



Development of Bus Port at Chandigarh

January 28, 2020
Pre-Feasibility Report

A Joint Venture of The Government of National
Capital Territory of Delhi & The IDFC Foundation.
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1. Introduction

Chandigarh being one of the few planned cities created post independence, has attracted thousands of migrants from other states. The master plan of the city was a rectangular grid iron pattern of roads and open spaces. The city has a belt of parks running from sectors. Prestigious educational institutions attract students from all over the world who live and study in Chandigarh. It is a Union Territory (UT) and serves as the joint capital of Haryana and Punjab.

Chandigarh is located at 30.74°N 76.79°E at an average elevation of 321 meters in the Sivalik foothills which is the gateway to the Himalayas. Located about 265 km north of New Delhi, the territory is bounded by the state of Haryana on the east and by the state of Punjab on all other sides. Some of the places of attraction in Chandigarh are Sukhna Lake (a 3 km artificial rain-fed lake), Rock Garden, Zakir Hussain Rose Garden etc.

Demography

As of 2011 India census, Chandigarh UT had a population of 1,055,450. Males constitute 55.02% of the population and females 44.98%.

Year	1991	2001	2011
Population	642,015	900,635	1,055,450

The population of Chandigarh UT has displayed a growth of 40.28% from 1991 to 2001 and 17.19% from 2001 to 2011.

Economy

The city is one of the most affluent cities. The city restaurants are always filled with people, markets buzzing with consumers, pleasant weather for many months throughout the year, beautiful parks, well maintained roads and almost 24 hour power supply are some of the reasons why Chandigarh city is thronged by tourists from other parts of India and the rest of the world.

There are about 2,950 small scale and 15 large and medium scale units in existence in Chandigarh. Of the 2,950 small scale industries, about 40% are ancillary units producing components for the major tractor industry around Chandigarh. Light engineering industry is heavily represented by other industrial units produce mainly industrial fasteners, electrical/ electronic items, machine tools, pharmaceuticals, plastic goods, sanitary fittings, steel/ wooden furniture, food products etc.

Connectivity

Road Connectivity	Chandigarh is well-connected to other cities via National Highways i.e. Delhi (NH 44), Patiala (NH 7), Ambala (NH 152), Shimla (NH 5) and Ludhiana (NH 5).
Rail Connectivity	Chandigarh Railway Station lies in the Northern Railway zone. Major Connecting points: Ludhiana, Amritsar, Delhi, Mumbai, Bangalore, Chennai and Kolkata
Air Connectivity	Chandigarh International Airport has domestic flights to all major cities of India and International flights to Dubai, Bangkok etc.

2. Site Appreciation

The proposed bus port site is situated at 30°42'57.8"N 76°44'38.8"E in Sector 43, Chandigarh.

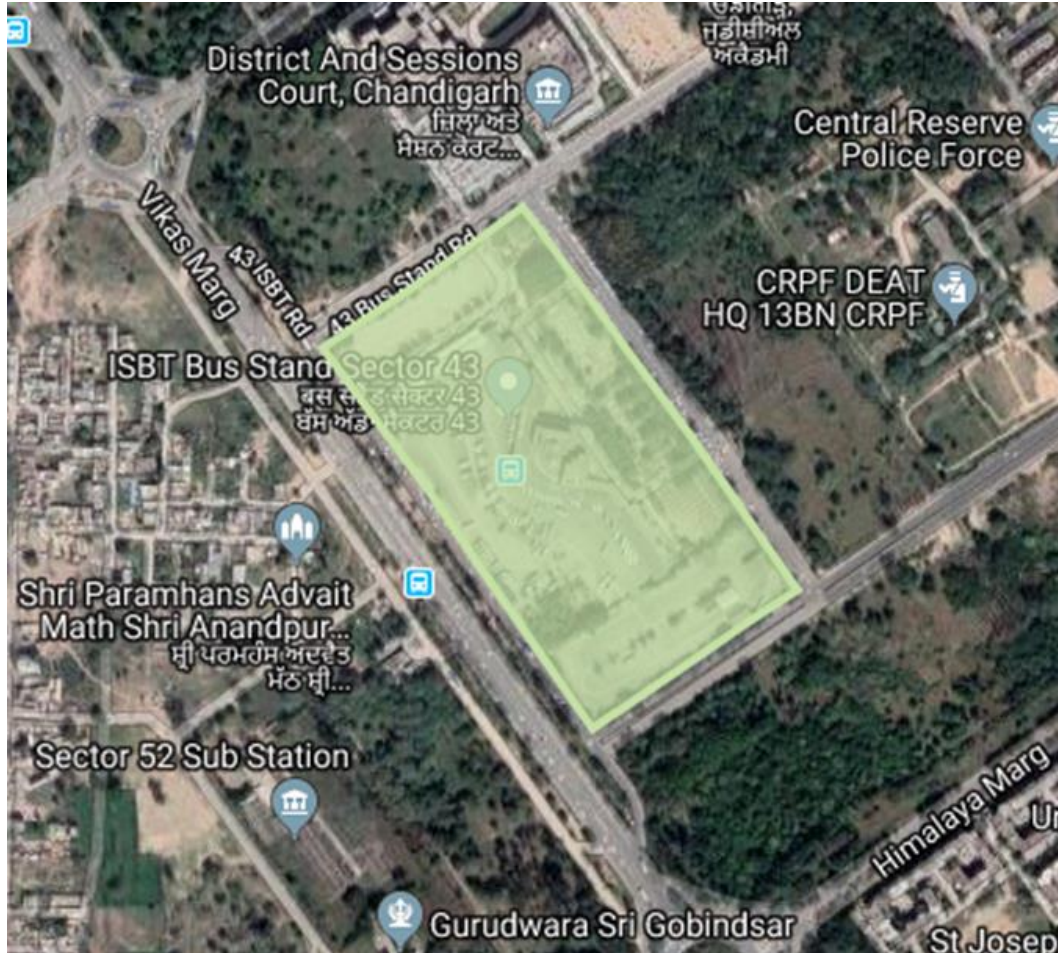


Figure: Proposed Bus Port Site

3. Site Survey

The site survey was conducted on 05th and 06th September, 2019 and second visit was conducted on 1st November 2019 to collect balance information which is summarised in the below subsections.

3.1. Site Details

The following are the details of the site proposed for the development of the bus port at Chandigarh.

Name of the State/ UT	Chandigarh
Name of the City	Chandigarh
Nodal Agency nominated for Project	Transport Department, Chandigarh
Address	Sector 43, Chandigarh - 160047
Owner of Land	Secretary Transport, Chandigarh Administration Area: 84,540 sqm or 20.89 acres
Declared Land use	Traffic and Transportation
Site orientation	North: 4 lane road South: 4 lane road East: 4 lane road West: Vikas Marg of 6 lane
Present Usage	There is an operational ISBT, Local Bus Stand and Depot on the site.
Source of power	Local power utility
Water Source	Ground Water and Municipal water
Commercial Rates	Shops on the ground floor and food court on the first floor of the ISBT gives a rental value of Rs.100/- per sqft. The rentals of the commercial area in the nearby vicinity cannot be considered as these are either institutional areas or rural areas.

The rentals of the similar commercial developments which can be considered for proposed bus port are in the range of Rs.80-100/- per sqft. However, a detailed market survey should be conducted to ascertain the same.

3.2. Topography of the Site

- The site is a flat land.
- There is an operational ISBT, Local Bus Stand and Depot presently on site as shown below.



Figure: Location of ISBT, Local Bus Stand and Depot on the Proposed Site

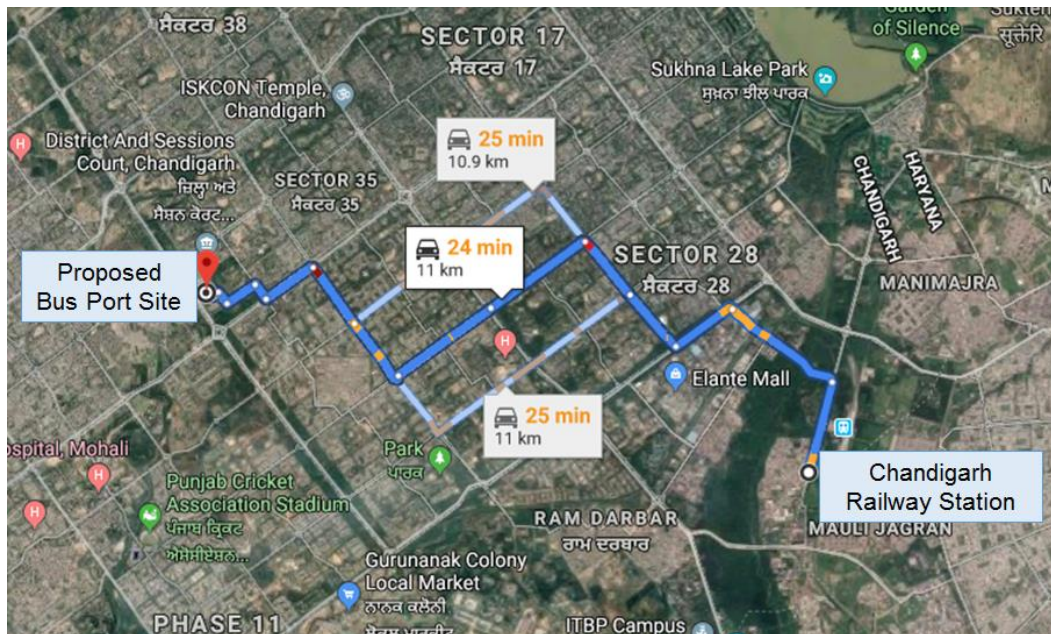
3.3. Available Right of Way to the site and potential connectivity opportunities

- The ISBT can presently be approached via service lane on Vikas Marg (6 lane road) for buses and 4 lane road for cars and two wheelers.
- The Local Bus Stand can presently be approached via 43 Bus Stand Road (4 lane road).



Figure: Entry/ Exit of Buses, Cars and Two Wheelers on the Proposed Site

Connectivity to Nearest Railway Station: Site is at an approximate distance of 11 Km from Chandigarh Railway Station.



Connectivity to nearest Airport: Site is at an approximate distance of 17.7 Km from Chandigarh International Airport.



3.4. Potential integration points with other proposed facilities

Based on the discussion with the local officials, it was concluded that there are no major transport interventions planned in the area which could substantially impact the current traffic pattern.

3.5. Traffic Movement

Presently, there are 1,260 intercity bus trips from existing ISBT. Chandigarh also has another operational bus stand in Sector 17. The proposed bus port at Sector 43 should be designed to cater additional buses from Sector 17 in future.

3.6. Environmental Issues

The site is already being used as an ISBT, Local Bus Stand and Depot, therefore, the proposed bus port development would not create any adverse impact on environment. However, the site has tree plantation in several places, which should be integrated with the new design of the bus port.

4. Conclusion

Based on the site visit, the following are broad contours governing the development of the bus port at the proposed site:

- (i) The owner of the site is Secretary Transport, Chandigarh Administration and hence there is no need for acquisition.
- (ii) The present land use is Traffic and Transportation.
- (iii) There is an operational ISBT, Local Bus Stand and Depot presently on site.
- (iv) As per Clause No.9.1 (Transit Oriented Development) Sr. No 6. (Traffic and Transportation/ Metro Stations/ Parking/ ISBT-43) of the Chandigarh Building Rules (Urban) – 2017, applicable FAR is 3.0.
- (v) Based on the site visit, prima facie, it can be inferred that the bus port at the site may be commercially viable.

5. Site Photographs



Proposed Bus Port Site



Drop Off Zone



Private Vehicle Parking



Existing ISBT Bus Entry



Depot Entry



Solar Panels on roof of ISBT Building



Commercial Area inside ISBT




Fuelling Station



Washing Station



Vegetation at Proposed Site



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1. Introduction

Thiruvananthapuram or Trivandrum district is located on the southwest coast of India and houses Trivandrum city, the capital of Kerala state. The district spans from latitude 8.17°N 76.41°E to 8.54°N 77.17°E at an average elevation of about 16 feet above the sea level covering a landmass of 2192 Km.

The district is divided into six taluks: Thiruvananthapuram, Chirayinkeezhu, Neyyattinkara, Nedumangadu, Varkala, and Kattakada. The urban bodies in the district are the Thiruvananthapuram Corporation, and the Varkala, Neyyattinkara, Attingal, and Nedumangad municipalities.

The district has three major rivers, several freshwater lakes and over 300 ponds. Its eastern region is forested, northern regions are mostly under rubber cultivation and the remaining areas grow mixed dry-land crops of coconut, plantain, and tapioca, among others. Built-up areas and rice fields complete the land use pattern.

The city houses some of the premium educational and scientific institutes like Vikram Sarabhai Space Centre (VSSC) and the Indian Institute of Space Science and Technology (IIST). The city is also home to India's first IT Park, Technopark, which was established in 1995. Technopark, which is one of the country's largest IT Park, is home to many dream employers of IT professionals including domestic IT giants like TCS and Infosys.

With numerous historic monuments, a far-reaching shoreline giving it some of the most beautiful beaches, backwater stretches and a rich cultural heritage, Thiruvananthapuram is a popular tourist destination in Kerala and in India

Trivandrum has the second highest population density in Kerala and as per the 2011 Census, the Trivandrum district had a population of 33,07,284 which was an increase of 2.25% over the population back in 2001.

Table: Demography

Year	2001	2011
Population	32,34,508	33,07,284

Road Transportation

The National Highway 66 which stretches from Panvel near Mumbai, Maharashtra to Kanyakumari, Kerala passes through the Trivandrum city. The subject site is abutting the NH 66.

The Kerala Public Works Department maintains some 1,552 km of road in the Trivandrum district and the local bodies are responsible for the maintenance of 9,500 km of road.

Rail Transportation

Thiruvananthapuram district has 20 stations, including Thiruvananthapuram Central railway station which is located in the Trivandrum city and provided connectivity to all the Tier 1 metro cities and to almost all the major destinations in the country.

Air Transportation

Trivandrum has an international airport and domestic and international airlines operate from it. The Trivandrum International Airport has direct flights to international destinations, including Kuwait City, Dubai, Dammam, Singapore, Malé, Colombo, Sharjah, Muscat, Manama, Doha, Jeddah, and Abu Dhabi. The domestic flights link Trivandrum with Chennai, Delhi, Mumbai, Hyderabad, Bangalore, and Kolkata.

2. Site Appreciation

The proposed bus port site is situated at 08°28'41.37"N 76°56'2.81"E in Enchakkal, Subhash Nagar, Trivandrum adjoining abutting NH – 66.



Figure: Proposed Bus Port Site

3. Site Survey

The survey was conducted on 28th & 29th August, 2019 and the information collected is provided in the below subsections.

Site Details

The land parcel is under the possession of Kerala State Road Transport Corporation (KSRTC) for construction of a bus port. The following are the details of the site proposed at Enchakkal in Subhash Nagar area for the development of bus port at Trivandrum.

Name of the State/UT	Kerala
Name of the District	Thiruvananthapuram
Name of the City	Trivandrum
Nodal Agency nominated for Project	Kerala State Road Transport Corporation
Address	Enchakkal, Subhash Nagar, Trivandrum
Owner of Land	Kerala State Road Transport Corporation
Land Details	Survey number: 1621/11, 1623/1,1624/8 ,1624/13, 1624/4, 1698,1695/5, 1700/1, 1701/12, 1703/2,1623/3, 1623/4, 1623/5, 1624/6, 1699/3 Area : 5.88 Acres
Declared Land use	For Bus terminal (As per the development plan)
Site orientation	West : Residential development East : NH-66 North: Mixed use development South: Hotel Premier Park, mixed use development
Present Usage	The site is mostly vacant with some area utilized for parking of non-operational buses
Source of power	Local power utility
Water Source	Ground water and municipal water

Assessment of Alternate Bus Port Site

No alternate site for bus port was suggested by the state nodal agency.

Topography of the Site

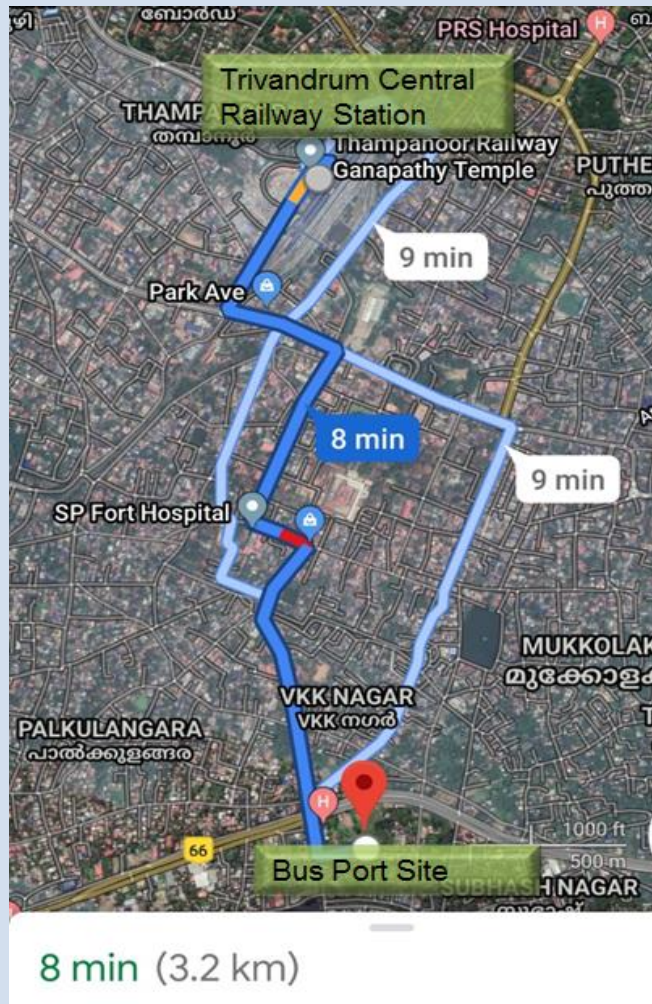
No undulation was observed upon visual inspection of the site.

Available Right of Way to the site and potential connectivity opportunities

The site is abutting NH 66 with 4 lanes and a service road having a total ROW of 35m.

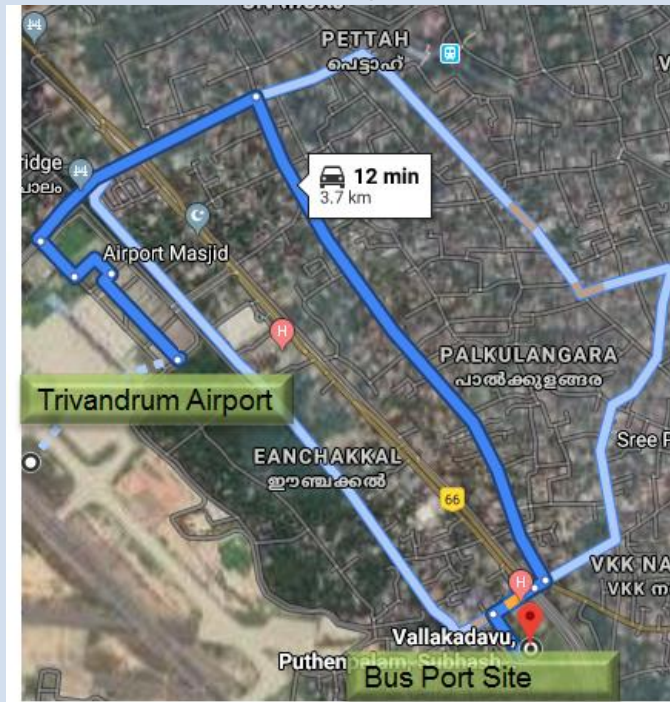
The connectivity of the proposed site from the Trivandrum Central Railway Station, KSRTC Central Bus Stand and Trivandrum International Airport were also assessed and are as follows:

Distance from the Trivandrum Central Railway Station Site is at an approximate distance of 3.2 Km from Trivandrum Central Railway Station.



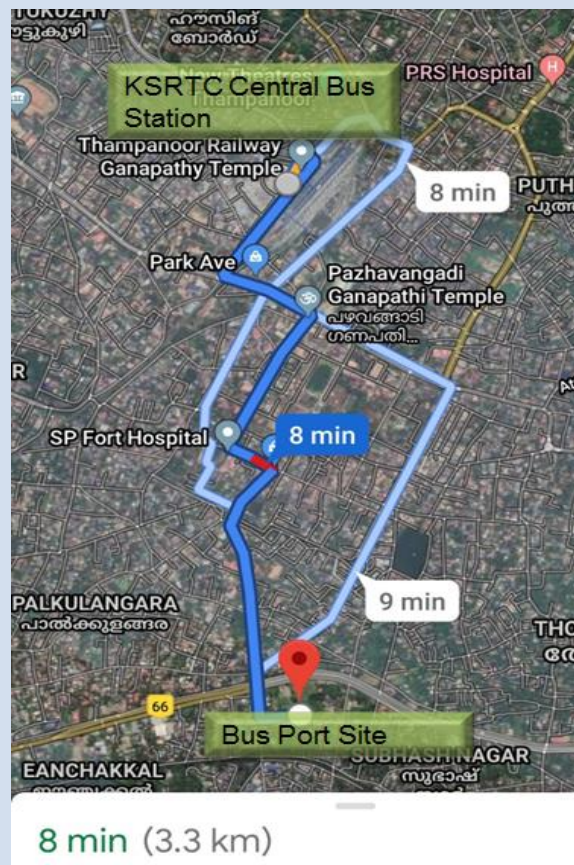
Distance from nearest Airport

Site is at an approximate distance of 3.7 km from Trivandrum International Airport.



Distance from nearest government bus stand

Site is at an approximate distance of 3.3 Km from KSRTC Central Bus Stand, Trivandrum.



Potential integration points with other proposed facilities

The site has mixed use development on the north, west and south direction with a Hotel property abutting the south boundary so the site. There were no other prominent commercial development observed in the vicinity of the site. Further, based on the discussion with the local officials it was concluded that there are no major interventions planned in the area which could substantially impact the current traffic pattern.

Traffic movement

The site abuts the NH-66 which shall be the primary connectivity of the bus port to and from the city. The NH-66 has 4 lanes and a service road having a total ROW of 35m at its connecting point with the site. This shall help in congestion free arrival and departure of buses from the proposed bus port.

As per the data provided by the state nodal agency, there are a total of 6690 bus trips expected from the bus terminal.

Environmental Issues

The site has small shrubs with few palm trees which may require relocation. The site has a marshy patch which will require filling. The bus port development would not create any adverse impact on environment.

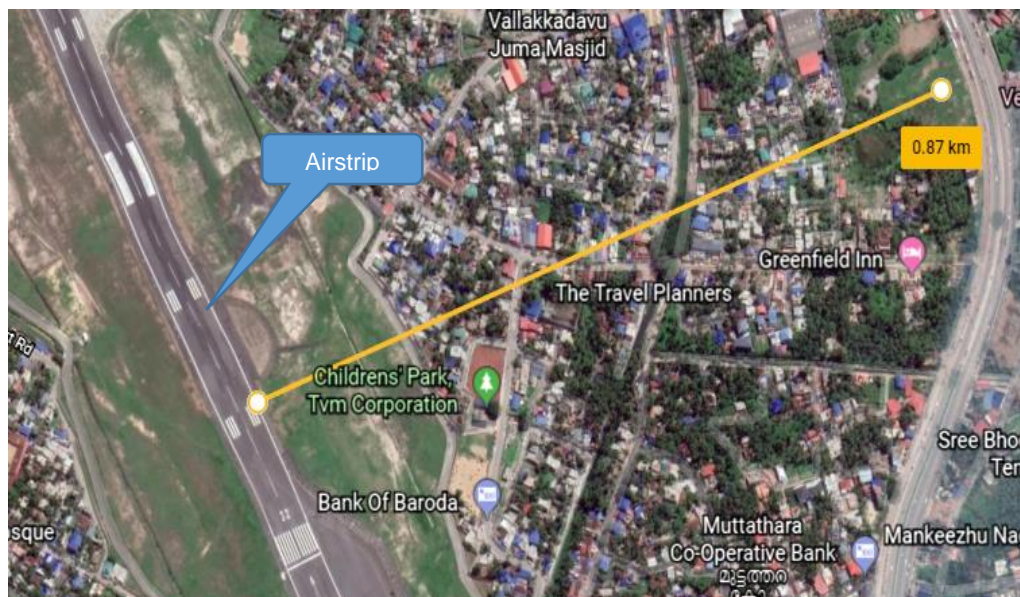
4. Conclusion

Based on the site visit, the following are broad contours governing the development of the bus port at the proposed site:

- (i) Site is readily available with state government and hence there is no need for acquisition.
- (ii) Applicable FAR for the land is 2.5 with a maximum allowable limit of 3.
- (iii) The proposed land use for bus port development.

The following are the key observations recorded during the site visit.

- (i) Trivandrum International Airport is just 4.8 km from the site with the runway at an aerial distance of 870 m from the site boundary on the west side. Hence, no restrictions on building height shall apply due to the air funnel.



- (ii) The site is accessible through a 4 lane NH 66 which abuts the site. No additional infrastructure is required for the access to the bus port site



- (iii) The site is feasible based on the 987 bus trip as provided by KSRTC vide letter no. AB6/607266/18 dated 23/01/2020.

5. Site Photographs



Approach Road to the Proposed Site



Service Road abutting the Site



Junk Vehicles Parked at Site



Level Terrain with Minor Shrubs