinate with DEE design)
- Coordination for HSR/Chord line
- Selection of Transaction Advisor (Topographic Survey)
 - Note: Topographic Survey is an expected work items done by Transaction Advisor

Preparation of the Master Plan

Agreement with the Main Private Developer (SWG)

Coordination with the Other Organizations/Agencies

Proposal of Draft Action Plan : Major Actions for Other Organisations



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Proposal of Draft Action Plan : Major Actions for Other Organisations

Org.	Major Actions	Important Actio
RAJUK	To control urban development projects and prepare and apply urban planning and building regulations	Revision of Zon With discussions
DMTCL	To communicate with BR regularly, not only for finalising the locations of MRT stations and structure, but also to create the best multimodal hub , which all transport modes is integrated.	 and scale of build Revision of De redevelopmer
BBA	To communicate with BR, as the alignment, toll gate, and ramp way of DEE are major issues. The solutions should be agreed upon during the planning stage . And coordination is necessary for the subway project, which is initiated by BBA.	Coordination for Basic agreement ((temporal) use of To obtain land
BRTC	To finalise the size, function, and operation of the bus terminal . Further discussions are required as BRTC is one of the important organisations who manage the bus network in Dhaka .	 Coordination f (construction) Coordination f and new deve
DTCA	To materialise the multimodal transport hub, coordination regarding the all transport function is essential in preparing the • master plan.	Redesign of DE
DSCC	To take care of the urban services and utilities, which should be properly provided.	 Further Coord needed to final
PPPA	To monitor and advise the entire project, as PPPA promotes PPP projects in Bangladesh, and the Kamalapur is in line with Bangladesh-Japan PPP Platform	CoordinatioApproval fo

ns

ing Plan (Detailed Area Plan)

with BR, other organizations, and SWG, appropriate land use lings need to be agreed.

etailed Area Plan is needed to incorporate with the nt of Kamalapur

or MRT lines/ Subway Lines

regarding not only the location of MRT lines, but also BR lands and conditions need to be obtained.

- use right for MRT/Subway facilities.
- for spaces where are necessary for during construction yard, etc.)
- for transfer passenger route connecting to the new BR station, lopment site.

E cooperated with the development of Kamalapur

has been obtained between BR and BBA.

- lination regarding the (Re)design of DEE and underpass is alize the layout plan of the development of Kamalapur
- on for All Transport Issues
- or the Concept of Kamalaur Station Area Redevelopment

Consideration Points (Critical Actions for Implementation)

- 1. Mechanism for Coordination and Consent Building
- To solve the issues on MRT lines, DEE, and any other arrangement, a coordination mechanism should be established for smooth Consensus building.
- The leadership of BR as the land owner, and affirmative support by the other organisations and agencies will be critical to build the coordination mechanism.

2. Sharing Priorities for Development Concept

- For all coordination, it is important to identify development priorities and share them with all relevant organisations and agencies.
- ✓ For any decision making, the priorities for the development concept will be the guiding principles.

3. Defining the Role of Railway Station BR

- In this survey, a railway development plan is proposed by assuming the necessary facility at Kamalapur Station. Already, BR started to discuss the necessary facilities at Kamalapur Station.
- From policy, planning, and technical point of view, the future role of Kamalapur Station should be determined so that the direction of entire development as multimodal transport hub can be defined.
- It is recommended to formulate a comprehensive study for the railway maintenance facility with consideration of the long future demand, so that the demarcation of land for the private development can be discussed precisely.

Priority Actions









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✓ The coordination is essential to realise **the convenient transport terminal to** promote usage of public transport, as well as activate private development.

Consideration Points (Critical Actions for Implementation)

 \checkmark Especially, the role taken by **DTCA** will be essential.

7. Proposed Implementation Plan

5. Formulation of Visions and Measures for Urban Development RAJUK Private Dev. Other Org.

BR

DTCA

DMTCL

- ✓ It is necessary to define the **concept of the land use** at Kamalapur, and **building** regulations should be determined concretely, as a next step.
- ✓ DAP (Detailed Area Plan) should be revised accordingly.






7. Proposed Implementation Plan

Consideration Points (Critical Actions for Implementation)

6. Technical Considerations for Structural Arrangement

There will be physical structural issues, specifically on the 1) structure of HSR, 2) MRT Line 2, and 3) DEE. These spatial and structural arrangements will require high-level technical studies.

7. Traffic Impact Assessment

- Although the development of Kamalapur is to promote public transport, It will inevitably generate road traffic.
- ✓ An appropriate technical **traffic impact assessment** needs to be done.
- Road transport survey should be conducted to understand the existing traffic volume and future forecast.

8. Consideration of Financial Plan

- ✓ It is necessary to find **possible public finances**.
- It is also necessary to secure a finance to enable the conduct of the technical feasibility studies.



DMTCL

BR

DTCA

BR

BR

BBA

Private Dev.





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Other Necessary Actions

7. Proposed Implementation Plan

Consideration Points (Critical Actions for Implementation)

9. Mechanism for Operation and Management

As a multimodal transport hub that integrates several transport and urban functions, and as a PPP project, an appropriate mechanism for operation and management needs to be formulated to keep the attractive and high-quality urban spaces.

Private Dev. **10.** Coordination with Private Co-partner (Private Developer) BR

 \checkmark It is assumed that a master developer will be managing the entire private development, and sub-developers will be in charge of respective single development projects, and private investors and other co-partners will participate the project. These private sectors should be unified under the control of the master developer.

* NOTE: It depends on how the master developer implement the private development

BR

11. Continuing Bangladesh – Japan Partnership

- ✓ The progress of the conceptualisation for Kamalapur Station Area Redevelopment is being shared in the platform meetings.
- ✓ In the next step, more detailed studies and feasibility studies are needed. The continuous partnership is essential for successful implementation.

Private Dev.

12. Dissemination of the Project

- ✓ It is expected that impacts of the development will be expanded towards the surrounding areas of Kamalapur. It will be important to **disseminate the concept of the project** to the citizens of Dhaka **at an appropriate timing** in future.
- \checkmark This aims to smoothen the project implementation avoiding and minimising any unnecessary conflicts from the people.

BR **PPPA**





DMTCL Other Org. Private Dev. BR