

CENTRE FOR PUBLIC POLICY RESEARCH

ANALYSIS OF  
CONNECTIVITY  
FROM KAKKANAD  
BOAT TERMINAL



Centre for Public Policy Research, Kochi.

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*Regards,*  
Centre for Public Policy Research

## **ANALYSIS OF CONNECTIVITY FROM KAKKANAD BOAT TERMINAL**

### **Introduction**

Kakkanad is a major industrial and residential region situated in the eastern part of Kochi city in Kerala, India. Being the administrative headquarters of Ernakulam district, Kakkanad houses various state as well as central government offices like the Civil Station, District Panchayat office, Airman Selection Board, SikshaBhavan (office of the Central HRD Ministry), KendriyaShramSadhan (office of the Regional Labour Commissioner), etc. Kakkanad is also the IT capital of Kerala accounting for about 55% of the IT exports from Kerala and is home to IT parks like SmartCity Kochi(which would be one of the largest IT parks in India on completion of the project), Kochi Infopark, amongst others. Kakkanad is home to the Cochin Special Economic Zone (CSEZ) and the KINFRA Export Promotion Industrial Park, thereby housing a portion of the industrial base of Kochi.

Kakkanad is a census town of Ernakulam district and forms a part of the Thrikkakara Municipality in the democratic local government. With a population of 25,531, population density of 1,455 persons per square kilometre and an area of 17.54 square kilometres (as per census 2011), it is one of the largest growing residential areas in the city owing to the presence of IT parks and the existing and proposed industrial and commercial establishments in the region.

The Vyttila-Kakkanad ferry service was flagged off on November 22, 2013, and is the first public project in India to be funded by the central government for water transportation. The specially designed boats by the Steel Industries Kerala Ltd. (SILK) in Kannur can ferry up to 50 passengers and 10 motorbikes at a time, at a fare of ₹ 8 per service.

Connecting Kakkanad which is the IT hub of the city and the surrounding residential areas with the transit hub of the city at Vyttila, the Kakkanad- Vyttila ferry service has a major role to play in enhancing the urban transport scenario in Kochi city. The success of the ferry service connectivity is dependent on various factors which need to be identified and studied in detail thereby ensuring a fruitful and beneficial outcome.

**Figure 1: Fast- growing residential areas in Kakkanad**



### **Existing Scenario**

The Kakkanad boat jetty is the final destination of the ferry service operating from Vyttila boat jetty. There are four stops in between, namely, Arattukadava jetty, Eroor jetty, Thuthiyoor jetty and Irumpanam jetty. The boat travels a distance of 9.1 kilometres each trip and carries up to 45 passengers and 8 motor vehicles per trip with a fare of ₹8 per passenger and ₹25 per motor vehicle.

The Kakkanad boat jetty is located to the east of the Chitrapuzha Bridge on the Seaport-Airport road in Kakkanad. There is no existing feeder service to the jetty which makes it difficult for the passengers majorly constituting employees of Infopark, students of the Rajagiri educational institutes and other commuters to the civil station and commercial establishments in Kakkanad, to opt the ferry service over the road transport. Even though the service has reduced the travel time between Vyttila and Kakkanad, the absence of feeder services to and from the jetty forces the commuters to hail auto rickshaws and private taxis to their destination which works out more expensive for the daily commuters compared to bus transport. The lack of public awareness regarding water transportation and its benefits are other reasons causing reluctance among the public in using the ferry services.

The route connecting the boat terminal at Kakkanad to the nearest bus stop (Rajagiri bus stop) covers a distance of more than 400 meters consisting of portions of steep terrain. A passenger is also required to cross the busy Seaport-Airport road in order to board buses plying to Infopark or Kakkanad. The absence of feeder services and other convenient last-mile connectivity options have largely impacted the usage of ferry services in the Vyttila-Kakkanad route.

**Figure 2: Kakkanad boat jetty**



**Figure 3: Road connecting Kakkanad boat jetty to Infopark expressway**



The IT companies provide private cab facilities and carpooling services for their employees Infopark for commuting to and from work.

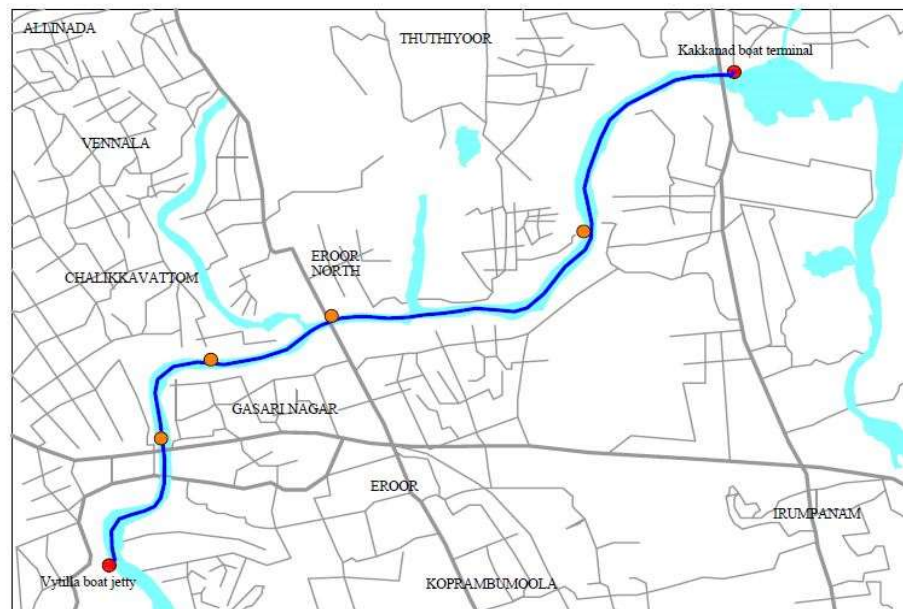


Figure 4: Infopark



Source: [www.infopark.in](http://www.infopark.in)

Map 1: Vyttila-Kakkanad ferry service route

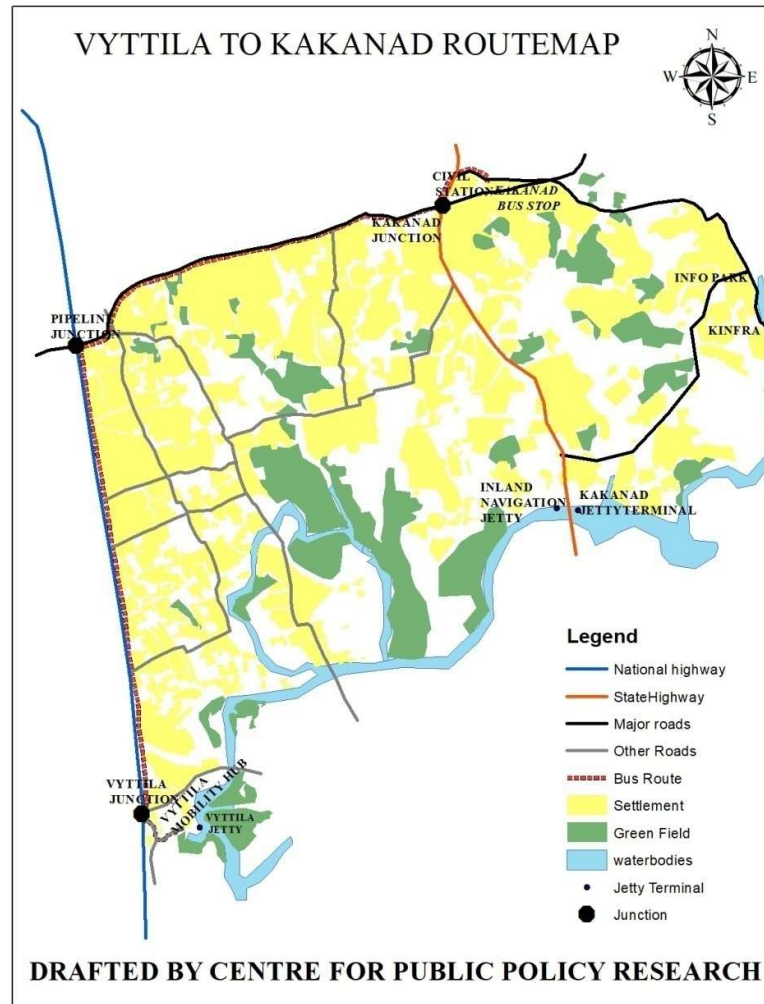


Kochi Metro Rail Ltd. had taken the initiative to launch the feeder service to provide connectivity to places like Infopark and civil station. It used to spend approximately ₹1 lakh per month for the feeder service, with an allocation of ₹3,140 per day. The State Water Transport Authority officials certified that the ferry service had an extra collection of around ₹1,500 when the feeder service was provided to Infopark and Kakkanad.

**Table 1: City ferry service timings**

From	To	Time
Vyttila	Kakkanad	7.00 AM
Vyttila	Kakkanad	8.00 AM
Vyttila	Kakkanad	9.20 AM
Vyttila	Kakkanad	11.00 AM
Vyttila	Kakkanad	01.30 PM
Vyttila	Kakkanad	03.20 PM
Vyttila	Kakkanad	04.40 PM
Vyttila	Kakkanad	05.50 PM

**Map 2: Existing bus and ferry routes from Vyttila to Kakkanad**



## Comparison of Inland Waterways with Roadways

The inland water transport in the form of ferry service saves the time of travel between Vyttila and Kakkanad compared to the road transport. The ferry service helps in decongesting the roadways, thereby overcoming the limitations of the road traffic systems in the city. There are buses plying from Vyttila to Kakkanad and back but the travel time via road is much more than that by ferry. While the ferry service saves time and money, the absence of feeder services makes it difficult for the commuters to reach their destinations.

Ensuring effective last mile connectivity to and from the jetty via feeder services will enhance the probability of the public utilising the ferry services as a mode of transportation. Provision of feeder service will not only boost the usage of ferry services in the area but will also contribute to the improved usage of public transport.

Map 3: Locational setting of Kakkanad



## Location, Connectivity and Proximity

Kakkanad being a commercial and IT hub, attracts many IT professionals, students and others on a daily basis. The ferry service was largely utilized by the Infopark employees when the Kochi Metro Rail Corporation Ltd.funded the bus service connecting the boat jetty to Infopark. This was a result of the proximity of the boat jetty to Infopark as well as the Rajagiri educational institute and various other offices.

**Figure 5: Boat jetty near the seaport- airport road**

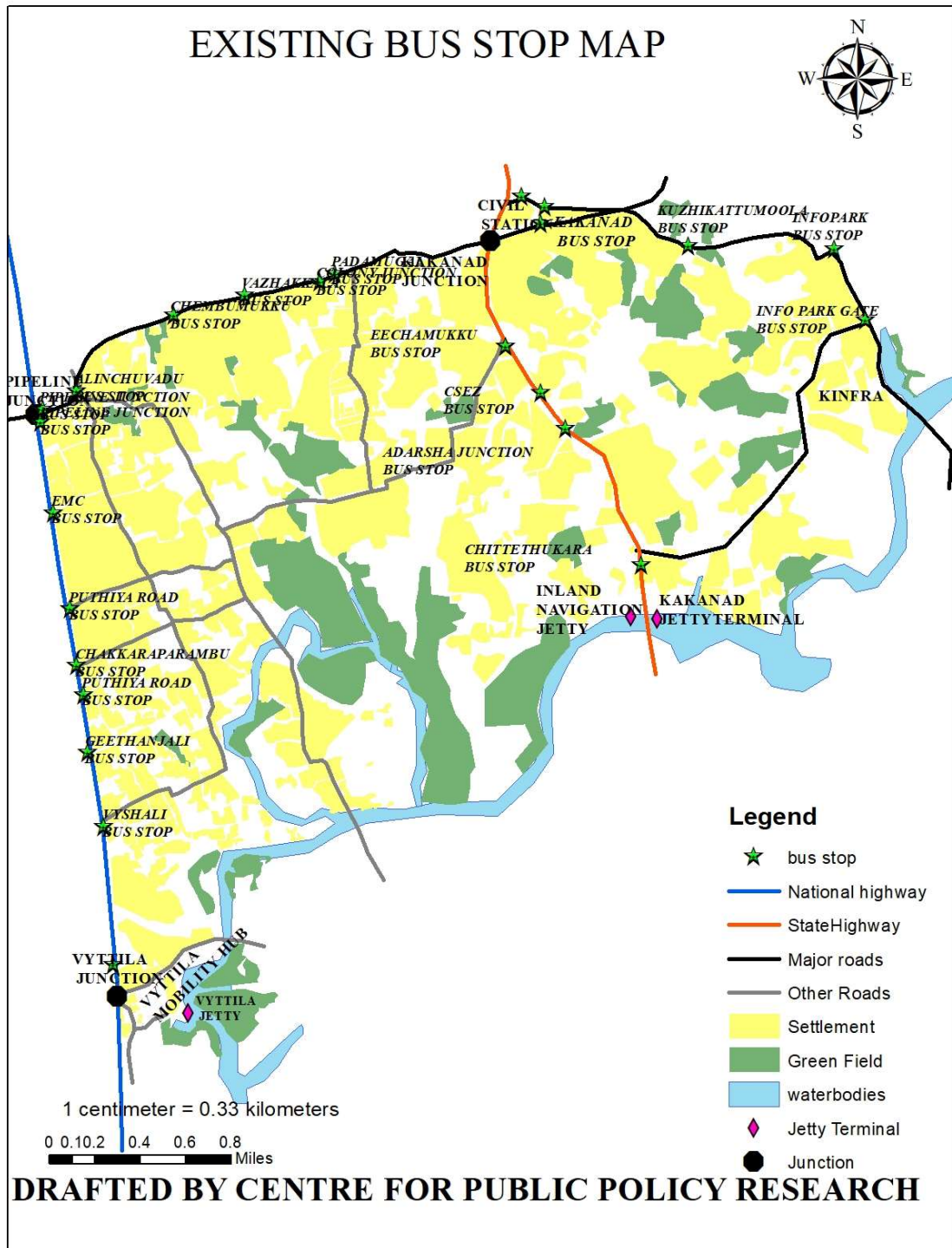


**Figure 6: Rajagiri Educational Institute**





Map 4: Existing bus stops in Kakkannad



## Final Proposal

### A: Shifting the existing boat jetty or provision of anew boat jetty

#### Shifting the boat jetty to a proximal location with respect to the Highway

The existing boat jetty at Kakkanad is situated towards the east of the Chitrapuzhabridge on the Seaport-Airport road. The passengers alighting from the ferry at Kakkanad are required to walk more than 400 metres to reach the nearest bus stop.

The jetty of the Inland Water Authority is located towards the west of the Chitrapuzha bridge. There is ample space available near this jetty for the provision of a new boat jetty closer to the bridge (see figure 7). This will ensure that the bus stop is at a walking distance of about 100 meters, thereby making it more convenient to hail buses to Kakkanad and Infopark, and also avoids the hassle of having to cross the busy Seaport-Airport road in order to reach the bus stop. This newly suggested location for the boat jetty offers ease of spotting the boat arrivals from the bridge thereby enabling the bus crew to wait for the passengers accordingly.

**Figure 7: Space for the newly proposed boat jetty**



### **Provision of a new boat jetty near KINFRA and extension of route**

The provision of a new boat jetty near KINFRA will benefit the commuters to Infopark as well as serve as a connectivity hub for the upcoming Kochi Smart City in Kakkanad. The location of this boat jetty near KINFRA, if established, will be at close proximity to Infopark such that the commuters will have their respective destinations at walking distances from the jetty. This would require the extension of the existing service route around 3.5 kilometres, which also includes portions which need to be dredged for the passage of boats.

### **B: Providing feeder services**

#### **Provision of share autos from the existing boat jetty**

The distance from the Kakkanad boat terminal to Infopark is around 3 kilometres and the average auto fare is about ₹35 to ₹40. If share autos are introduced in this stretch with the passenger capacity of 3, each passenger will have to spend less than ₹10 to ₹12 per trip. Fare can be collected individually from the passengers.

Pick- up and drop- off facility for passengers along the route can also be provided as other commuters in addition to the people travelling to or from the boat terminal will be availing the service. The share auto services will have to be coordinated systematically and effectively to meet the passenger demand.

#### **Provision of minibuses from the existing boat jetty**

The provision of minibuses with higher passenger capacity than auto-rickshaws may prove to be a better alternative to share- autos as minibuses can carry a significant number of commuters at the same time. The number of minibuses or share autos required is estimated by calculating the Passenger Car Unit (PCU- 2) during the peak hours of 8.00 AM- 10.00 AM and 4.00 PM- 7.00 PM. The parking bays for these vehicles should be properly organized and regulated in order to avoid traffic jams and congestion on the road. The role of supervising the operation of minibuses can be assigned to either the State Water Transport Department or the District Tourism Promotion Council.

### **Operation Cost**

#### **The utilisation of the CSR fund of Infopark companies:**

Utilising the CSR funds of IT companies in Infopark could be one of the best ways to effectively run the feeder service. As the main purpose of CSR fund is to serve the society better, by providing their CSR fund, the Infopark companies can ensure improvement in public transport facilities for their employees, thereby reducing the traffic congestion on the roads.

Infopark can operate in a similar line to the Kochi Metro Rail Ltd., by providing feeder services from the boat jetty to Infopark. Provision of feeder service will also benefit Infopark by saving parking spaces, tackling transportation issues and reducing environmental pollution. In the absence of proper feeder services, the employees of Infopark rely on private vehicles which results in increased emission of toxic gases, pollution from the vehicles and traffic congestion on the roads.

#### **Charging an access fee from the users of the feeder service**

In addition to the relief offered by the ferry services to the commuters from the severe traffic congestion on the roads, the provision of feeder services will ensure all the more convenience and connectivity. In exchange for the convenience offered, an access fee of up to ₹15 per head can be charged from all those who utilize the feeder service. In doing so, the responsibility of betterment of this system will not only be the sole responsibility of one party but of all the parties involved. The responsibility of collection of the access fee can be taken up by the ferry staff themselves or can be facilitated via an online platform accepting online payments.

Mini-buses can also operate as stage carriages in the specific area. In this case, the fare can be collected according to the stages from the passengers directly. In order to implement this, the Regional Transport Authority has to allocate routes and relax some of the provisions with respect to stage carriages for this particular circumstance, to allow particular kind of vehicles to run the service.

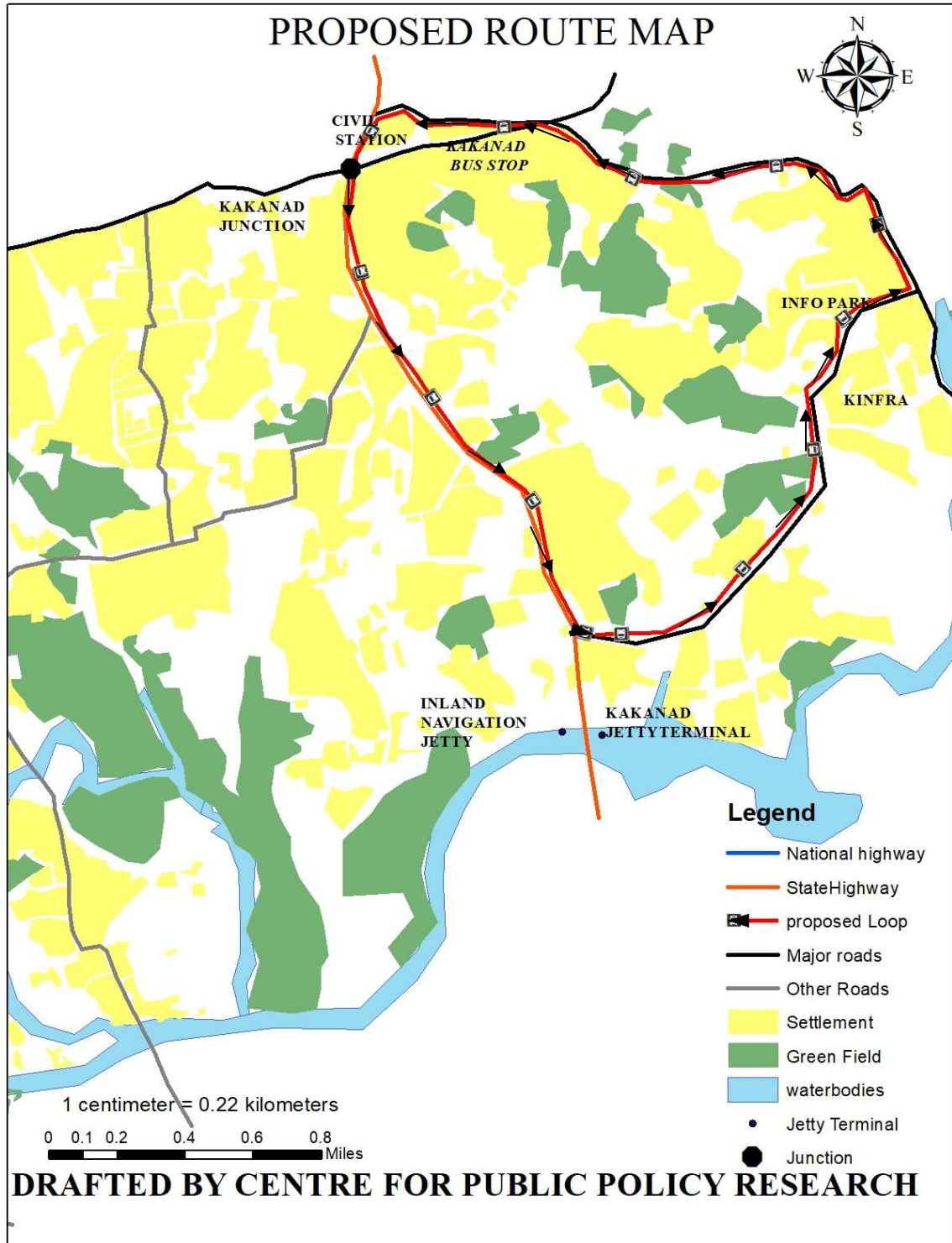
The route of the feeder service i.e., the minibus, forms a loop connecting:

1. **Rajagiri educational institute** - This will be the first destination of the mini bus, at approximately 6 to 7 minutes from the boat jetty.
2. **Infopark** - This will be the second destination, at approximately 15 to 17 minutes from the boat jetty, where a majority of passengers are expected to alight.
3. **Kakkanad civil station** - This will be the final destination at approximately 22 to 24 minutes from the start.

The bus will return to the boat jetty in an estimated total time of 30 minutes. The route of the mini bus is designed as per the anticipated destinations of majority of the passengers utilizing the ferry service. As majority of the passengers consist of students, staff and employees commuting to Rajagiri educational institute and Infopark, the mini bus covers these two destinations on priority, before heading to its final destination (Kakkanad Civil station).



Map 5: Proposed route map for the feeder service



### Operating Cost Analysis

The operating cost for the mini bus service is analysed by assuming the number of trips per day as 20 and passengers carried per day as 45 (rough estimation).

#### Monthly consideration of expenditure:

SL.NO	OCCUPATION	EXPENDITURE/DAY (IN RUPEES)	EXPENDITURE/ MONTH (IN RUPEES)
1	Service cost	400	12,000
2	Maintenance cost	0	1,000
3	Fuel cost	2,088	62,640
4	Salary	0	18,000
	<b>Total</b>	<b>2,488</b>	<b>93,640</b>

Operating cost for one minibus - ₹93,640

Operating cost for two minibuses - ₹1,87,280

#### Income:

SL.N O.	OCCUPATION	INCOME IN RUPEES	
		DAY	MONTH
1	Peak hours	1,280	38,400
2	Normal hours	2,400	72,000
	<b>Total</b>	<b>3,680</b>	<b>1,10,400</b>

Income for the one bus - ₹1,10,400

Income for the two buses - ₹ 2,20,800

#### Monthly beneficiary analysis:

INCOME	2,20,800
EXPENDITURE	1,87,280
BENEFIT	33,520

#### Annual beneficiary analysis:

INCOME	26,49,600
EXPENDITURE	22,47,360
BENEFIT	4,02,240

The timings of the ferry service will attract commuters much more than its frequency. The ferry timings should be such that there is a minimum of 3 trips during the morning and evening peak hours( 8.00 AM- 10.00 AM & 4.00 PM- 7.00 PM respectively) catering to the working population. The feasibility of increasing the frequency of the service should be examined further as technical difficulties may arise from running the boat engine continuously.

The route of the ferry service can be extended by offering connectivity to the major boat jetties in Ernakulam like Fort Kochi, Thevara, etc. after examining its feasibility.

Lack of awareness amongst the public about the ferry service is one of the major drawbacks at present. It is of utmost importance to make the ferry service convenient to commuters with respect to connectivity, time, fare, safety and security. Sign boards and posters on the ferry service can help in creating awareness amongst the public regarding the service and its benefits.

Apart from the points mentioned above, the quality of ferry service and feeder service can be improved by implementation of the following requisites:

- **Safety and Security**

1. **Fire extinguishers**

Boat jetties should install fire extinguishers both in jetties and boats to deal with fire emergency.

2. **CCTV Cameras**

The CCTV cameras provide a notch of high tech security by direct monitoring of the boat jetties.

3. **Reservation for women, disabled and Elderly people**

Special reservation of seats can be allotted for women, disabled and elderly people to ensure their safety and security.

**Quality-** Improved quality of the ferry in terms of its appearance, seating and digital ticket collection.

1. **Infrastructure in and around the boat jetties:**

- a) **Parking space**

There shall be adequate parking space adjacent to the jetties to accommodate vehicles so as to ensure connectivity to important destinations.

- b) **Restrooms**

Boat jetties should have adequate restrooms for the comfort of the passengers.

- c) **Waiting rooms**

Passengers should be provided with waiting rooms to take rest in between the scheduled boat trips, both land and water.

- d) **Waste management system**

Waste management system shall be established to deal with solid wastes and manage it in order to keep the water body and jetty premises clean.

**2. Assistance and support:**

**a) GPS tracking system**

GPS Tracking system should be available in the boat jetty as well as the boat, to know the location of the boat and timings.

**b) E- guide (recorded audio and video clips)**

Recorded audio and video clips in Malayalam, English and Hindi can be used for providing instructions about safety on the boat

**3. Facilities in the minibus feeder service**

**a) GPS Tracking system**

GPS tracking system can be made available for passengers to know the location and availability of the service.

**b) E- reservation of seats**

Online seat reservations for the minibus service should be established for the commuters' convenience.

**c) Reservations for women, elderly and disabled people**

Special reservations can be allotted for women, elderly and the disabled, to ensure their safety and security.

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