

Pre-feasibility Study for Development of Intermodal Transit Hub at Peenya on PPP Model

FINAL PRE-FEASIBILITY REPORT



To

**Infrastructure Development Department
Government of Karnataka**

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SUBMITTED BY:

KSIIDC-IL&FS Project Development Company Limited (KIPDC)

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1) Introduction

1.1. Background

- a. **Infrastructure Development Department (IDD), Government of Karnataka (GoK)** is the Infrastructure arm of GoK with the primary objective of facilitating development of infrastructure projects across Karnataka.
- b. IDD proposes to develop Intermodal Transit Hubs (ITH) at various locations across Bangalore on PPP format.
- c. In this regard, the Principal Secretary - IDD proposed to take up pre-feasibility studies for each of the locations across Bangalore at a meeting held on 6th January 2010.
- d. **IDD has appointed KSIIDC-IL&FS Project Development Company Limited (KIPDC)** to undertake the Pre feasibility study for the Development of Intermodal Transit Hub at 4 locations namely Yeshwantpur, Yelahanka, Peenya & Mysore Road.
- e. IDD, vide its letter no.: **IDD 107 ITS 2009 dated 9th April, 2010**, appointed KIPDC as consultant for the preparation of Pre-Feasibility Report for the **Development of Intermodal Transit Hub (ITH) at Peenya on PPP format** (hereinafter referred to as the “**Project**”).
- f. **Karnataka State Road Transport Corporation (KSRTC)** has been designated as the nodal agency for the project.
- g. In order to assess if the above project would be prima facie feasible for development on PPP basis and its financial self-sustainability or otherwise, KIPDC is conducting this Pre-feasibility study as per the appointment of IDD.
- h. The objective of the Pre-feasibility Study is to assess the broad project viability and to classify projects viable for development on PPP basis and projects that would require Viability Gap Funding (VGF) or other State / Central support. On completion of the Pre-feasibility study of the said project, the IDD has agreed in principle to mandate the project development of the project, if viable, to KIPDC on single source basis.
- i. However, if this Project is found to be viable for development only with financial assistance/VGF from GoI, then the project development and bid process management related work of this Project would be bid out by IDD as

per GoI guidelines for PPP projects, in which KIPDC would also be eligible to participate.

1.2. **IDD's Objective**

IDD's objective towards preparation of the Project Pre-feasibility is:

- To explore the possibilities of development of the identified project on Public Private Partnership (PPP) basis;
- To assess the preliminary project viability for development on PPP basis or if it would require VGF or any other State / Central support;
- To structure a bankable project amenable for PPP and explore project funding through Private sector Investments;
- To identify the stakeholders for the project including the nodal department and advice them on taking up the projects;
- To mandate the viable project to the respective project advisors for project development;
- To facilitate the development & time bound implementation of the aforesaid project of the government with private sector investment;
- To expedite project implementation by leveraging private sector efficiency.

1.3. **Role of KSIIDC-IL&FS Project Development Company (KIPDC)**

The role of KIPDC in the preparation of the Project Pre-feasibility is:

- To assess the pre-feasibility for development of the proposed project on PPP at the proposed site at Peenya, including the project conceptualization, need for the project at the location, preliminary market/ demand assessment, broad financial feasibility/ viability, implementation framework, recommendation of nodal agency for the project, role of nodal agency & IDD and the way forward.
- The Pre-feasibility study essentially focuses on the viability of the project for development on PPP and to classify projects that require State/ Central Govt. support.
- To formulate the project development approach for projects proposed to be taken up for project development by KIPDC.

1.4. Approach & Methodology

Activities to be carried out by KIPDC shall include:

- Development of project concept;
- Desk study for location(s) analysis, review of statistic / data already available;
- Interact with the head of respective Departments for data
- Co-ordination for correspondence by KSIIDC / IDD with respective Departments for additional information pertaining to information needed for the successful completion of the Pre-Feasibility report;
- Identification of critical issues
- Preliminary project structuring and viability assessment;
- Summarizing of the Pre-feasibility assessment in the form of a report along-with recommendation to KIPDC / IDD;
- Presentations to IDD.

As part of the project documentation, KIPDC would submit the following to IDD:

- 1) Inception Report
- 2) Draft Pre-feasibility Report
- 3) Presentation on Draft Pre-feasibility Report
- 4) Final Pre-feasibility Report

2) Infrastructure in Bangalore

2.1 Overview

Bangalore, the capital of the Indian state of Karnataka, is located on the Deccan plateau in the south-eastern part of Karnataka. Bangalore is India's third most populous¹ city and the fifth-most populous² urban agglomeration. It covers an area of 741 sq. km. The majority of the city of Bangalore lies in the Bangalore urban district of Karnataka and the surrounding rural areas are a part of the Bangalore rural district.

Bangalore, known as the Silicon Valley of India for being the nation's leading IT exporter, is also the playground of many Indian as well as multinational Information Technological (I.T) and Bio-Technological (B.T) companies. Numerous public sector heavy industries, aerospace, telecommunications, and defense organizations are located in the city. A demographically diverse city, Bangalore is a major economic and cultural hub and the fastest growing major metropolis in India. Bangalore is also home to many important education & research institutions.

With an economic growth of 10.3%, Bangalore is the second fastest growing major metropolis³ in India only next to Surat. The city is the third largest hub⁴ for High Networth Individuals (HNI). Bangalore with its encouraging policies and favourable environment has attracted investors and has seen a steady increase in FDI inflow in recent years.

Economic Snapshots

Urban Agglomeration - Area (sq km)	741
Population - Census 2001 (million)	5.7
Projected Population 2008 (million)	8.01
Literacy Rate – Census 2001 (%)	83%
Per Capita Income - 2007-08 (US\$)	1087

¹ World Gazetteer – India: Largest cities and towns and statistics of their population

² World Gazetteer – India: Metropolitan Areas

³ PTI News 2008 – Based on annualised GDP growth rates for fiscal year 2001-02 to the fiscal year 2006-07

⁴ Times of India 2007 – Bangalore third richest city in the country

The headquarters of several public sector undertakings such as Bharat Electronics Limited (BEL), Hindustan Aeronautics Limited (HAL), National Aerospace Laboratories (NAL), Bharat Heavy Electricals Limited (BHEL), Bharat Earth Movers Limited (BEML) and Hindustan Machine Tools (HMT) are located in Bangalore. In June 1972 the Indian Space Research Organization (ISRO) was established under the Department of Space and headquartered in the city.

Bangalore's IT industry is divided into three main clusters – Software Technology Parks of India (STPI); International Tech Park, Bangalore (ITPB); and Electronics City. Infosys and Wipro, India's second and third largest software companies are headquartered in Bangalore, as are many of the globally reputed IT Companies. UB City, the headquarters of the United Breweries Group, is a high-end commercial zone.

In addition to the prominent industry names and fortune 500 companies operating in the city, there are a large number of small and medium scale industries that contribute significantly to the economic base of Bangalore.

The industry turnover and the employment base in various categories of industry are illustrated:

Size	Number	Investment (Rs million)	Job Opportunities
Small Scale	55,162	16,820	578,000
Medium & Large Scale	546	47,250	224,287
Mega	17	38,080	33,830

Source: JnNURM CDP

2.2 Transport Infrastructure in Bangalore

Bangalore is served by the Bangalore International Airport (BIA) which started operations from May 24, 2008. Peenya has become one of the fastest growing areas in the city due to the presence of Small & Medium scale industries and its proximity to BIA.

Bangalore has a formidable rail network system and connected by rail to most cities in Karnataka, as well as Mumbai, Chennai, Kolkata, Hyderabad, Bhopal, Mysore and other major cities in India.

A rapid transit system is being developed by the Bangalore Metro Rail Corporation Ltd. Once completed, it will encompass a 42.3⁵ km network, of both elevated and underground network comprising 41 stations. Apart from this, a High Speed Rail Link (HSRL) has been proposed between the BIA and the city centre.

Buses, operated by Bangalore Metropolitan Transport Corporation (BMTC), are the means of public transport in the city. BMTC operates Vayu Vajra Airport services from different parts of the city to the BIA, Vajra which are AC buses, Suvarna and Pushpak which are non AC buses on city routes. The inter-city and inter-state buses are operated by Karnataka State Road Transport Corporation (KSRTC), connecting Bangalore with other parts of Karnataka as well as other states.

2.3 Initiatives in Urban Infrastructure

The growth of urban population in India has been extremely rapid. While the total population in India has grown by about 3.5 times in the last century, its urban population has increased almost 9 times over the same period. According to the 2001 census, India has a population of 1027 million with approximately 28% or 285 million people living in urban areas. The liberalization policies adopted by the Government of India, is expected to increase the share of the urban population to about 40% of total population by the year 2021. It is estimated that by the year 2011, urban areas would contribute about 65 per cent of gross domestic product (GDP). Urban economic activities and higher productivity is contingent upon the availability and quality of infrastructure services such as power, telecom, roads, water supply and mass transportation, coupled with civic infrastructure, such as sanitation and solid waste management.

To ensure sustainable growth, Government of India has initiated the development programs for the urban sector in selected cities through Jawaharlal Nehru National Urban Renewal Mission (JNNURM). The aim is to encourage reforms and fast track planned development of identified cities with focus on efficiency in urban infrastructure and service delivery mechanisms, community participation, and accountability of ULBs/ Parastatal agencies towards citizens.

The objectives of the JNNURM are to ensure that the following are achieved in the urban sector:

⁵ Source: www.bmrc.co.in

- Focused attention to integrated development of infrastructure services in cities covered under the Mission
- Establishment of linkages between asset-creation and asset-management through a slew of reforms for long-term project sustainability;
- Ensuring adequate funds to meet the deficiencies in urban infrastructural services;
- Planned development of identified cities including peri-urban areas, outgrowths and urban corridors leading to dispersed urbanisation;
- Scale-up delivery of civic amenities and provision of utilities with emphasis on universal access to the urban poor;
- Special focus on urban renewal programme for the old city areas to reduce congestion;
- Provision of basic services to the urban poor including security of tenure at affordable prices, improved housing, water supply and sanitation, and ensuring delivery of other existing universal services of the government for education, health and social security.

Bangalore is one of the fastest growing cities in Asia and one of the most sought after cities in India by people, companies, multinationals and tourists. The massive growth that the city has witnessed in the last decade is a clear indication of this city being developed to be on par with the most modern cities.

A number of infrastructure projects have come up in the city such as roads, highways, flyovers etc easing the traffic and making travel a lot easier. While there is still a lot to be done with regard to the projected traffic demand, the Government has indeed been initiating several projects to improve the city's infrastructure.

2.4 Traffic Scenario

Bangalore city has a population of 5.8 million according to the census statistics for the year 2001, as against the city's earlier population of 2.92 and 4.13 millions in 1981 and 1991 respectively. This shows that the population is growing at a rapid pace and has nearly doubled in the last twenty years, and presently the growth rate is around 3.8% annually. The geographical boundaries of the city also are expanding fast, as evident from the census data, which showed the city areas as 386, 446 and 531 sq. km. during the years 1981, 1991 and 2001 respectively. With increasing population and reduced available land area the city's population density stood at 7983, 9260 and 10,710 persons/sq. km for the above corresponding periods. It is further projected that the

population size of Bangalore Urban Agglomeration (BUA) will be around 7.8 million in 2011 and 11.0 million in 2021.

A large city of this size and a rapidly rising population of the above magnitude, demands a whole range of civic services, including the vital transportation sector. The present public transport infrastructure of Bangalore city is largely dependent on the BMTC operated bus network facility, which is the mainstay for a population size of nearly six million. In Bangalore, there is a predominance of private transportation – mainly consisting of two wheelers, besides a good number of four wheelers and light vehicle population.

Given this scenario, Bangalore city is also being promoted as a high profile investment destination by Government, Private industries and Multi-Nationals and the good response thus received, has resulted in a chaotic situation as far as Urban Transport Sector is concerned.

A traffic density survey conducted for evaluating the traffic pattern scenario helps in determining the congestion status of the road network. The present vehicular fleet on Bangalore roads is around 1.8 million vehicles traversing in the city area which would be difficult to survey and hence at chosen key locations along the corridors, field survey teams carried out traffic census during peak and off peak hours of the day for different categories of vehicular flow in the area. The collected field statistics were analyzed and compared with the congestion index available for the city. The derived Congestion Index (CI) indicated far above the limiting value of 1.0.

The traffic pattern surveys along the proposed corridors brought out clearly the composition of vehicle population plying on the city roads. From the survey data, it was evident that the two wheeler population almost always exceeded 50% at most survey points, while the three wheelers were typically around 20%, which together accounted for over 70% of the total vehicle population and the rest accounted for by cars and HMTVs. These findings have helped to confirm the total inadequacy of the present public transport system operating in the city.

As a sequel to this and to meet the genuine needs of a rapid, efficient and convenient mode of city transport, there is a growing trend to use personalized vehicles in Bangalore with attendant problems of high road congestions, large fuel consumption, heavy air pollution levels, besides growing number of accidents on the road. To address these problems singularly and collectively in order to bring in considerable relief to the travelling public, the Government of Karnataka has desired to introduce a Metro rail system for the benefit of the city's commuting population on the lines of the Metro rail at Delhi.

3) The Concept: Intermodal Transit Hubs

3.1 Background

In Bangalore, the rapid growth, increased economic activity and population, have increased the traffic & transportation problems due to the gap between demand & supply of transport system. For Bangalore, the modal shift in favour of mass transport system is not very good. As a result, there is tremendous increase in the use of personalized vehicles. To further aggravate the situation, the carrying capacity of the roads has not kept pace with the growth, leading to congestion, increased air pollution and accidents. The use of personalized vehicles need to be regulated through efficient Public Transportation systems and traffic management techniques.

3.2 Intermodal Transit Hubs

An intermodal facility can be defined as a place where interface occurs between different transportation systems/ modes. In a passenger terminal, people enter the facility by one mode of access (e.g. by car, bus, metro or rail, etc.) and leave by another. The term “Intermodal Transit Hub” or ITH is generally applied to a terminal that serves multiple transit operators and/or modes, such as combined bus, metro and rail systems along with the intermediate public transport network.

ITH is a major transportation centre, generally characterized by a large footprint, many thousands of users, multiple modes of transportation and serving large portion of the city area, regional center, park-and-ride activity, transfer between different modes and includes a building that functions as a transit centre. A well-designed ITH should fit within the fabric of the entire transport system of the region.

In an Intermodal Transit system, the various modes should complement and not compete with the other services/ components of the systems. Mere introducing of new modes of public transport system will not serve the purpose, unless a good connectivity is not established between the various modes of transport. As per the opinion of experts in the Urban Transportation systems, poor inter-modal connectivity is a significant barrier to inter-modalism, leading to commuters opting out of public transport system.

- Addressing the above issue of poor inter-modal connectivity, Inter-modal surface public transport stations represent a rapidly evolving and developing concept.
- In an Inter-modal Transport system, the different modes of transport such as Buses, Metro, Trains, intermediate transport networks like auto rickshaws, private vehicles, etc. are linked to enable commuters to travel within the city in the least possible time and at lower costs.
- The Intermodal transit hub needs to be developed and operated as a central passenger transit facility which services rail, bus, taxis, motorists, bicyclists and pedestrians. Apart from this other facilities such as offices, restaurants, commercial & retail, bus depots and repair facilities may be provided to make the project viable.

Thus, on a whole Inter-modalism is an important feature of today's transportation systems worldwide. In recent years, there has been an increasing emphasis placed on the development of intermodal transport centres as tools with which to improve urban mobility. Specifically this activity is highly critical in the developing countries, where a majority of residents use transit and where an effective system of transit centres could improve intra-urban mobility and give low-income residents better access to economic opportunities. The facility may be complemented with a commuter lifestyle space where utilities like offices, restaurants, commercial & retail sales and services are offered to the commuters.

3.3 Need & Benefit of ITH

Intermodal Transit hubs are a particularly strategic consideration in the present scenario of traffic growth and congestion in roads in Bangalore.

An Intermodal Transit Facility gathers many modes of transportation together and is strategically located so that the commuter has different transit alternatives to reach the destination. It describes an approach to planning, building, and operating the transportation system, emphasizes optimal utilization of transportation resources and connections between modes. One of the objectives of an Intermodal transit hub is to minimize the cost and inconvenience of changing transit systems by a commuter.

The benefits derived from effective intermodal co-ordination are:

- Lowering transportation costs by allowing each mode to be used for the portion of the trip for which it is best suited
- Increasing economic productivity and efficiency, thereby enhancing the Nation's global competitiveness

- Reducing the burden on overstressed infrastructure components by shifting use to infrastructure with excess capacity
- Generating higher returns from public and private infrastructure investments
- Improving mobility for the elderly, disabled, isolated, and economically disadvantaged
- Reducing energy consumption and contributing to improved air quality and environmental conditions
- Introducing single ticket travel which in turn enables easy movement from one mode to another
- Reducing Land taken for road operations and common amenities & maximizing opportunities for shared facilities and synergies
- Minimizing potential phasing impacts by reducing the number of components that need to be accommodated and avoiding duplication of facilities
- Public transportation providers can benefit from the efficiencies of shared costs and operational infrastructure

4) Intermodal Transit Hub on PPP

4.1 PPP in Infrastructure Projects

The Central and State governments encourage the implementation of Infrastructure Projects through Public Private Partnership (PPP) model. The PPP approach allows an ideal combination of public interest with private sector efficiency and sensitivity to market requirements. Private Sector tends to be responsive to market requirements and with a motivation to optimize returns brings in efficiency and accountability. For Operation, Maintenance and Management, Private Sector efficiency can also be tapped through awarding Management contracts, Service contracts and other such arrangements.

In a PPP, while the private sector shall be responsible for financing, executing and operating the facility, Government shall facilitate the development by providing timely clearances and approvals. The Government shall define minimum development obligations for the private sector, yet leave adequate flexibility for the developer to build the project in response to market demand and hence optimize collective returns.

In order to optimize on the utilization of Government Funds for priority projects, timely implementation of Infrastructure Projects and to offload the operational and market risks, the Government has been promoting the involvement of the private sector on Public Private Partnership (PPP) format in the infrastructure projects. The following are few advantages of involvement of the private sector in Infrastructure Projects:

- Development & time bound implementation of all priority projects of the government with private sector investment
- Development, operations and maintenance of the projects in a planned manner with modern amenities and requisite supporting infrastructure by reputed developers without utilizing Government resources of manpower, funds, etc
- Focused project development and time bound implementation
- Optimization of commercial benefits to the Government, which could be utilized for funding other unviable projects that are high on priority and social importance
- Utilisation of Private sector finance through Project funding by Private Sector Developers

4.2 Intermodal Transit Hubs on PPP

ITH facilities are expensive and require massive mobilization of resources for investments that have long gestation periods. Urban transport also has an inherent imbalance as it involves carriage of high volume of traffic during peak hours whereas during rest of the day, it is underutilized. This affects the economic viability of the system adversely.

The development of the project is envisaged on Public Private Partnership basis wherein the private sector player shall develop, operate and manage the facility for a predetermined time period. Commercial viability being the key to the success of any PPP project, the viability of Intermodal Transit Hubs in the urban sector can be ascertained with the following as main streams of Revenue:

- Revenues from the commercial space and other facilities provided at the ITH
- Levy of user charges to transport service providers including government inter and intra state services, private buses, taxis, Autos etc.
- Levy of Parking fee for vehicles using the proposed parking facilities
- User charges for other miscellaneous services like over night parking, vehicle repair/service facilities, etc for buses, cars etc.
- Revenue from advertising (at the intermodal hub premises, on parking fee tickets, interior walls, parking spaces and skywalk etc)

The Project could be implemented on a PPP model by selecting a developer through a transparent open bidding process, who would be responsible for the design, development, finance, construction, marketing, sub-lease and maintenance of the common area and facilities of the property.

The site for the construction of Intermodal Transit Hub can be leased out for a pre-agreed number of years to the successful bidder by Government for an agreed upfront lease premium, an annual license fee and /or on any other feasible option derived as per detailed studies.

5) Proposed Project

5.1 Project Area: Peenya

Peenya is an industrial area in the north-western part of Bangalore city and is considered to be one of the largest industrial areas in South-East Asia. It houses small, medium, and large scale industries. The industrial area is known for engineering, electrical goods such as: transformers, motors & generators, textile, hydraulics and machine tool industries. The industrial area was established in late 1970s.

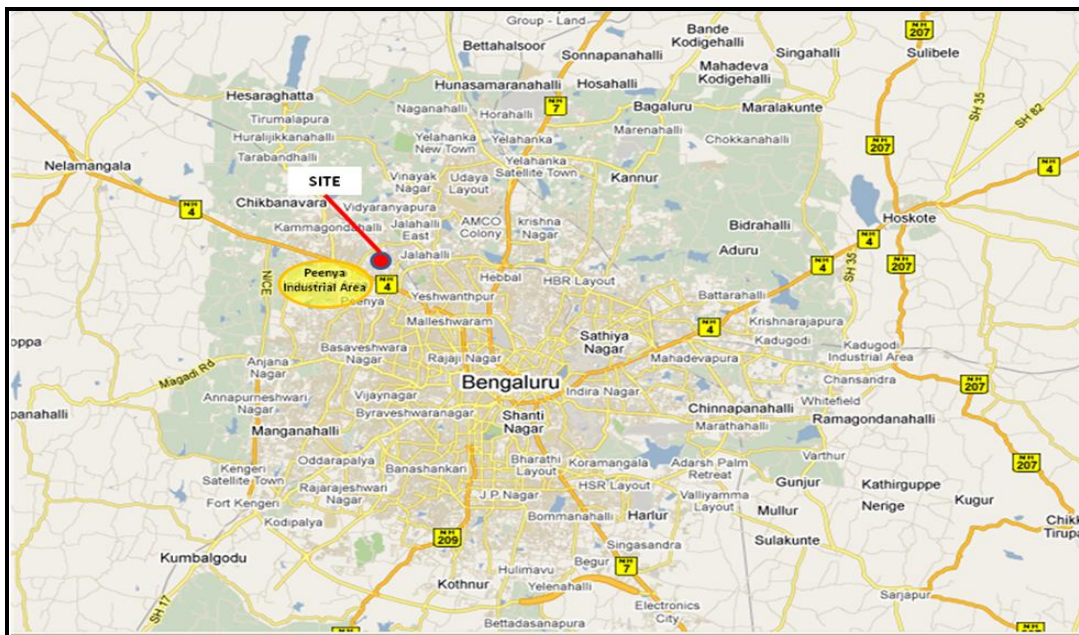


Figure 1 Location of Peenya in Bangalore

Peenya lies on Chennai–Bangalore–Pune–Mumbai National Highway (NH-4), which is the main road entry to Bangalore from majority of the state of Karnataka.

Many long distance trains to Hubli, Belgaum, Pune, Mumbai, Delhi, Hyderabad and Howrah halt/ originate from Yeshwantpur railway station, which is the nearest railway station to the Peenya area.

To provide connectivity to the Peenya area by Metro rail, BMRCL has planned the north-south line originating from Nagasandra (Hessarghatta Cross) in

Phase-I, along with stations at Peenya and Peenya Industrial. BMRCL has also planned a Metro Depot in the Peenya area, where it will take up the maintenance and repair/ overhauling works for the rakes plying on the north-south line.



Figure 2 Satellite Imagery of the site & its surroundings at Peenya

5.2 Location Assessment

5.2.1 Project Site

The Project Site is located about 750 m from the NH-4 and off Jalahalli Road (Subrato Mukherji Road). The site is adjacent to the proposed BMRCL yard, on which work is currently being undertaken. The main Bangalore-Tumkur-Hubli line of South Western Railway (SWR) is about 1.0 kms (aerial distance) from the site.



Figure 3 Location of the site at Peenya

The Project Site has been handed over by BMRCL to Karnataka State Road Transport Corporation (KSRTC).



Figure 4 View of the proposed site for ITH

5.2.2 Surrounding Areas:

The site is located off Jahalahalli road. To the North lies the Siddhartha Nagar residential settlement across a vacant defence land; to the North-East lies the Hindustan Machine Tools (HMT) manufacturing facility & residential areas across the BMRCL quarters; and, BMRCL Yard area lies to the east. To the south, the site is bounded by the Pipeline Road and to the west is a small residential settlement.



Figure 5 View of the BMRCL Yard Boundary Wall

5.2.3 BBMP Ward

The proposed site falls under the Peenya Industrial Area Ward of the Dasarahalli zone, among the 198 Wards and 8 zones of the Bruhat Bengaluru Mahanagara Palike (BBMP).

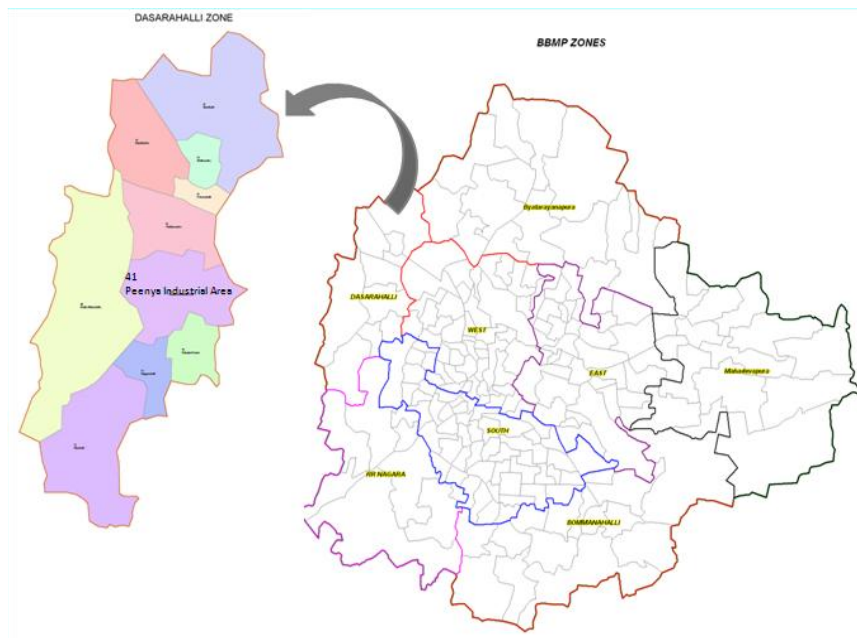


Figure 6 Bangalore - BBMP Zones & Peenya Industrial Area Ward

5.2.4 Land Use Pattern:

The site is classified as Industrial Zone. The following table summarises the land details:

S. No.	Particulars	Description
1.	Project Site Area	10 acres
2.	Land Use as per BDA Revised Master Plan (2015)	Industrial
3.	Suggested Land Use	Traffic & Transportation (T&T)

5.2.5 Transport Environment:

a) Road

- The National Highway (NH4) connects almost 80% of places in Karnataka state to the capital city of Bangalore and is part of the Golden Quadrilateral of NHAI.
- 6-laning of NH-4 from Yeswantpur to Nelamangala, including an elevated road at Peenya and flyovers/ underpasses at several junctions, has recently been completed.
- Bus services (both Govt. & private) to important cities like Mangalore, Davangere, Bellary, Hubli-Dharwad, Belgaum & Karwar within the state and Mumbai, Pune & Goa outside the state and various other Inter & Intra –State destinations ply via NH-4.
- Bangalore Metropolitan Transport Corporation (BMTC) has a good network of buses connecting the Peenya area.
- BMTC is also constructing a Traffic & Transit Management Centre (TTMC) at Peenya along the Industrial Area to the south of the NH-4.

b) Metro

- The Bangalore Metro north-south line originating from Nagasandra (Hessarghatta Cross) and having its alignment along NH-4 (Tumkur Road) will provide connectivity to the Peenya area in Phase-I.
- The Bangalore Metro Rail Corporation Limited (BMRCL) is constructing a depot & metro yard adjacent to the proposed site.

c) Railway

- The South Western Railway (SWR) Line to Tumkur, Shimoga, Hubli, Belgaum, Mangalore (via Arsikere), Madgaon, Pune & Mumbai runs within 1.0 Km of the site.
- Yeswantpur is the nearest station to the proposed site.

d) Others

- An Inter-modal Transit Hub is also proposed at Yeswantpur, about 3.5 km south of the site.

5.3 Project Concept & Product Mix

5.3.1 Components of the proposed Intermodal Transit Hub

An Inter-modal Transit Hub (ITH) should facilitate interchange between different modes of transport. Accordingly, the following components have been included as part of the project:

A) Intra-City Bus Terminal

- An Intra-City Bus Terminal catering to services of BMTC is suggested as part of the ITH site.
- The core Amenities include:
 - Bus bays
 - Ticket/ Pass & Assistance Booths
 - Waiting Area
 - Toilets & Drinking Water
 - Kiosks
 - Resting facilities for drivers/ conductors
 - Traffic Controller's Office

B) Inter-City Bus Terminal

- An Inter-City Bus Terminal is suggested as part of the ITH site to serve as a terminal/ pick up point for Government owned (SRTCs) & private inter-city bus services, with separate bus bays for both.
- Government owned inter-city bus services (SRTCs)
 - Bus bays
 - Ticket/ Pass & Assistance Booths
 - Waiting Area
 - Toilets & Drinking Water
 - Kiosks
 - Resting facilities for drivers/ conductors
 - Traffic Controller Offices
- Private inter-city bus services
 - Bus bays
 - Ticket/ Pass & Assistance Booths
 - Waiting Area
 - Toilets & Drinking Water
 - Kiosks
 - Resting facilities for drivers/ conductors
 - Private Operator Operational Offices

C) Bus Depot

- A Bus Depot for KSRTC is suggested as part of the ITH site for servicing Government owned buses.

D) Connectivity to Metro Station

- The Bangalore Metro Rail Corporation Ltd. (BMRCL) is constructing a Metro Depot & Workshop adjacent to the Project Site and the alignment of line connecting the Depot to the north-south line passes in close proximity. However, no Metro station is proposed at the location.
- The nearest proposed Metro Station is Jalahalli, around 950 m from the site.
- It is suggested that the Metro station be connected to the proposed ITH by a pedestrian Sky-Walk, with provision for electric buggies/ travellers.
- It is also suggested to operate Metro Feeder Bus Services between the Project Site and Metro Station

E) Passenger Concourse & Utility Zone

- It is suggested to construct a common Passenger Concourse & Utility Zone on the ITH site for all the modes mentioned above (Intra-city Bus Terminal, Metro Station & Inter-City Bus Terminal). An indicative list of essential amenities is given below:
 - ITH Departures Area (Drop-off Area)
 - ITH Arrivals Area (Pick-up area), with Taxi/ auto-rickshaw stands
 - Connectivity to the Multi-level Car Park (MLCP)
 - Information/ Ticket/ Reservation Counters for all the modes
 - Connectivity to all the modes (including electric-carts/ travellers for connectivity to the Metro Station via the Sky-Bridge)
 - Car Rental/ Tourism Information Counters
 - Waiting Areas
 - Toilets & Drinking Water
 - Cloak Room
 - Police Assistance
 - First Aid
 - Cafeteria/ Restaurant
 - Convenience Stalls (Chemist, Books/ Newspaper, etc)
- Other facilities to include:
 - Transit/ Dormitory Accommodation
 - E-Governance (Bangalore One) counters
 - Bank Extension Counters

- Travel Agents/ Money Changers
- Day Care
- In addition facilities:
 - Luggage trolleys
 - Electric buggies for old & handicapped passengers
 - Pre-paid porter, Parcel & Courier Service Counters
 - Barrier free access for differently abled passengers

F) Multi-Level Car Park (MLCP)

G) Commercial Development

- The possible Product Mix for Commercial Development may include:
 - Retail/ Hypermarket
 - Food & Beverages Outlets
 - Office Area
 - Parking Facility

6) Infrastructure Planning

6.1 On-Site & Off-Site Infrastructure

As mentioned earlier, the proposed ITH site at Peenya would accommodate project components like Intra-City Bus Terminal, Inter-City Bus Terminal, KSRTC Depot, Passenger Concourse & Utility Zone, MLCP and Commercial Development (on-site infrastructure), while components like Metro Station (including Sky-Walk link) would lie outside the proposed ITH site (off-site infrastructure).

6.1.1 On-Site Infrastructure:

The suggested plan for the on-site infrastructure at the ITH site is given in the figure below. 3 blocks housing different components have been suggested, apart from the connecting Sky-Walks, circulation areas and KSRTC Depot.

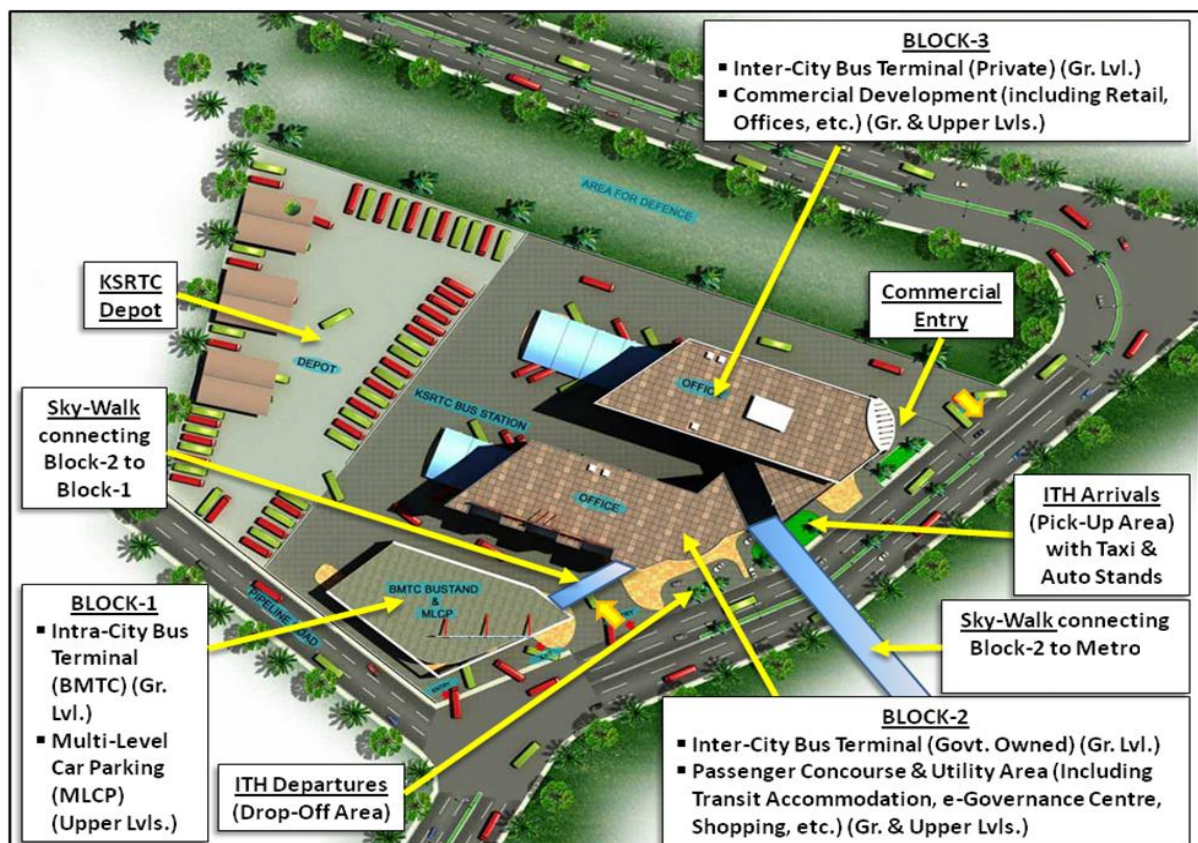


Figure 7 On-Site Infrastructure at Peenya ITH site (Suggested Plan)

6.1.1.1 Block-1

This block would house the following components:

- a) **Intra-City Bus Terminal of BMTC** on the Ground Level
- b) **Multi-Level Car Parking (MLCP)** on the Upper Levels

6.1.1.2 Block-2

This block would house the following components:

- a) **Inter-City Bus Terminal of Government Owned Bus Services** on the Ground Level
- b) **Passenger Concourse & Utility Area** (Including Transit Accommodation, e-Governance Centre, Shopping, etc.) on the Ground & Upper Levels
- c) **ITH Departures Area** (Drop-off Area)
- d) **ITH Arrivals Area** (Pick-up area), with Taxi/ auto-rickshaw stands

6.1.1.3 Block-3

This block would house the following components:

- a) **Inter-City Bus Terminal of Privately Operated Bus Services** on the Ground Level
- b) **Commercial Development** (including Retail, Offices, etc.) on the Ground & Upper Levels

6.1.1.4 Sky-Walks

These would include:

- a) Sky Walk connecting Block-2 to Block-1
- b) Sky Walk connecting Block-2 to Metro Station & onward to Railway station (also part of off-site infrastructure)

6.1.1.5 Circulation Areas for buses

6.1.1.6 Bus Depot for KSRTC

6.1.2 Off-Site Infrastructure

The suggested plan for the off-site infrastructure is given in the figure below:

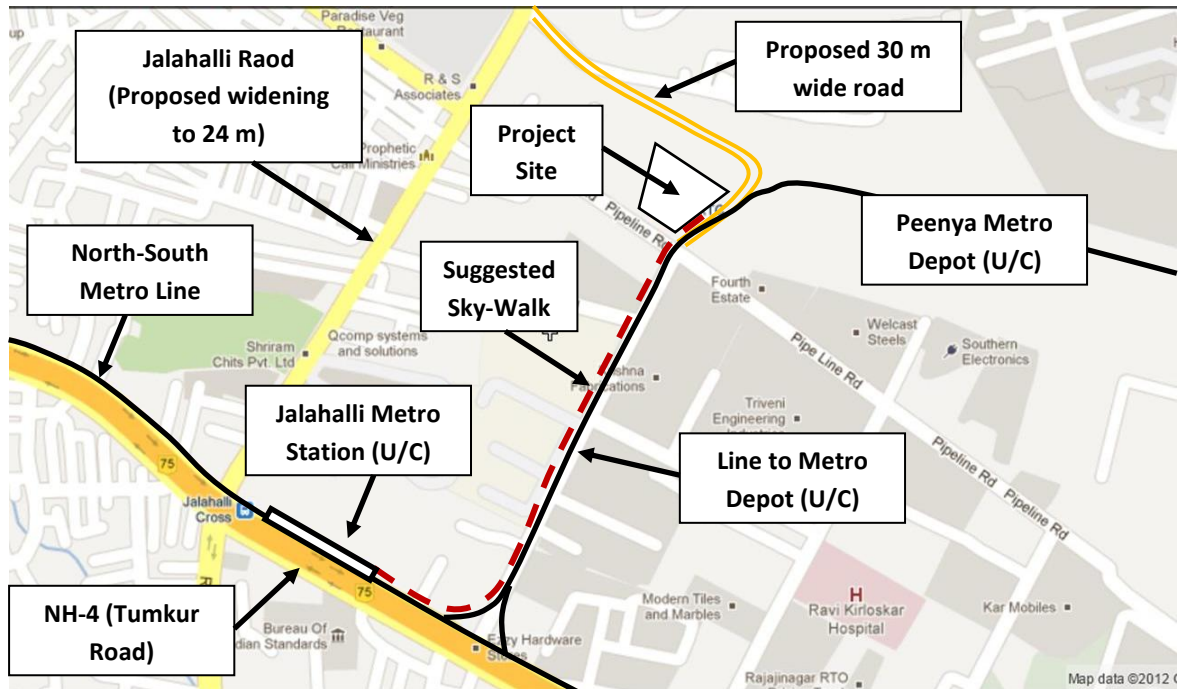


Figure 8 Off-Site Infrastructure at Peenya ITH (Suggested Plan)

6.1.2.1 Connectivity to Jalahalli Metro Station

- Pedestrian Sky-Walk connecting the Project Site & Jalahalli Metro Station is suggested, with provision for electric buggies/ travellers.
- To facilitate shuttle bus services between the Project Site and Jalahalli Metro Station, parallel-type dedicated bus bays are suggested adjacent to the Jalahalli Metro Station, similar to the ones suggested at the Project Site.

6.1.2.2 Approach Roads

As per the BDA Revised Master Plan 2015, Jalahalli Road is proposed to be widened upto 24 m by BBMP/ BDA. This road is suggested to be used as the main approach road for the ITH. The last mile connectivity from Jalahalli Road would be provided by the proposed 30 m Road as well the Pipeline Road (proposed 24 m as per RMP 2015).

7) Critical Factors

7.1 Land Issues

- Proposed site is classified under Industrial Land Use as per BDA's Revised Master Plan 2015. Thus, the process of converting the Land use to Traffic & Transportation (T&T) needs to be initiated.

7.2 Location & Connectivity Issues

- As mentioned earlier, an Inter-modal Transit Hub (ITH) should facilitate interchange between different modes of transport.
- However, the Project Site does not have direct access to either a proposed Metro Station or any existing/ proposed Railway Station of South-Western Railway.
- The following are few critical connectivity issues (component-wise) that need to be addressed by the stakeholders in order develop an ITH at the Peenya site:

Proposed Project Components	Current Status/ Action Suggested
1. On-site Infrastructure:	
a) Intra-City Bus Terminal, Inter-City Bus Terminal, KSRTC Depot, Passenger Concourse & Utility Zone, MLCP and Commercial Development	<ul style="list-style-type: none"> It is suggested that Developer to take up construction under PPP However, KSRTC Satellite Bus Station & BMTC Bus Terminal (including passenger conveniences & amenities, shopping & vehicular parking) and KSRTC Depot currently under construction by KSRTC
b) Dedicated bus bays at the Project Site to facilitate shuttle bus services between the Project Site and Jalahalli Metro Station	It is suggested that BMTC either allocate bus bay(s) within the BMTC Bus Terminal or construct new ones in the circulation area
2. Off-site Infrastructure	
a) Connectivity to Metro Station	
i) Sky-Walk connecting Project Site & Jalahalli Metro Station, with provision for electric buggies/ travellers	<ul style="list-style-type: none"> It is suggested that Developer to take up construction under PPP

Proposed Project Components	Current Status/ Action Suggested
ii) Dedicated bus bays adjacent to the Jalahalli Metro Station to facilitate shuttle bus services between the Project Site and Jalahalli Metro Station	It is suggested that BMTC: <ul style="list-style-type: none"> • operate Metro Feeder Services between the Project Site and Jalahalli Metro Station
b) Approach Roads	It is suggested that BBMP/ BDA: <ul style="list-style-type: none"> • widen (upto 24 m, as per RMP 2015) & improve Jalahalli Road as the main approach road to the site • develop the proposed 30 m wide Road & Pipeline Road (upto 24 m, as per RMP 2015) as the last mile connectivity to the site

8) Project Financials

8.1 General

The preliminary financial analysis for a standardised ITH has been carried out based on the assumptions arrived from preliminary market assessment carried out at the Project Site.

The Intermodal Transit Hub is proposed to be developed connecting the upcoming Bus Terminal with the proposed Metro Station with linkages and connectivity to NH-4.

For the preliminary calculation capital cost and operation costs the entire development is considered. This includes:

- The Inter-City & Intra-City Bus Terminals
- Passenger Amenities within the Bus Terminals
- Connectivity between both the Bus Terminals & Metro Station by Sky Walks.
- Approach Roads to the ITH
- Adequate circulation areas and parking facilities
- Passenger Utility Zone which includes dormitory accommodation, day care, tourism counter, etc/
- Commercial Development, which includes Hypermarket, Food Court, Offices, etc.

The broad Financial Viability of the Project is assessed with respect to the key parameters such as Project IRR and Equity Internal Rate of Returns (IRR).

The viability analysis includes the identification of revenue and expenditure streams. Revenues will be from parking fees, commercial activities and advertisement, while the expenditure would be primarily on account of Capital and O&M costs.

8.2 Assumptions in Capital Cost & Operations & Maintenance

Following set of assumptions are considered for the Financial Assessment of the Intermodal Transit Hub that includes general assumptions, area assumptions and specifications.

8.2.1 Preliminary Cost Estimation

The preliminary cost estimates are based on the preliminary market surveys carried out. The landed project cost is estimated considering the cost involved in Construction, Project Development Fees, Interest during construction, Cost of Approvals & Sanctions and Pre-operative cost & contingencies etc. Following Tables shows the break up of the Cost for an integrated Intermodal Transit Hub.

SUMMARY OF PROJECT COSTS

Description	Capital Cost (in Rs. lakhs)
Land Development Cost	65.30
Cost of Approvals & Deposits Payable to Civic Authorities	130.70
Cost of Construction of Bus Terminal	800.00
Multilevel Parking	560.00
KSRTC Depot	189.20
Cost of Sky Walk (Total Length: 950 m)	560.00
Cost of Commercial Development	6,250.00
Base Construction Cost	8,555.20
Interest During Construction	1,100.86
Preemptive & Pre Operative expenses (8%)	836.80
TOTAL PROJECT COST OF INTER-MODAL TRANSPORT HUB	12,607.70

8.3 Revenue Streams

The proposed ITH to be structured on Development and Management Rights Model with parking fees, advertisement and commercial rental rights. Revenue from Commercial development, parking fees shall be major revenue stream for the operator to recover the investment.

The lease rentals and parking fees are considered as per market conditions prevailing at the location considering the development potential of the location.

8.3.1 Revenue from lease of commercials within the Passenger Utility:

The developer shall have the right to lease the shops at the Passenger Utility Zone for specific end uses. The end uses of the shops/ kiosks/ stalls shall be subservient to the requirements of the Bus Terminal & Metro passenger traffic. Sufficient enhancement in scale and scope of this commercial space would fetch higher rentals for the private sector party. Indicative acceptable end uses (or ancillary land uses) have been detailed in the Notification no. UDD 93 MNJ 2008 and the Zoning Regulations of Master Plan of Bangalore Development Authority.

8.3.2 Revenue from Parking:

The parking fees to be charged from various categories of vehicles and its periodic increase should be fixed. For instance, Cars shall be charged Rs.10/- and Two wheelers shall be charged Rs 5/-.

8.3.3 Revenue from Advertisement rights:

Income from advertising charges has massive potential considering the large footfall of commuters in the Bus Terminal, Sky-Walk and Property development, provided its is tapped properly. The private sector party has the right to locate hoardings as per applicable rules, regulations standards, etc.

8.3.4 Revenue from lease of commercials within the Passenger Utility:

The private sector party shall have the flexibility to charge any rentals from the commercial/institutional/office areas leased to third parties. The private sector party shall have no right to out-rightly sell the facility to the third party. The facilities that may be permissible are been detailed in the Notification no. UDD 93 MNJ 2008 and the Zoning Regulations of Master Plan of Bangalore Development Authority.

8.4 Key Financial Indicators

The returns of the ITH project at Peenya have been calculated considering the typical investment and facilities at the location. The revenue streams are assumed as per the market conditions and the lease period considered for the project, for calculation of returns, is 30 years. A block financial Assessment for the development of ITH on PPP format at Peenya is provided at Annexure I.

The following table throws light on the financing pattern and expected returns for the Project:

Financing		
Lease Period	Years	30
Debt : Equity ratio	Ratio	1.1
Loan Period <i>(incl. 2 yrs Moratorium period)</i>	Years	9
Interest Rate	% p.a.	11.5
Expected Returns		
Total Cost of Project (Excl Land) <i>(Rs crs)</i>		126.07
Project IRR (Post tax)		19.18%
Equity IRR		15.50%

The assumptions considered for the model are Block Cost Estimates for capital Outlay and conservative returns, also taking into account the present market scenario. The Equity IRR and the Project IRR represent the projects broad financial viability on PPP format.

8.5 Commercial Viability

Viability of the project is based on the revenues from subleasing of Built-up space, revenues from parking, advertisement, etc and depends on the development and city infrastructure around the proposed area.

The developer can Operate, Maintain and sublease the built up space at market rates. The advertisement and parking revenues can also generate additional revenue streams for the developer.

The land to be provided to the developer for commercial development will thus be determined upon the proposed development works envisaged considering a win –win situation to all the stakeholders.

8.6 Recommendations

On the basis of the findings of the pre-feasibility study which includes the most important financial analysis of the project's estimated construction and O&M cost and projection of project revenue cash flows, it is recommended that the project is viable on a PPP basis maintaining land is provided at zero cost to the developer.

The demand analysis of the end users of the proposed facility also validates the claims of viability of the project but with certain issues and challenges which have to be addressed during the detailed project development study for the development of the Intermodal Transit Hub at Peenya.

9) Assessment of Risks

9.1 Risk Allocation and Mitigation

Appropriate risk mitigation structures have to be evolved for the Project. Various risks associated with the Project and broad mitigation structure is explained below:

9.1.1 Traffic Revenue Risk

Traffic Revenue risks forms a major component in the risk matrix which can be mitigated only through diligent traffic studies and projections. Apart from this, it is essential from perspective, to ensure proper collection of user charges from private bus operators, to inculcate some discipline. The traffic revenues for the project would also depend on the following:

1. Enforcement by the local bodies for directing the private / Government operated buses, in and around the region of Peenya, to provide services to the ITH
2. Provide feeder bus services and appropriate parking and circulation for private and intermediate public transport vehicles (like taxis, auto-rickshaws)

9.1.2 Construction Risk

This risk may be a Design Risk, Cost Over run and/or Time Over run.

Design Risk:

The private sector developer shall be solely responsible for any defects and/or deficiency in the design and shall rectify the same at his/ her own cost. By transferring the design risk to private party there is scope for innovation leading to efficiency in cost and services.

Cost Over run:

Private Sector Developer to be responsible for this risk. Termination payments, specified in the Agreement, linked to Total Project Cost which shall be lowest of (i) Total Project Cost as per financing documents, (ii) actual capital cost as certified by auditor (iii) project cost defined by Client in the agreement.

Time Over run:

This leads to delay in completion. Construction period to remain fixed. Effective clauses to be provided in the Agreement to be signed between the Client and the

Developer. Timely clearances and handing over of site for the project should be ensured.

9.1.3 Demand Risk

These risks arise from the project if there is no established demand for the Project. However in this case, a Pre-feasibility has been carried out to assess the viability of the project based on the demand for the revenue generating components of the project. It is however envisaged that the demand for commercial facilities at the proposed ITH would increase over the years and on commencement of operations of the ITH. Apart from this, the Developer shall be given the freedom to design the facility in order to improve the optimum utilization, provided no obstruction is caused to development of minimum development obligations for the ITH.

9.1.4 Commercial Risk/ Revenue Risk

This risk arises from existing demand and future competition, effectiveness in utilizing space and management of facilities. With the involvement of Private Sector in marketing, O&M and management and attractive incentives structures linked with Project success, risk would be transferred to the Developer. The Developer also has the right to decide the lease rental tariff for the property development and other applicable charges / fees for the project components under the ITH facility. It is however envisaged that the demand for commercial facilities at the proposed ITH would increment over years and on commencement of operations of the ITH.

9.1.5 Operational Risk

The Developer should operate and maintain the facility for an agreed lease period. Effective clauses addressing the above should be incorporated in the Agreement. Increase in the O & M costs, except in cases due to change in Specification & Standards and Change in Law, shall be borne by Developer. The Developer may transfer operational rights to another party subject to approval from Client.

9.1.6 Debt servicing Risks

The risk mitigants are appropriate debt–equity mix and proactive managerial strategies in financial restructuring. Appropriate rights for lenders of debt, like project revenue security, may help in mitigating this risk. The lenders would also require assignment and substitution rights so that the concession / lease can be transferred to another party in the event of failure of the Developer to operate the project successfully.

9.1.7 Political Risk

These can be mitigated by effective legal documentation & insurance and essential government involvement for successful implementation.

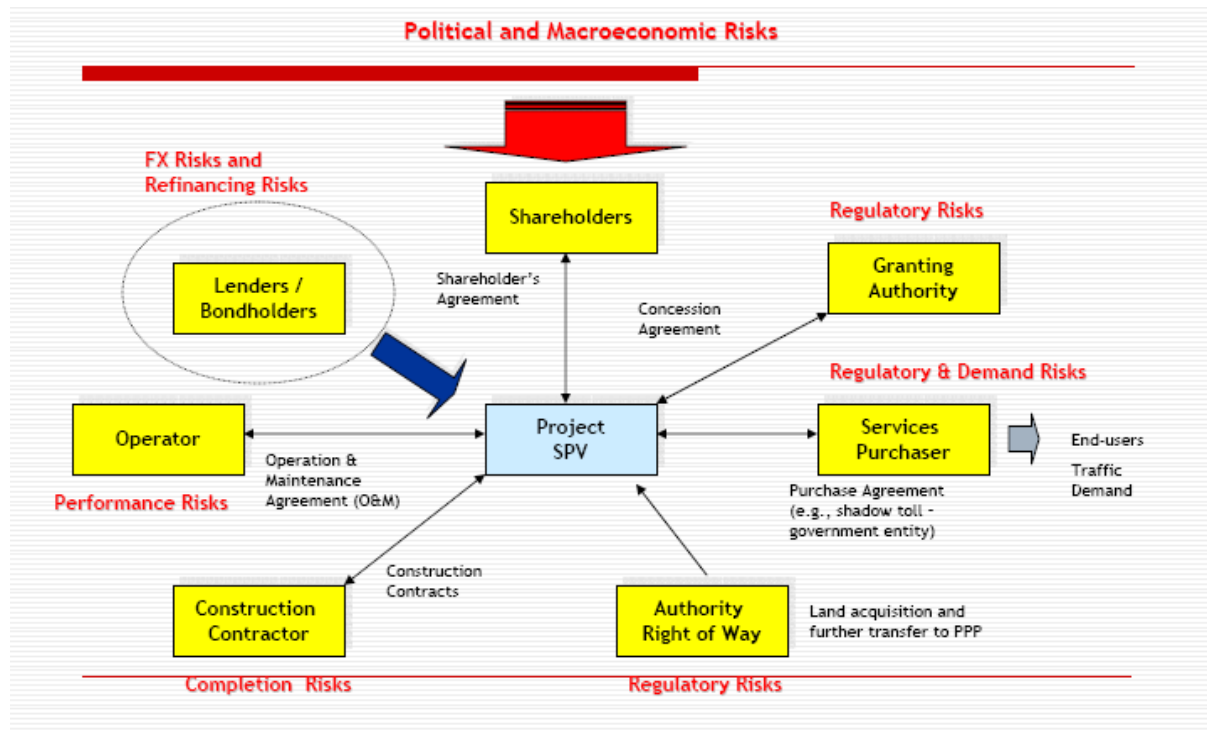


Figure 9 Model Risk Structuring for PPP Projects

10) Requirement of Legal & Regulatory Frame work

The government has to constantly reform the policies and regulations in sectors where development has been happening through private investment. Private sector parties require attractive incentives and policies in place in order for them to develop projects in an environment conducive to their needs and aspirations.

Regulatory agencies and issues pertaining to regulations have come to prominence after the privatization of Infrastructure sector. Thus, any design of a regulatory framework is a complex undertaking that involves the balancing of many influences/elements which include regulatory goals and resources, social institutions and sector characteristics.

The proposed ITH necessitates a robust legal and regulatory framework, the following are the requirements:

- **Statutory Approvals**
Bangalore Development Authority (BDA) plans, regulates, controls, monitors and facilitates urban development in Bangalore Metropolitan Area to ensure sustainable and orderly growth. All necessary land approvals need to be obtained from BDA. BDA prepares the Comprehensive Development Plan (CDP) which gets revised every ten years. The Town & Country planning department is responsible for preparation of layout plans & development plans for various lands and also for change of Land use.

The site for this project has been assigned to KSRTC for construction of a bus terminal. It has been proposed that the site should double up as an Intermodal Transit Hub (ITH) and hence the necessary approvals for Construction of facility, internal & external services like water supply etc, off-site Infrastructure planning (say, widening of roads for traffic circulation) may require concurrence from BDA / Bruhat Bangalore Mahanagara Palike (BBMP) /other concerned authorities. The developer should follow the Karnataka Town & Country Planning Act, 1961 and other applicable Acts in matters concerning the site and the project facility.

- Wide range of activities like those that are executed directly by government, activities that are executed under PPP mode and activities acquiescent to VGF and so on.

The Infrastructure Development Department (IDD) is the nodal agency for coordination, development and implementation of infrastructure projects mainly on PPP format. It also facilitates for obtaining clearances and approvals on PPP route.

The Infrastructure Policy of Government of Karnataka – 2007 puts in place a fair and transparent policy framework to facilitate the development of infrastructure projects in the State. Policy reformation has also been happening over the years; however a consistent approach in all infrastructure sectors to enable uniform and complimentary process of development is the need of the hour.

ITH facility (project under consideration) falls under the gambit of Transportation & Logistics sector, which would be governed by this policy. It is envisaged that incentives and financial support contemplated under this policy are applicable:

- For infrastructure projects where, in the opinion of the Government, the project is public project set up for common use, where such infrastructure would otherwise not be created;
 - Only for bridging the viability gap for infrastructure projects on a PPP basis.
- Responsibility of preparation of the master plan, infrastructure planning, financing, implementation, integration, management, operations, licensing and overall administration of the project.

For this, the Developer shall need to take the concurrence of the relevant development authorities of the state government such as BDA, BBMP, etc. For appropriate approvals and clearances. For assistance and necessary support appropriate and effective clauses in the Agreement may be incorporated.

- The success of the ITH would depend on the Implementation of Traffic regulations levied by the local administration towards restricted entry of buses to the region and directing the same to the proposed ITH. Implementation of No Parking zones, Traffic Regulations, Entry / Exit limiting restrictions, Levy of penalty for off-street parking of buses, cars, intermediate public transport, etc are necessary as applicable.
- Have a suitable and unambiguous Agreement for selection of the Developer for ITH project at Peenya. One of the major tasks in infrastructure projects is to get all the provisions of the Contract right in order to implement the project successfully.
- The Liabilities of the Developer of the ITH project should be covered through an appropriate Insurance policy and this should be necessary and customary for the entire Authorization / Lease Period of the Project. The scope of the insurance policy shall not be reduced without the permission of the client.

11) Project Structuring & Implementing Frame Work

11.1 Background

The proposed ITH is proposed to be developed on Public Private Partnership (PPP) format. Structuring infrastructure development on a PPP platform has been seen as an avenue to optimize development and implementation in such a way that it is sustainable in the long run. PPP provides an attractive alternative to bring private investments as well as efficiency gains in the provision of services.

When properly structured and made bankable, PPP projects balance between the requirements of the government and the public for service provision with high quality of standards and attract private investments. Public Private Partnerships, particularly those that focus on innovative ways to help public and private interest meet, carry the promise of a development that is inclusive and sustainable at the same time. The project involves components of diverse nature viz: Rail & Road infrastructure, Real Estate Development to improve the feasibility of the project, etc. This results in various permutations and combinations of different options in PPP framework.

There are many options that can be considered for implementing the proposed ITH on a PPP framework. The table below shows some of the different options that may be adopted:

Possible Options for PPP

Option	Ownership	Financing	Management
Lease	Public	Private	Private
Concession	Public	Private	Private
BOOT	Private , then Public	Private	Private
Outright Sale	Private	Private	Private

11.2 Implementation through Public-Private-Partnership (PPP)

Successful development and implementation of the ITH would require diligent planning, extensive project development with proper implementation strategy. Technically, development and implementation of the project would draw expertise from transport sector.

It is pertinent to mention that implementation of any infrastructure project has unique and distinctive requirements, not comparable to similar ventures in production and service sectors. It is also pertinent to say the due to limited resources of the local bodies and also in order to achieve higher performance efficiency both in construction and operation, it is imperative that the project needs to be implemented through active private sector participation under an appropriate PPP model, which will help in:

- leveraging limited public resources
- expediting implementation
- improve quality of services and bring in value for money

For successful private sector participation in such capital-intensive projects with associated risks involved, commercial viability, amenability to private sector participation and bankability of the project assume significant importance, which can be addressed only through proper and comprehensive project development. The benefits to project development include:

- *Basic Feasibility*
 - Technical
 - Financial
- *Risks Mitigation*
 - Technical
 - Financial
 - Regulatory
- *Viability Enhancement*
 - By optimizing implementation time
 - Appropriate implementation structure
 - Financial engineering
 - Accessing government support/grants, wherever possible
- *Enhance Market Response*
 - Developing reliable technical & financial information
 - Direct marketing with potential investors
 - Dry financial closure to ensure bankability
 - Statistically Accurate valuation
- *Provide Clarity to*
 - Government - basis of support to make the project bankable
 - Private Sector - to bid at nominal bid costs and risk premia
 - Financing Agencies - the bankability of the project

For such PPP Projects to be able to attract private capital, substantial project preparation and development work will need to be undertaken. This will include

- Techno-Commercial Feasibility Studies,
- Financial Modeling and Engineering,
- Risk Management Plans,
- Marketing of the Projects,
- Management of the Procurement Process,
- Design of appropriate Contractual and Regulatory Structures,
- Management of the Government approval process at the State and the Central Government levels

The PPP approach will enable the GoK to raise resources and implement Projects expeditiously on the strength of future accruals with minimum recourse to budget financing. Hence implementing a complex project, involving multiple stakeholders makes “**Project Development**” a necessary pre-requisite. The success of developing such a project is largely based on understanding the risks, allocating them among various stakeholders, developing structural frameworks and following transparent procurement processes to induct private sector efficiencies and resources.

11.3 Need for a Program Management Approach

Implementation of the proposed ITH will require investment on infrastructure development / augmentation of high magnitude, besides investments in the development of the various options.

It is inevitable that a project of this magnitude and complexity will require to be implemented keeping in mind the development of another 25-30 years. In the process, the phasing of implementation and the integration of the various project components will need to be carefully articulated and implemented to secure the full potential of the initiative.

In order to ensure that the traditional pitfalls of project implementation are overcome, it is proposed that a Project Development and Program management approach be adopted, wherein each component of the project is developed in an integrated manner from an engineering, financial, contractual, environmental and social perspective, along with inter-linkages, on prioritization and selective basis and prior to commencement of implementation.

A project of this magnitude would also require significant upfront financial resources to develop and structure activities in an optimum manner. An appropriate Institutional mechanism that is able to exercise oversight and governance becomes critical in this regard. Accordingly, the approach to implementation will require integrating the above and enabling focused program management.

11.4 Project Structuring

Project may be proposed to be implemented on Public-Private-Partnership (PPP) format under Design, Build Operate and Transfer (DBOT) basis.

In this model Private Developer / Private Sector Player (PSP) shall finance, design, engineer, construct, market, operate, maintain and manage the facility during the Authorization period and transfer the facility to the client at the end of the Authorization / lease period. The project is proposed to be structured as under:

- The project is structured for capital investment to be brought in by the selected private sector player and land is provided by KSRTC/ GoK.
- Scope of Work for the PSP/ Developer:
 - Selected private sector player for Designing including Planning,
 - Detailing and placement of the Project components
 - Detailed designing and Engineering of facilities based on Concept
 - Achieving Financial closure and making the necessary capital investment
 - Construction, Marketing and Promotion
 - Operating, Maintaining and Managing (Utilities, Facilities, Equipments etc) the Project during the Authorization Period
 - Obtaining all clearances/approvals from the concerned Govt. Department, handling legal issues etc
- The private sector player recovers its investments over a period of time from revenues from property development created under the project and other applicable sources.

12) Operating Framework

12.1 Implementation Structure

The development of ITH at Peenya would need to be assessed for its technical & financial viability. In the proposed PPP structure for implementation, the roles to be performed by the respective parties i.e. the Project Sponsor & Selected Developers have been identified as below:

12.1.1 Role of Project Sponsor:

The role of KSRTC would include:

- a. Grant of lease hold rights of the project site to the developer
- b. Operate, maintain & manage the Inter-City (Government/ SRTC) Bus Terminal & Depot (to KSRTC)
- c. Standardization of performance standards

12.1.2 Role of Developer:

The role of the Developer would include but not limited to:

- a. Design, finance, construct & handover Intra-City Bus Terminal (to BMTC) and Inter-City KSRTC Bus Terminal & KSRTC Depot (to KSRTC)
- b. Operate, maintain and manage the facilities including Inter-City (Private) Bus Terminal, Sky-Walks, Passenger Concourse & Utility Area, MLCP, supporting ancillary infrastructure, etc.
- c. Co-ordination with competent authorities for seeking requisite clearances and meeting the necessary requirements
- d. Co-ordination with BBMP/ BDA & other agencies for off-site infrastructure like Sky-Walks, road widening, etc.
- e. Construct, Operate & Maintain the Commercial Development in order to recoup the investment incurred

12.1.3 Civil and Structural Requirements

The building shall be designed in accordance with the latest Indian Standard Codes.

- Architectural design norms as per NBC (National Building Code – 2005)
- Structural Design norms as per NBC and BIS (Bureau of Indian Standards)

12.1.4 Fire Fighting Facilities

The developer shall provide the required fire fighting equipment and facilities conforming to relevant standards and the applicable rules and regulations. Fire safety measures as recommended in applicable codes (Indian as well as international) shall be implemented. Specifically, the fire fighting system shall be adequate to control petroleum fires.

12.2 Maintenance and Performance Standard

12.2.1 General

During the period of operation, the Developer would be required to maintain all the Facilities in accordance with performance standards and maintenance requirements, as mentioned below:

- Perform maintenance on a routine and periodic basis. Identify potential problems early within the context of the planned maintenance system so that corrective action may be planned and completed in a timely manner.
- Establish a maintenance list for planned operation and maintenance. Follow an orderly program so that maximum operational efficiency is attained.

The system shall be required to be designed such, that maintenance personnel has access to all Parking Facility, machinery and electrical and electronic components in a safe manner.

The Developer shall perform routine and periodic maintenance activities for the project infrastructure viz, civil, mechanical and electrical works and equipment, furniture for meeting the specified performance standards

13) Keys to Success

13.1. Key Stakeholders

The key stakeholders identified for the development of Intermodal Transit Hub in Peenya are:

- **Project Sponsor** - Karnataka State Road Transport Corporation (KSRTC) / BMRCL
- **Nodal Department** – Infrastructure Development Department (IDD)
- **Facilitating Department** - Infrastructure Development Department (IDD)
- Bangalore Metropolitan Transport Corporation (BMTC)
- Bangalore Metro Rail Corporation Ltd. (BMRCL)
- Bangalore Development Authority
- Bruhat Bengaluru Mahanagara Palike (BBMP)
- Traffic Police of Bangalore
- National Highway Authority of India (NHAI)
- State Public Works Department- (Roads Division)
- City Town Planning Department
- Revenue Department
- Other agencies as deemed necessary

For the successful implementation of the projects, the IDD along with the Project Advisors, the Urban Development Department and the Transport Department would require to convene a joint meeting of their respective heads where the project concept and structure is discussed and taken up for implementation.

The facilitating department along with the Project Advisors will be required to take the lead in co-coordinating with the individual agencies involved for identification of locations and for seeking the requisite clearances.

13.2. Essential issues to be addressed

The following have been identified to be key issues for the success in developing of ITH and effective utilization of the same

- Coordination with KSRTC for developing the Bus Terminal
- Coordination with BMTC for developing providing Metro Feeder services
- Coordination with BBMP/ BDA, KSRTC & BMRCL for providing Sky-Walk
- Coordination with National & State Highway Authorities to sort out connectivity issues for intermodal transfer and provide for improvement roads if necessary
- Coordination with State Road Transport Corporations & Private Bus Operators Associations for the entry of buses to the ITH
- Traffic Authorities to be roped for Traffic Management for ingress & egress routes to the ITH
- Stringent provisions by way of fine and other penal actions need to be provided to restrict entry to the cities.
- A graded parking/entry fee / User fee structure should be evolved as a measure of demand management at the ITH for Buses, Mini Buses, Taxis, Autos, Cars etc
- Joint inspections of locations and reviews with key stakeholders

13.3. Role of Project Sponsor

The Project Sponsor shall be responsible to give right to use land free of encumbrance to the Developer for developing the Project components. The land required for creating the Project Facilities would be required to be given on Development and Management Rights to the Developer over the Authorization Period in terms of the Authorization Agreement supported by Development and Management Agreement (DMA).

The Project Sponsor will also require facilitating availability of infrastructural support / services and ensuring effective coordination between all government

departments to provide timely approval and clearances. Government support/facilitation would be required in the following:

- Ensuring availability of requisite land & infrastructural support/services, viz. power supply, improving existing roads, development of connectivity
- Providing all clearances and approvals for execution of commercial centre at ITH, installing supportive facilities and other commercial components for development and operation
- Issue of necessary regulations for re-directing buses to the ITH

14) Way Ahead

14.1. Implementation Plan

A presentation on the Draft Pre-feasibility Study was made before the stakeholders, wherein the following decisions were taken:

1. Considering the future expansion plans of the Bangalore Metro Project, the site extent has been decided to be limited, for ensuring availability of land for future expansion of BMRCL Depot
2. KSRTC has decided to take up the construction of the Bus Terminal at the Project Site with its own funds.

15) Case Studies

Gateway Multi modal Transportation Centre

The Gateway Multi modal Transportation center is a rail and bus station in downtown St. Louis, Missouri. It was inaugurated in 2008 and is operational 24 hours a day.

- The station serves Amtrak, St. Louis MetroLink, MetroBus regional buses, Greyhound cross-country buses and taxis.
- The station was built at a cost of \$31.4 million.
- The Station has ancillary facilities such as sundry stores and food court which was opened in December 2008
- The Gateway Station serves as a terminal hub for the following:
 - Amtrak Rail – Trains to and from Chicago, Kansas City, Missouri, San Antonio, Los Angeles
 - MetroLink – Metro train from Lambert – St. Louis International Airport
 - MetroBus, MegaBus, – Serves many routes within and around the region of Gateway Station.
 - Taxis, Rental Cars



Miami Central Station

The Miami Central Station (MCS) is an Inter modal facility located on a 27 acre plot. This facility is designed to accommodate various transportation connections.

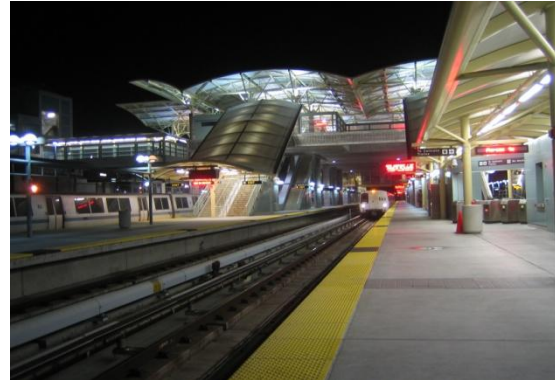
- This is built around the existing tri-rail tracks at its Airport Station.
- The MCS will offer centralized transfer between Tri –rail, Metrorail and Amtrak rail service.
- Intra city bus services area also being provided here and space for private vehicle parking.
- There is an elevated pedestrian walkway spanning across the rail tracks from the public esplanade into the Miami International Airport.



- This would be also a Station on the proposed Florida High Speed Rail.
- The total Cost of the facility is expected to be \$ 1.7 billion.
- Expected to serve 1,50,000 commuters and travelers each day.

Millbrae Station

Millbrae Station (also known as Millbrae Intermodal Terminal) is an at-grade Bay Area Rapid Transit (BART) and Caltrain station located in suburban Millbrae, California, in northern San Mateo County



- Millbrae Station is the largest Intermodal terminal in the United States west in terms of station facilities and acreage
- Consists of three at-grade main tracks for BART and two for Caltrain.
- A regional bus transit hub with multiple bus bays served by several SamTrans lines.
- Approx. 3,000 parking spaces, including a five-story parking garage and surrounding surface parking.

Salt Lake City Inter modal Hub

This is a multi modal transportation hub located in Salt Lake City, Utah. Amtrak, the national regional rail system provides one train daily in each direction on the California Zephyr line, with service to Emeryville, California, to the west and Chicago, Illinois, to the east.



- Hub through a TRAX, light rail system, on the University Line serves the University of Utah campus to the east.
- Have Access to the Sandy/Salt Lake Line, with service to Sandy to the south.
- Greyhound Lines, a national bus company, also services the station with several departures to points all across the United States, Canada and Mexico.
- Providing services of Amtrak, Greyhound lines, U Car Share.
- The Passenger traffic for the year 2009 was 31,319

Annexure-I

The financials are attached in the following pages.