

PORTFOLIO

URBAN PLANNING

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ABOUT ME

I am a dedicated Urban Planner, committed to problem-solving and constantly learning skills, tools, and trends that enhance sustainable and effective urban development to stay ahead in my field. I believe that everyone—from individuals to communities—deserves well-designed and safe spaces. Whether it's the interior of a room or the planning of an entire city, each project embodies the dreams and lives of those it serves.

My approach as a planner involves a deep commitment to understanding society's needs and using my skills and software to craft each space to meet the standards. I dedicate my time and expertise to delivering exceptional results, ensuring my years of hard work and dedication serve the people and environments I design for.

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MASTER OF PLANNING

THESIS

CONTENT

TOURISM DEVELOPMENT PLAN USING INLAND WATERWAYS - A CASE OF KOCHI, KERALA

ABSTRACT

Tourism is an emerging economic generating industry. In the past decades the number of tourists has increased in both National and International scenario. Water tourism is a new tourism niche. Even though there are many types of water tourism, in the study, the focus will be only on backwater cruise tourism. Even before water tourism emerged as a tourism niche product, Kerala, especially Alappuzha and Kochi have a long history of backwater cruising as a tourism type. Aim of the study is identify the waterways in Kochi along with the existing tourist spots in Kochi.

Tourist satisfaction is vital for the success of any tourism project. For that the factors influencing tourist perception is studied and different pull factors are identified which would help in the study. The aim of the study is to understand the tourist perception in Kochi and based on that develop different circuit through inland waterways catering to the needs and wants of the tourists. Along with it the existing infrastructural facilities and services connected with tourism will be studied and interventions will be proposed. For this the Government initiatives for tourism and IWT are also studied.



Introduction & Project Feasibility



Existing Condition



Primary Data



Tourist Preferences



Tourism Scenario



Issues Identified



Proposals

1.1 Introduction & Project Feasibility

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 Tourism Development Plan utilizing Inland Waterways- Case of Kochi

Water Tourism

Based on their interest of different destinations, Tourism can also be categorized as eco-tourism, adventure tourism, religious tourism, business tourism or water tourism. Water Tourism includes various types of recreational and sports activities in water and on water, as well as the use of water as a transportation route, especially for cruising and sailing.

Need for the Project

Need for this Project can be explained on 4 different aspects

1 Potential of Kochi

QUEEN OF ARABIAN SEA
 The biggest city in Kerala rich in waterways and other tourist destinations with a wide variety of culture and religion.

2 Tourist statistics

MOST PREFERRED DESTINATION
 13.30% of Domestic tourists visit Kochi which is the largest percentage. on an average about 25% of the tourist arriving in Kerala is visiting to the Ernakulum district

3 Issue-Tourism

Government projects are all isolated and only an integrated development plan can bring notable changes

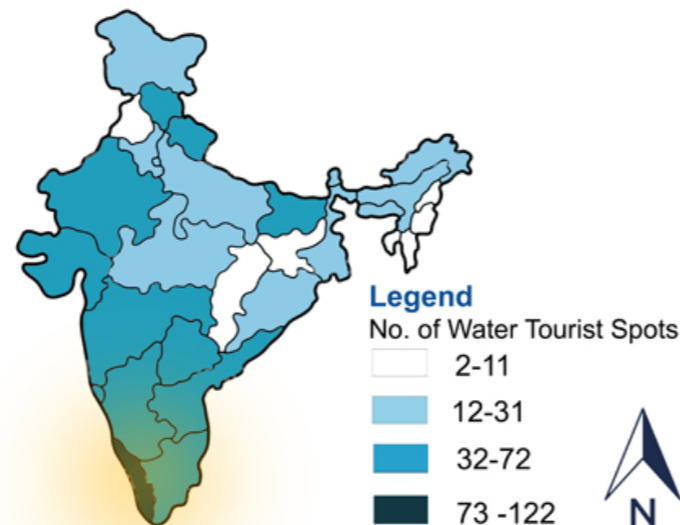
4 Issue - Waterways

ROADS DOMINATED WATERWAYS
 Most of the waterways and canals in bad condition due to improper cleaning.

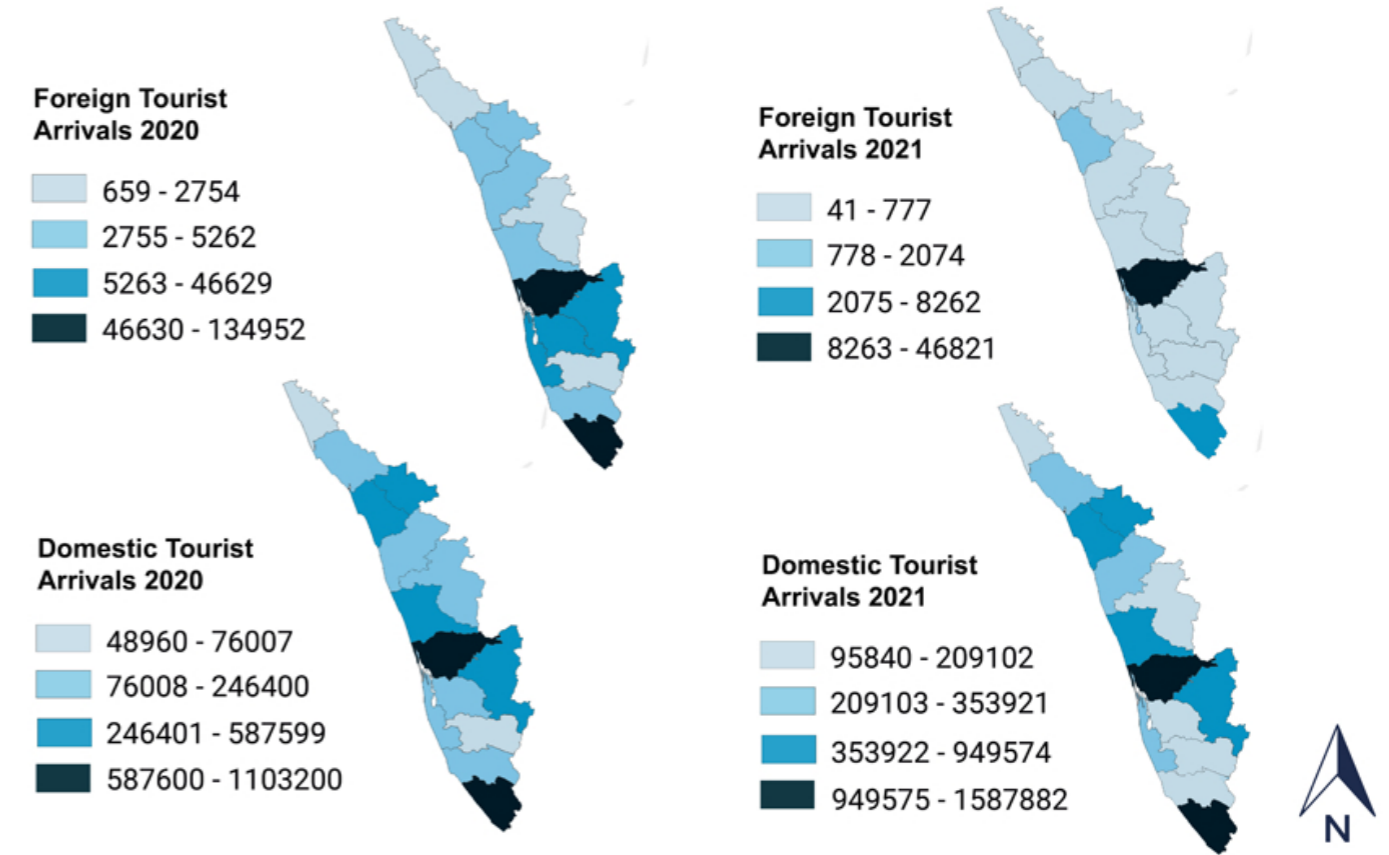
Tourists prefer to have a efficient, time scheduled, pre advertised and regular conducted tours. Backwater services handles by KTDC in Kochi is not worthy. Most of the Tourist places in Kochi lacks the basic amenities, cleanliness and hygiene.

Relevance of Kerala

As the map shows, Kerala is the only state in India with more than 100 water tourist spots.



District wise Tourist Arrivals of Kerala



Water Tourism in Kerala

The backwaters are a network of 44 rivers, lagoons, and lakes that run from north to south for a total distance of 1500 km.

Among the backwater tourism locations, Alappuzha is the place preferred by most of the foreign tourists, followed by Kollam and Kochi. For domestic tourists, the most preferred place for water tourism is Alappuzha itself, followed by Kumarakom, Veli and Kochi.

In case of beaches, for foreign tourists, most preferred location is Varkala and Kovalam which for domestic tourists, and Kovalam, Shanghumugham, Cochin and Varkala in second place

From the data of Kerala State Tourism Perspective plan 2025, it could be seen that Heritage, culture and religious tourist spots are visited by maximum of tourists. Beach tourism and backwater tourism is in second position.

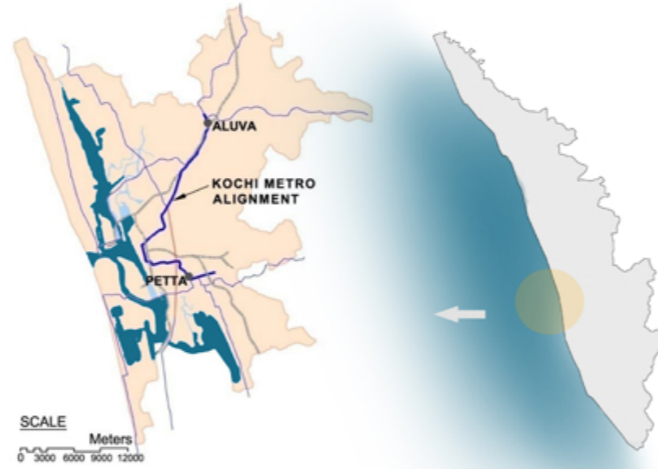


1.2 Existing condition

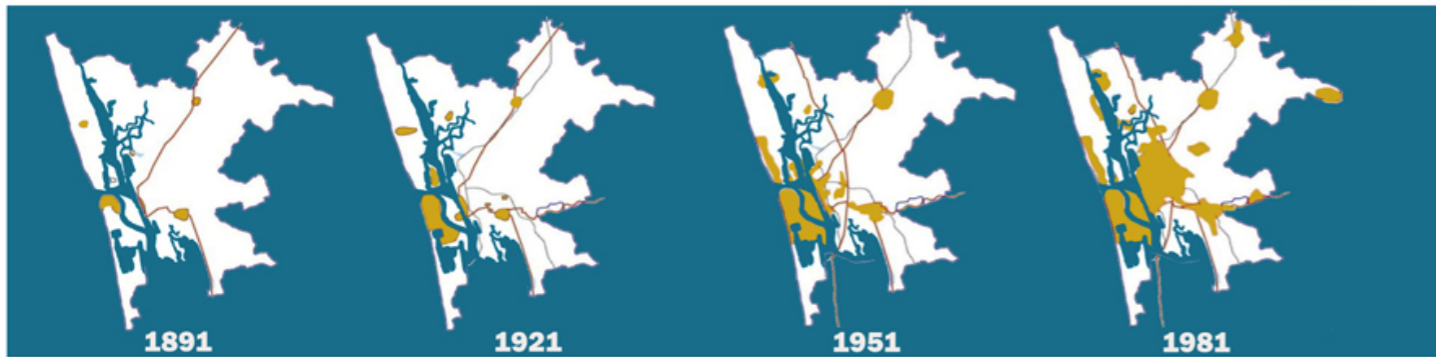
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 Tourism Development Plan utilizing Inland Waterways- Case of Kochi

Site Introduction - Kochi

Kochi is located in Ernakulam district which is in the central part of Kerala. Kochi's settlement pattern reveals an overlapping of civilizations from many eras with rich historical values from Hindu, Dutch, Portuguese, and British cultures. With its ancient towns, it has a trembling, multicoloured culture. In Kerala, Kochi is the most visited tourist destination. 13.3% of Domestic tourists and 25% of foreign tourists visited Kochi in 2021.



Spacial growth pattern of Kochi



Traffic Network of Kochi

Major Road and Rail Network



Train Stations and Airport



Kochi is well connected through road, rail, water and Metro. Kochi Airport known as the Cochin International airport is situated away from the city.

But the city area is crowded and the existing transport network is not sufficient today.

Existing IWT Routes in Kochi

Existing water routes can be broadly classified as

- Existing Ferry Routes
- Canal routes
- National Waterway III
- Water Metro Route



Water Metro



SWTD Boat



National Waterway III

With a total length of 205 kms, National waterway 3 consists of 3 canals which are west coast canal (Kottappuram-Kollam) of 168 km, Udyogmandal canal (Kochi Pathalam bridge) of 23 km and Champakara Canal (Kochi- Ambalamugal) of 14 Km.



Kochi Water Metro

The project connects 10 island communities with 16 routes and 38 jetties across 76 km route network. Of the 38 jetties, eighteen (18) are proposed to be developed as major jetties or main boat hubs while the remaining twenty (20) jetties shall be developed as minor jetties for water transit services.



State Ferry Service Route

The water transportation in Kochi is administered by the State Water Transport Department (SWTD). SWTD operates services from the following 10 jetties/ferry terminals; 1. Ernakulam 2. High Court 3. Fort Kochi 4. Mattancherry 5. Embarkation (Willington Island) 6. Vypeen 7. Mulavukadu 8. Vytila 9. Eloor 10. Kakkanad. 9 Boats are functioning under SWTD.



Canal Routes

Canal Routes are now not used for transportation due to its poor condition resulted from waste dumping and poor maintenance.

Note:

All yellow lines represent the identified existing waterways

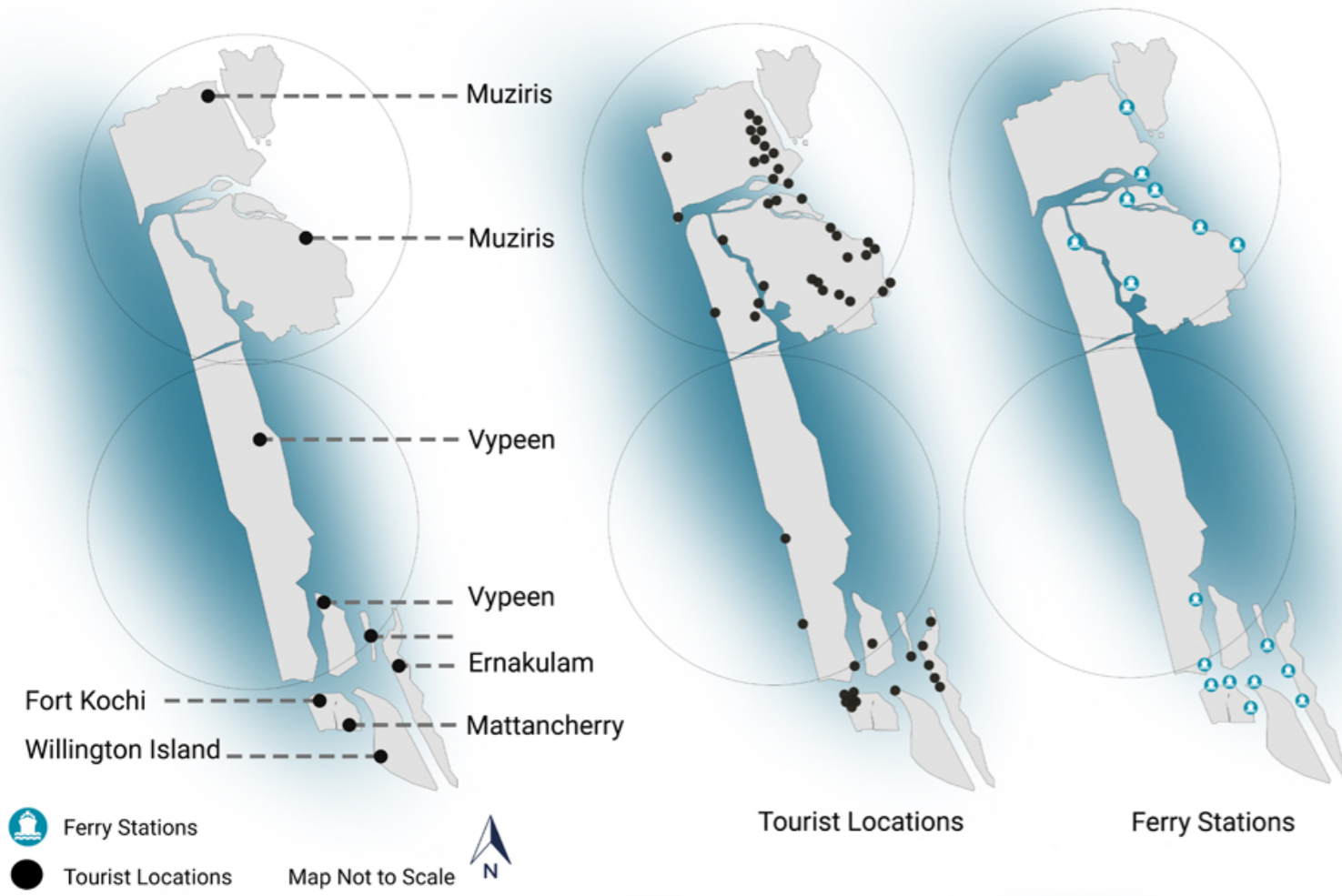
1.3 Primary Data

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Tourism Development Plan utilizing Inland Waterways- Case of Kochi

Project Aim

For the ease of study the whole site area will be divided into 6 landmasses. It is divided based on the tourist spots, waterway connectivity and administrative boundaries.



Zone - Fort Kochi & Mattancherry



Primary Data Collected from Tour Operators in Kochi

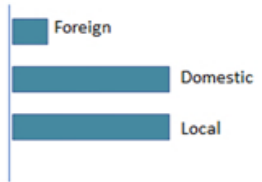
	Reach Kochi by	Duration of stay	Probability of visiting Kochi	Purpose of Visit
International/ Foreign	Flight/Train/Bus	1 week to 1 month	High	Heritage City Tour
	Cruise Ship	1 - 2 Days	Very High	Heritage City Tour
Domestic/ within India	Flight/ Train/ Bus	1 - 10 Days	Medium	Heritage City Tour Other
Local/ Within State	Train/ Bus/ Pvt Vehicle	1 - 3 Days	High	Heritage City Tour Other

Preference of waterway travel by Tourists

Expense in Tourist Boat



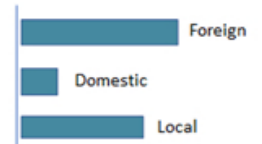
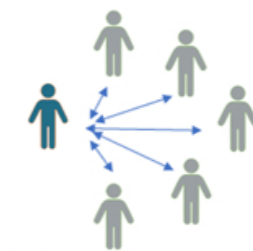
Govt. operated
Rs. 500 / \$ 6
Private operated
Rs. 100 - Rs. 200
\$ 1.14 - \$ 2.27



Expense in SWTD Ferry Service



Govt. operated
Rs. 6-10
\$ 0.068 - \$ 0.11



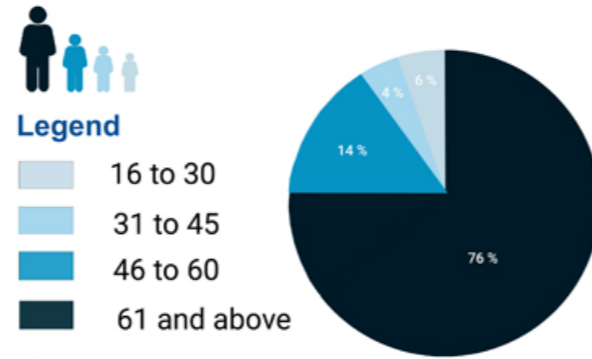
Note: Only a brief section of the project is included in this portfolio

1.4 Tourist Preferences

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Age of Respondents

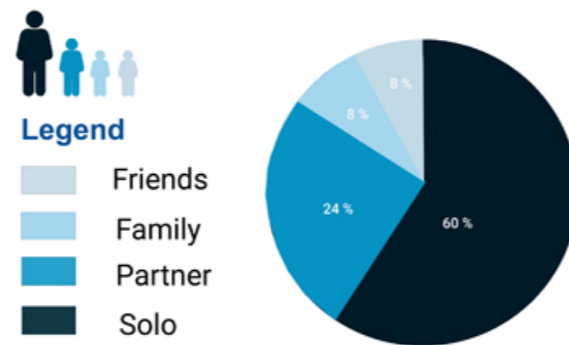
- 76 %** of the respondents are from 16 to 30 age
- 14 %** of the respondents are from 31 to 45 age
- 4 %** of the respondents are from 46 to 60 age
- 6 %** of the respondents are from 61 and above age



3/4 th of the sample consists of young people and the responses will be mainly a reflection of the opinion of this age group.

Type of travel of Respondents

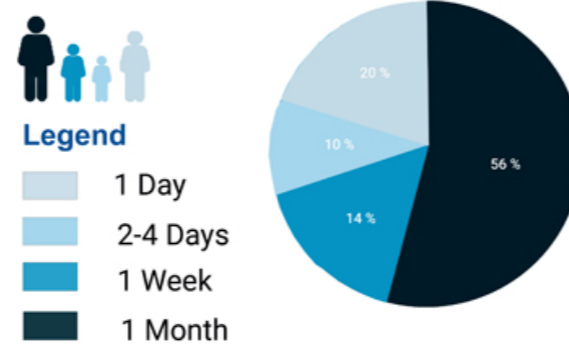
- 60 %** of the respondents came with Friends
- 24 %** of the respondents came with Family
- 8 %** of the respondents came with Partner
- 8 %** of the respondents came Alone



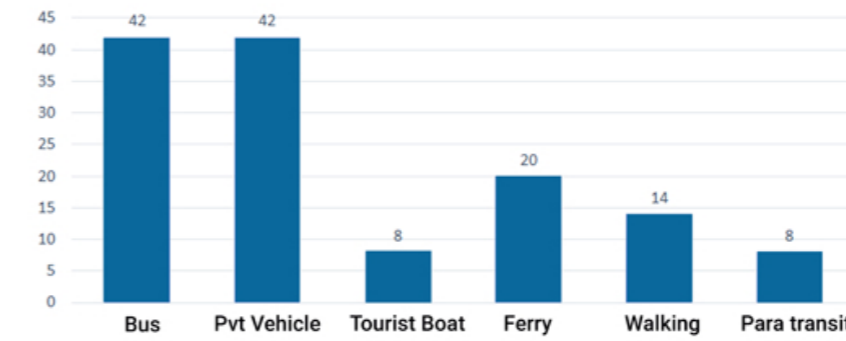
As mentioned above, as a reflection of more young people in the sample, more than half of the people prefer to travel with friends

Duration of Stay

- 56 %** of the respondents stayed for 1 day
- 14 %** of the respondents stayed for 2 to 4 days
- 10 %** of the respondents stayed for 1 week
- 20 %** of the respondents stayed for more than 1 month

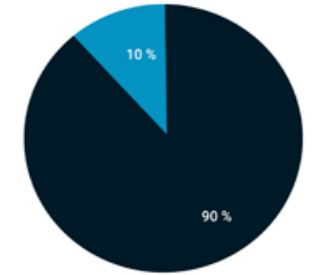


Mode of Travel of Respondents



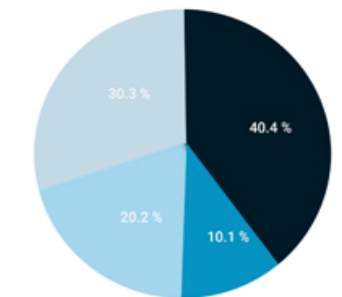
Even though there is good waterway connectivity from Ernakulam Mainland to Fort Kochi, only 20% of people preferred ferry boats for reaching Fort Kochi. Among them 90% of tourists were from the age group of 16 to 30 and 10% of them were from 31 to 45 age group. Opinion of tourists revealed that there is a difficulty in accessibility when it comes to the age group of 46 and above. Among the 20% who preferred ferry, 40% were from the age group of 16 to 30 whose stay duration was only for one day, 10% were from the age group of 16 to 30 who stayed for 2 to 4 days, 20% were from the age group of 16 to 30 and 31 to 45 and the last 30% were from the age group of 16 to 30 who stay for more than one month. Only 6% of people preferred tourist boat and all were from the age group of 16 to 30.

Age group of Ferry Users



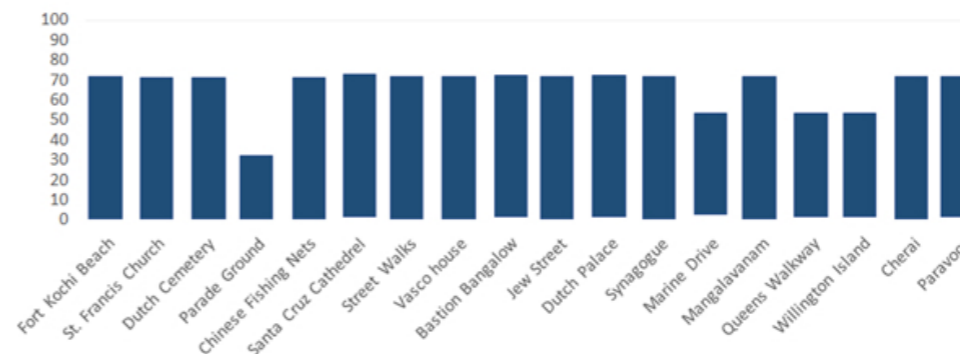
- Legend**
- 31 to 45
 - 16 to 30

Duration of stay of Ferry Users

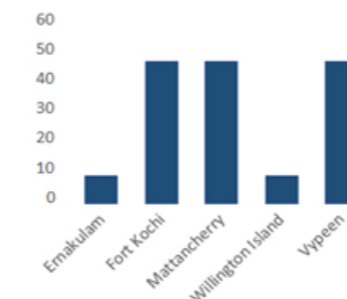


- Legend**
- More than 1 month
 - 1 Week
 - 2 to 4 Days
 - 1 Day

Preference of Tourist spots



Preference of Zones



Based on tourist preferences, the five zones are again classified into preferred zones and potential zones.

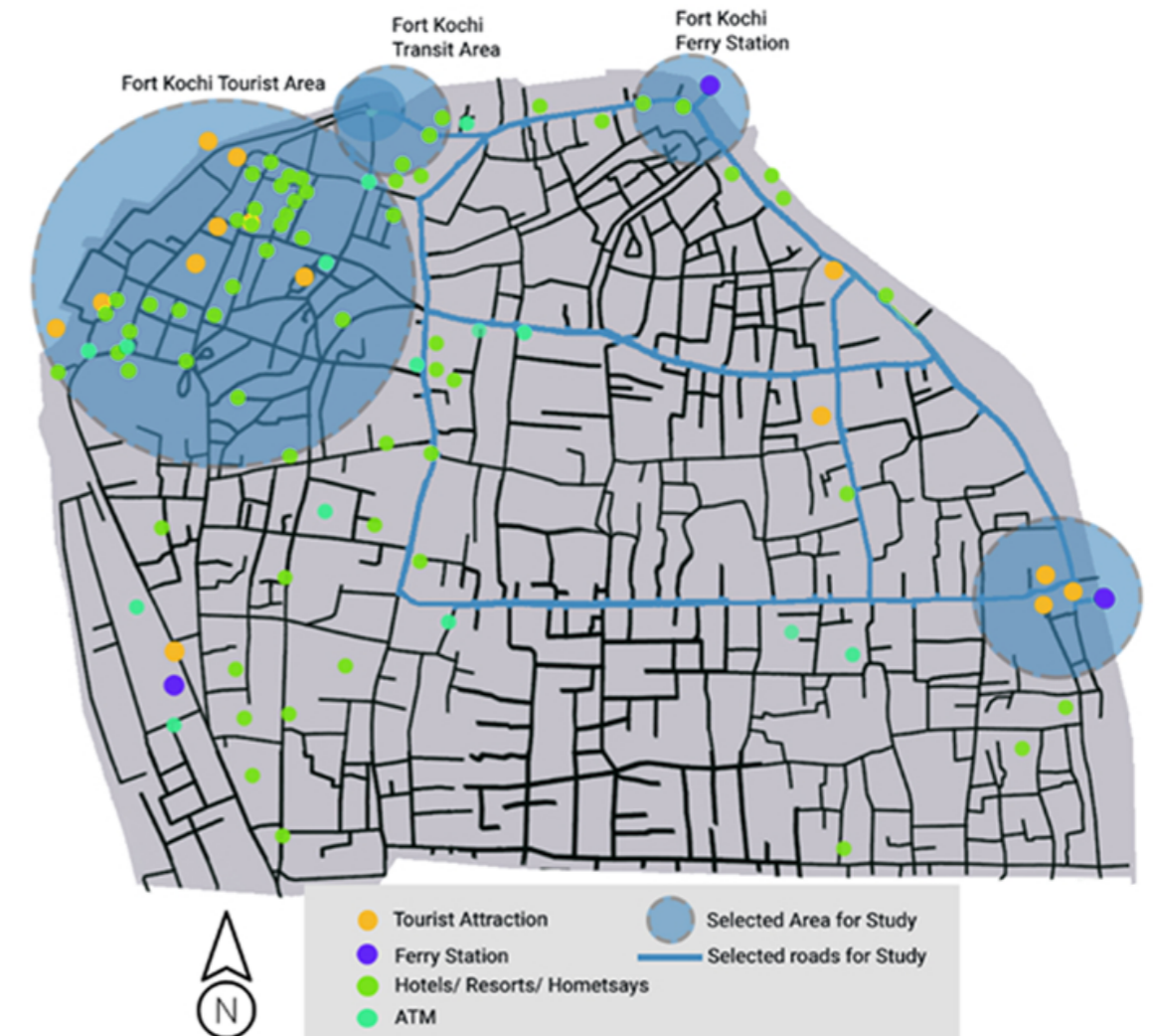
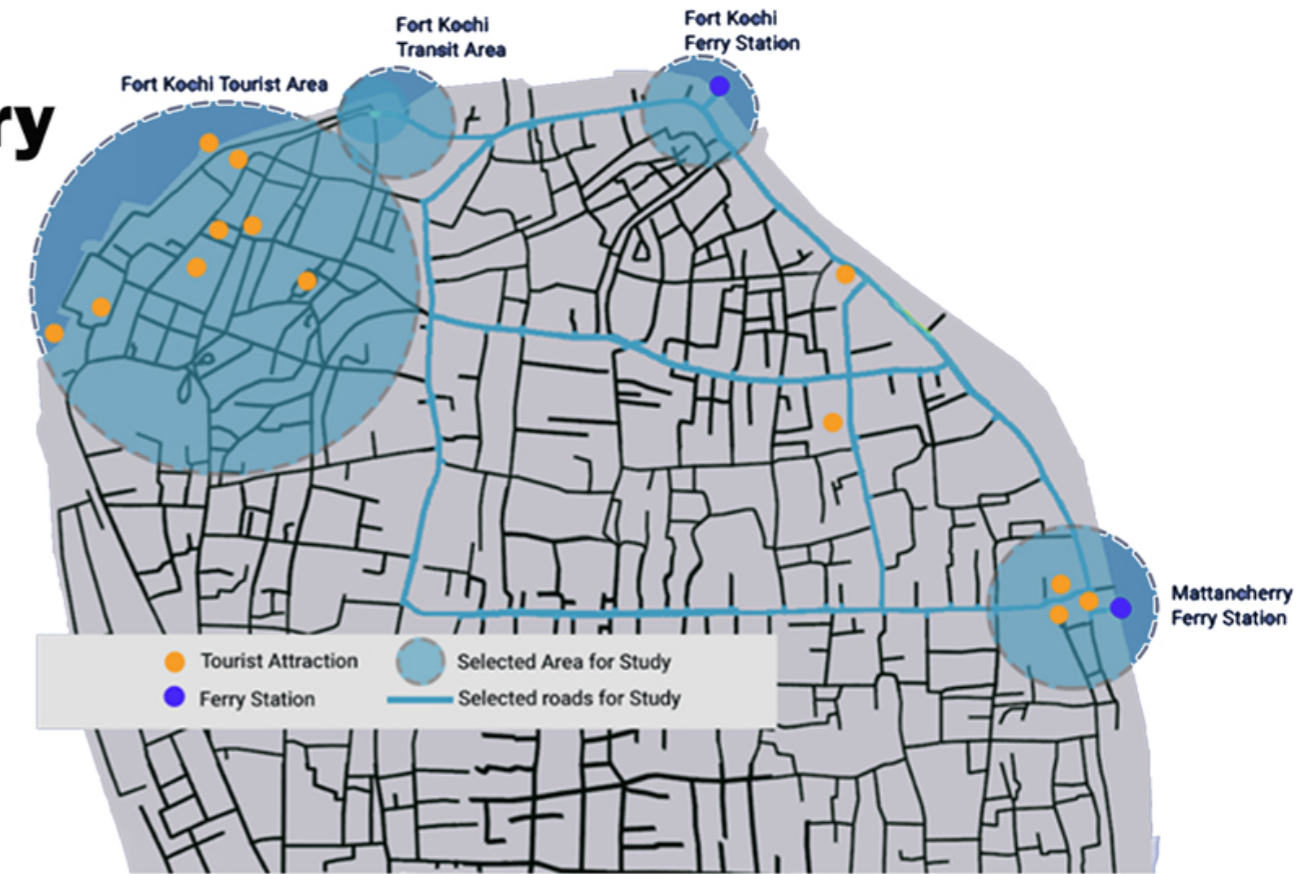
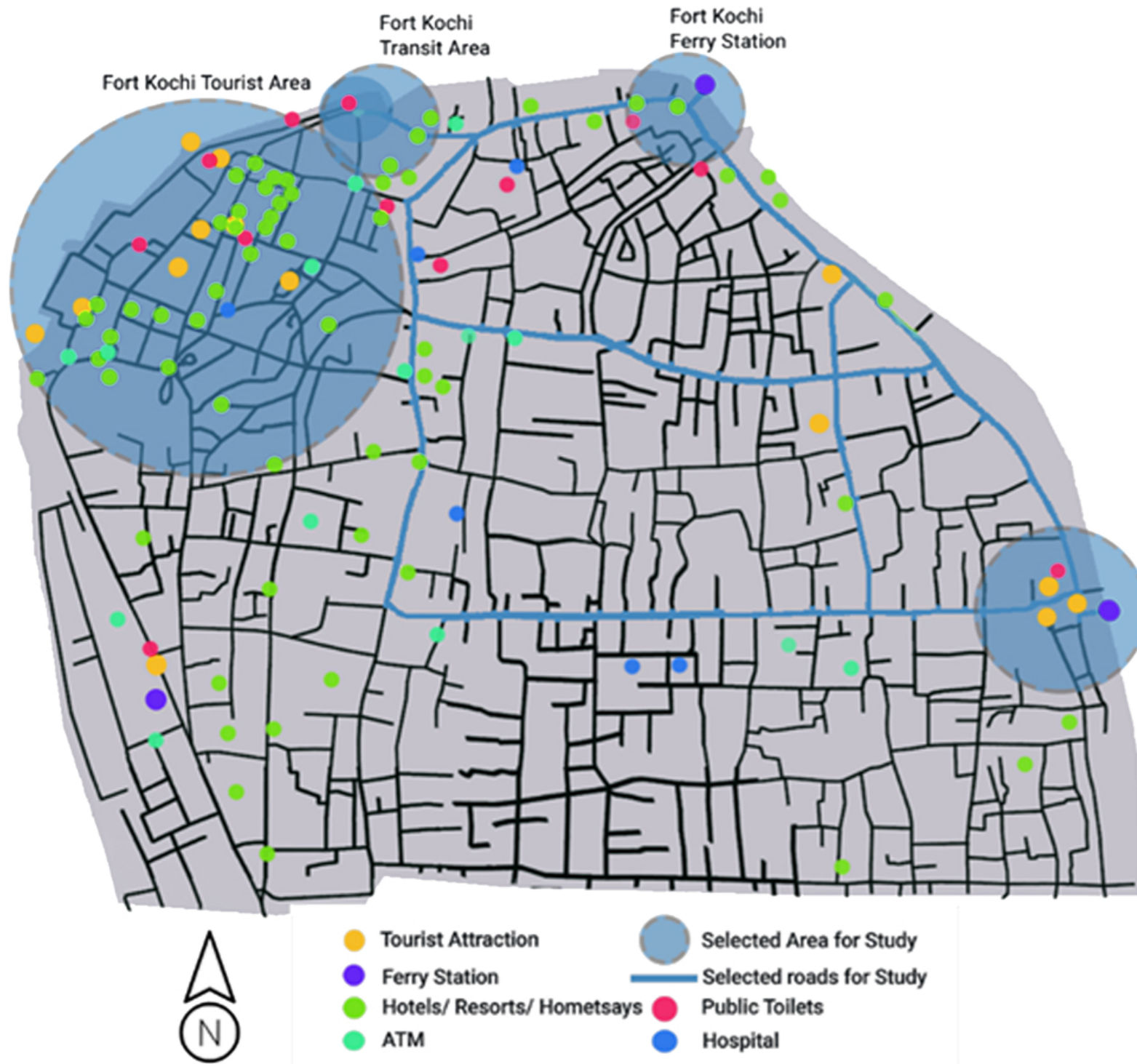
Ernakulam mainland, Fort Kochi and Mattancherry comes under preferred zones and Vypeen and Willington Island comes under Potential zones.



1.5 Tourism scenario of Fort Kochi and Mattancherry

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Tourism Development Plan utilizing Inland Waterways- Case of Kochi



1.6 Issues Identified

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 Tourism Development Plan utilizing Inland Waterways- Case of Kochi

Age of Respondents



Based on the nature of area, it is also divided into the following

- - - - - Transit Hub
- - - - - Chinese Fishing Net Area
- - - - - Walkway
- - - - - Bus Route
- - - - - Other streets

Transit Hub

This could be said as a transit hub of the area as it is having a ferry station, Ro Ro station, bus stand, bus stop and auto stand. Note : In our study this Zone will act as the core zone as we concentrate on waterway transportation.

Major Transit :

1. Ferry station :

Issues Identified
 Way to the boat jetty is congested. Condition of boat jetty is dilapidated.
 Areas Lacking: Waiting area, drinking water facility, disable access. Parking area. Pay and use toilet is inside the building.

2. Bus Stand:

Issues Identified
 The bus stand is just an open area with toilet facility. Other facilities such as waiting areas could not be seen.

3. Auto stand:

Is situated between ferry station and Bus stand and it helps the passengers to reach directly.

Other Issues

Lack of organized parking and area occupied by street hawkers make the junction congested.
 Pedestrians cross the junction in a large number as the all the transportation facilities are on the different sides of the road.



Fig: E1-1 : Way to ferry station



Fig: E1-2 : Private Bus Station



Fig: E1-3 : waterfront development of private hotel

Ro-Ro Station

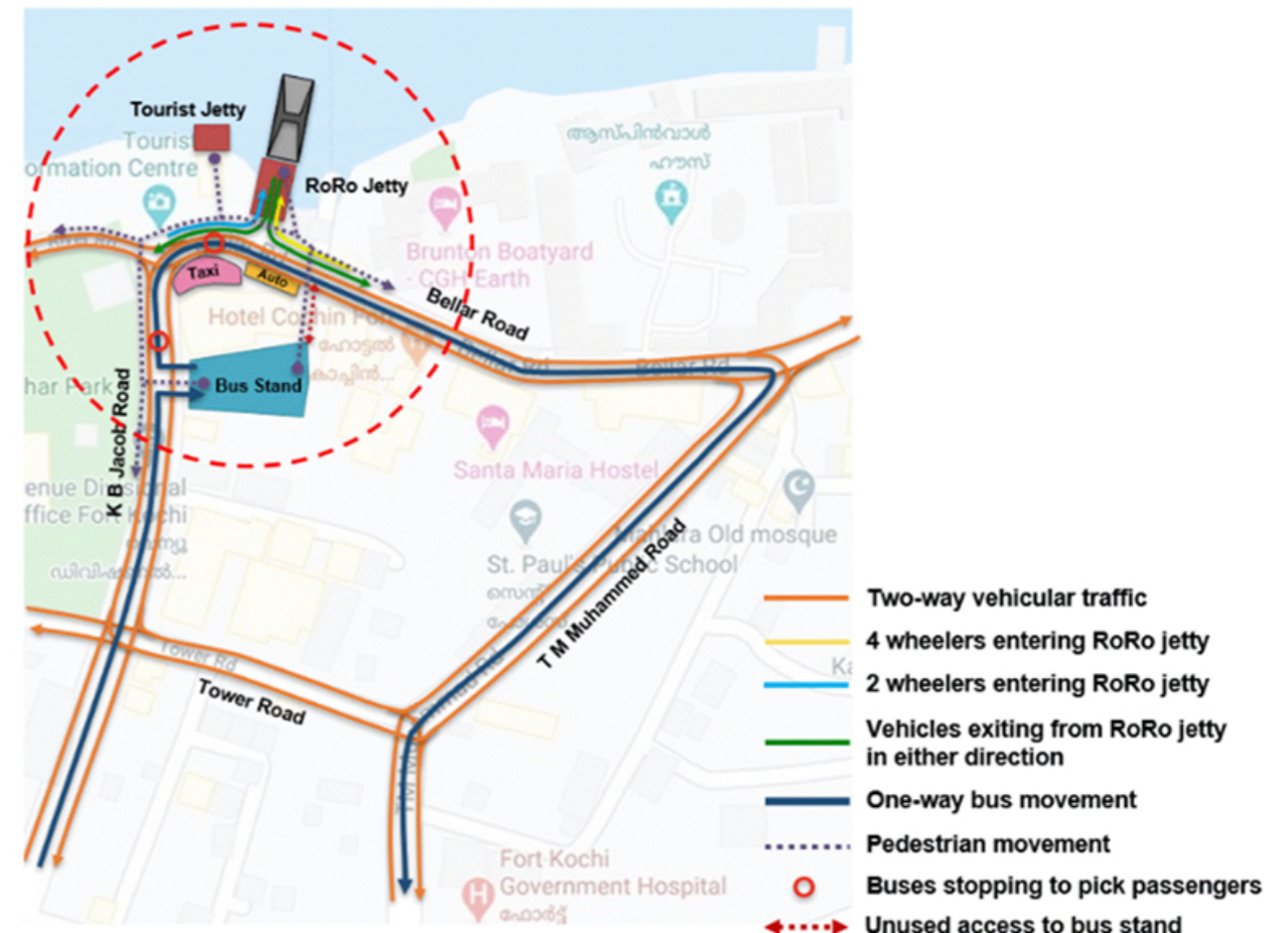
Condition of Ferry station is not good. Basic spaces such as waiting areas and toilets are not provided in good quality. The space is so congested and don't have a good aesthetic appeal. The surrounding area is also crowded with street hawkers, unauthorized parking and other constructions.

Bus Stand			Remarks
Toilet	Yes	No	Provided inside Bus Stand
Waiting Area	Yes	No	No area provided
Food	Yes	No	Street shops could be used
ATM	Yes	No	SBI ATM at 200 meter
Parking	Yes	No	Parking space for two wheelers provided

Bus Station

Bus Stand is a large area with just some space for the buses to park. One pay and toilet facility is given and could also see two wheeler parking areas. Waiting areas are not provided and shaded areas where passengers could wait especially during raining season is not provided.

Ferry Station			Remarks
Toilet	Yes	No	Pay and use toilet. But not in good condition
Waiting Area	Yes	No	No area provided
Food	Yes	No	Street shops could be used
ATM	Yes	No	SBI ATM at 250 meter
Parking	Yes	No	No dedicated parking spaces. Two wheelers can be parked near road and vacant plots.



Chinese Fishing Net Area



Possible intervention

In order to stop on-street parking, the area should be completely dedicated to pedestrians. By this the street activities such as shopping and sightseeing will become more easy.

Issues near Chinese Fishing Net

Now the surrounding areas of Chinese fishing nets are not even and also plastic waste could be seen around.

Possible intervention

Hawkers should be arranged in such a way that they don't block the view to the fishing nets. A separate deck or any other arrangement could be made for the tourists to watch Chinese nets as it is one of the major attractions.

Footpath area			Remarks
Footpath Pavement	Yes	No	Granite pavements but not even, in some areas the tree roots have made the pavement uneven
Disabled access	Yes	No	Tactile pavement not provided. Also as the path is not even wheelchair cant be used
Footpath Width	Yes	No	Width is enough, but due to street hawkers whole space cant be used
Seating	Yes	No	Benches are not enough
Shading	Yes	No	Area has a good shade from sun due to the raintree, but no provision during rainy season



Fig: D1-1 : Street View
It could be seen that almost half of the footpath is occupied by street hawkers



Fig: D1-2 :Area Near Chinese fishing net
It could be seen that the area is not developed and no special arrangement is made for the tourists to stand and watch the Chinese nets.

Walkway

In this zone B2 is mainly the walkway which is the space mostly utilized by tourists. Major activity happening is sightseeing and shopping. In between there are benches from which the beach view could be seen.

Issues

On this way one could see interaction spaces as one shown in the image. But due to lack of maintenance, these spaces are in poor condition and cant be used.

It could also been seen that even though street hawkers make the space more active, they are not properly organized.

On road in several places the paved tiles are misplaced

Lack of toilets are another issue in this area

Possible intervention

The interactive spaces after proper maintenance could be given to a certain number of food booths (street hawkers) so that the space will be utilized for dining purposes.

Along with this, ramps should be provided wherever these stalls are installed to move from walkways to interaction spaces/dining spaces for disabled and elderly people.

In order to make the seaside clean, waste bins should be provided at equal intervals throughout the walkway. This walkway should be only for pedestrians, even cycles should not be allowed through walkways.

Issues on walkway

Shops on the side of the walkway are not in good condition. The landside of the walkway cannot be used much as it is not clean. Interactive spaces on the walkways are poorly maintained.

Possible intervention

Hawkers should be arranged in such a way that they create a cluster where this activity happens. Interactive areas should be made near these clusters. Interesting areas should be made. Ramps of adequate width should be provided from these clusters to the main walkway.

Footpath area			Remarks
Footpath Pavement	Yes	No	Granite pavements but not even, in some areas the tree roots have made the pavement uneven
Disabled access	Yes	No	Ramps are not provided in all entry
Footpath Width	Yes	No	Width is enough for the existing footfall.
Seating	Yes	No	Benches are not enough
Shading	Yes	No	Area has a good shade from sun due to the raintree, but no provision during rainy season



Circuit Tourism

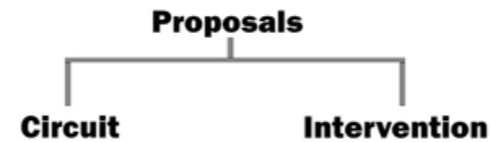
Reason for more number of foreign tourists choosing ferry	Cheaper Tickets Stops at islands Locals as guides	Management	Tourist boats should be allowed to stop at existing ferry stations Tickets should be made cheaper than the tourist boats	Circuit Tourism
Reason for less number of domestic tourists choosing ferry	Less convenient No disabled access No services Better quality attained in private vehicles	Infrastructural intervention Management	More activities and learning should be provided Tourist boats should be made disabled accessible Feeder services to be provided	

1.7 Proposals

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Tourism Development Plan utilizing Inland Waterways- Case of Kochi

Proposals based on survey

Based on site visits and survey results of Kochi tourists, it was found that existing tourism needs to be upgraded to become more sustainable and reasonably priced. This transformation can therefore be brought about by the growth of circuit tourism and certain modifications to the current system. Therefore, the proposal section primarily consists of circuit creation and interventions.



Circuit Planning

Circuits are decided based on the tourist preferences. For this tourists are categorized into Foreign Tourists, Domestic Tourists and Local Tourists. Their preferences are shown in the following chart. Circuit for the foreign tourists will be detailed further

		Foreign Tourists	Domestic Tourists	Local Tourists	
1.	Ernakulam	City Tour	Recreation	City Tourism	3. City Tourism
2.	Fort Kochi	Heritage	Recreation	Recreation	2. Recreation
3.	Mattancherry	Heritage	Heritage	Heritage	1. Heritage
4.	Willington Island	Port	Port	Port	2. Port
5.	Vypeen	Natural	Natural	Natural	1. Natural

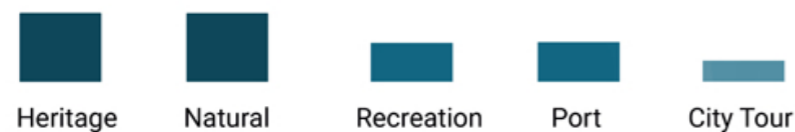


Based on the perception of the tourists, and the type of tourist locations, there are 3 different circuits

- 1. TWO DAY CIRCUIT- FOREIGN TOURISTS-
- 2. ONE DAY CIRCUIT- DOMESTIC TOURISTS-
- 3. ONE DAY CIRCUIT- FOREIGN TOURISTS-

HERITAGE+ RURAL+ RECREATION
 HERITAGE+CITY
 RURAL

User Group: Foreign Tourists (Anyone can join. But the destinations are chosen based on the interest of foreign tourists)



Circuit 1- Two day circuit for Foreign Tourists

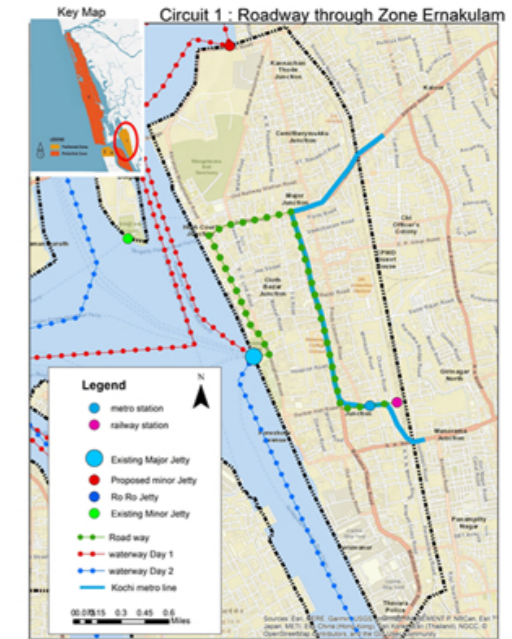
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Stop 1: Ernakulam Junction (Railway Station)

Tourists will be reached via train, bus, or any other public transportation. In order to have a common pick-up point, Ernakulam Junction railway station is chosen. Tourists can reach here from there they will be taken by a vehicle (mostly a minibus).

Intervention

A tourist Lounge will be made here with a capacity of 20 people to sit, including waiting areas, ticket counters, toilets. A dormitory with a capacity of 10 people and two rooms can also be provided as the timing of the trail arrivals will be different and tourists need space to relax until the pickup time.



Parking area of the railway station should be organized using multilevel car parking and Tourist Lounge should be made. ATMs are next to the railway station.

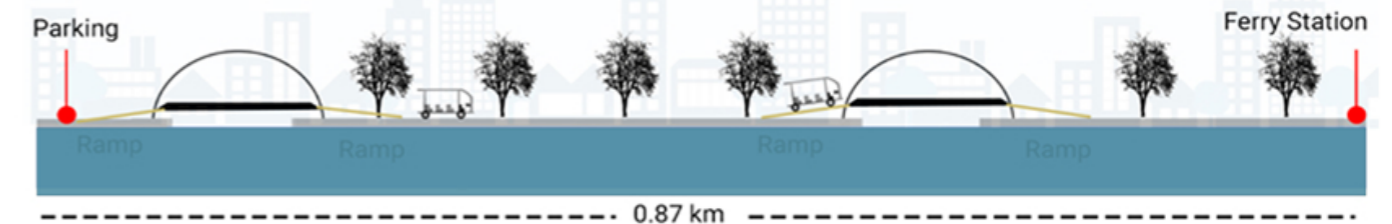
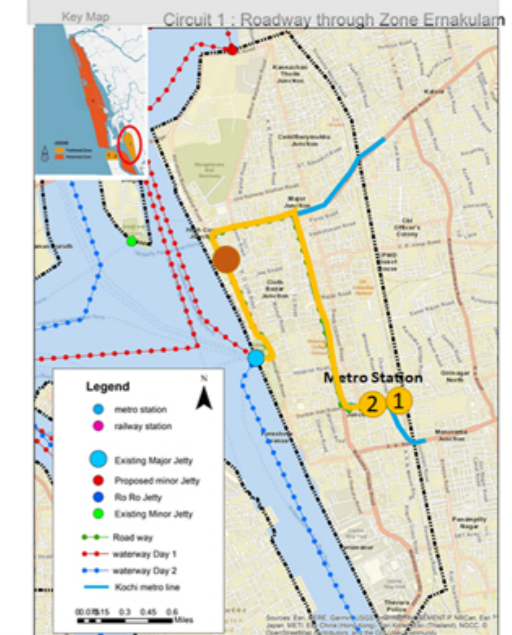
2

Stop 2: Ernakulam South (Metro Station)

Those tourists coming from other parts of Kochi via Metro train can wait here. The second stop of the mini bus will be at Ernakulam South Metro station. No amenities to be provided here as the metro station has facilities for waiting, toilets etc.

JOURNERY THROUGH THE CITY OF KOCHI VIA MAHATMA GANDHI ROAD, BANERJI ROAD AND SHANMUGHAM ROAD.

Alternatively, tourists can also park vehicle at Marine Drive parking Ground and reach Ferry station by walking or using the sight-seeing vehicle through Marine drive. For this ramps should be constructed along the 2 walkway bridges.



3

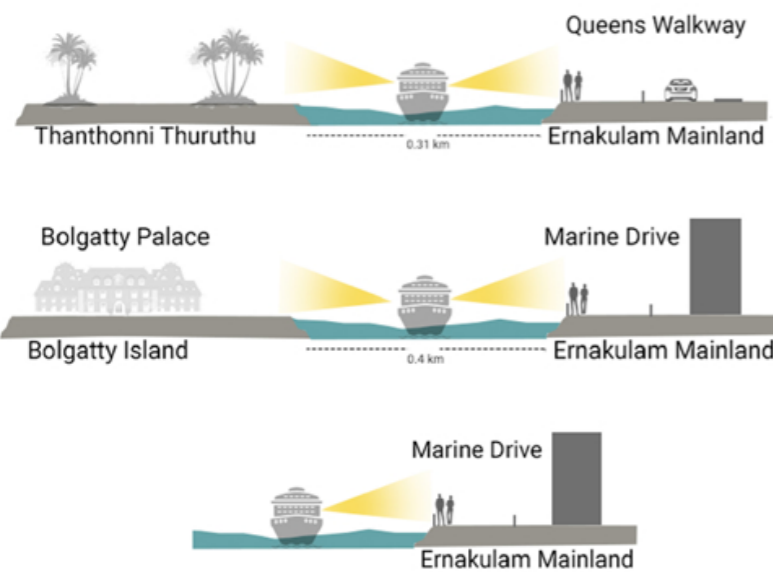
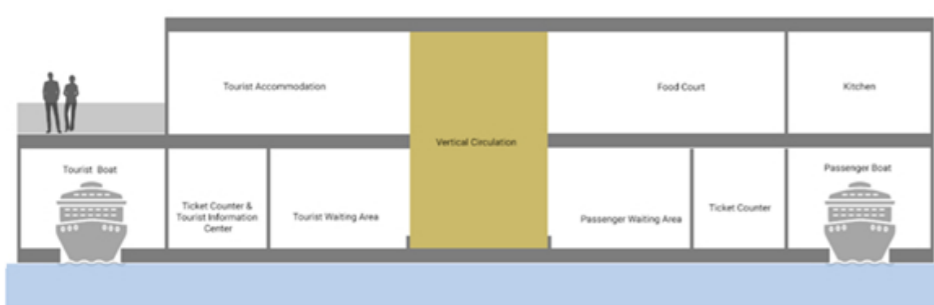
Stop 3: Ernakulam Jetty (Ferry Station)

Ernakulam main Ferry Station will act as the hub in the circuit tourism

Additional facilities such as Accommodation rooms, food court, toilets, waiting areas, tourist booking counters, availability of tour guides and entertainment facilities to be provided here.

Intervention

For this, the usage of existing building can be slightly modified and shift the office spaces to the nearby STWD building. The ground floor can be separated to two parts, which are which includes waiting area, ticket counter, tourist information centre and regular passenger area which includes passenger waiting area and ticket counter. The centre portion of the building which is currently used for vertical circulation can be kept as it by adding a lift. The first floor will be purely for tourists for the accommodation and food court. An additional area above boat jetty is used as a balcony space for tourists.



4

Stop 4: Queens Walkway (Proposed Ferry Station)

A minor ferry station is proposed at Queens Walkway. This space can be used for relaxation. Queens Walkway is a walkway of 1 km in length.

Intervention

A ferry station is proposed at the end of the walkway. For tourists who can not walk, sightseeing cars will be provided to see the walkway completely. For this, the road itself can be used, as a walkway has lesser width at some portions where it will be difficult for the sightseeing car to move.

JOURNEY THROUGH WATERS TOWARDS MATTANCHERRY

5

Stop 5: Mattancherry (Existing Ferry Station)

Mattancherry Ferry station requires renovation. Spaces near the station along with the hawkers can be arranged in such a way that the space is well organized.

In the walkable distance, tourists can reach 3 major tourist attractions in Mattancherry, Jew Street, Dutch Palace, and Jewish Synagogue. A fixed time of about 3 hours can be spent in Mattancherry



Existing Mattancherry Ferry Station and nearby areas

Renovation at Mattancherry Ferry Station and nearby areas.

6

Stop 6: Fort Kochi (Existing Ferry Station)

Presently there are two ferry stations at Fort Kochi, one which is functioning now and one is the old Ferry station. Old Ferry station is near the tourist area but is not functioning now. There is a walkable distance of 500 meters from the new ferry station to the Tourist area.



If the new ferry station is preferred for the Circuit, a walkway can be developed along beach till the Ro Ro junction.

Those areas are vacant lands and private lands. Land acquisition has to be done for this improvement

Ferry station at Kochi	Old Ferry station	Near tourist area	Not functioning
	New Ferry station	500 meters from tourist area	functioning

Chinese Fishing Net Area

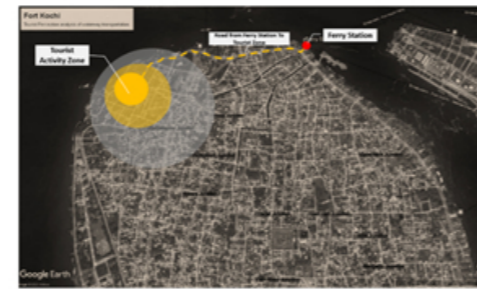
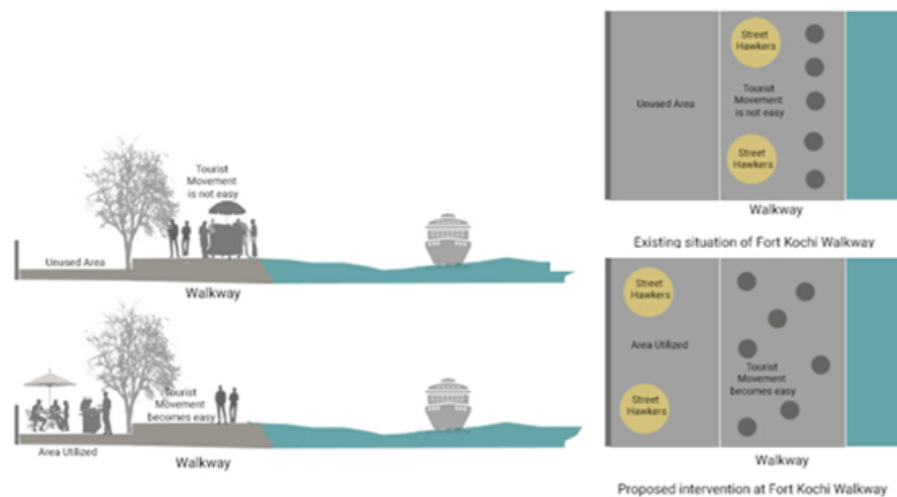
Present condition of the area is poor and therefore a deck structure along with beaches should be made here for the tourists to enjoy the view. They should be also allowed to do fishing using Chinese fishing nets.

As Fort Kochi is the last destination, Tourists can choose any heritage resort in Fort Kochi/ any other accommodation facility. Last destination of the day is Fort Kochi because, it is the mostly visited place and tourists can spend the night too at the place.

Walkway

Due to the improper arrangement of street hawkers the existing walkway becomes more congested. For this one possible solution is to modify the area by doing proper maintenance on the interactive areas near walkway.

Shifting of street hawkers from the walkway to the interactive areas can help in reducing the congestion on the walkway and also giving them a better space with arrangement of chairs.



Map showing ferry station and tourist zone of Fort Kochi



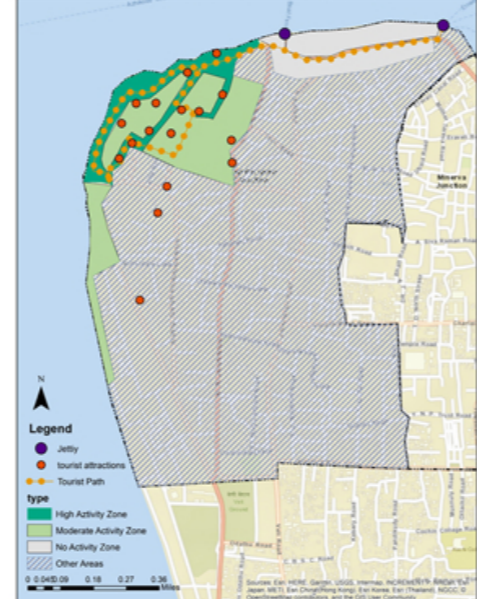
Way from Ferry Station to Tourist Activity Zone



Existing Chinese Fishing net area



Proposed Chinese Fishing net area
Fort Kochi Zone : Tourist Activity and path



Fort Kochi will be the last stop of Day 1. Tourists can stay there at night in any Hotel at Fort Kochi or accommodation facilities can be provided in the Ferry station of Fort Kochi

END OF DAY 1

On the second day, journey starts from Fort Kochi Chinese fishing net area. Tourists can gather there from where a sightseeing vehicle will take them to the ferry station through the walkway



7

Stop 7: Vypeen (Proposed Ferry Station)

canal rejuvenation can be done and through the canal tourists can reach the beach side of Vypeen.

8

Stop 8: Willington Island (Proposed Ferry Station)

From there the next destination is willington Island, which is an artificial island. There will be one stop at willington island.

9

Stop 9: Ernakulam Main Ferry Station – Last Stop

From there the journey will be back to Ernakulam Mainland to the major ferry station. Tourists can have a walk at marine drive walkway and see the sunset view. By this, it will be the end of Circuit 1

END OF DAY 2

No.	Stop Name	Type	Required Intervention
1.	Railway Station	Transit Point	Proposed Tourist Lounge (with waiting areas and toilets)
2.	Metro Station	Transit Point	NIL (Tourists can use the facilities of metro station which is up to standard)
Journey through the city in Bus			
3.	Ernakulam Ferry Station	Transit Point	Accommodation facilities to be provided in the existing building of ferry station. Waiting areas to be improved with more benches. Activities for entertainment to be provided. Multilevel parking should be provided for those who reach ferry station by private vehicles.
Journey through water: Skyline of Kochi, Marine Drive, Goshree Bridge, Bolgatty Palace and queens walkway on the way can be seen.			
4.	Queens Walkway	Tourist Attraction	Minor Boat Jetty with toilet facilities and Interactive Space to be provided. Electric sightseeing bus can be provided for those tourists who cannot walk for long distance.
Journey through Water : Skyline of Kochi, Marine Drive, Bolgatty palace and Willington Island can be seen on the way.			
5.	Mattancherry Ferry Station	Transit Point	Building infrastructure along with toilets to be improved
Journey through Water : Skyline of Kochi, Marine Drive, Bolgatty palace and Willington Island can be seen on the way.			
6.	Fort Kochi Ferry Station	Transit Point	Existing ferry station to be renovated
DAY 2			
7.	Vypeen Ferry Station	Transit Point	Existing ferry station to be renovated
8.	Vypeen Canal Route	Transit Route	canal revitalization to be done to make it navigable
9.	Willington Island	Transit Point	Proposed new minor ferry station.

MASTER OF PLANNING

INTRODUCTION PROJECT

DOCUMENTATION AND ANALYSIS OF URBAN ENVIRONMENT - TRANSPORTATION OF BHOPAL

ABSTRACT

To introduce urban planning in the first semester the project was conducted around the major transportation nodes of Bhopal, focussing on Old Bhopal Railway station and Habibganj Railway station. Habibganj railway station was later changed the name into Rani Kamalapati Railway Station after the renovation in PPP (Public- Private Partnership) Model. Areas around stations were studied and analysis were made on that.

Even though both railway stations were considered for the study, only Old Bhopal Railway station was analysed deeply. Major activities found in the area includes street vendors, cars on road, pedestrians on road, homeless people on road, mass transportation and uncontrolled parking. Issues identified in the area includes congestion of roads, unauthorized parking, unsafe pedestrian movements, street vendors and unhygeinic environment.

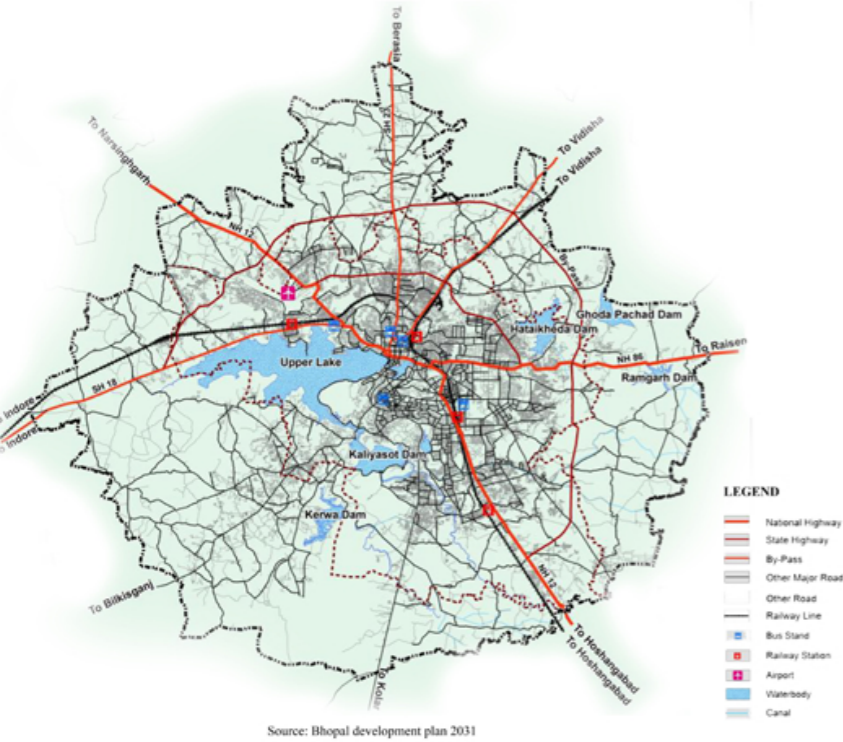
CONTENT



Introduction and summary

2.1 Documentation and Analysis of Urban Environment

Urban Planning | M.Plan | Semester 1
Transportation of Bhopal



Bhopal is subdivided into old and new Bhopal. The roads of old Bhopal are narrow, whereas the road network of new Bhopal is well planned. Since 1971, the increase in vehicular growth is 87 times as against the population, which is 4.5 times. The development of transport infrastructure is not in accordance with vehicular growth, resulting in traffic problems. The road density in old Bhopal is 3.24 km per sq. km; in south and southwest Bhopal, it is 1.70 km per sq. km, and it is 0.34 km per sq. km in the outer periphery of the municipal corporation.

The city has public transport, but it is not very efficient, and most people prefer traveling by private vehicles. To control the growth of private vehicles, public transport needs improvement. For pedestrian safety, facilities like footpaths should be provided. The traffic is heterogeneous and responsible for problems and is a major reason for road accidents. The existing condition necessitates the provision and extension of facilities like parking, traffic junctions, road widening, and segregation of heavy vehicles, terminals, interstate bus terminus, and overbridges at railway line particularly in old Bhopal.

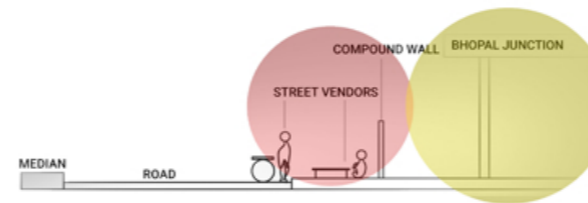


Old Bhopal Junction
The station was constructed in the year 1910. The station is located about 9 kilometers north of the city center and 7 kilometers from Bhopal Habibganj. The station has 6 platforms in addition to enough waiting halls, refreshment centers, passenger ticket counters and ticket vending machines, vehicle parking, communication facilities, sanitary facilities, and a dedicated Government Railway Police force to ensure security. Bhopal Junction railway station is located on the main Delhi–Chennai route, which halts more than 200 daily trains, with a total of more than 380 trains within a week.

Habibganj Station
In 2021, the government changed its name to Rani Kamalapati railway station. The Ministry of Railways privatized Habibganj railway station in 2017, making it India's first private railway station. The station will have facilities like a shopping complex, forex kiosk, and eateries. The Bhopal-based Bansal Group has taken responsibility from IRSDC. The newly re-constructed railway station was inaugurated in 2021. The station consists of a total of 5 platforms.

DAILY ACTIVITIES IN BHOPAL JUNCTION

- STREET VENDORS
- CARS ON ROAD
- PEDESTRIANS ON ROAD
- BEGGARS ON FOOTPATH
- MASS TRANSPORTATION
- UNCONTROLLED PARKING



Inferences from Bhopal Junction

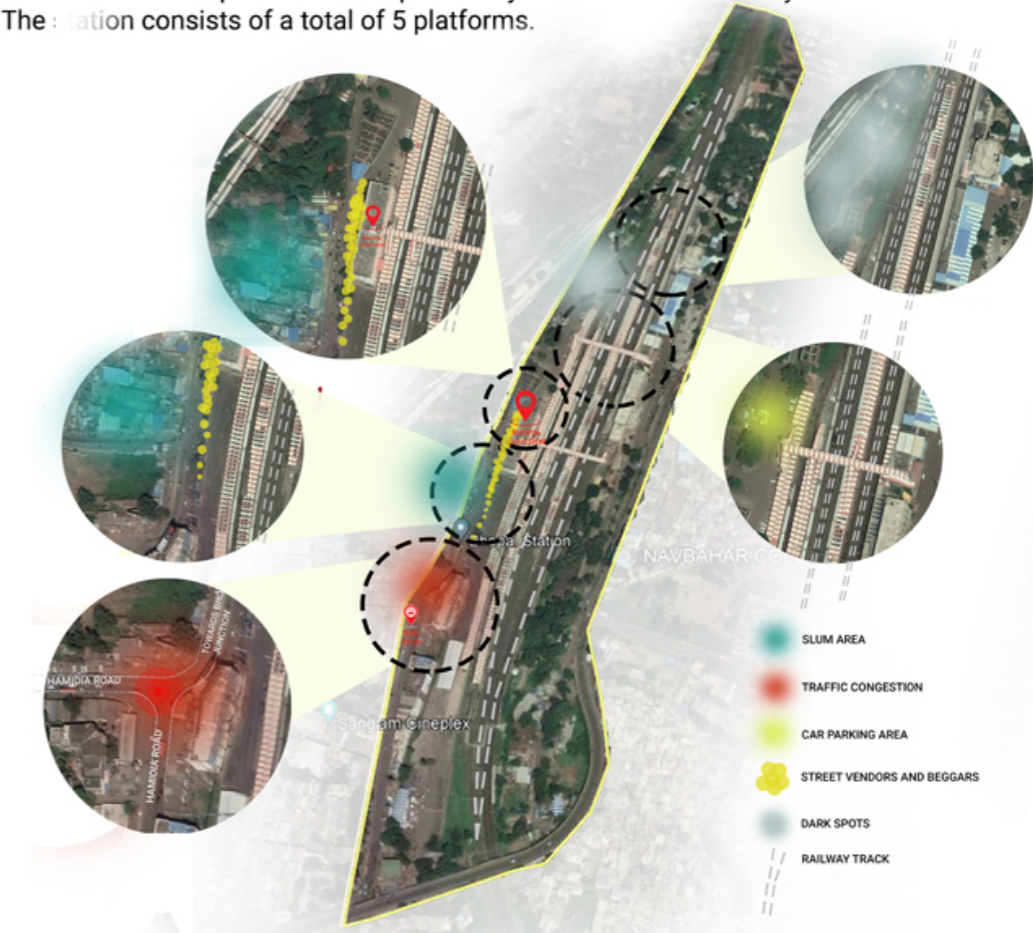
Congestion of road
The junction is congested. The only traffic control is the traffic police, which is not enough for the large number of vehicles passing through the junction at a time. Traffic measures should be taken.

Unauthorized parking
Vehicles are parked in front of the petrol pump and create a block in the movement of vehicles. The proximity to the bus stop adds to this congestion.

Unsafe pedestrian movement
Since the traffic movement is very unorganized, crossing for pedestrians and even walking on the side of the road is unsafe. There is no zebra crossing. As most of the vehicles are parked in the shoulder area, pedestrians are forced to walk through the heavy traffic roads.

Street vendors
As street vendors are using the footpath, pedestrians are forced to walk through the congested roads.

Less hygienic environment
Due to the traffic congestion, polluted atmosphere, and poor drainage, the place seems



BACHELOR OF ARCHITECTURE

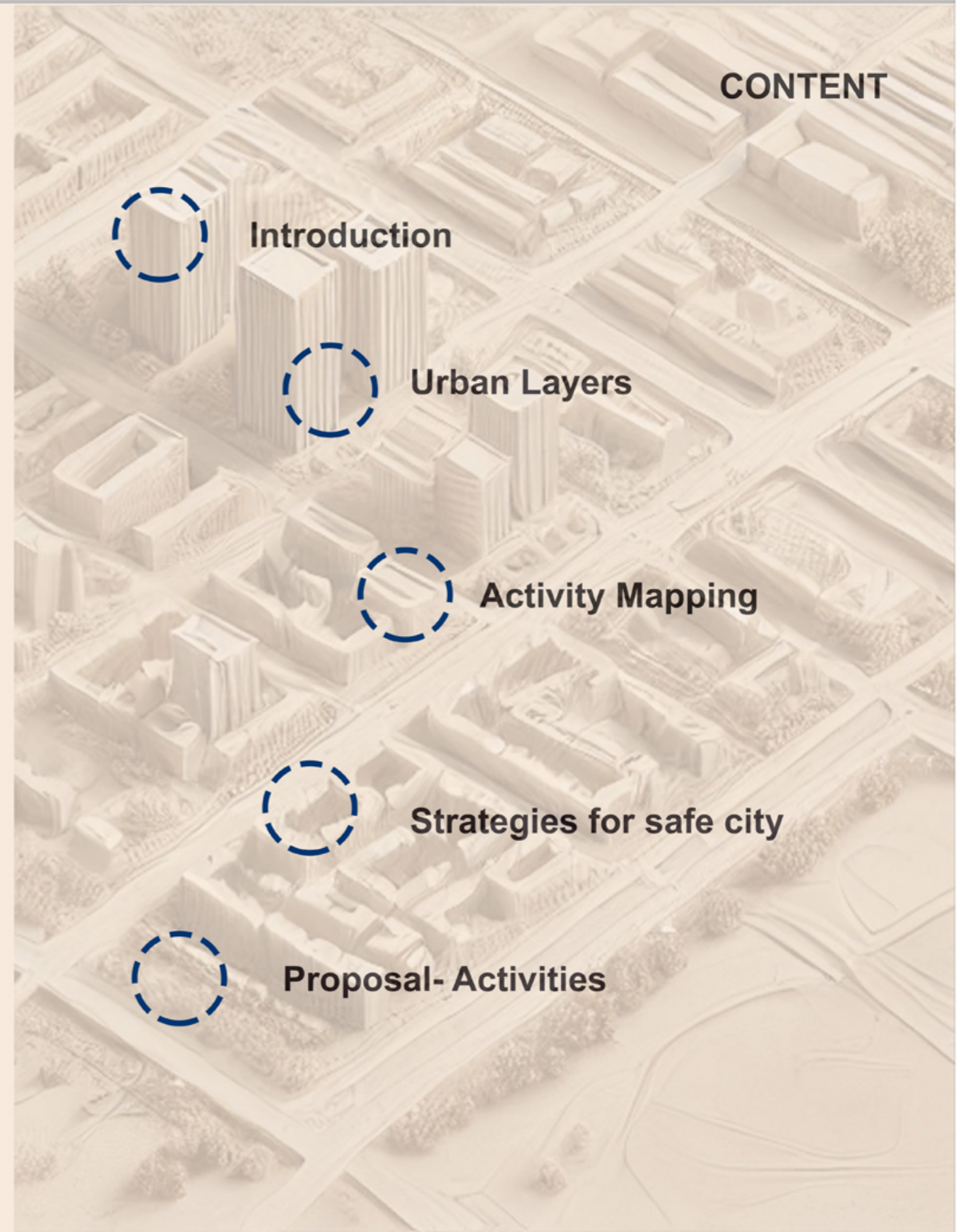
URBAN DESIGN

URBAN DESIGN - JAYANAGAR, BENGALURU

ABSTRACT

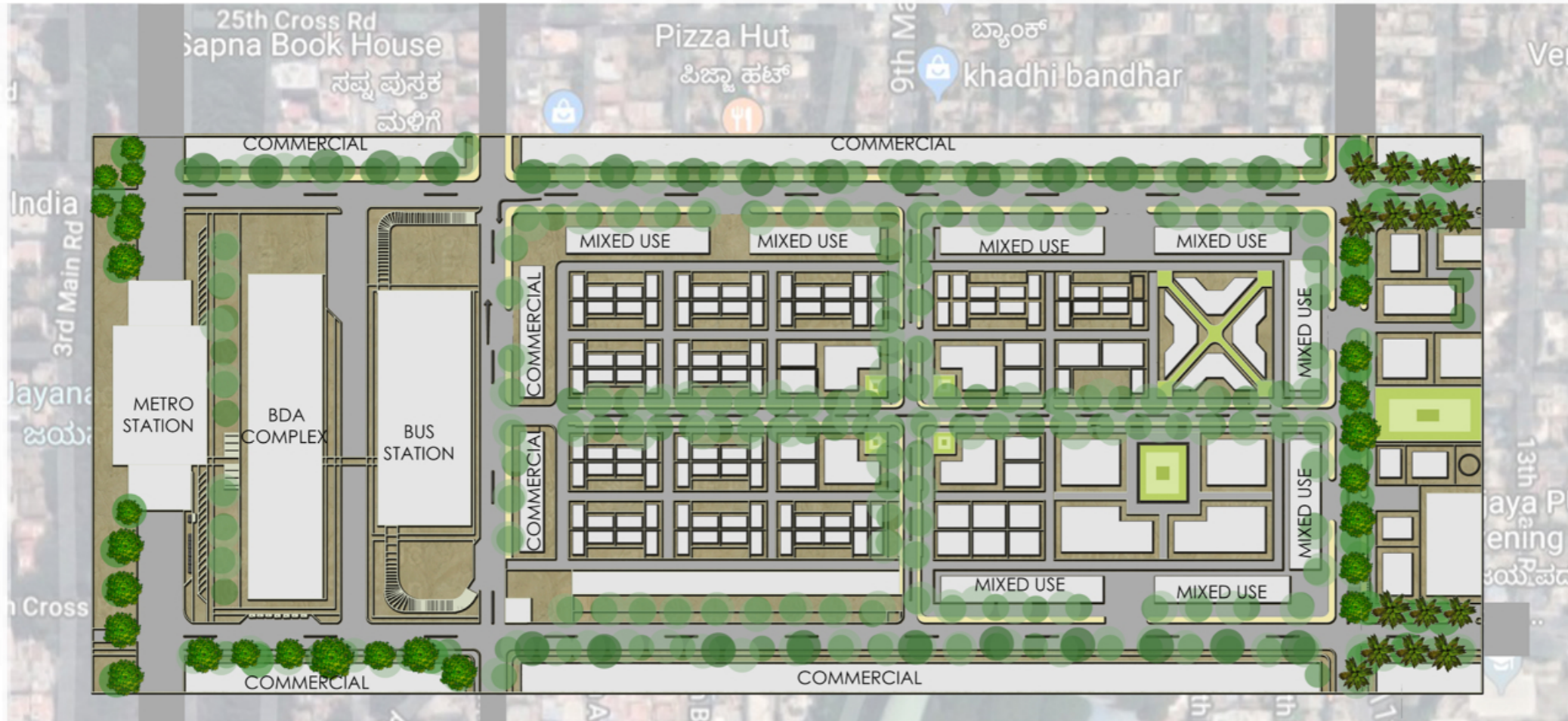
As a part of Urban Design in Semester 9 of Bachelor of Architecture, Jayanagar a planned area in Bengaluru, India was considered for the study. Jayanagar is a Residential area combined with other used which is planned in a grid pattern.

A detailed study and documentation was conducted through site visits and proposals were made. Major Design strategies were to Bringing Metro and Bus Stand Together and making it the Transit Hub, Privatization of roads, thereby controlling traffic and increasing safety, Recreational Areas scattered so that all people can easily access it and Commercial areas to act as a transitional space between the outer road and the inner residential area



3.1 Introduction

Urban Design | B.Arch | Semester 9
 Urban Design of Jayanagar- Bengaluru



Design Strategies

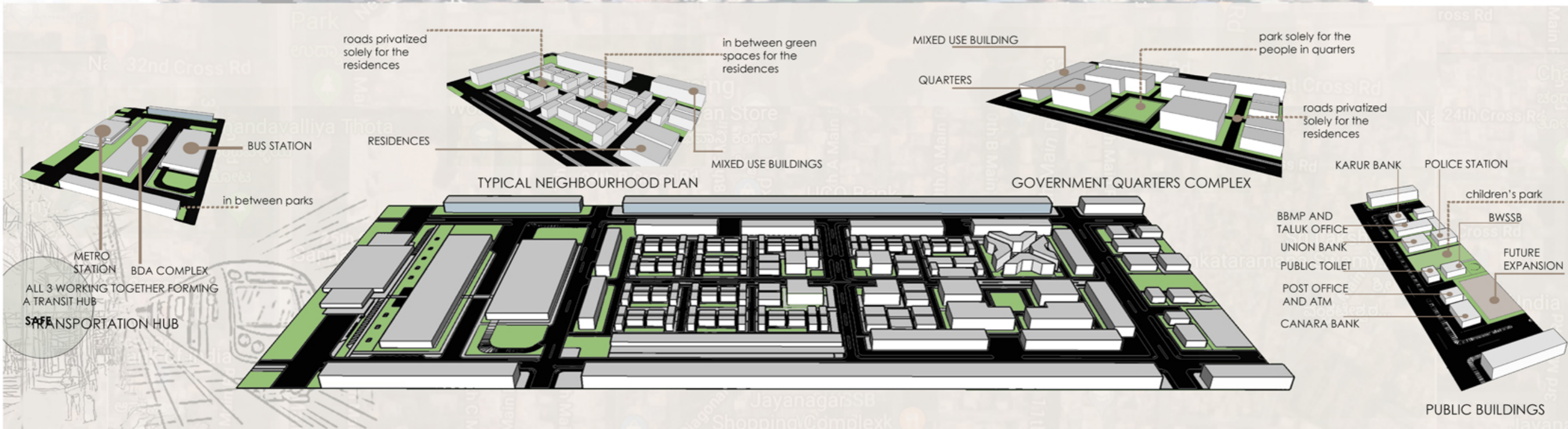
Bringing Metro and Bus Stand Together - Transit Hub

Privitization of roads, thereby controlling traffic- increasing safety

Recreational Areas scattered so that all people can easily access it

Commercial areas act as a transitional space between the outer road and the inner residential area

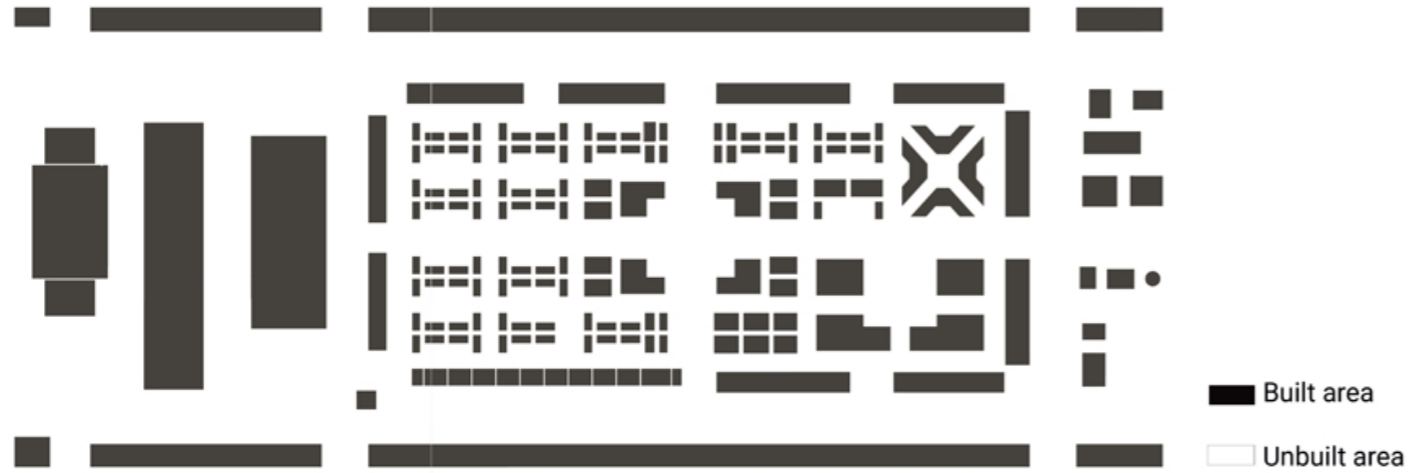
They make up more than 80% of all public spaces in cities and have the potential to foster the bussiness activity, serve as front yard for residents and provide a safe place for people to get around whether on for bicycle, car or transit.



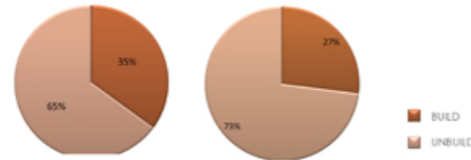
3.2 Urban Layers

Urban Design | B.Arch | Semester 9
 Urban Design of Jayanagar- Bengaluru

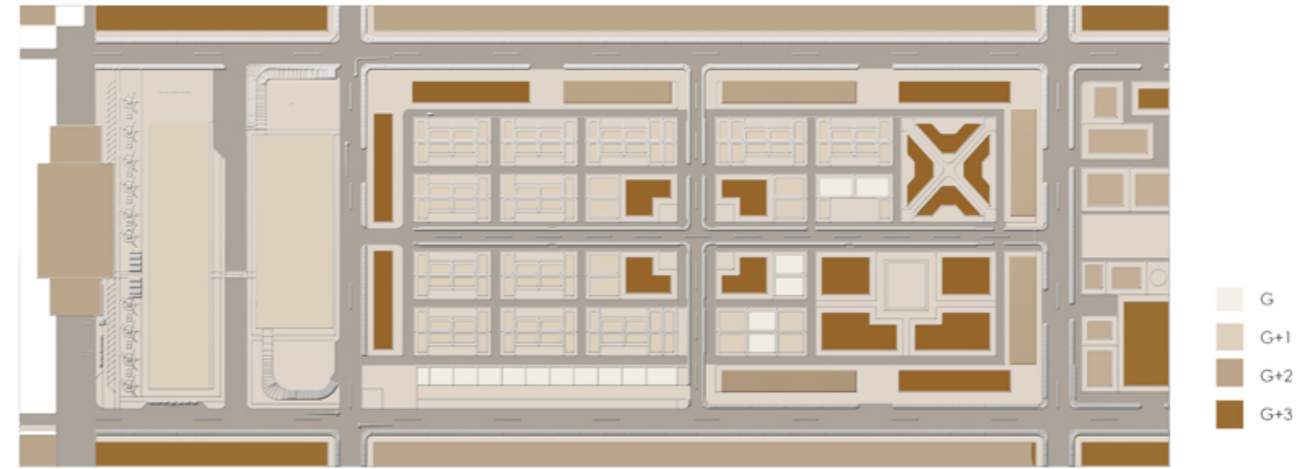
Figure Ground



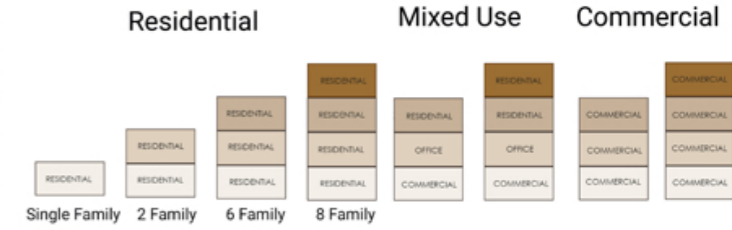
Built area in the total land is of 35% and unbuilt area of 65%. There has been a significant increase from 27% of built area in the previous site to 35% of built area in the new one. The household number also had an increase from 250 households to 400 households in the new plan considering 5000 people in population.



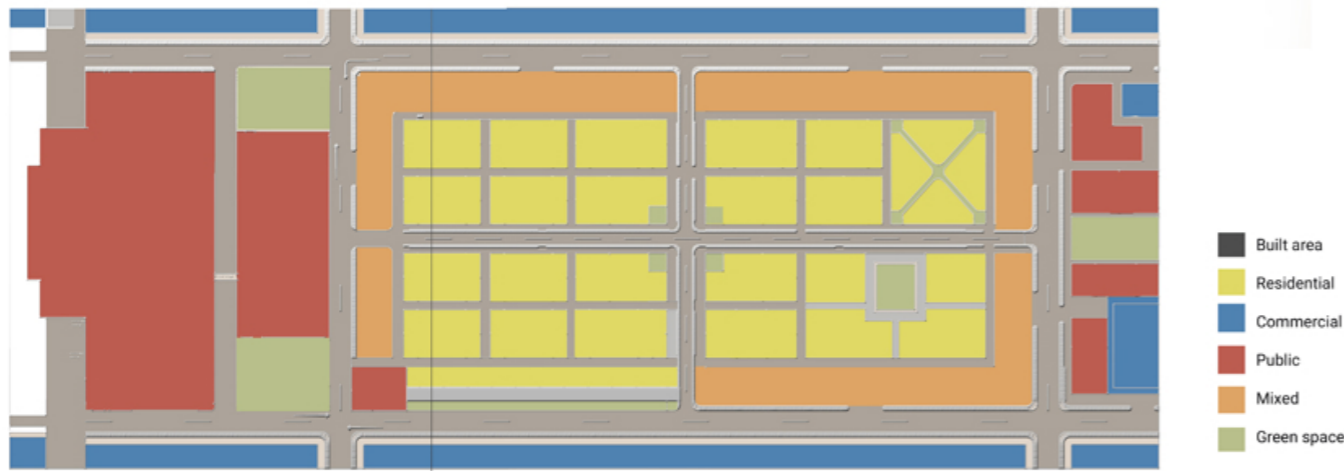
Building Height



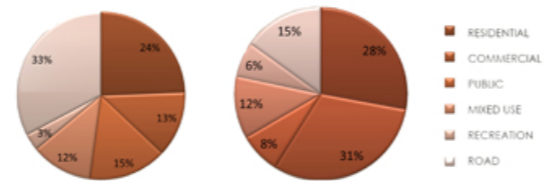
Most of the buildings in the site are of residential purpose and most of them are of G+1, which can accommodate one family in each floor. Next category of residential type is apartments and government quarters which have four floors. Other category of residential has only one floor for one family. When it comes to mixed use, some are G+2 and some of G+3 with two floors commercial and two floors residential. Most of the commercial shops are of G+2 and some of G+3.



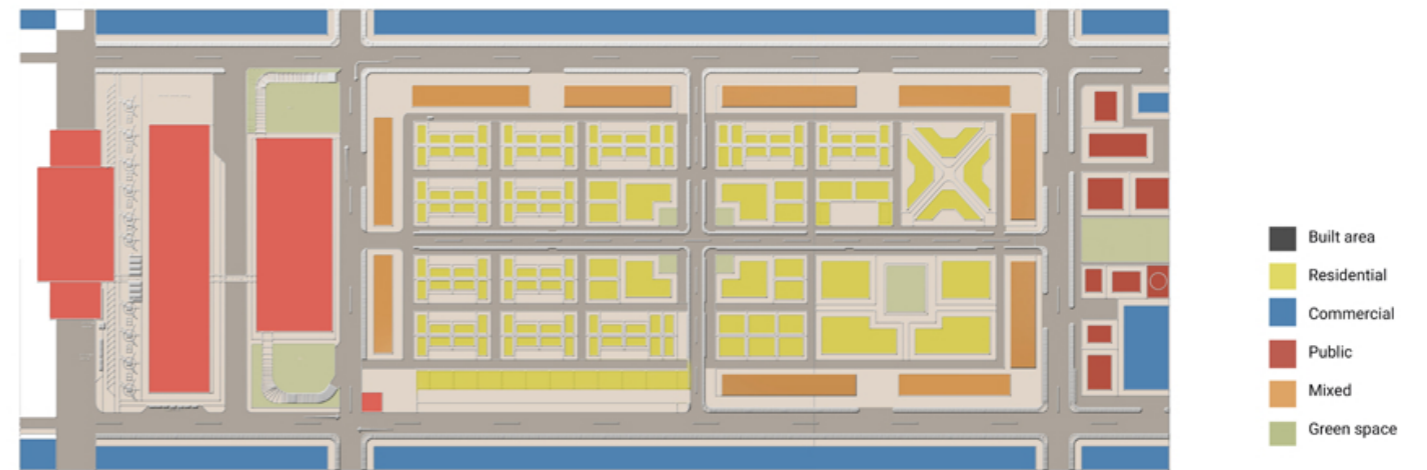
Land Use



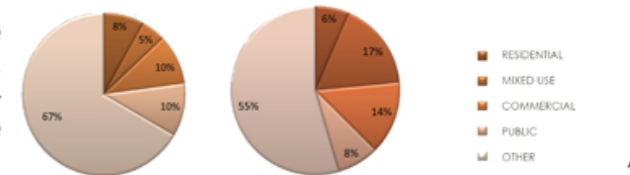
Major land use of the site is of residential purpose which constitutes about 24%. This land is in the center of the site with easy access to the transit hub and public buildings. Next major land use is of the public buildings, which is 15%, among which the transit hub and BDA complex constitute a major percentage. Commercial area constitutes 13% of the total site area and 12% of mixed-use buildings.



Building Use



Most of the buildings in the site are of residential purpose, and the total area of its built area constitutes 8% of the total site area. Mixed use constitutes of 2 floors commercial and 2 floors residential. This mixed use constitutes 5% of the total site area, and the commercial is 10% of the total land.

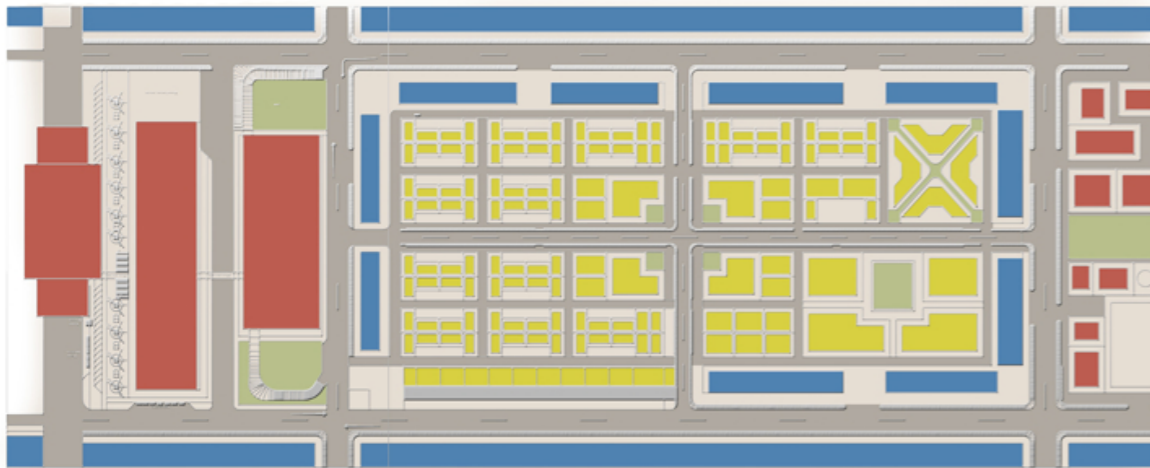


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3.3 Urban Layers

Urban Design | B.Arch | Semester 9
 Urban Design of Jayanagar- Bengaluru

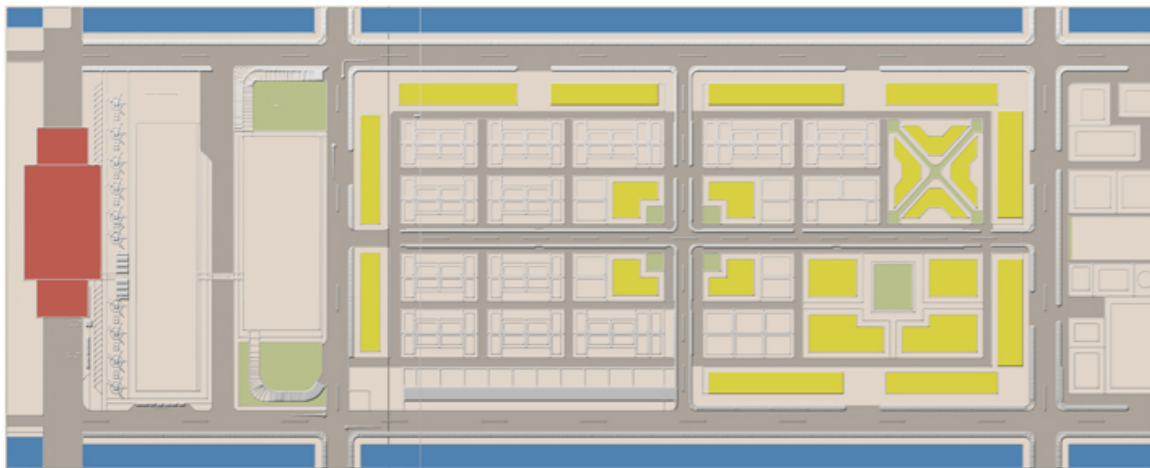
Floor wise - Ground Floor



- RESIDENTIAL
- COMMERCIAL
- PUBLIC
- MIXED
- GREEN SPACE

The ground floor of every single house unit and apartment, including all the typologies, are residential. The mixed-use consists of dedicated commercial in the ground floor.
 The ground floor of commercial are retail shops.
 The public buildings have different spaces as per the use.
 The mixed-use has dedicated commercial space on the ground floor, which can be used by any retailers.
 The recreational spaces duly consist of a single area.

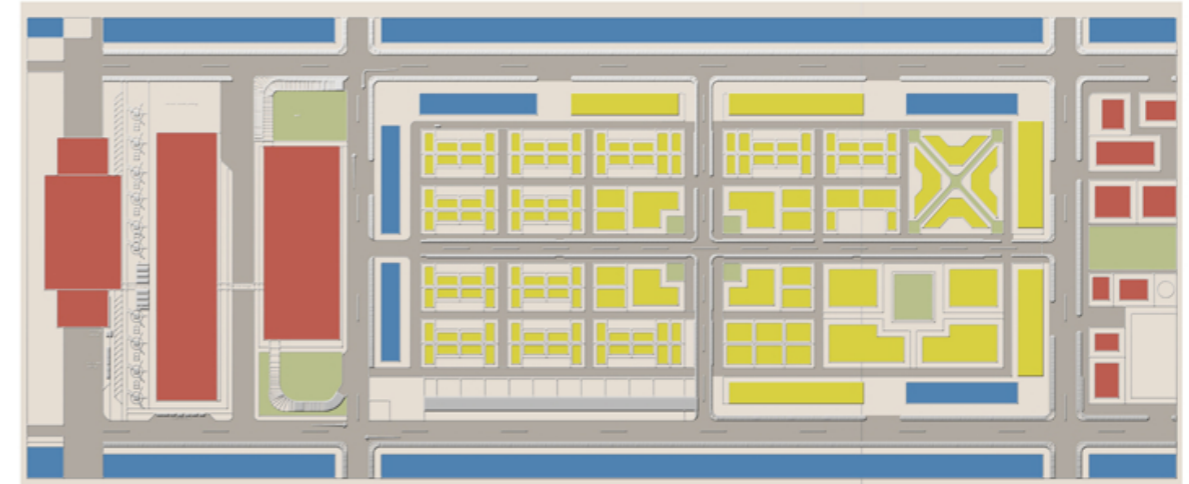
Floor wise - 2nd Floor



- RESIDENTIAL
- COMMERCIAL
- PUBLIC
- MIXED
- GREEN SPACE

The residential single house units are restricted to ground +1 floors.
 The commercial spaces are restricted to ground +1 floors.
 Only metro has more floors in public building category, which is exclusively for metro station.
 The mixed-use has residential units on the second floors, which can't be transformed into any other spaces.

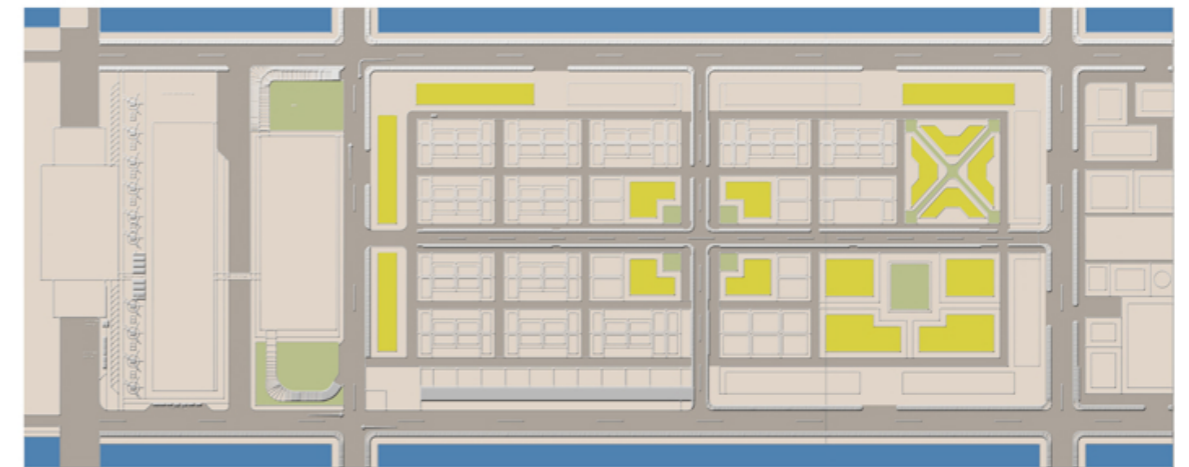
Floor wise - 1st Floor



- RESIDENTIAL
- COMMERCIAL
- PUBLIC
- MIXED
- GREEN SPACE

The first floor of every single unit house is residential and can't be used for any commercial purpose.
 The first floor of commercial are retail shops.
 Every floor of public buildings changes as per the requirements.
 The mixed-use category has office spaces on the first floor, for the budding and aspiring startups and other offices.

Floor wise - 3rd Floor



- RESIDENTIAL
- COMMERCIAL
- PUBLIC
- MIXED
- GREEN SPACE

The residential single house units are restricted to ground +1 floors.
 The commercial spaces are restricted to ground +1 floors.
 The public buildings are restricted to ground +2 floors.
 The mixed-use has residential units on the third floors.

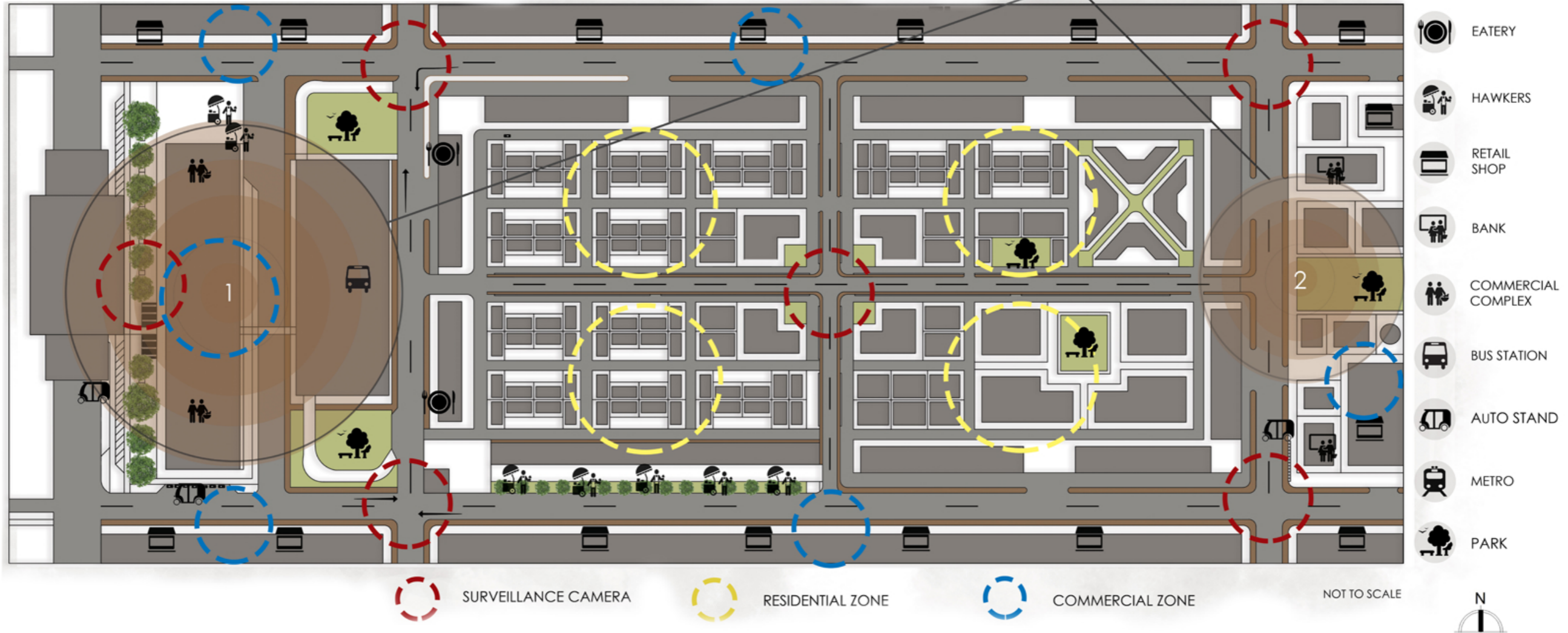
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3.4 Activity Mapping

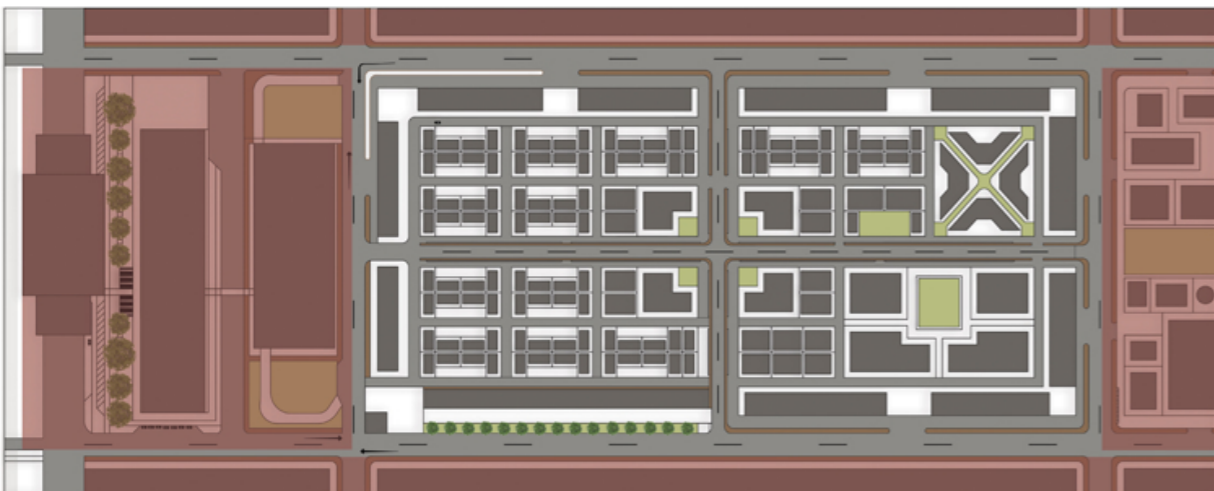
Urban Design | B.Arch | Semester 9
 Urban Design of Jayanagar- Bengaluru

THE CORE OF THE SITE IS EXCLUSIVELY DESIGNED FOR THE RESIDENTS OF JAYANAGAR WITH DIFFERENT TYPOLOGY OF BUILDINGS INCLUDING SINGLE UNIT RESIDENCE APARTMENTS MIXED USE ETC WITH DEDICATED PARKS WALKWAYS ETC

NODES 1 AND 2 ARE THE MOST ACTIVITY GENERATING NODES BECAUSE THE PUBLIC BUILDINGS, TRANSIT ORIENTED DEVELOPMENT ARE ACTIVE DURING DAY AND NODE 1 IS ACTIVE EVEN DURING NIGHT BECAUSE OF THE WORKING BUS STATION

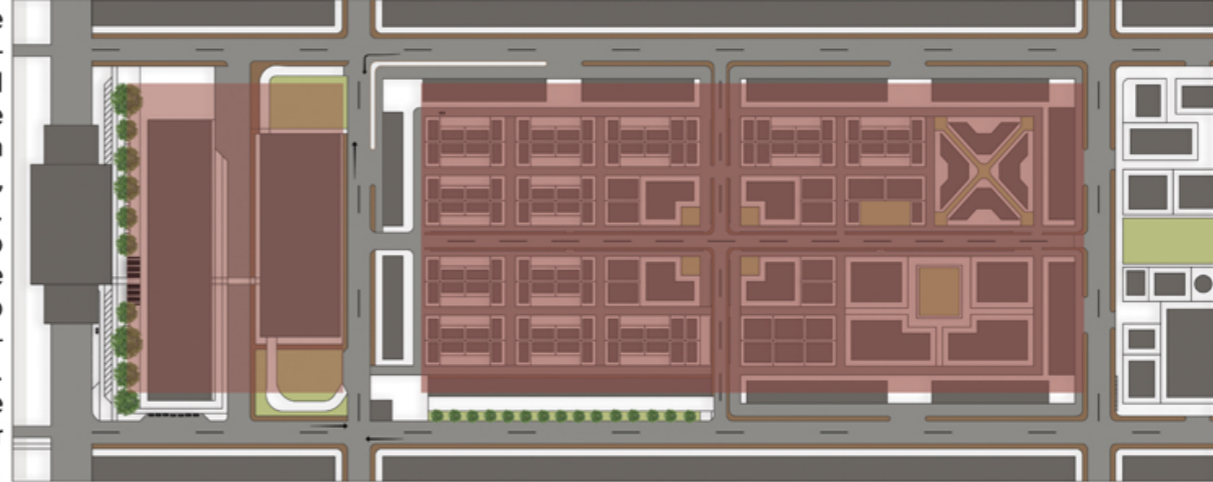


Day Time Activity



Jayanagar is one of the most prominent residential as well as commercial zones. The area is active throughout the day with transit hub, office spaces, and commercial spaces. The entire site has two nodes on either side. Node 1 is active with the metro station, commercial complex, and bus station. Node 2 is active with the public buildings and other commercial spaces.

Night Time Activity



Jayanagar, on the other side, is one of the prominent shopping destinations during the night. BDA complex is one of the major reasons because of the wholesale market, which is functioning throughout the night. The other small retail shops also work during the night, which makes the area active rather than passive. Being a residential area, Jayanagar has a very active neighborhood (6 pm - 10 pm) with dedicated public spaces, parks, etc.

3.5 Strategies for Safer City

Urban Design | B.Arch | Semester 9
 Urban Design of Jayanagar- Bengaluru

Increased usage of jali and openings like balconies and corridors, thus increasing street and neighbor interaction, making the neighborhood even safer.

Ensure more usage of open green spaces by opening them to the roads, increasing the security of roads as well as open areas.

Grid pattern provides more security by increasing the line of sight.

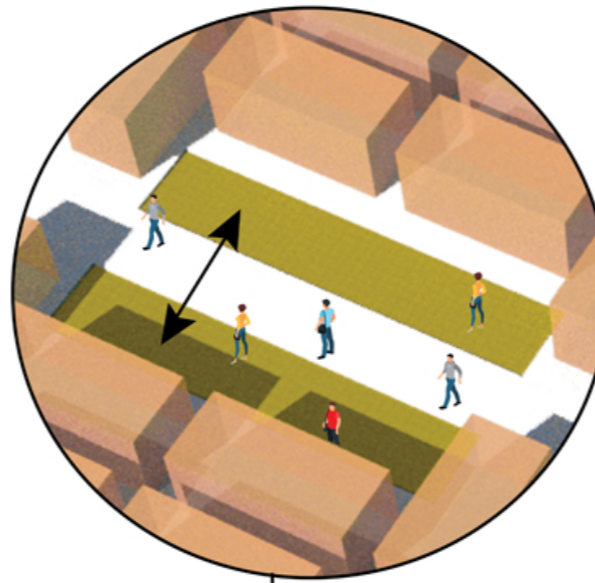
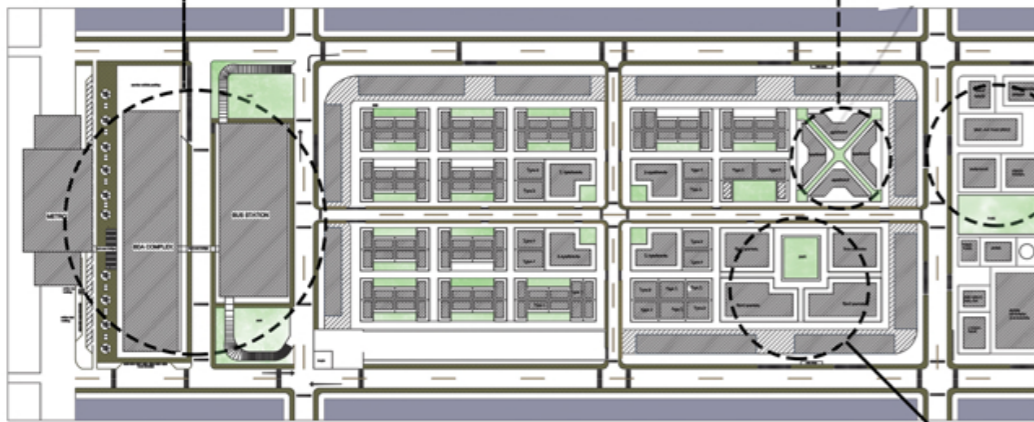


PEDESTRIAN AND CYCLE FRIENDLY ROADS

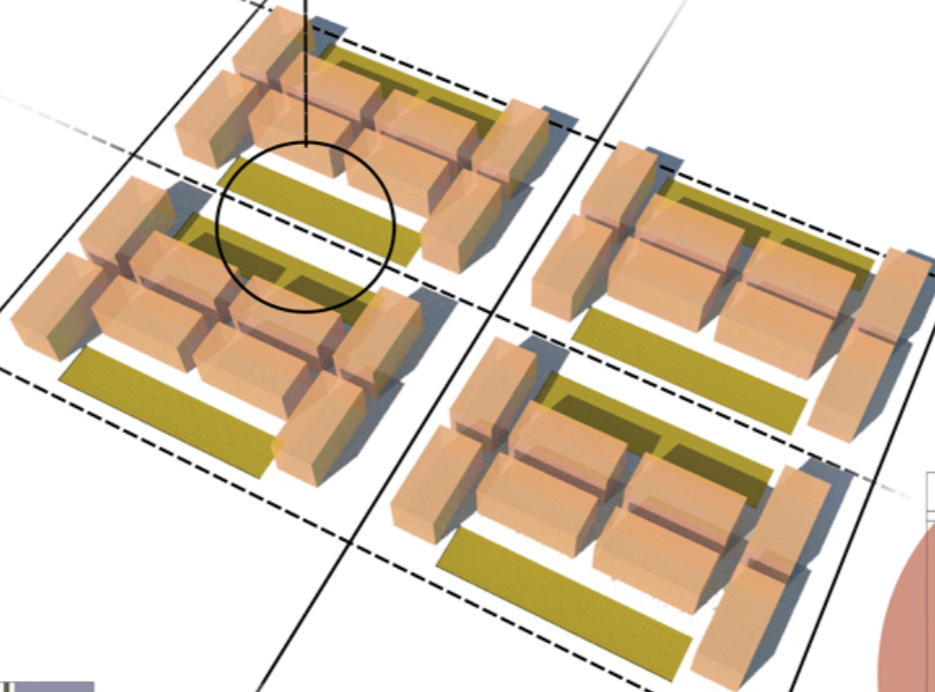
Decreased street light height and usage of lights covering more area with a wider angle reduces the chances of any kind of light being blocked by the trees. The lights are equipped with alarm systems, which are placed on every third lamp post, working entirely on solar power.

Combined transit hub decreases the distance between the two modes of transport, and this positively affects the BDA complex and can boost the economy of the people depending on it.

People in the area take more care of their health. The apartment building has a shape that can create more surface area for ventilation and to create a green path between them.

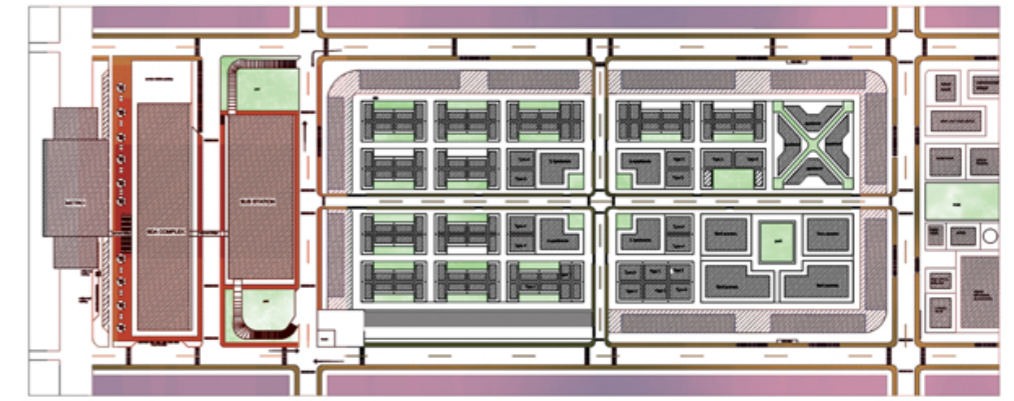


EVENLY DISTRIBUTED RECREATIONAL SPACES INCREASES THE NUMBER OF OPEN SPACE USERS MAKING PEOPLE MORE SOCIAL



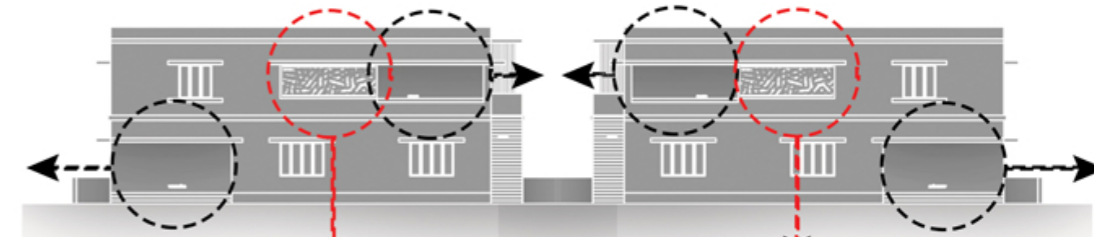
The local public building is placed more towards the residential fabric of the entire context.

Placed in this region to increase the proximity towards the police station, as it is the government accommodation for the police station.

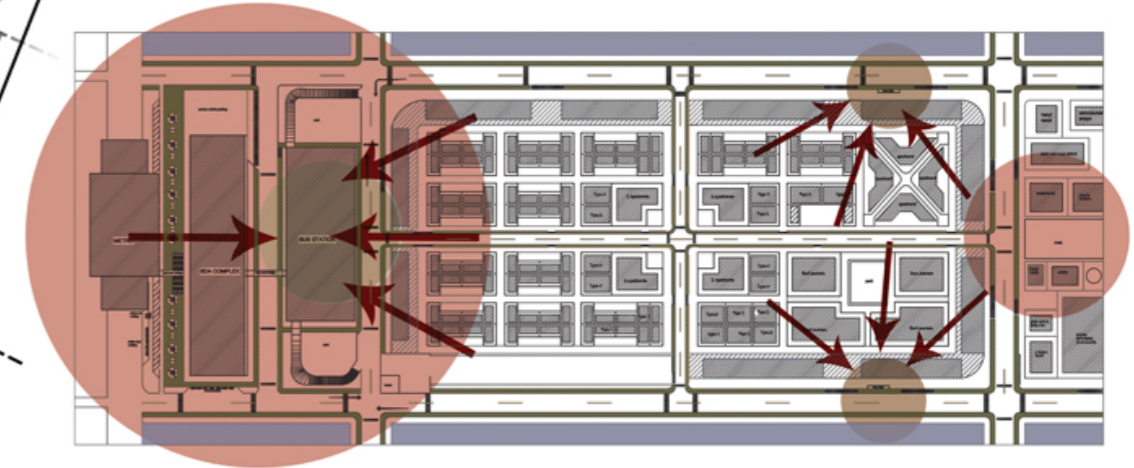


GRADIENT BASED ON THE DENSITY OF ACTIVITIES

MINIMISED DEAD SPOTS AND VISIBILITY FROM A 24 HRS WORKING BUS STATION REDUCING CHANCES OF UNWANTED ACTIVITIES



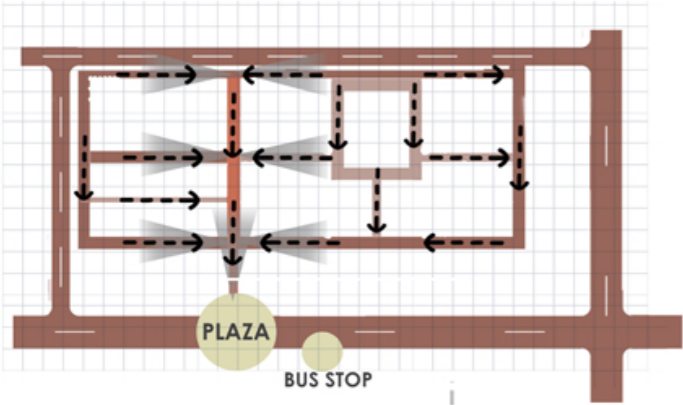
AS THE MAJOR ACTIVITIES ON TRANSIT HUB ARE ON THE UPPER FLOOR THE CHANCES OF INTERFERENCE CAUSED BY A CHAOS CAN BE MINIMISED TO THAT AREA



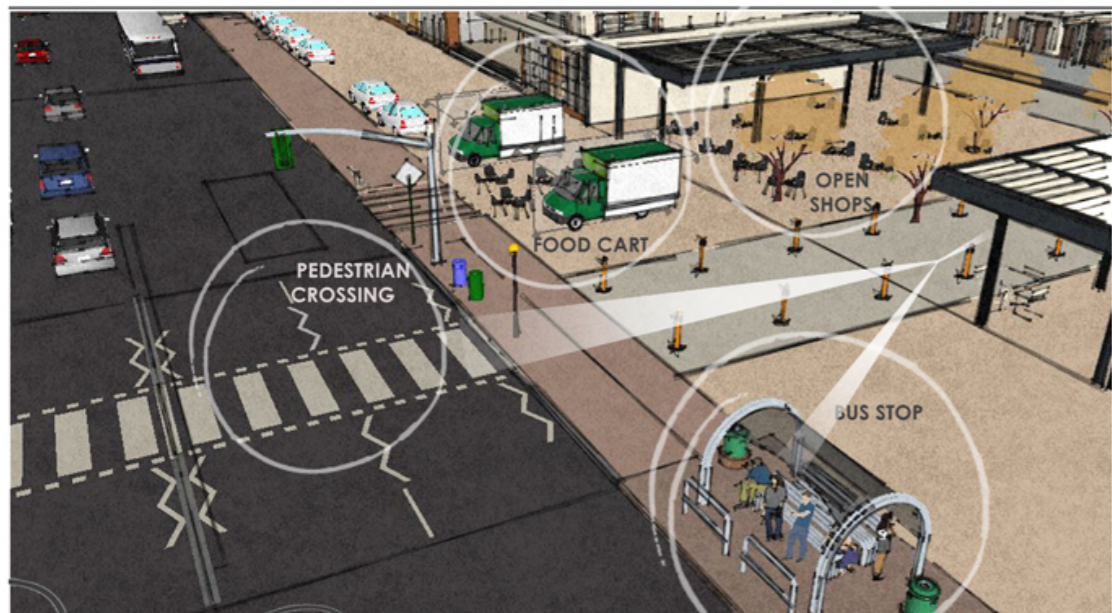
EVENLY DISTRIBUTED AND EASILY ACCESSIBLE TRANSPORT FACILITIES LIKE BUSSTOPS

3.6 Proposal- Activities

Urban Design | B.Arch | Semester 9
Urba Design of Jayanagar- Bengaluru

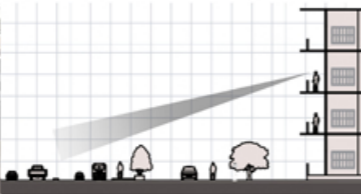


The aim of the design was to make the roads safer. For that, the road in the middle is made as the connection between the commercial area and residential. A plaza is at the end of the street, which will be an active node of the area.



This street has view from the residences in the mixed use building

All roads are made safe and a link between building and street is created.



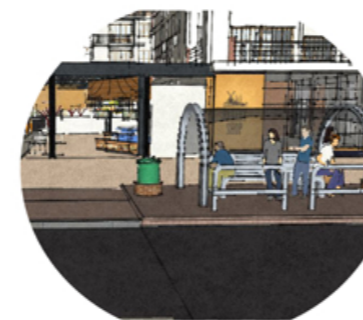
Pedestrian crossing is provided next to the plaza so that there will be surveillance from plaza.



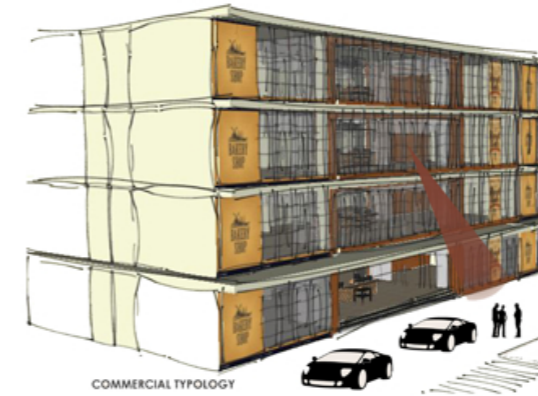
Food will be supplied from food carts. Temporary seating will be provided. Only limited number of carts will be allowed and this will be controlled. Food carts will be available only at night. This makes the space more active even during night.



Temporary structures made will be used as open food court with seatings arranged in open space. This will function from morning till night.



Proximity to bus stop will help in increasing the number of people using the space.

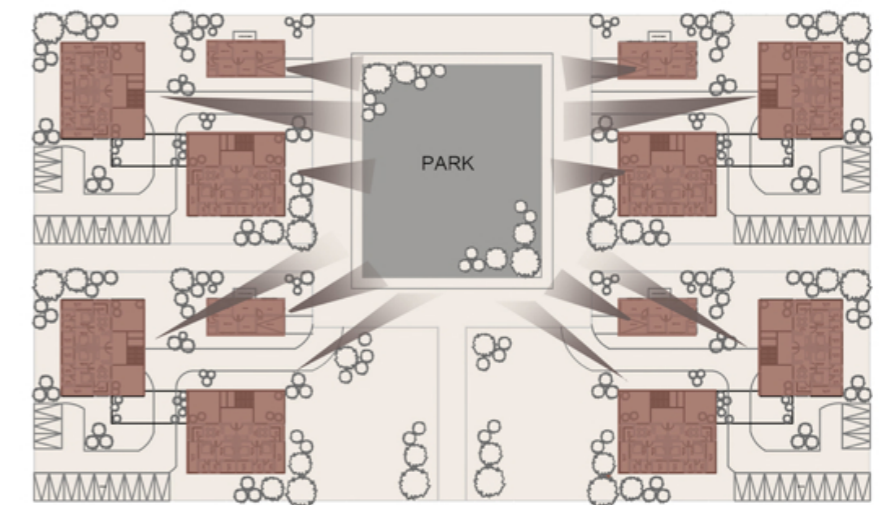


Facades of the commercial buildings are treated with glass which will give view from inside the building to street. Also for the residential typologies the facades are treated with long windows and balconies. This will help in creating a link between houses and the street.

COMMERCIAL TYPOLOGY

The center of the quarters compound is the kids' park which has view from all the quarters, ensuring the safety of kids. Along with that, a tennis court is provided in between the park which brings the involvement of even the elder people in the area.

All parkings made within the plot itself to ensure safety.



Contact..

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Havila Rose K

Architect | Urban Planner