SPACES FOR ENGAGEMENT IN THE CITY OF MUMBAI

Rethinking parks and public spaces in congested cities

By

Kairav Shroff

Bachelor of Architecture
University of Mumbai, 2012

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by

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SMArchS Architecture and Urbanism '15

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Submitted to the Department of Architecture on May 21, 2015 in Partial Fulfilment of the Requirements for the Degree of Master of Science in Architectural Studies

ABSTRACT

Unplanned urbanization in Mumbai has left the city in a dense congested state with only 1.7m^2 of open space per person. The present dense living conditions also make it impossible to construct any large park or centrally accessible public space in the city. To construct a park the size of central park will require more than 100,000 people to be displaced and in a democratic country like India is an impossible solution. Therefore an alternate strategy to create public space is required for congested cities like Mumbai, where larger solutions are impossible.

Mumbai has few planned public spaces in the form of parks, waterfronts, maidans and plazas but many more unplanned public spaces that exist all over the city. Almost three times as many people use the unplanned public spaces as compared to those using planned public spaces. Yet the focus is always on creating more planned public spaces because they can be easily quantified in terms of length, area or quantity, thus making it easy to justify. Unplanned public spaces on the other hand cannot be quantified and are always ignored during the planning process in spite of the immense social value they have.

This thesis focuses on developing a framework to understand the conditions that activate unplanned public spaces and on designing a system that can enhance these spaces to act as social spaces that provide relief. Furthermore by networking these spaces together, we can then create a system of smaller social spaces that add up to form a larger public realm.

Thesis Supervisor: Michael Dennis
Title: Professor of Architecture

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At MIT Kairav has spent his time taking classes in the Architecture Department, Center for Real Estate and at the Sloan School of Management in order to further develop his interest in merging design, development and business.

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1
MUMBAI

Mumbai

1.1 Background

Public space statistics

The city of Mumbai has grown from a small fishing village to one of the largest 'mega-cities' in the world. It is the financial, commercial and entertainment capital of India. Like most Indian cities, Mumbai experienced a rapid growth in its population, doubling from 9.3 million in 1993 to 20 million within a span of 20 years. It's currently has a population of 20 million people[1] on a land area of 603 km^2 making it the city with the highest population density in the world[2].

01. Press Information Bureau, Government of India

02. City Mayors Statistics

In addition to the high population density, Mumbai also has one of the lowest per capita open space ratios in the world, with a mere 1.77m^2 of open space per person. Only 2.5%[3] of its 603 km^2 land mass is reserved as public green space: 2.5 km^2 of gardens and parks, 4 km^2 of playgrounds and 7.7 km^2 of recreation grounds.

03. Tata Institute of Social Sciences

Mumbai does have a 104 km^2 national park within its land mass which is not considered while calculating the open space in the city. This is due to the fact that the park is inaccessible to people and is reserved as a forest space. If Sanjay Gandhi National Park is considered in Mumbai's green space, Mumbai would have an impressive 10.9 m^2 of open space per person[4].

04. Urban Design Research Institute, Mumbai – Mumbai Reader 2007

In reality by calculating the amount of space reserved in the development plan for the city, Mumbai should have 2.17 m^2 of open space per person, but due to illegal encroachment on the open spaces this number is reduced to 1.77m^2

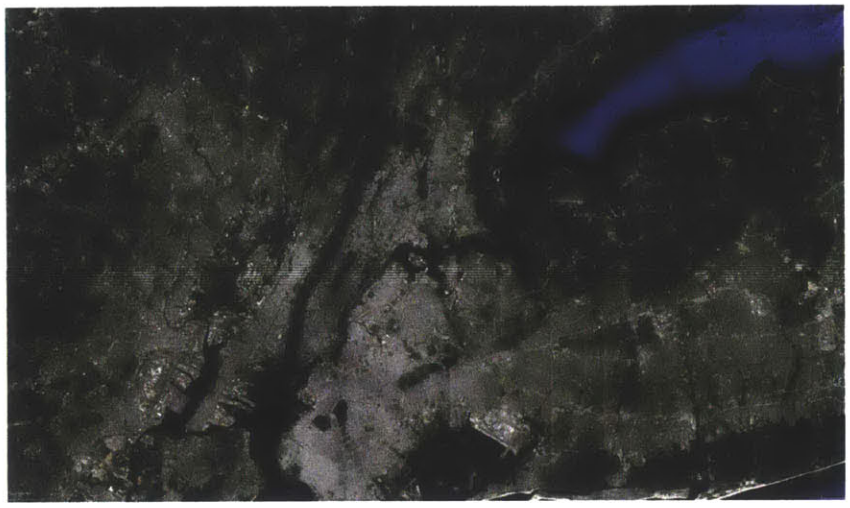
Per Capita Open Space	Amount[4]
Mumbai, per Development Plan Reservations	2.17 m^2 per person
Mumbai, Ground Reality in 2007	1.77 m^2 per person
Mumbai, with Sanjay Gandhi National Park	10.9 m^2 per person

Fig. 1 - City of Mumbai

Therefore when we compare Mumbai to other global cities - Mumbai stands out as not only the densest but also one of the most cramped cities in the world. The peninsular shape also makes it difficult for the city to expand easily.

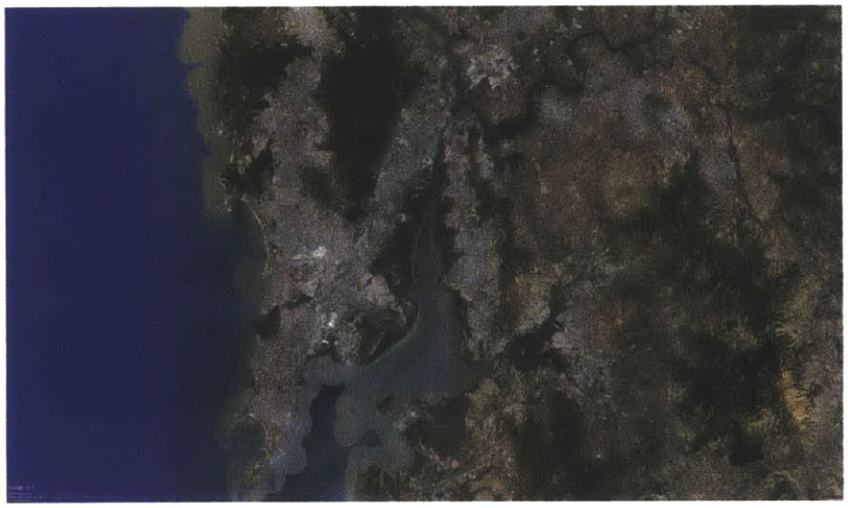
05. Times of India 'You have just 1.1 square meters of open space' – May 28, 2012

City	Amount of Reserved Public Green Space	Per Capita Open Space[5]
New York City	14 %	26.4 m^2 per person
London	38.40%	31.68 m^2 per person
Mumbai	2.5%	1.77 m^2 per person



New York City

London



Mumbai

Fig. 2 - Comparing Mumbai to New York and London

Mumbai

1.2 Problems with the Development Plan

Why didn't we plan for public space?

The Development plan (DP) is the official document that is used to structure growth in Indian cities. It is drafted every twenty years and provides guidelines and policies by which land use, amenities, infrastructure etc. is regulated in the city.

Till date there have been three development plans for the city of Mumbai[6]:

1. The first DP was sanctioned in 1967
2. The second DP was published in 1984 and sanctioned in 1993
3. The third DP was published in 2015 but due to public protests it has been retracted to make amends. Once it is sanctioned, it will guide the development in the city till 2035.

The development plan of 1984 was just a slight improvement from the development plan sanctioned in 1967. **Both plans had not envisioned such a dramatic increase in the population, and hence most of the city grew in an unplanned manner.** This resulted in the city having an **inadequate supply of essential infrastructure** such as: housing, health infrastructure, education institutes, transport systems, water and sanitation services and public space.

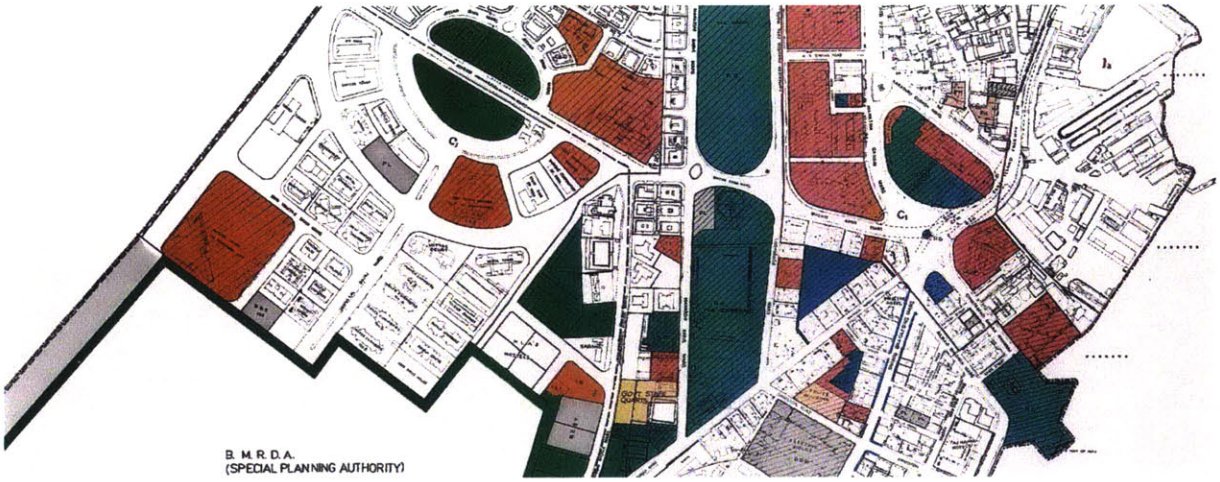


Fig. 3 - Ward A, development plan of 1993

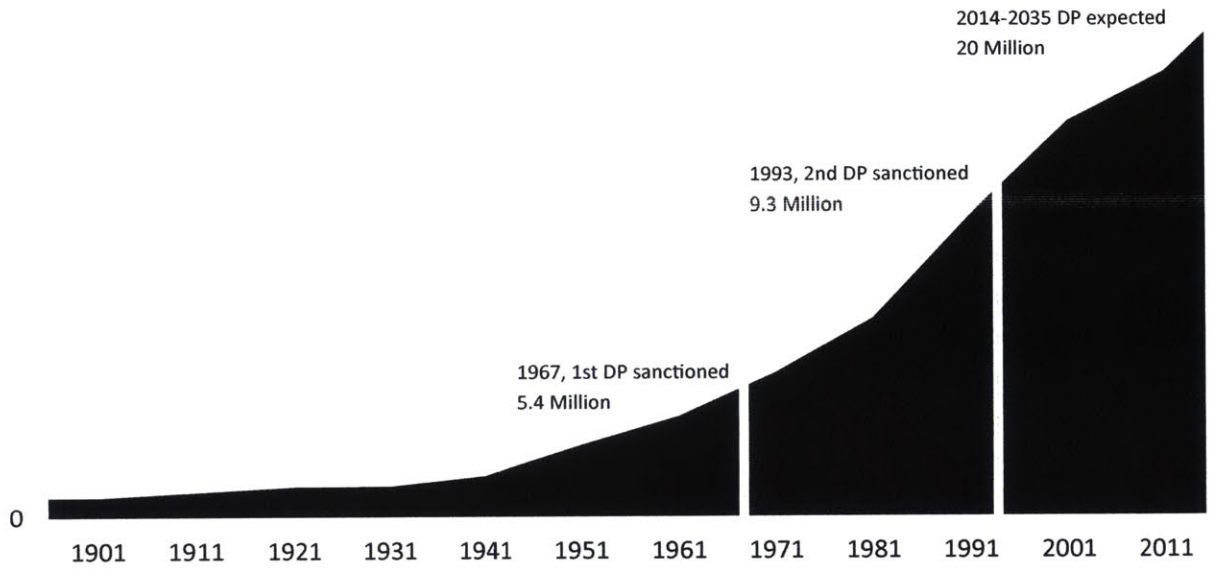


Fig. 4 - Population Growth of Mumbai 1901 - 2011

Fig. 5 - Inadequate supply of essential infrastructure

Fig. 6 - Makeshift Swing on a Tow Truck

Image by: Mansi Thapliyal / Reuters

Mumbai

1.3 Lack of space in the city

Can we build public space now?

Throughout this thesis I chose to focus on public space rather than on other infrastructure, since it is more challenging to increase public space in a city that has already grown and has no space, than to upgrade infrastructure efficiency.

06. Planning for Mumbai – The development plan for greater Mumbai 2014-2034

Only 8.15% of the city land is currently vacant[6], and with a demand for housing and other infrastructure taking priority, public space takes a backseat. Even if we were to construct the public space demarcated in the development plan, we will have only 2.17 m^2 of open space per person.

Additionally since Mumbai was built without any large park or central public space in proportion to its population, rectifying this in hindsight is impossible. To fit a park the size of New York's central park (3.41km2), in a city with a population density of 29,650 people per km, will require 101,106 people to be displaced and thus is an impossible solution

Therefore an alternate understanding of the public realm beyond parks and plazas is required, in which the focus is on social spaces instead of formal places.

'*social space*' is defined as the space that people use outdoors for relief

'formal place' is defined as the space that is planned as public space

Fig. 7 - Size of Central Park and Hyde Park in comparison to Mumbai

2
PLANNED PUBLIC SPACE

Planned Public Space

2.1 Types of planned public space:

Why do we always focus on parks and plazas?

Mumbai's planned public space comprises of mainly 4 types of spaces:

1. Plazas (Gateway of India)
2. Maidans (Oval Maidan, Cross Maidan etc.)
3. Waterfronts (Marine Drive, Worli Sea Face etc.)
4. Gardens (Hanging Garden, TATA Garden etc.)

While discussing strategies to improve public life in Mumbai, the discussion always shifts towards ways to build more parks and develop more waterfront space in the city.

Even while calculating the amount of public space in the city, the focus is only on planned public spaces, while the unplanned public space is completely ignored. The reason for this focus on planned public spaces is because **these spaces are easy to quantify and hence justify**.

Spaces are **quantified in terms of their Length, Area or Quantity**. An architect or a planner can easily argue that an area has adequate public space because it has a 50 acres park or a 4.3 km stretch of waterfront space.

Fig. 8 - Examples of planned public spaces in Mumbai

Fig. 9 - Planned public space can be easily quantified: Length + Area

Quantity too is used as a measure for calculating the public realm. In the environment status report for Mumbai, the Brihanmumbai Municipal Corporation (BMC) lists the quantities of all the recreational facilities[7] that exist in the city. Some of the listed spaces are unjustified because they do nothing to improve the overall public life.

07. Brihanmumbai Municipal Corporation – Environmental Report 2009 - 2010

For instance, spaces such as 347 Traffic Islands, 21 Strip Gardens, 47 Statues and 3 Rockeries just serve as numbers to show an inflated public realm that is far from the ground reality of how people actually use this space.

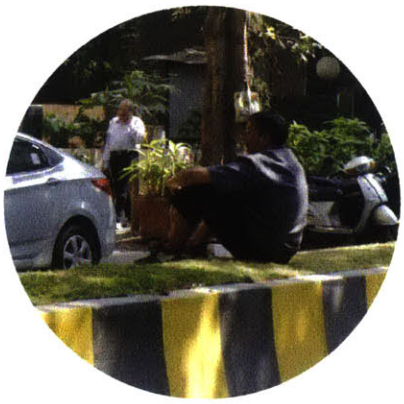
Recreation Facilities in Mumbai[7]	Quantity
Gardens	238
Playgrounds	294
Recreation Ground	331
Zoo	1
Fountains	79
Traffic Islands	347
Band stands	7
Rockeries	3
Nurseries	27
Terrace Gardens	7
Strip Gardens	21
Statues	47

347 - Traffic Islands

331 - Recreational Grounds

294 - Playgrounds

238 - Gardens



21 - Strip Gardens

3 - Rockeries

Fig. 10 - Planned public space can be easily quantified: Quantitiy

Planned Public Space

2.2 Unplanned public space:

Why do we never focus on unplanned public space?

In order to accurately measure the ground reality of public life we need to consider both planned as well as unplanned public spaces. **Unplanned public spaces are always ignored during the planning process because there is no quantitative measure for these spaces.** These spaces are always made to appropriate themselves to the surrounding condition.

This thesis is therefore focused on understanding and valuating unplanned public spaces in Mumbai. Also, it further develops a methodology to control and enhance such spaces.

Fig. 11 - The Nariman Point fair is a popular unplanned public space

Planned Public Space

2.3 Planned vs unplanned public space:

Number of people using these spaces

Mumbai has a lot of unplanned public spaces. These spaces are activated by informal interventions that temporarily transform streets into spaces for relief. One example of an unplanned public space that I studied extensively was a fair at Nariman Point, - primarily a commercial area. Every day after office hours, the parking lot on the street converted into a large public fair. People from the nearby slum brought various equipment's such as Ferris wheels, merry go rounds, moon walkers, swinging ships, horses, play cars etc. and would completely transform the parking lot into a large fair, where people came with their kids for relief.

In order to **show the importance of unplanned public spaces in the city, I counted both the number of people that visited the unplanned public fair at Nariman Point as well as the number that visited a planned park at Colaba.**

The **unplanned public space was half the area** of the planned public space **and yet attracted five times as many people**. The demographic of the people who visited both these spaces was the same - parents with kids, who came to play. The average time spent at both places was almost the same, 60-90 minutes. The only difference was that the park was free while the fair was charged.

The above comparison was not done to prioritize one space over the other. Instead it was done to **highlight the importance of understanding unplanned public spaces in the city and how there is a place for both spaces to coexist.**

Planned public space - Bandstand at Colaba

Number of People: 150

Area: 5790 sq mts

Time Spent: 90 - 120 Minutes

Unplanned public space - Nariman Point Fair

Number of People: 500

Area: 3000 sq mts

Time Spent: 60 - 90 Minutes

Fig. 12 - Comparison between planned and unplanned public space

Planned Public Space

2.4 Parks:

Why don't more people use parks?

One of the reasons why parks in Mumbai are visited by such few people is because **most of the activities are restricted inside parks**. Notice boards are put up with a list of permitted activities and a security guard patrols the park ensuring that the rules are not broken. The **park becomes a sterile environment of acceptable activities** which are generally passive and individualistic.

The list of prohibited activities includes:

1. Eatables
2. Sports / Playing in the park
3. Sitting on the lawn [the lawn becomes a visual green space in the park where people can look at it but cannot use it as a space to recreate]
4. Sleeping
5. Walking Pets
6. Massaging

The only activities that are accepted are talking and walking and hence people prefer to go elsewhere for relief.

Fig. 13 - Noticeboards with the list of prohibited and accepted activities in parks

Another reason why these formal parks do not get enough people is because some of the listed parks are **not accessible throughout the day or are completely fenced off from the public**. Parks that are adopted by caretakers keep the park open for only a few hours in the morning and a few hours in the evening.

This restricted access along with the list of permitted activities invariably results in us not maximizing our existing open spaces to their full potential. This mismatch along with a huge pent up demand for relief space opens up opportunities for people to seek relief at other spaces, which gives rise to unplanned public spaces in the city.

Fig. 14 - Restricted access to public space

3
UNPLANNED PUBLIC SPACE

Unplanned Public Space

3.1 Definition:

What are unplanned public spaces?

When the same space in the public realm is used regularly for relief or for social activity it becomes an unplanned public space.

Spaces for relief or social activity can be found everywhere, from the living room at home to programmed areas such as clubs, malls, theaters etc. but for the purpose of this thesis, only the spaces that manifested in the public realm (i.e. on the streets without restricted access) are classified as unplanned public space.

Fig. 15 - Space below commercial structures during lunch

3.2 Research Focus:
Where do we begin?

Unplanned Public Space

My thesis research indicated that most of the **unplanned public spaces were activated by informal interventions** that exist along the streets of the city. Since 95% of Mumbai is dependent on public transport as a means to commute[8], these interventions **tap into the flows of people on the streets and provide opportunities for them to pause and seek relief**. This leads to the streets becoming extremely vibrant and lively and providing ample opportunities for social interaction.

08. LSE Cities – 'Urban Age Cities Compared' November 2011

An empirical evidence of how these interventions activate the streets can be found when we look at the skywalks built in the city. In order to reduce pedestrian density from the streets, skywalks were built to take pedestrians directly from the railway stations and drop them off at nodes near popular destinations. Unfortunately people still prefer to use the street instead of the skywalk because of the opportunities available.

Thus my focus shifted on understanding how these informal interventions activate public life along the street.

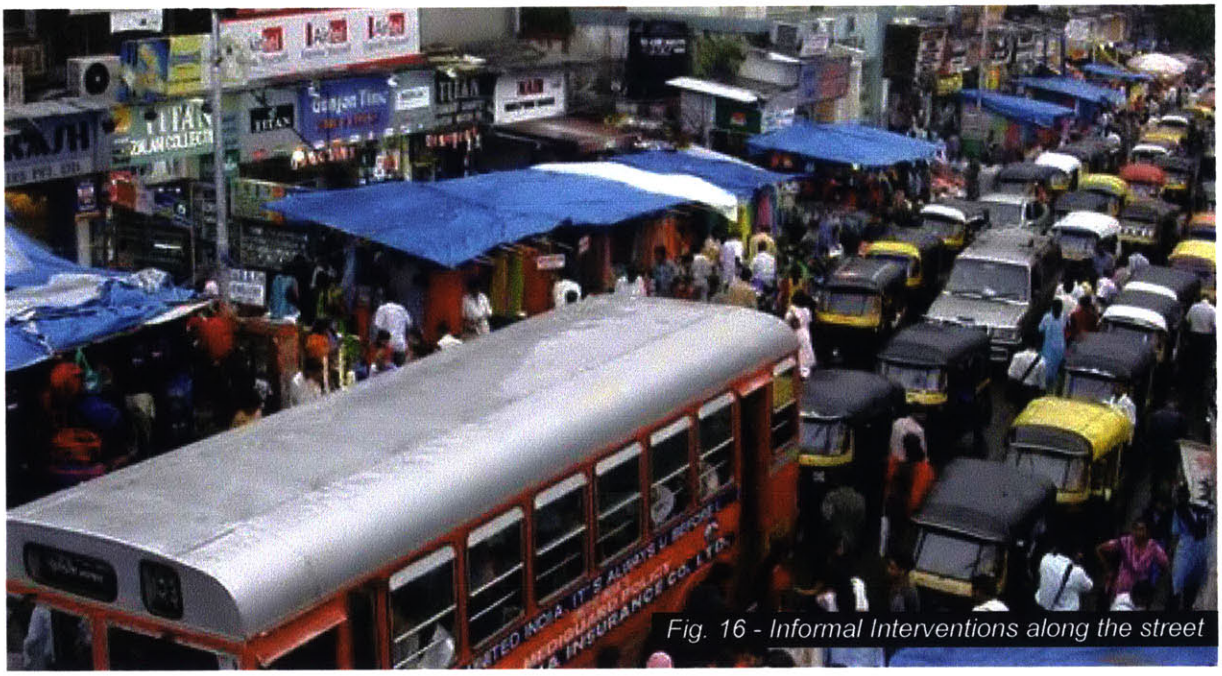


Fig. 16 - Informal Interventions along the street

4
MANIFESTATIONS

Manifestations

4.1 Examples:

Different types of informal interventions in the city

These informal interventions manifest in many ways. A few common examples found all over the city are:

1. **Food Streets**: Khao Galli at Mohammad Ali Road, Khao Galli at Opera House etc.
2. **Isolated Food Spots**: BadeMiya, Bachelors, Ayub's etc.
3. **Tea Stalls**: Mucchad panwala
4. **Shopping Streets**: Fashion Street, Linking road at Bandra
5. **Vegetable Markets**: Fresh produce market at Dadar and Grant road
6. **Smaller Individual Stores**: Small stationery shops, PCO Booths
7. **Recreational Activities**: Equal Streets Movement
8. **Sports**: Gully Cricket
9. **Fairs**: Bandra Fair, Nariman Point Fair
10. **Festivals**: Kala Ghoda Festival, Ganpati Festival

Food Streets

Isolated Food Spots

Shopping Streets

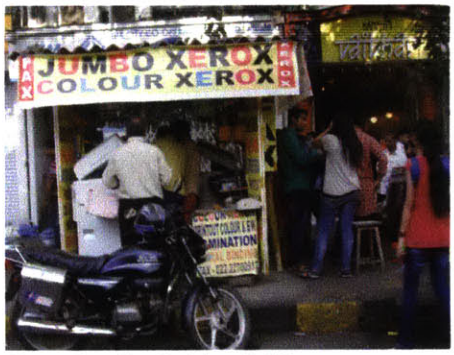
Markets

Yoga

Sports

Tea Stalls

Daily Activities



Smaller Individual Stores

Moveable Hawkers

Fairs

Festivals

Fig. 17 - Types of informal interventions in the city

Manifestations

4.2 Advantages of being Informal:

Why do they prefer staying informal?

Being informal these interventions have multiple advantages such as:

1. Programmatic flexibility: The interventions are dynamic and constantly changing to adapt to the user's needs and lifestyle activities.

2. Economic advantage: The interventions provide essential services at convenient locations for an affordable price.

3. Location advantage: The interventions can keep shifting in order to maximize the pedestrian flows

4. Time based optimization of space: to deal with the limited space in the city, the same site is used for multiple functions throughout the day.

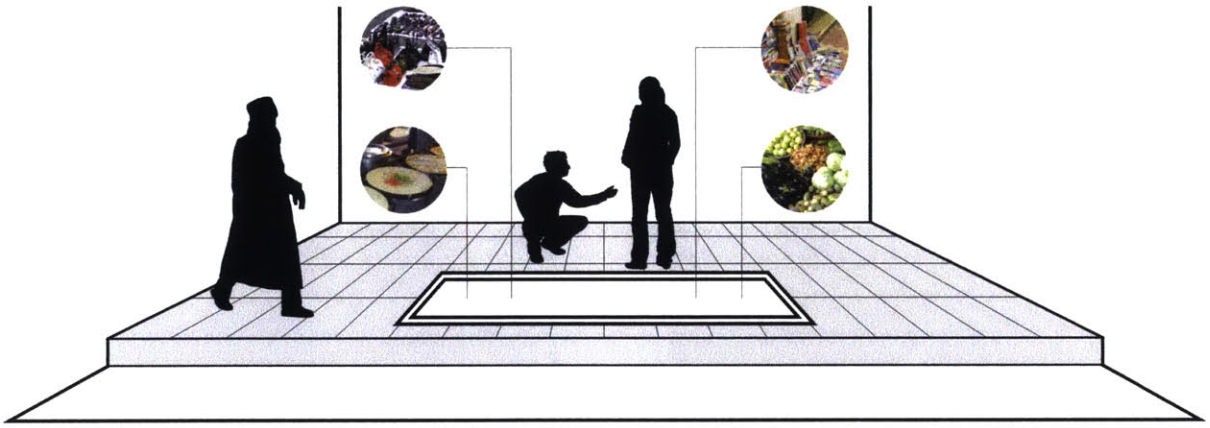


Fig. 18 - Programmatic Flexibility

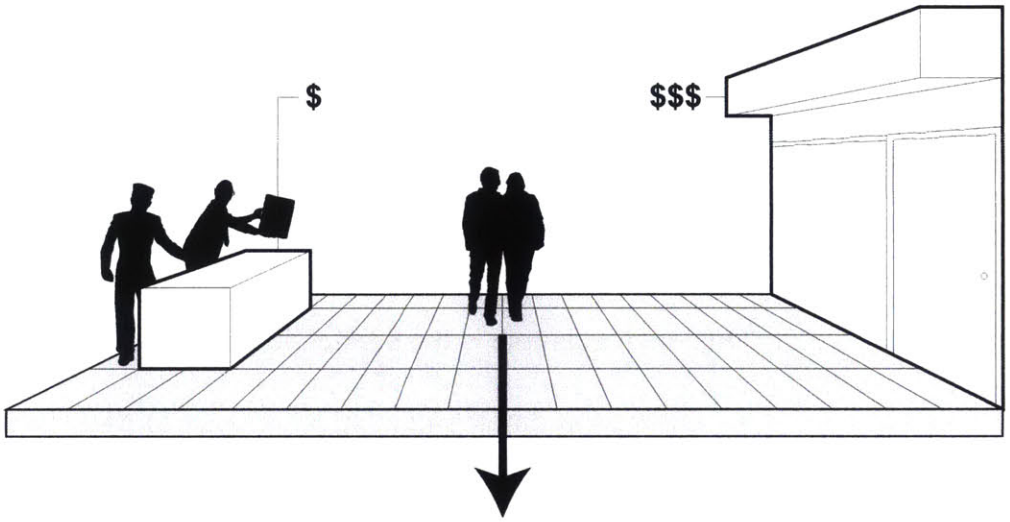


Fig. 19 - Economic and Location Advantage

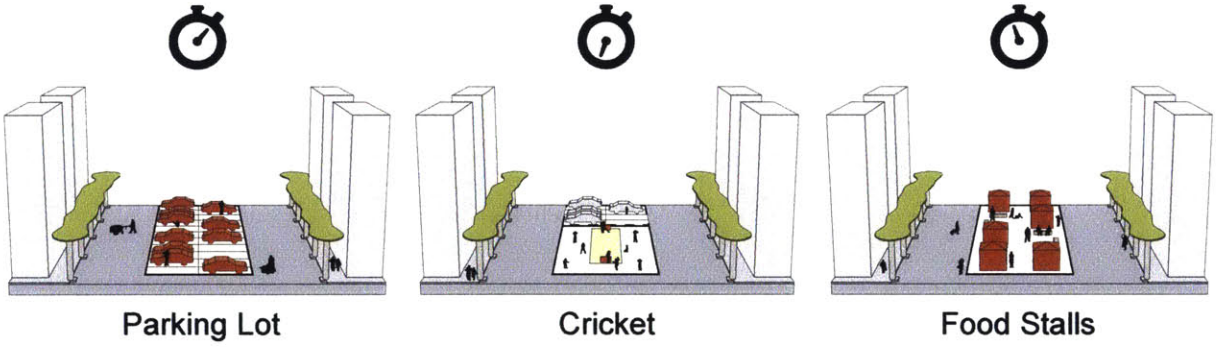


Fig. 20 - Time based optimization of space

Manifestations

4.3 Time based optimization of space:

Why is it important?

For an urban designer the most important characteristic of these interventions is the time based optimization of space. Based on this, they manage to optimize the limited space in the city through dynamic transformations. Since these transformations are temporary they do not leave anything behind and the space returns to its initial condition once the activity is over.

One such example is the parking lot at Nariman Point:

- During the day the parking lot is used to park cars of the large number of office employees employed in the area.
- After office hours the parking lot transforms into a fair and is visited by families with children to seek relief.
- At Midnight when the flow of people stops, the equipment is taken away and the parking lot returns to its initial condition.

Our cities too are dynamic and constantly changing. Different spaces are used at different times of the day and we **need to start optimizing spaces to the city's timeline**. This will help us **avoid creating permanent solutions to temporary problems**.

Fig. 21 - Parking lot transforms into a fair and then transforms back to parking lot

Manifestations

4.4 City Timeline:

How do activities shift throughout the day?

9 - Based on empirical evidence collected during my visit to Mumbai in December 2014.

Mumbai's timeline shifts in 3 phases[9]:

Phase 1: Below Commercial Areas - 11:00am to 3:00 pm
During this time most of the activity takes place below commercial areas. Small informal interventions such as tea stalls, xerox shops, food carts, cigarette stalls, newspaper kiosks etc. activate the space by providing an opportunity to pause.

Common examples of activities found are:

- Office employees standing outside the gate or sitting below a tree while taking a break to either smoke, have tea, eat food etc.
- At lunch people crowding around food stalls
- Drivers sitting, talking, playing cards or reading the news papers
- People waiting below the office to meet someone
- Office boys sitting and talking while waiting for the Xerox shop to copy some documents

At the same time, planned public spaces have the lowest usage rate. Marine Drive which is a popular public space is used sparingly by only a few tourists or college students sitting on the promenade. More college students would be found outside the institute either sitting on the parked bikes or around the informal food stalls in the area.

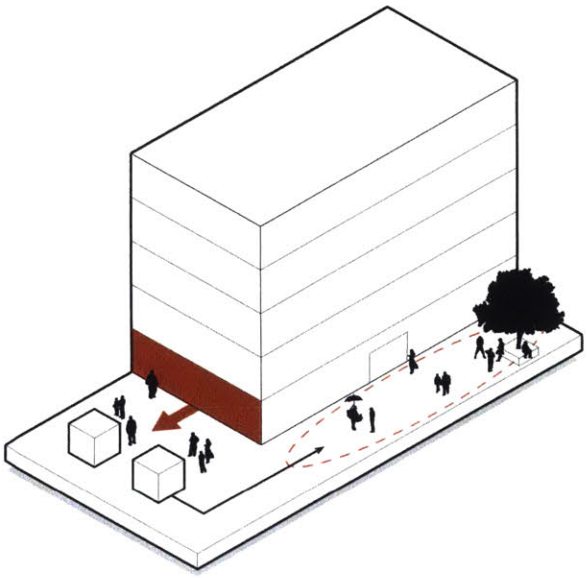


Fig. 22 - Diagram of activities below commercial areas between 11:00 am to 3:00 pm

Fig. 23 - Marine Drive between 11:00 am to 3:00 pm

Fig. 24 - Nariman Point between 11:00 am to 3:00 pm

Phase 2: Formal Public Space - 3:00 pm to 7:00 pm

During this time most of the activity starts shifting from below commercial spaces to more formal public destinations. Parks are visited by children and their parents. The demographic of Marine Drive shifts towards groups of friends and families.

Common examples of activities found are:
Groups of people sitting or walking along the promenade
Individuals using the promenade to walk or jog

At the same time, spaces below commercial areas see a much lower frequency of usage than before. People pause below commercial areas just to grab a quick bite before they either go home or to a more formal public space.

The formal public spaces are also used by people as a place to wait before they move to larger programmed spots such as restaurants, movie theaters etc.

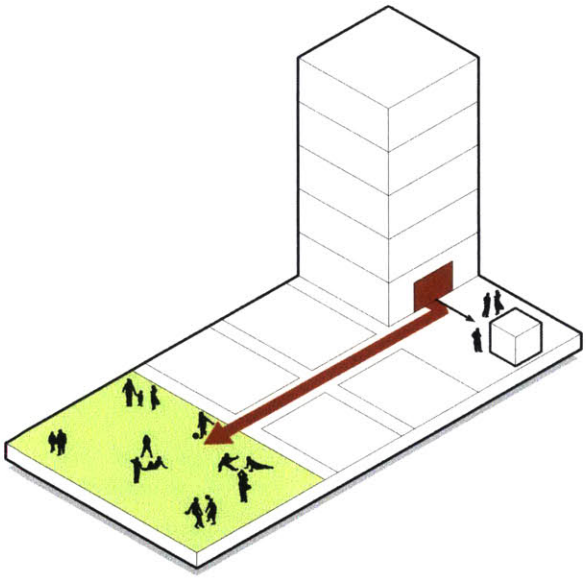


Fig. 25 - Diagram of activities shifting to formal public spaces between 3:00 pm to 7:00 pm

Fig. 26 - Marine Drive between 3:00 pm to 7:00 pm

Fig. 27 - Bandstand at Colaba between 3:00 pm to 7:00 pm

Phase 3: Large Isolated Spots - 7:00 pm to 12:00 am

During this time most of the activity shifts from formal public spaces towards large isolate spots. These spots attract people because of the quality program that they offer and they can be either indoors or outdoors. Indoor spaces such as restaurants, clubs, theaters, malls start getting a lot of crowd. Outdoor spaces such as BadeMiya, aayubs, the fair at nariman point etc. also attract a lot people.

These large isolated spots remain active till about 12:00 am after which most public life subsides till the next day where the cycle repeats itself. Understanding this shifting timeline and how people actually use the city across the day will helps us design more efficient and dynamic spaces that keep adapting to the changing city conditions.

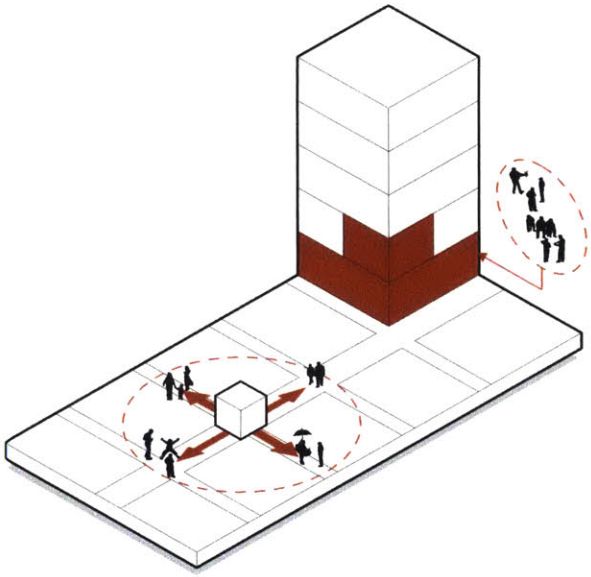


Fig. 28 - Diagram of activities shifting to large isolated spots between 7:00 pm to 12:00 am

Fig. 29 - Marine Drive between 7:00 pm to 12:00 am

Fig. 30 - BadeMiya between 7:00 pm to 12:00 am

Currently all master plans are static and do not take into consideration the dynamic nature of cities. Only once we begin to understand the changing timeline, can we start optimizing space to the shifting conditions, thus improving the overall efficiency of space.

Creating permanent solutions to temporary problems should be avoided and the focus should shift towards creating dynamic systems capable of adapting to the changing conditions.

Fig. 31 - This park is unused throughout the day, except for 3 hours in the evening

5
IMPORTANCE OF INFORMALITY

Importance of Informality

10 - Christian Werthmann 'Landscape Architecture in the Developing World: The Growth of Informal Settlements'

5.1 Stages of dealing with Informality:

How did it change over time?

Over the years there has been a change in the approach in dealing with informality[10]. The five stages are:

- Stage 1 = Denial
  Informal activities were ignored and it was assumed that the people engaging in informality would eventually enter the formal sector. No steps were taken to deal with the informality as it was not seen as a problem.

- Stage 2 = Eradication
  When the informal activities kept growing instead of subsiding, the government began forcefully removing them from the city. Slums were destroyed in the city and alternate accommodations were provided in the villages with the hope that these people would not come back to the city. Unfortunately this scheme did not work and the people kept coming back to the city.

- Stage 3 = Tolerance
  Over time people realized that the informality was here to stay and impossible to eradicate. The government saw a huge vote bank in these people and hence shifted its position from trying to remove these people to fighting for their right. Thus people got more tolerant towards informality and started recognizing them as part of the city.

- Stage 4 = Improvement
  Once informality was accepted as part of the city, the focus shifted to ways in which the conditions could be improved. Infrastructure was upgraded to provide essential services such as water, electricity and toilets. The government also passed various schemes to improve the living conditions of these people.

- Stage 5 = Anticipation
  We are currently at the improvement stage of the process to deal with informality. We now need to focus on the next step of the process where we begin to anticipate how these informal activities will grow in the future.

1. Denial
Informal activities were ignored

2. Eradication
Houses were built in villages but they kept coming back to the city

3. Tolerance
Because of vote bank politics, they were accepted as part of the city.

4. Improvement
Basic infrastructure in the existing settlements was improved

5. Anticipation
We need to begin to anticipate and plan for these activities

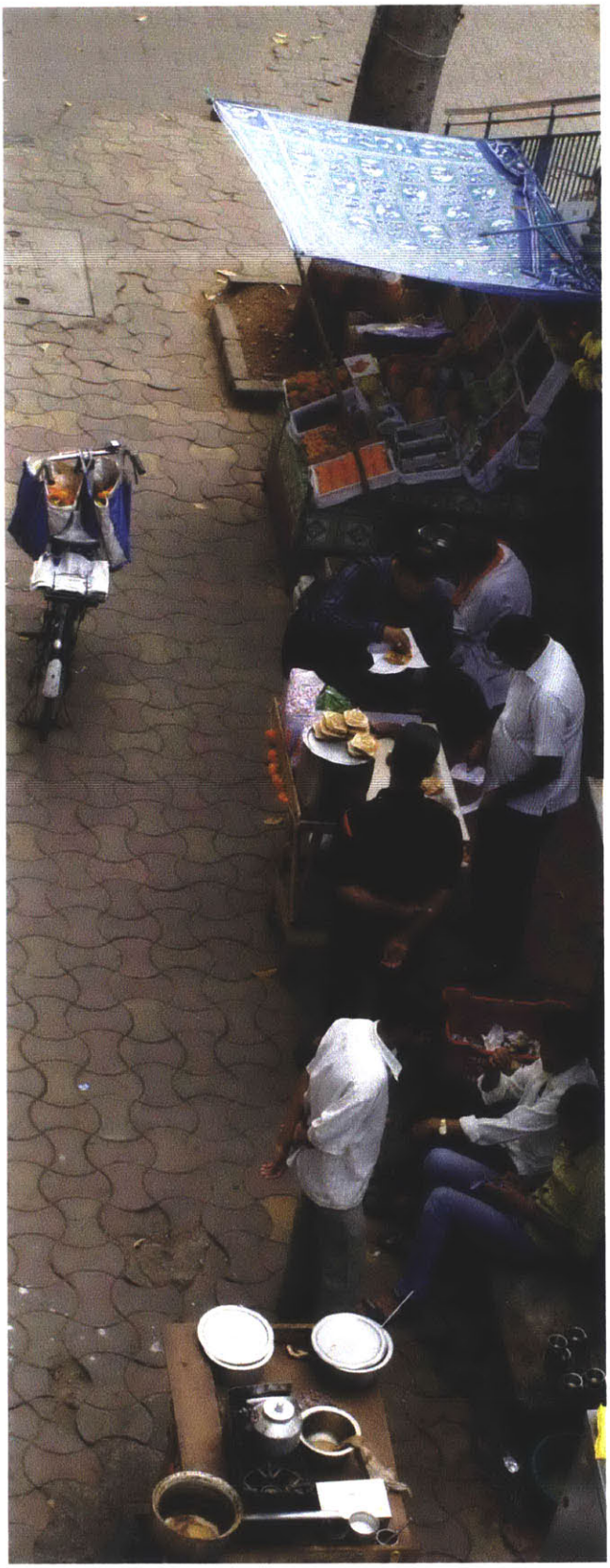


Fig. 32 - Stages of dealing with informality

Importance of Informality

5.2 Anticipation:

Why is it important to anticipate these informal activities?

It is important to start anticipating how these informal activities will grow because:

1. **85% of India's population is employed in the informal sector**[11]. The most common places for employment are construction, street vending, home based employment, sanitation and waste.

2. **India is going to see a huge increase in its working age population**[12] (aged between 15 and 64). By 2025 there will be 125 million new people in the working age population, and by 2035 there will be another 103 million new people entering India's working age population. In total the net increase in the working age population by 2035 will be 227 million people.

   To put things in perspective, the United States of America currently has 130 million people in its working age population. That means that **India has to create twice the number of jobs that America currently has, to employ all its citizens in the formal sector. This is an impossible task and as a result most people will seek employment in the informal sector.** Furthermore **70 percent of the net new employment in India will be generated in cities**[13]. Cities are expected to grow and the population living in cities is expected to reach 590 million people, which is nearly twice the population of the United States.

3. In addition to the shortage of jobs being a reason for people to engage in informal activities. **Being employed in the informal sector ends up paying almost three times as much as being employed in the formal sector.** The minimum wage in Mumbai for employment in the formal sector is an average of Rs. 7500 per month. Meanwhile street vendors in Mumbai on an average make Rs. 100 per day or Rs. 30,000 per month making it lucrative for them to remain in the informal sector.

Therefore it is critical that we now begin to start anticipating this growth and start planning our cities to be more inclusive and accommodate for this informality.

11 - The Economist 'Evasive Action' March 23rd, 2013

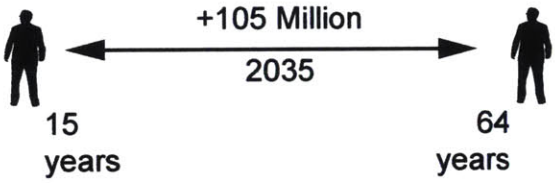
12 - The Economist 'India's Demographic Challenge' May 11th, 2013

13 - 'India's Urban Awakening' report by McKenzie

Percentage of the population employed in the informal sector: 85%

Number of new people entering the workforce by 2025: +125 Million

Number of new people entering the workforce by 2035: +105 Million



United States of America's current workforce 2015: 130 Million

x 2

Minimum wage in India: 7500/month
Daily Wage in Informal sector: 100/day

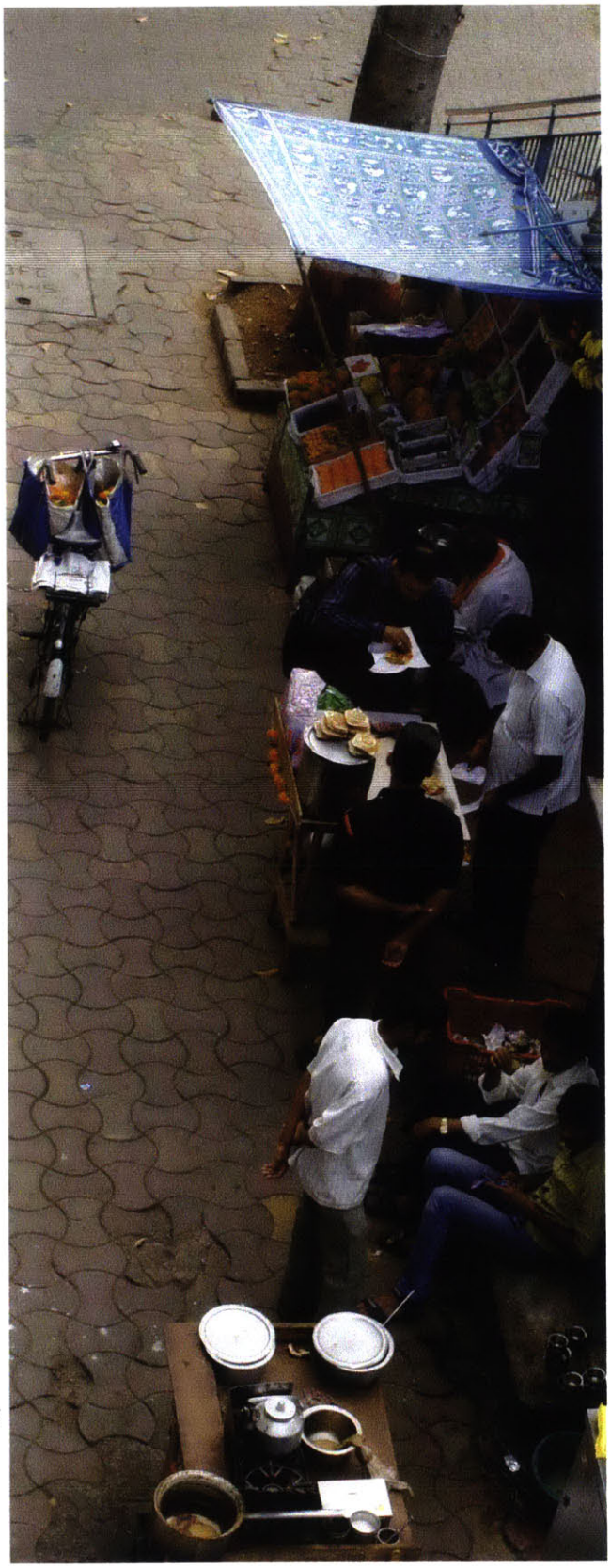


Fig. 33 - Growth of informal activities

Importance of Informality

5.3 Right to Livelihood:

The new hawking law

Another reason to start anticipating how informal interventions will grow in cities is because of the 'Protection of Livelihood and Regulation of Street Vending Act, 2014' passed by the Supreme Court of India.

The act regulates and protects the right of street vendors in public area. This was done because most cities had a limit on the number of hawker license that it gave out. Mumbai for example stopped issuing licenses since 1970 and had only 18000 licensed hawkers. The remaining 300,000 hawkers who could not obtain a license, operated illegally in the city. Being illegal they were regularly harassed by the local municipal authorities and made to pay a bribe to avoid the confiscation of their goods. Therefore the act essentially provided everyone the right to set up their stall along the road in order to provide a means of livelihood, as long as the follow the following rules[14]:

14 - Protection of Livelihood and Regulation of Street Vending Act, 2014

1. A maximum area of 2m x 1m along one side of the road
2. Would not obstruct access to shops, residences, pedestrian or vehicular traffic
3. Will not set up any permanent structures, but can set up temporary structures to protect against sun, rain or wind
4. No hawking within 100 meters from any place of worship, holy shrine, educational institutions and hospitals
5. No hawking within 150 meters from any municipal markets
6. No hawking on footbridges, over bridges and high security areas
7. Will not create any noise or play music to attract customers
8. Can sell only cooked foods, cut fruits, juices etc. No cooking is permitted.
9. Can operate only between 7:00am and 10:00pm
10. Will have to pay a prescribed fee regulated by the BMC
11. Will cooperate during cleaning of the streets and during any repair work done by the BMC
12. No hawking on any roads that do not have a shopping line
13. Minimum street width is 6m

Due to this law, informal activities in the city are predicted to double over the next few year. It is important to start structuring the growth of these informal interventions to celebrate the informality and preventing the space from becoming chaotic.

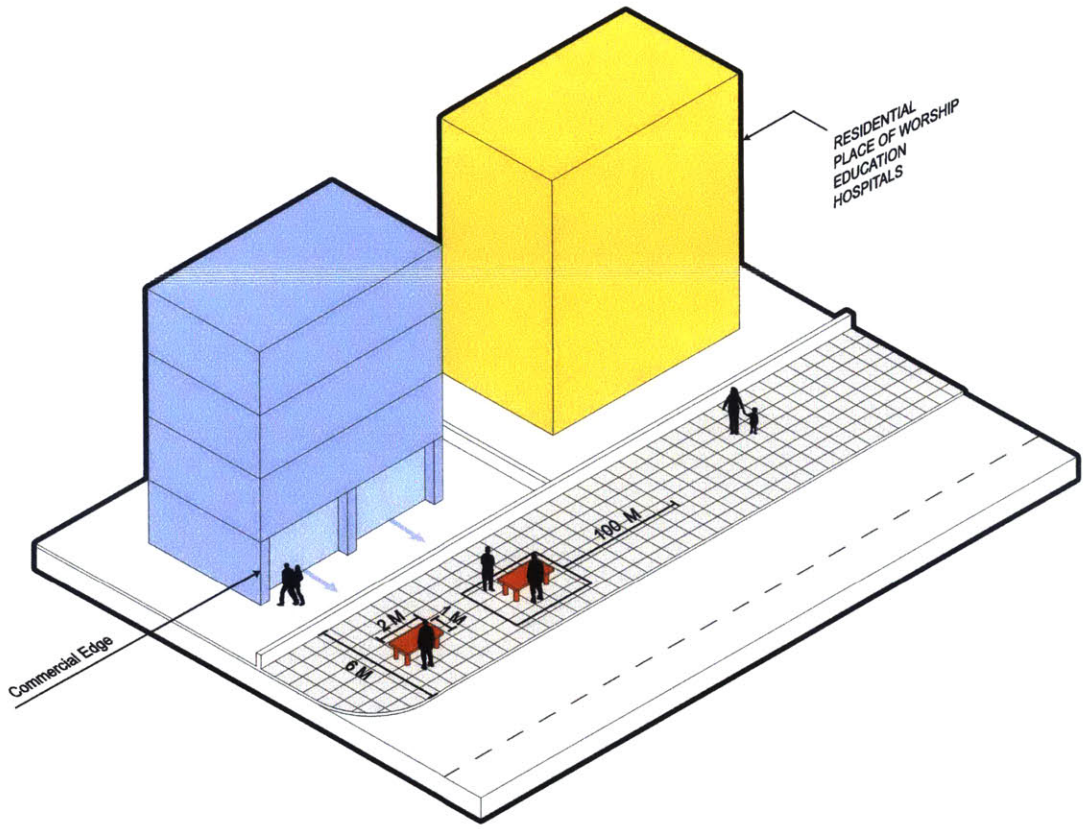


Fig. 34 - Everyone the right to set up their stall along the road

Fig. 35 - A cluster of informal interventions selling clothes near Churchgate

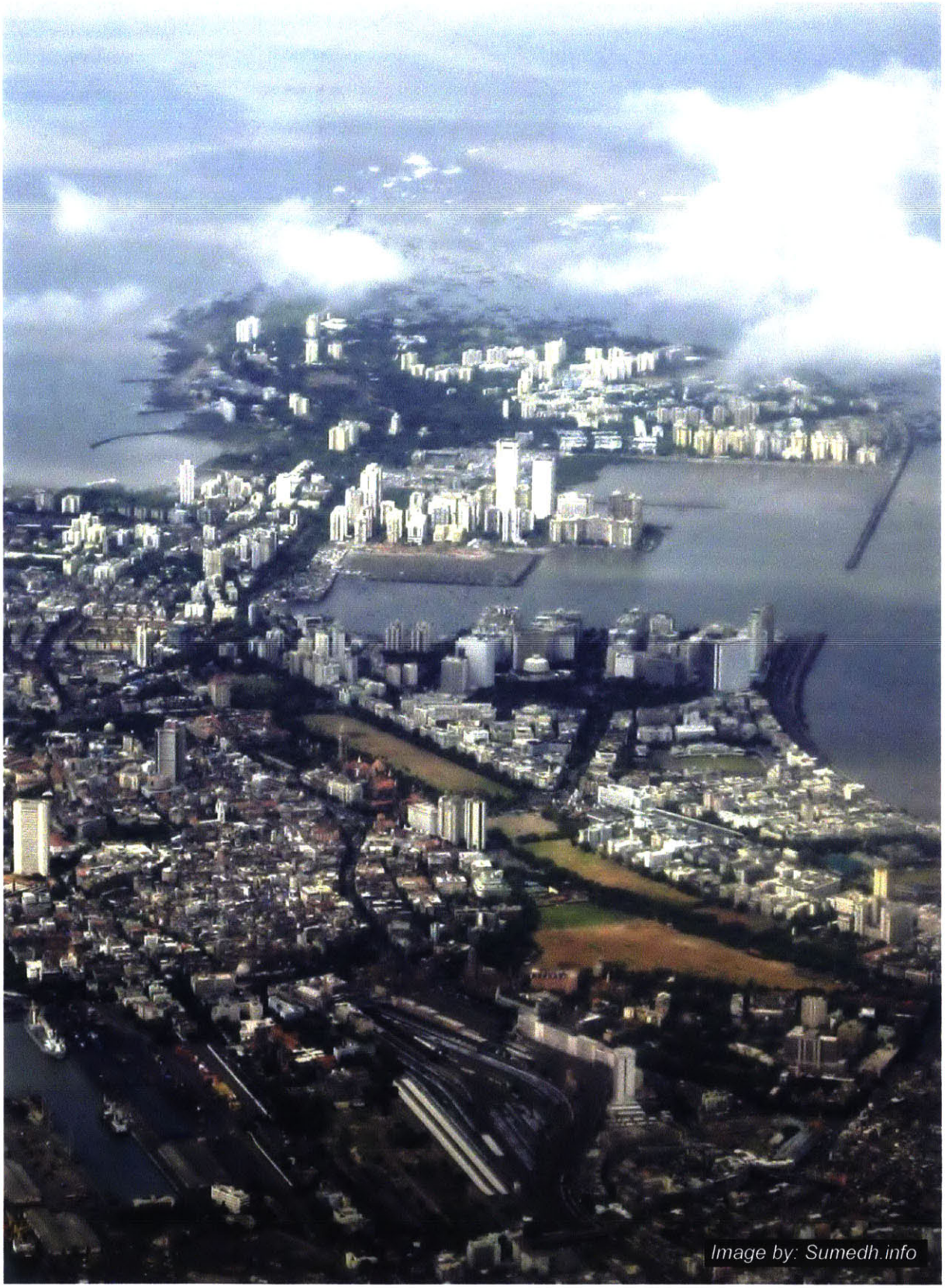


Image by: Sumedh.info

6
SITE SELECTION

Site Selection

6.1 Area of Study:
Criteria for selection

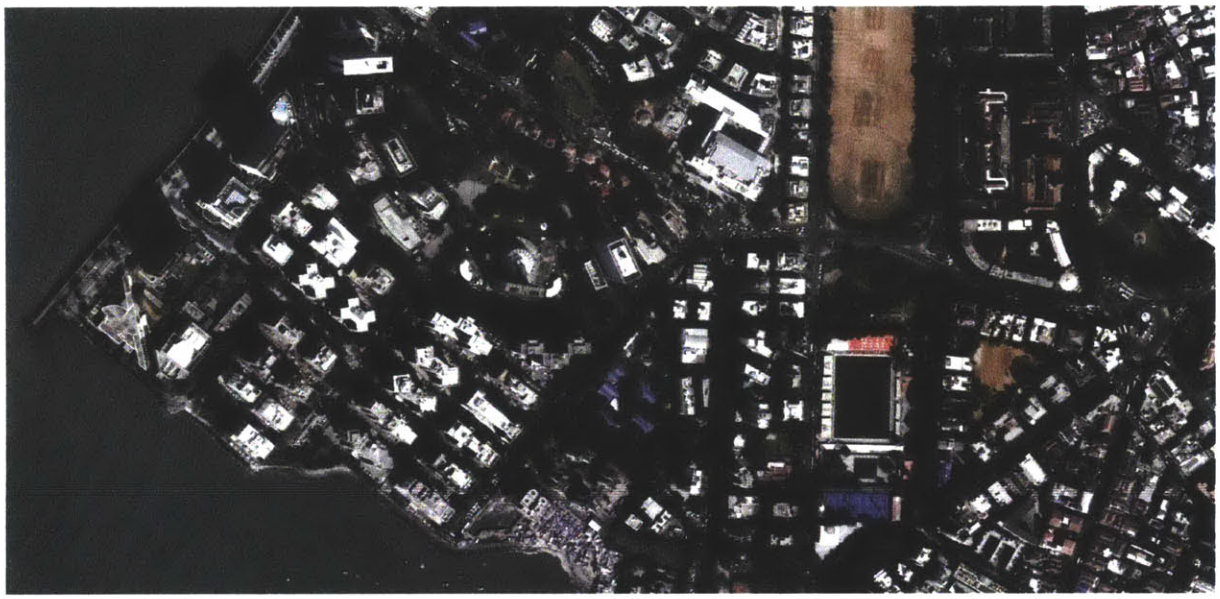
To get a better understanding of the current informal system, I decided to study the fort area which is located on the island city of Mumbai.

Fig. 36 - Location of the island city and the fort area

There were multiple reasons for selecting the fort area, namely:

1. It was developed by the British and it has a clear urban block structure. This is evident when we compare the urban fabric of fort with other parts of the city. The block structure makes it easier to understand and test the system before replicating it in other parts of the city.

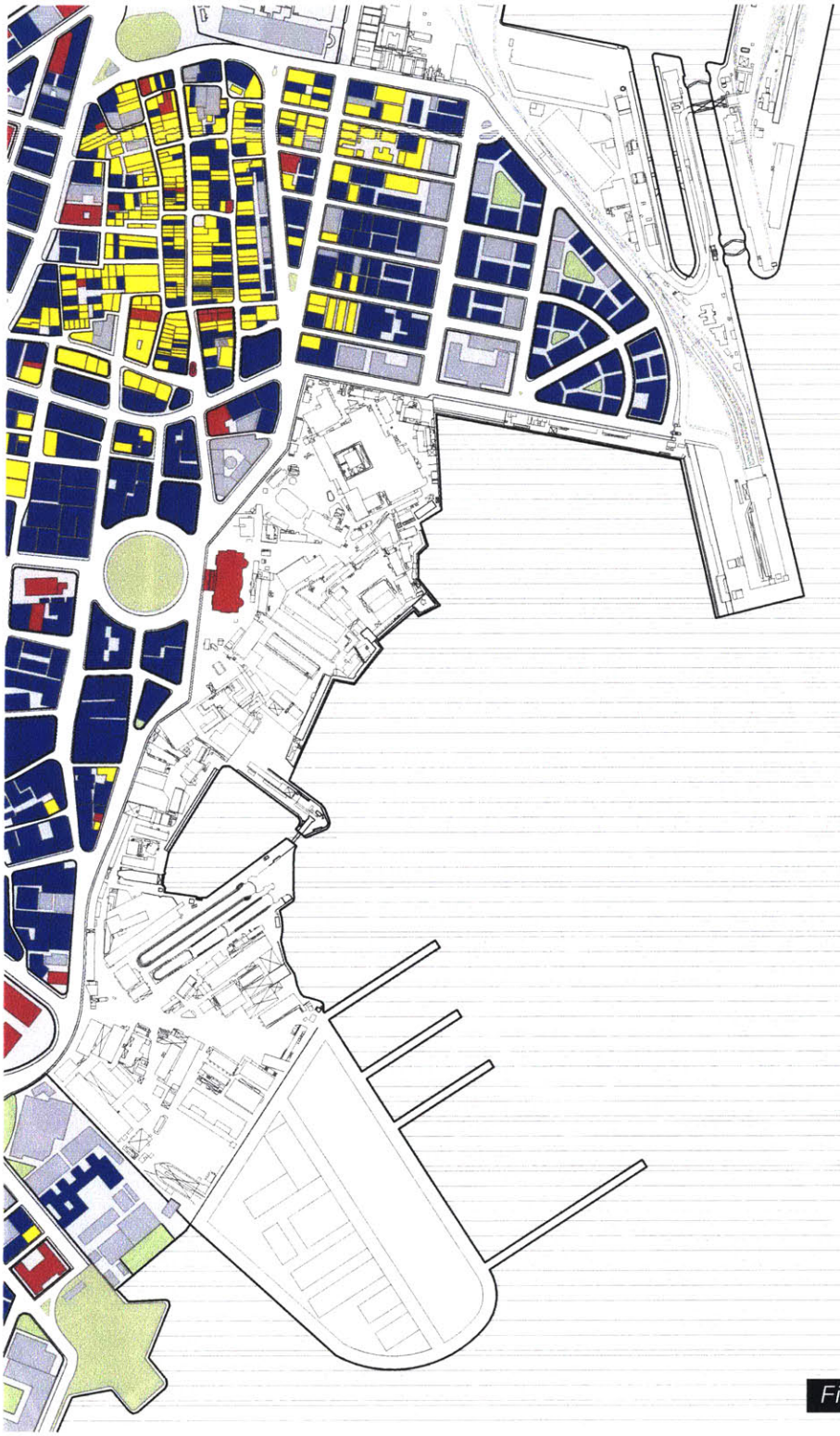
Fort



Central Mumbai

Fig. 37 - Comparing the block structure of fort and central Mumbai

2. Fort has a mix of Residential, Commercial and Social spaces. This mix makes it easier to compare how informal activities take place around different types of programs.



Residential

Commercial

Social

Open Space

Semi Public + Private Open Space

Fig. 38 - Land use plan of A Ward, Mumbai

3. Fort has both planned public spaces as well as informal spaces, thus making the area an ideal site to compare the two.

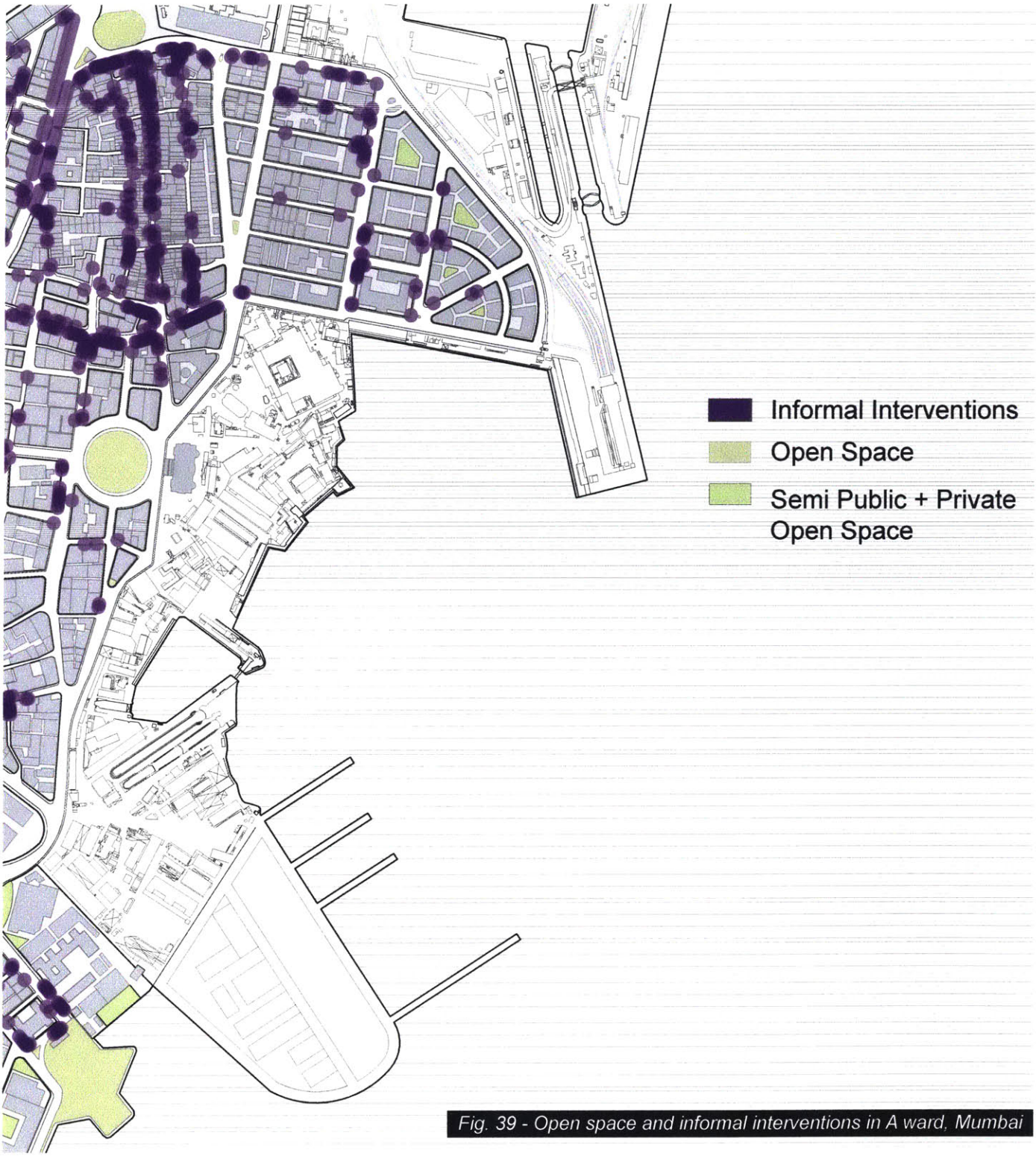


Fig. 39 - Open space and informal interventions in A ward, Mumbai

4. Fort is also the city center and also has a lot of heritage structures, thus attracting a diverse group of people to the area everyday

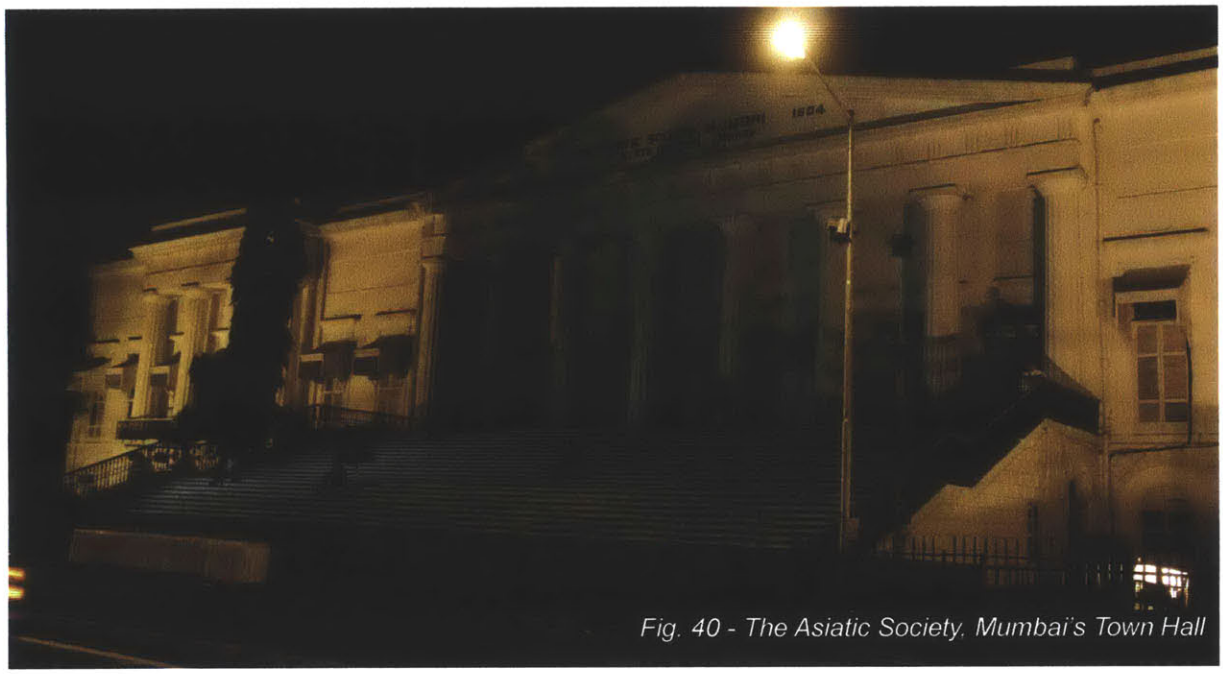


Fig. 40 - The Asiatic Society, Mumbai's Town Hall

Rs.15

7
INFORMAL INTERVENTIONS

Informal Interventions

7.1 Where do they setup:

Patterns of growth

To identify how the informal spaces set up, I interviewed people in the fort area as well as mapped the informality that existed. Few of the patterns that emerged are:

1. High Pedestrian Accessibility:

   The first filter for deciding where to set up their intervention is locating a high pedestrian zone where there is a continuous flow of people. Spaces that have a retail edge on the ground generally have informal interventions around them in order to tap into the flow of people.

2. Neutral Space:

   After locating a space with a high pedestrian flow, the next step is to identify a neutral space along that street. Neutral spaces are spaces that people do not consider as their own because they are there only for a temporary period of time. The bulk of informal interventions are set up around these neutral spaces such as transport stations, government buildings, social structures and commercial areas.

   Residential areas have the bare minimum amount of informal interventions because the residents feel more personally about the space below their house. Even though the residents engage with these informal interventions in other parts of the city, most residents will oppose having the interventions below their own apartment. Some interventions such as vegetable vendors do exist and they locate outside residences that have some commercial space on the ground floor. Another reason for not setting up below residential spaces is there is not a lot of a pedestrian flow as compared to commercial areas.

3. Avoid High Security Zones:

   After identifying a neutral space, the next step is to make sure that the spaces is not if front of a high security program. Spaces such as consulates, luxury hotels and other image conscious spaces are always avoided where they can become a security threat.

Fig. 41 - Neutral spaces around which informal interventions set up

4. Least Conflict Space

Finally in the neutral space, they set up in the least conflict zone. The least conflict zone is the space where they offer least conflict to the people using the formal program because the owner has nothing to lose if he sets up there. It generally is the space along a dead facade of the structure usually along the side, the back or the space between two structures.

Main roads are avoided and the interventions usually set up at locations where they are out of sight for the residents.

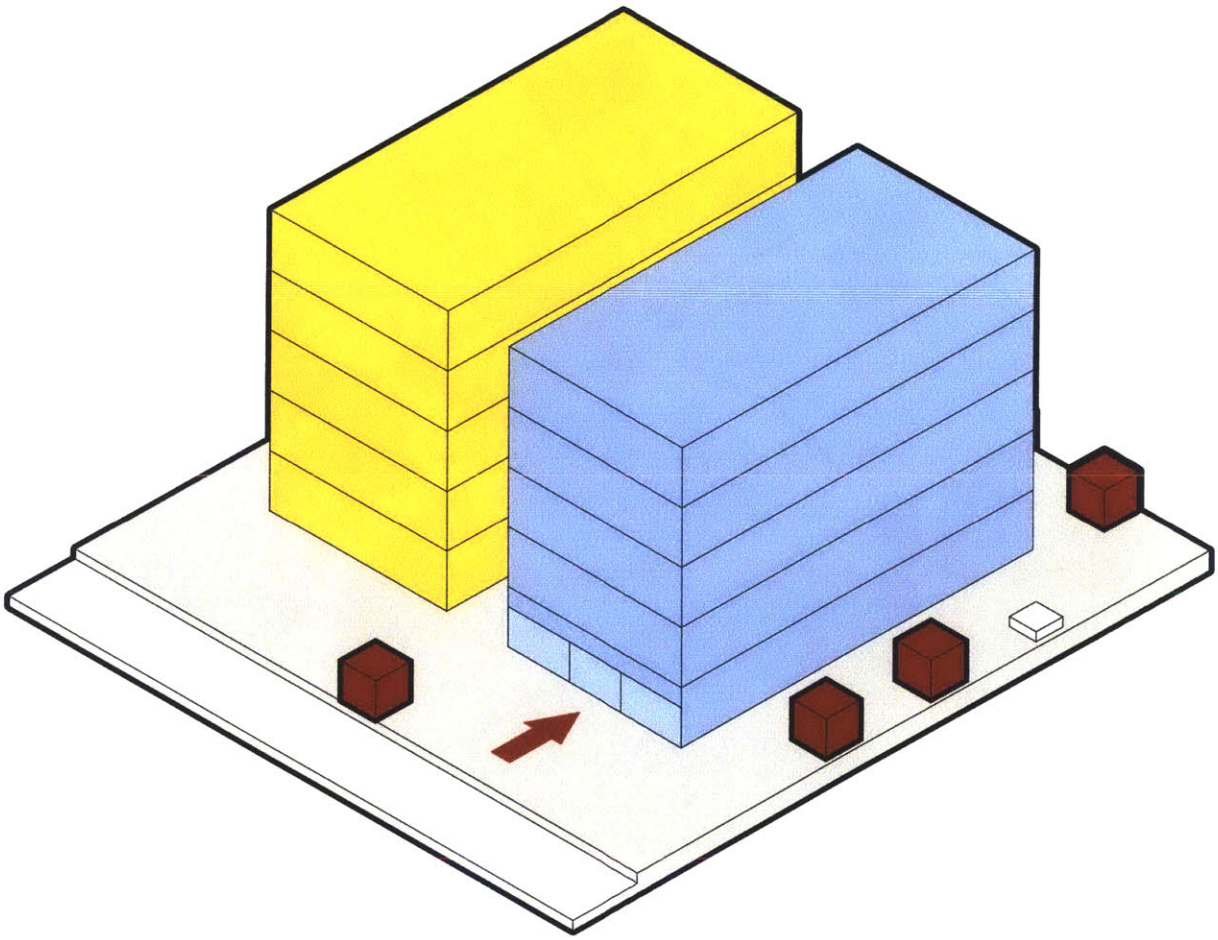


Fig. 42 - Informal Interventions set up in the least conflict zone

Fig. 43 - Coconut vendor along the dead facade of the office building

Informal Interventions

7.2 Formal Backbone:

How does the civic structure influence informality?

To study how the civic structure of the city benefitted informal interventions, I studied BadeMiya - a small food stall located in fort. The reason for selecting BadeMiya was because, it had two outlets within a 15 minute walk from each other, thus allowing us to compare how the same program worked at two different locations.

The first BadeMiya stall is located at Colaba. This stall is strategically located to tap into 4 main pedestrian flows that are generated by the surrounding civic structure.

1. 7:00pm to 9:30pm

   The first is flow is from the nearby maidans such as Oval maidan and Willingdon garden. Once the maidans shut or it becomes too dark to sit there, these youth head over to BadeMiya to grab a quick bite before heading back home.

2. 7:00pm to 9:30pm

   The second flow is from tourists that come to visit spaces such as the Prince of Wales museum, Gateway of India, Jehangir art gallery, Colaba causeway etc.

3. 9:30pm to 11:30pm

   The third flow is from locals that come to the area to visit spaces such as Regal cinema, marine drive, theobroma, gokul, etc.

4. 11:30pm to 2:00am

   The fourth flow is people if from people who go clubbing at nearby hotels. Spaces such as polyesters, red light, prive, insomnia etc

Meanwhile the second BadeMiya stall located at Horniman circle is visited by very few people in comparison to the stall at Colaba. This is because the surrounding area at Horniman circle is completely commercial and dead after office hours.

Fig. 44 - BadeMiya at Colaba, Jan 23, 2015 - 9:15 pm

Fig. 45 - BadeMiya at Horniman Circle, Jan 23, 2015 - 9:30 pm

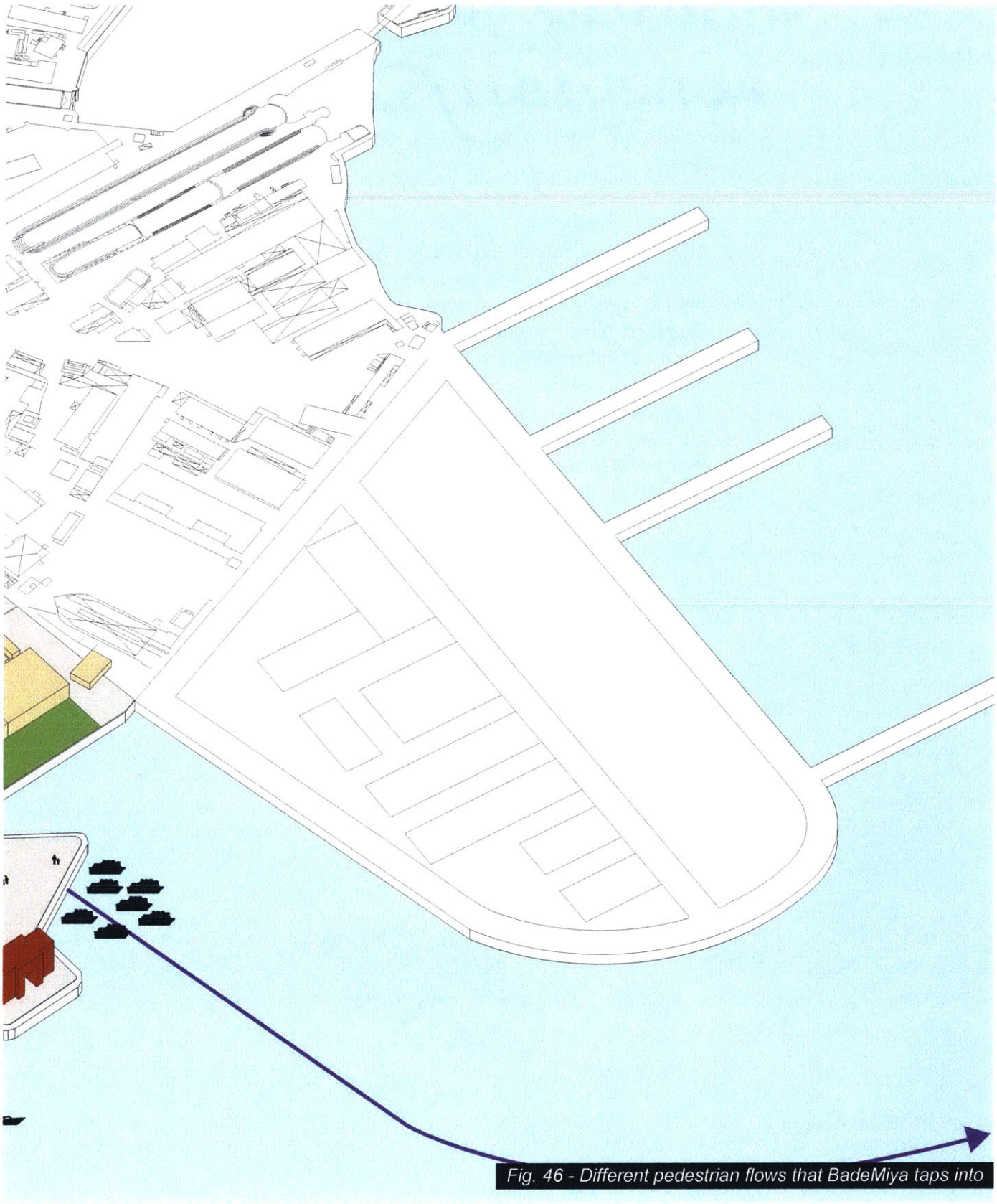


Fig. 46 - Different pedestrian flows that BadeMiya taps into

Informal Interventions

7.3 Scales of Interventions:

How do they organize themselves?

The informal interventions that occur on the street can be classified into three broad scales based on the size of the program:

1. **Large Isolated**:
   The informal intervention is **so large that it does not require any adjacent program to attract people** and people will **visit the intervention irrespective of the location**. This type of intervention subconsciously follows the theory of **create a public destination.**

   A good example of this type of intervention is the fair at Nariman Point. Over the years, the fair has grown so large that **even when it shifted streets** (because a consulate opened on the old street) **people followed the fair to the new location**. Even now the fair is constantly growing by adding new rides.

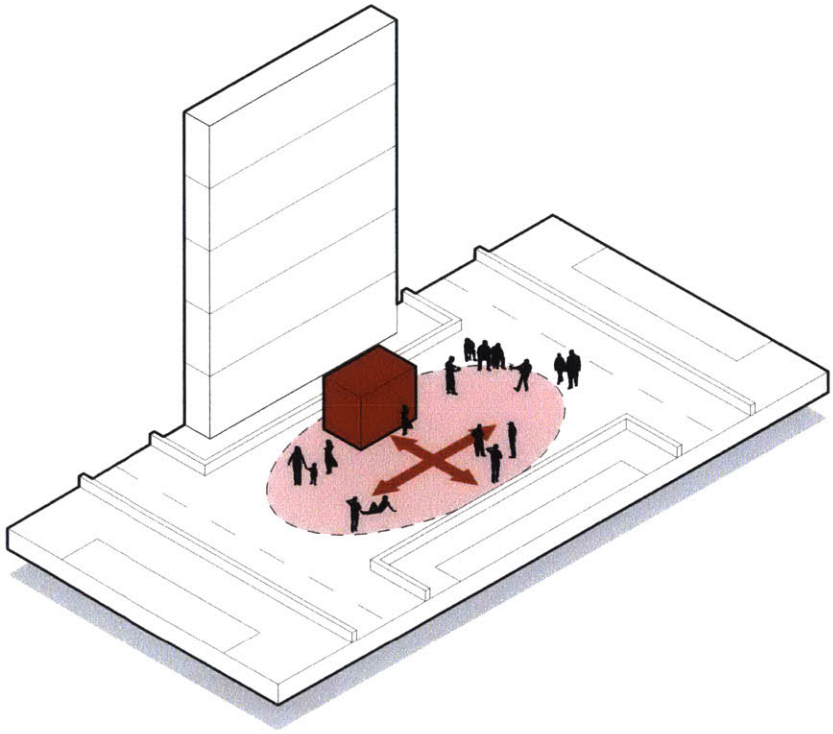


Fig. 47 - Diagram of large isolated interventions

Fig. 48 - Large isolated interventions: Nariman Point fair

2. **Clustered**:

Multiple interventions with the same or complimentary programs come together to form a cluster that is **greater than the sum of the individual parts**. Individually the interventions are not large or unique enough to attract people, but the cluster makes it convenient for people to visit the interventions for the **variety in the program offered**.

Even in the formal system, programs are clustered together to maximize the user's shopping efficiency. In Cambridge, MA most of the furniture stores are located together making it **easier for a potential buyer to visit all the shops inorder to inspect all his options before making a decision**.

Clustering together also makes it easier for the interventions to create a combined ecosystem from the supply of good to the cleaning up of the space. A good example of a cluster is food streets or fashion streets where the entire street is filled by multiple informal interventions offering the same program.

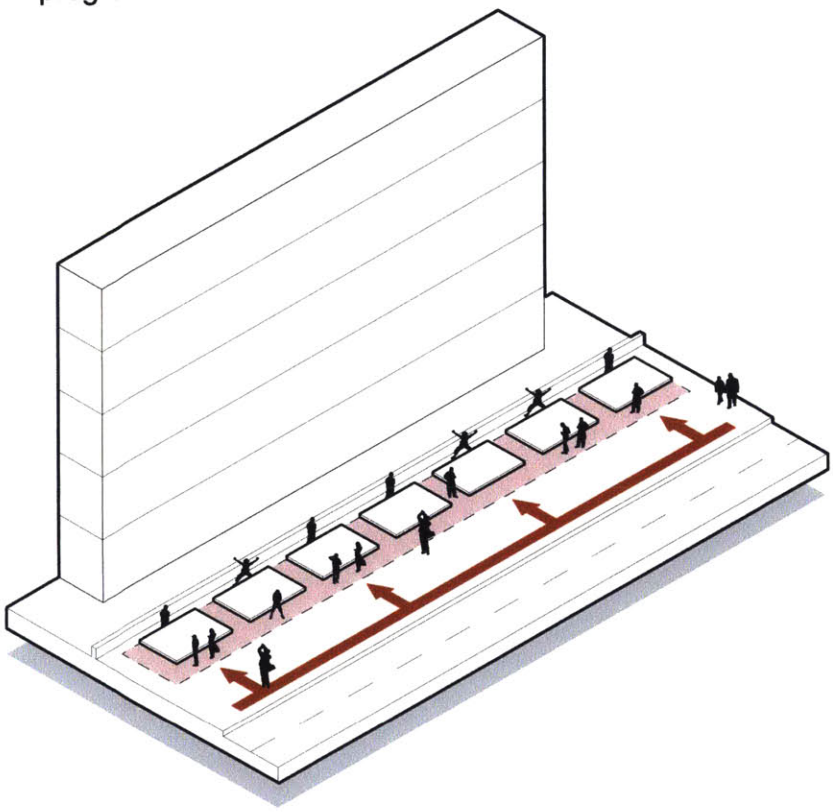


Fig. 49 - Diagram of clustered interventions

Fig. 50 - Clustered interventions: clothes stalls

3. **Synergy:**
Informal interventions that are **directly dependent on the formal program to attract people** fall under the category or synergy. Here the Intervention **offers a complimentary function to the formal program**. Spaces such as cigarettes stalls, pan stalls, stationary stalls, copy booths etc. fall under this category.

A good example of this intervention can found adjacent to the café model in Mumbai. On the café's façade, the designer has highlighted the presence of two interventions: the cigarette stall and the pan stall that are not part of the café but exist because of the café. These interventions tap into the flow of people visiting the café and offer a service that people visiting the café engage in.

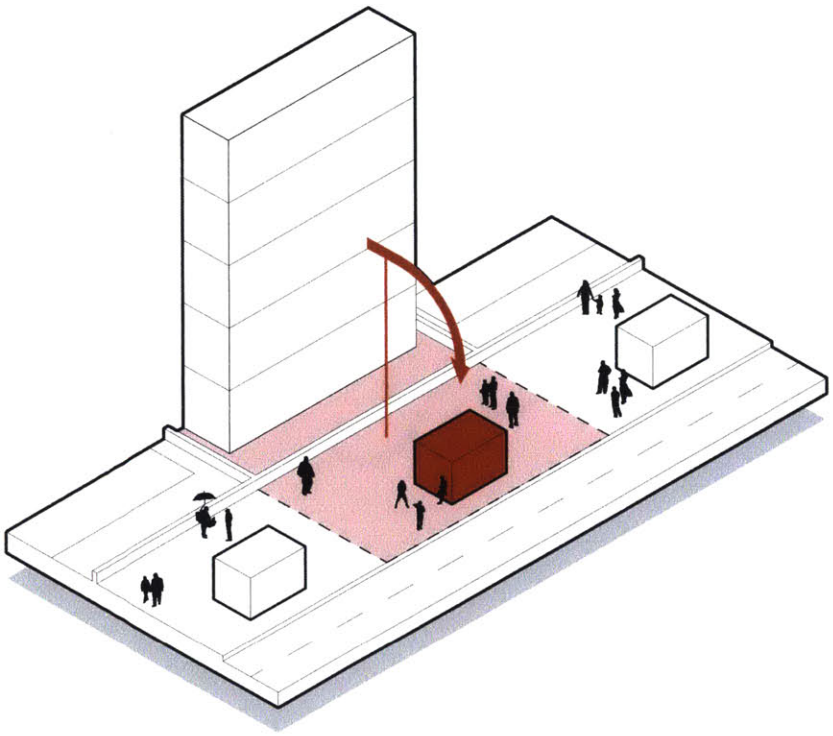


Fig. 51 - Diagram of synergy interventions

Fig. 52 - Synergy interventions: outside Cafe Model

Informal Interventions

7.4 Categories of Interventions:

What are the different types?

Based on the program offered the informal interventions can be classified into three categories of consumption, transaction and service. Within each category, the interventions can be further classified as being either permanent or temporary.

Permanent interventions: Some part of the intervention is left behind on site at the end of the day
Temporary interventions: The entire intervention is set up daily and removed at the end of the day

Consumption:

Interventions that sell edible goods fall under this category. This is also the most common and frequently occurring category of intervention. Examples of permeant and temporary interventions are:

Permanent:

1. Aarey Milk Booth: There are 921 permanent wooden aarey stalls in the island city of Mumbai. The average size of the stall is 2.5m x 1.5m.

2. Sugarcane Stalls: Maharashtra has a lot of sugarcane production. This is transported to the city and distributed to all the small sugarcane stalls that exist along the street. The average size of the stall is 2m x 1m.

Temporary examples:

1. Fruit Sellers: Since fruits are a perishable commodity, a limited quantity is brought to site daily. The crates to transport the fruits are used to set up the stall and at the end of the day everything is dismantled and taken back.

2. Sandwich Stalls: All the indigents are cooked at home and brought to site daily in a small wooden box. On site the box is raised on a pedestal and the top surface is used as a cutting board to prepare the sandwich.

Fig. 53 - Permanent Wooden Aarey Stall (Consumption)

Fig. 54 - Temporary Fruit Stall (Consumption)

Advantages of Mapping:

Mapping the interventions that fall under the consumption category lets us identify locations where people pause in the city.

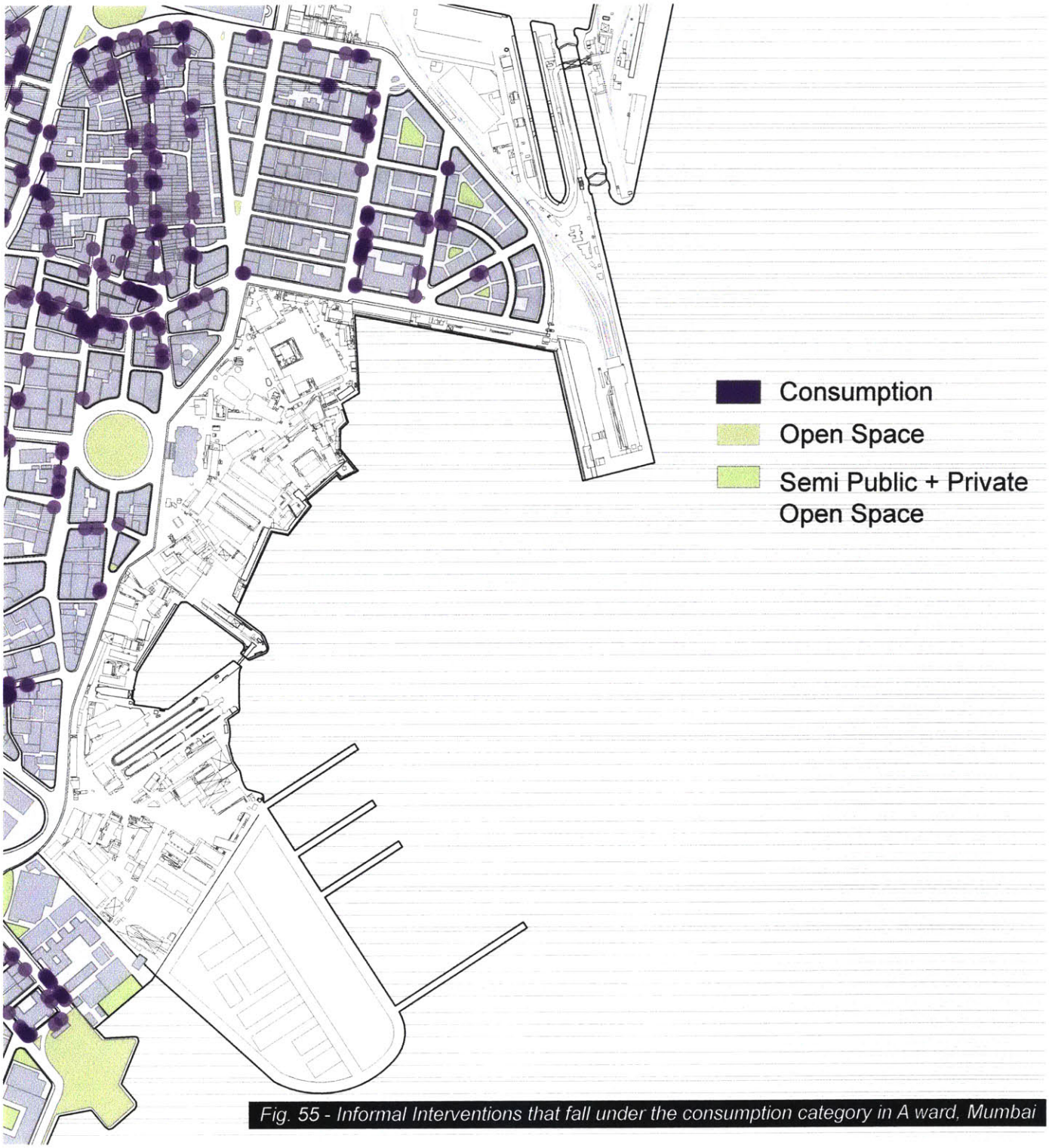


Fig. 55 - Informal Interventions that fall under the consumption category in A ward, Mumbai

Transaction

Interventions that sell goods fall under the category of transaction. Examples of permeant and temporary interventions are:

Permanent:

1. Stationary Stalls: They are small wooden stalls that sell basic office supplies and offer copy facilities.

2. PCO Booths: They were set up by different NGO's to offer the handicap and blind people a place to work. They offer calling facilities.

Temporary examples:

1. Clothes Stall: Clothes are bundled and transported to site in a large cloth. On site the cloth is unwrapped to become the clothes stall and at the end of the day the remaining clothes are wrapped back into the cloth and taken away.

2. Newspaper Stalls: The papers are delivered in the morning and the stall is assembled using small wooden crates. Once all the papers are distributed, the stall is dismantled only to be reassembled the next day. This type of interventions exists for only a few hours of the day.

Fig. 56 - Permanent Stationary Stall (Transaction)

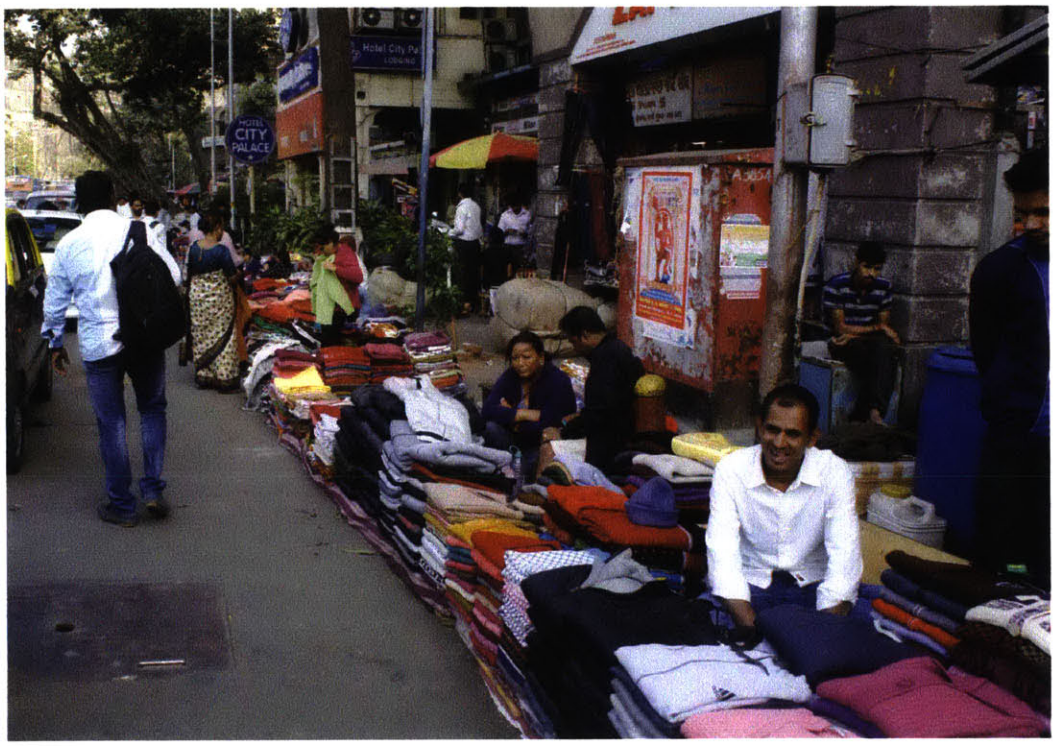


Fig. 57 - Temporary Clothes Stall (Transaction)

Advantages of Mapping:

Mapping the interventions that fall under the transaction category lets us identify locations of high pedestrian flow in the city.

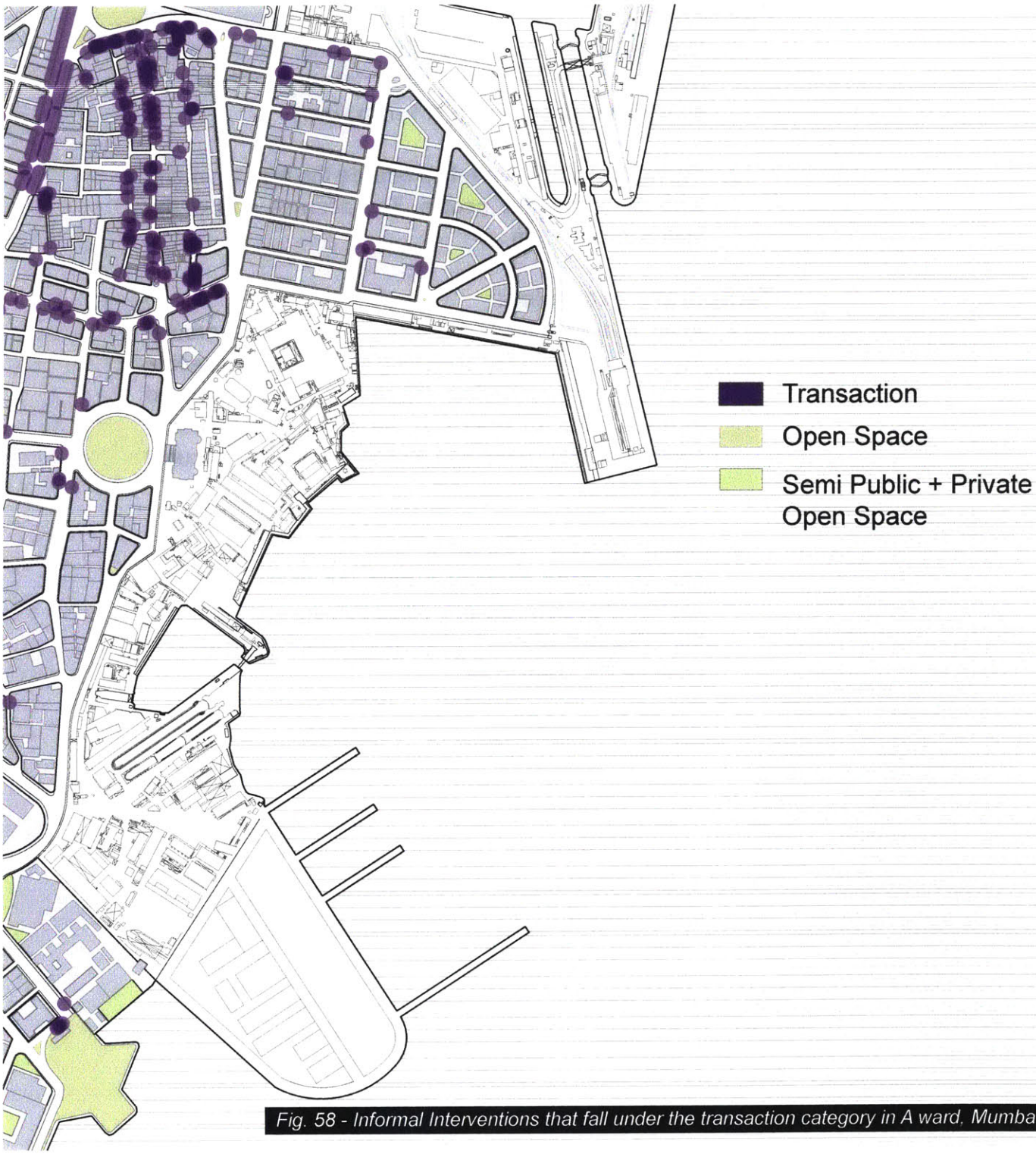


Fig. 58 - Informal Interventions that fall under the transaction category in A ward, Mumbai

Service

Interventions that offer services fall under this category. Examples of permeant and temporary interventions are:

Permanent:

1. Cobbler: They are frequently located around office buildings and usually have a small permeant storage space approximately 1 m x 1 m in size.

2. Typing Service: They set up outside the high court and type documents for people. The average size of the stall is 2 m x 1.5 m

Temporary examples:

1. Artist: They set up outside existing art galleries or around tourist spots and offer sketching services to the people passing by. Surrounding structures are appropriated to display the art work and the interventions usually consists of two chairs and an easel which are brought to the site daily.

2. Barber Service: They set up near slums or office areas and are visited by people from the lower economic section of society. Drivers, office helpers etc. often visit these barbers whose interventions consists of just one chair for the client to sit.

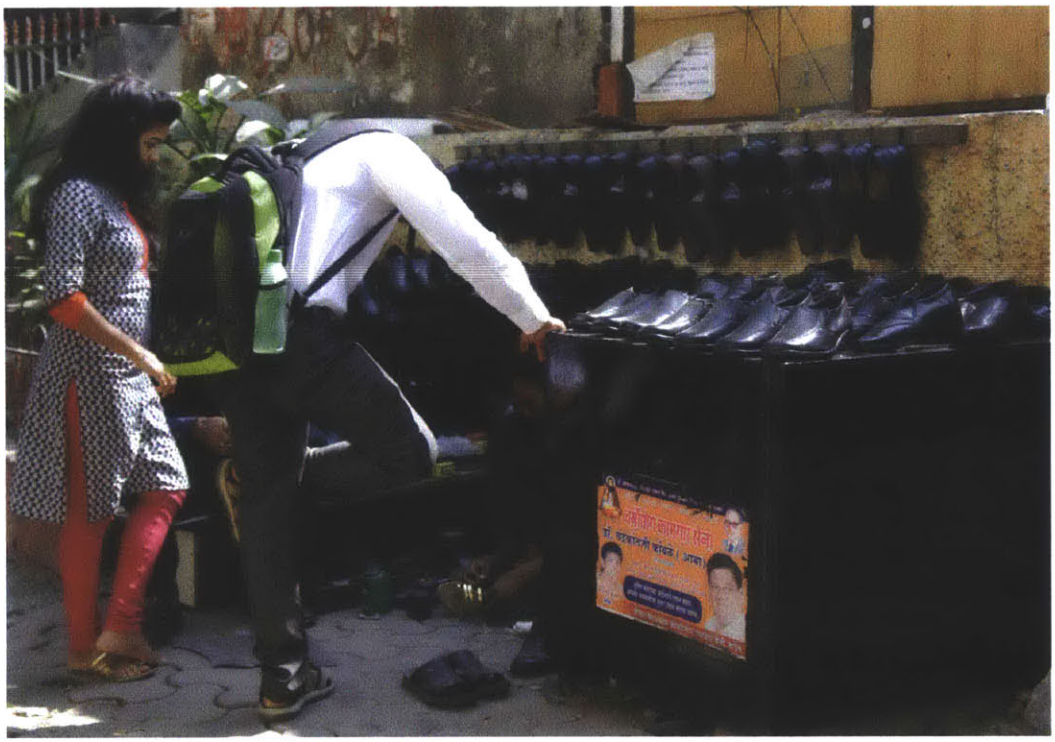


Fig. 59 - Permanent Cobbler Stall (Service)

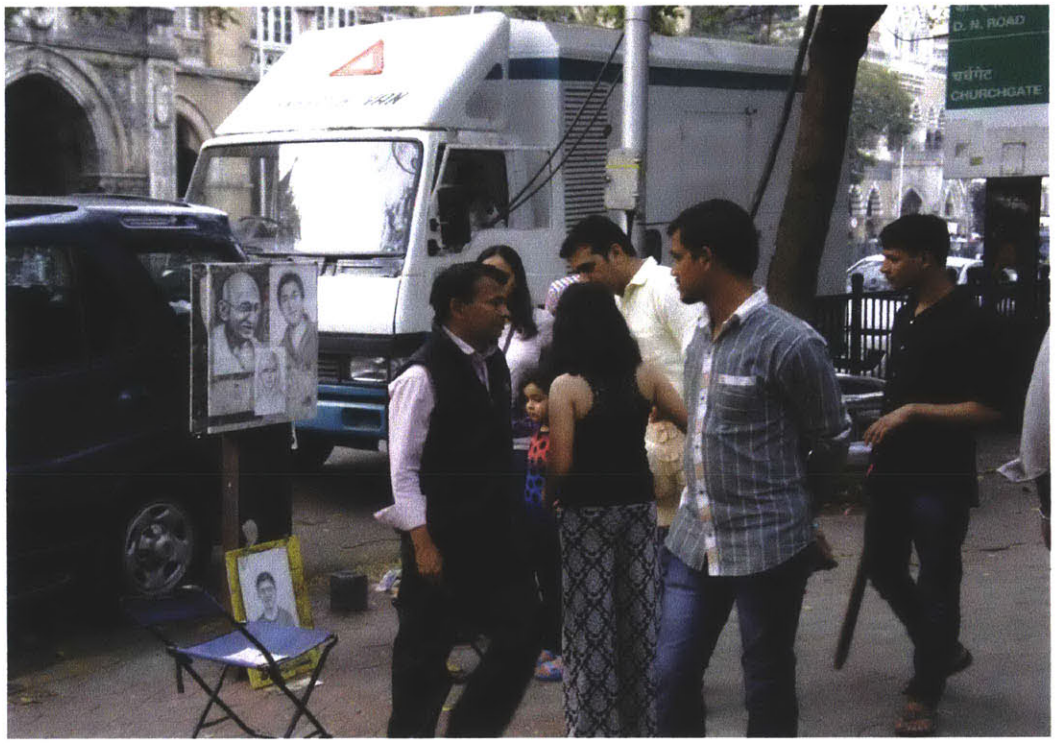


Fig. 60 - Temporary Artist Stall (Service)

Advantages of Mapping:

Mapping the interventions that fall under the service category lets us identify locations of high pedestrian flow as well as places where people pause in the city

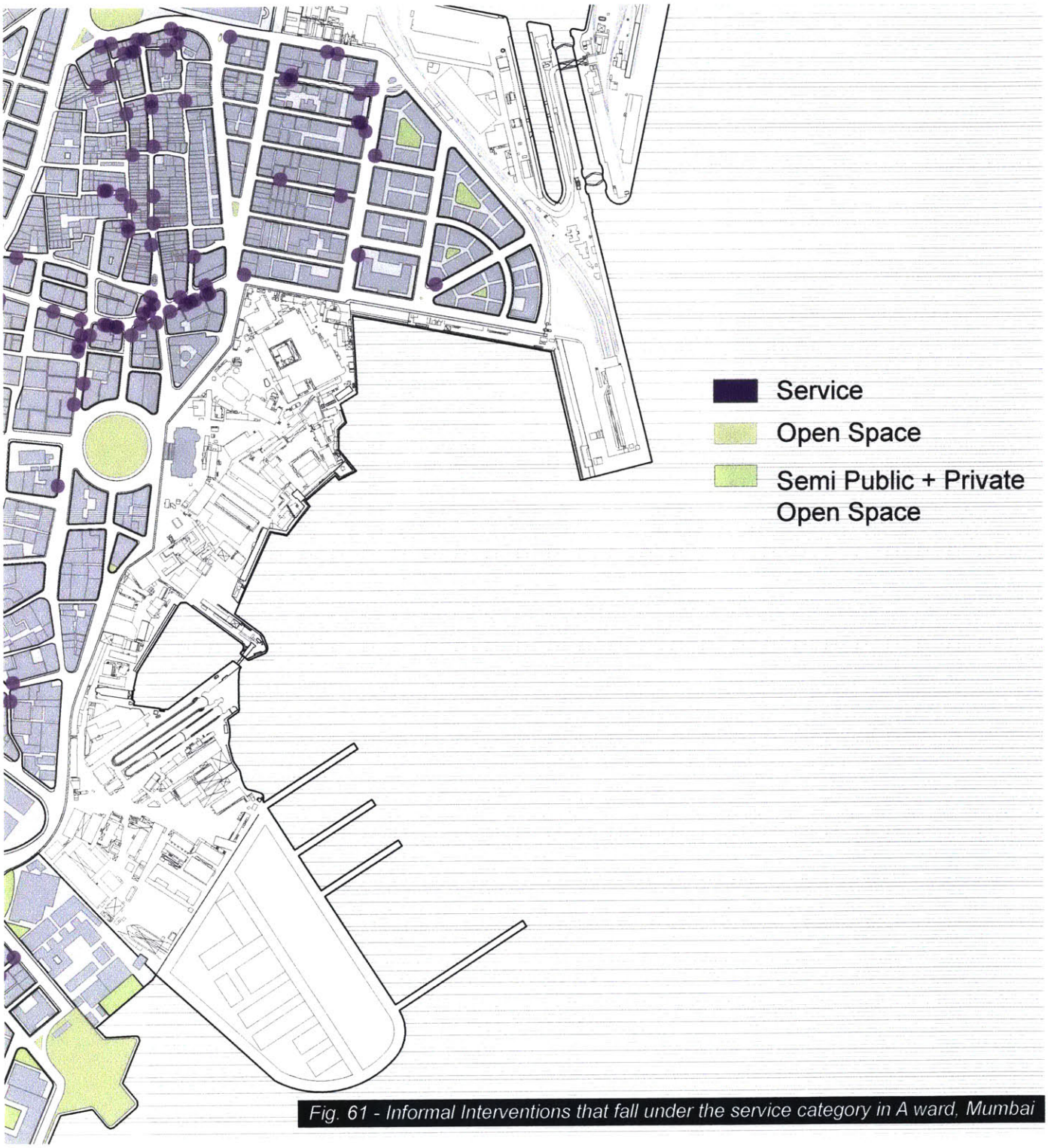


Fig. 61 - Informal Interventions that fall under the service category in A ward, Mumbai

Aarey
आरे
आरे सरीना

8
DESIGN CONCERNS

Design Concerns

8.1 Issues and Conflicts

Different stakeholder perspectives

"It makes no sense for hawkers to be allowed in Pali Hill. This will only Inconvenience us. It's not a commercial zone, It's a residential zone"
- Rishi Kapoor, Pali Hill Reisdent

1. Residents:

OBSTRUCTION
Take over the sidewalk leaving no space to walk

OVERCROWDING
Once one intervention is set up, more intervention will follow, thus over congesting a limited area

NO RECREATION SPACE
Residents prefer outdoor cafes or sitting space

SQUATTING
Vendors will start living around the interventions

comment

In the name of livelihood, we have destroyed fine walkways that could have easily supported open-air cafes and well-laid out kiosks. (HT Photo)

The old tug-of-war between vendors and pedestrians has for once swung in favour of citizens, at least in Delhi's congested Lajpat Nagar market.

The National Green Tribunal (NGT) has directed the removal of hawkers and vendors from all metalled roads — a harbinger of what might be in store for similar markets booming on pavements, usurping motorable roads.

How things have reached such proportions not just in Delhi but also in many parts of Mumbai and other cities of India is a story that bears telling.

In 2010, the Supreme Court had directed that a law should be enacted balancing the needs of ordinary citizens and those of street vendors.

The case was Delhi-specific and only involved the Municipal Corporation of Delhi and the New Delhi Municipal Committee. The SC juxtaposed two fundamental rights conferred by Article 19 (1) (d) and Article 19 (1) (g) of the Constitution, the right of commuters to move freely and use roads without any impediment and that of hawkers, squatters and vendors to carry on hawking.

Fig. 62 - The Hindustan Times 'Comment' April 16th, 2015

"Hawking in public places is a lot more profitable than sitting inside the markets. I spent a year inside the market, but did not get enough business. All my friends sitting on the roads did much better in terms of business. Thus I decided to move out as well"

- Chand Shaikh, a vendor forced to shift to an indoor market

2. Vendors:

HARASSMENT
By residents and the authorities to remove them from the area

CONFISCATION
Their goods are seized unless they bribe the officials

NO INFRASTRUCTURE
Space for storage, provisions for waste collection and water for cleaning

theguardian

Mumbai street vendors: 'Cops work in shifts, so I have to bribe each one'

A new law aims to improve life for street vendors on the streets of Mumbai - by moving them away from their customer base. And then there's the bribes

Prathamesh Mulye in Mumbai

Friday 28 November 2014 03.17 EST

After years of delay, in February of this year the Upper House of the Indian Parliament finally passed the Street Vendors Bill, aimed at providing social security and protecting the livelihood of street vendors across the country. The bill was met with much fanfare, and hailed as a victory for Mumbai's street sellers. But despite coming into force in May, little has changed. The well-oiled racket of monthly bribes to cops and Brihanmumbai Municipal Corporation (BMC) officials continues to flourish.

Vendors are still handing over a chunk of their income every month. Hari Pujan is one. He sells fruit on the pavement in Dadar, one of the most expensive areas of the city for hawkers. Every month, he pays bribes of 1,500 rupees (£15) to cops and BMC officials, approximately one-third of his income. "Cops work in various shifts, so I have to pay them all," he says.

According to the Ministry of Urban Development, there are approximately 250,000 vendors who sell retail and essential goods on pavements in Mumbai. The extortion takes a major toll on their livelihood. Despite trading for more than 12 hours a day, Pujan and his family live hand to mouth.

His day begins at 5am, when he buys fruit from the Agriculture Produce Marketing Committee (APMC) wholesale market in Vashi, loads the produce into a rented truck and drives it to Dadar to sell. With a wife and three children living in Mirazpur, a small city in northern India, Pujan is the sole bread-winner for his family. The bribes are eating into his income severely, and he struggles to keep pace with inflation. "I am able to educate my children, but tuition fees are fast escalating, so I am not able to save," he says.

During festive seasons like Diwali, the demand for fruit increases; so does the extortion from the police and BMC. Hawkers in Darar are regularly seen fleeing with bundles of material as the BMC officials arrive. Many risk having their carts confiscated if they refuse to pay.

"BMC officials conduct surprise raids. Sometimes if I am lucky I move my fruit cart and hide in the narrow lane before the officials arrive," says Pujan, who is used to paying the consequence for his stubbornness. When his cart is confiscated, not only does he lose a few days of business, but he must bribe officials again to get it back, along with the fruit that by then is usually long past its sell-by date.

But as difficult as Pujan finds it to ply his trade, he refuses to set up his cart in the "hawkers' zone", about 1km away from Dadar railway station. The new act identifies this as a designated area for street vendors, and allocates space for them to carry out their business in a peaceful and less cramped manner. "At that location, I won't have any customers," says Pujan, who has a loyal base. "People

Fig. 63 - The Guardian 'Mumbai Street Vendors' November 28th, 2014

"Once the shops were demolished under the flyover to make walking there easier, and not for more encroachment. The main issue here is the number of hawkers, but that will soon be handled, as around 7,000 to 8,000 of them will be given new locations for their business.

- BMC Official on the removal of hawkers from Dadar station

3. Authority:

REGULATION
If they allow one intervention they have to legally allow all interventions

SANITATION
Quality of the food + Littering on the street can cause health problems

OBSTRUCTION
Take over the sidewalk leaving no space to walk

SAFETY
Chain snatching and eve-teasing can become a problem in overcrowded areas

MumbaiMirror
BANGALORE MIRROR AHMEDABAD MIRROR PUNE MIRROR

SIGN IN / CREATE ACCOUNT

BMC'S LATEST WEAPON AGAINST ILLEGAL VENDORS: POTTED PLANTS

Jun 10, 2012, 02.30 AM IST

The Brihanmumbai Municipal Cooperation (BMC) has come up with the novel idea of lining the footpath near Dadar station with potted plants to keep hawkers at bay. According to the civic body, these pots, will not only keep hawkers from recurrently putting up their stalls on the footpath, but also beautify the area.

BMC officials have initiated several drives against hawkers in an attempt to keep the footpaths and roads free for pedestrians and traffic. However, despite their repeated attempts, unauthorised hawkers keep returning to the same spots.

"In last four months, I have tried to remove the hawkers from this area countless times. Almost every alternate day, my team would try to make them leave. But they are back at the same spot the next day. The number of hawkers has reduced, but many still remain," said Devendra Jain, assistant municipal commissioner of G-south ward.

400 clay-pots planted with Ficus and Areca farm trees will be placed along the footpath leading to Dadar station. While the trees were bought from nurseries in Pune and Bangalore, the pots are from Shahad-Kalyan and Ghodbunder Road. The BMC has spent about Rs 2,40,000 on the entire project.

While locals are unsure about how effective this plan will be in keeping hawkers away, they are glad it will add a little beauty to the area. "It will make the footpath look better. But the maintenance of the trees is most important," said Kanti Gala, a shopkeeper from Ranade Road.

Fig. 64 - Mumbai Mirror 'BMC's latest weapon against illegal vendors' June 10th, 2012

Fig. 65 - The potted plant strategy has failed to prevent illegal vendors

Design Concerns

8.2 Case Studies

Examples of dealing with Informality

Example 1: The Art Plaza outside Jehangir Art gallery

Jehangir art gallery in Mumbai is one of the oldest and most popular art galleries in the city. Artists need to book the gallery four[15] to eight[16] years before their exhibition is set up. To deal with the shortage of display space in the city, artists started displaying their work outside the Jehangir art gallery, to tap into the flow of people visiting the gallery. Paintings were displayed on compound walls, trees and street railings outside the art gallery.

15 - The Telegraph 'Painter? Have to wait for a year to exhibit' March 16th, 2012

16 - DNA 'taking art to the streets' November 8th, 2013

To structure this informality, Jehangir art gallery designed an outdoor gallery space by a subtle transformation of the street railing into a display wall. This helped structure the informality as well as enhance it by providing the minimum framework that allowed to space to grow.

"The main objective of forming such a gallery was to promote the artists and not the art. If the artist is alive only then will the art thrive. The basic concept was free of charge, and also allowed for a proper interaction between the painter and the customer. People from all walks of life have showcased their work from architects, to doctors to a painting teacher, who throughout his life, only taught painting, but never showcased his work to the public."

- Om Rajput, one of the oldest members of the art gallery[16]

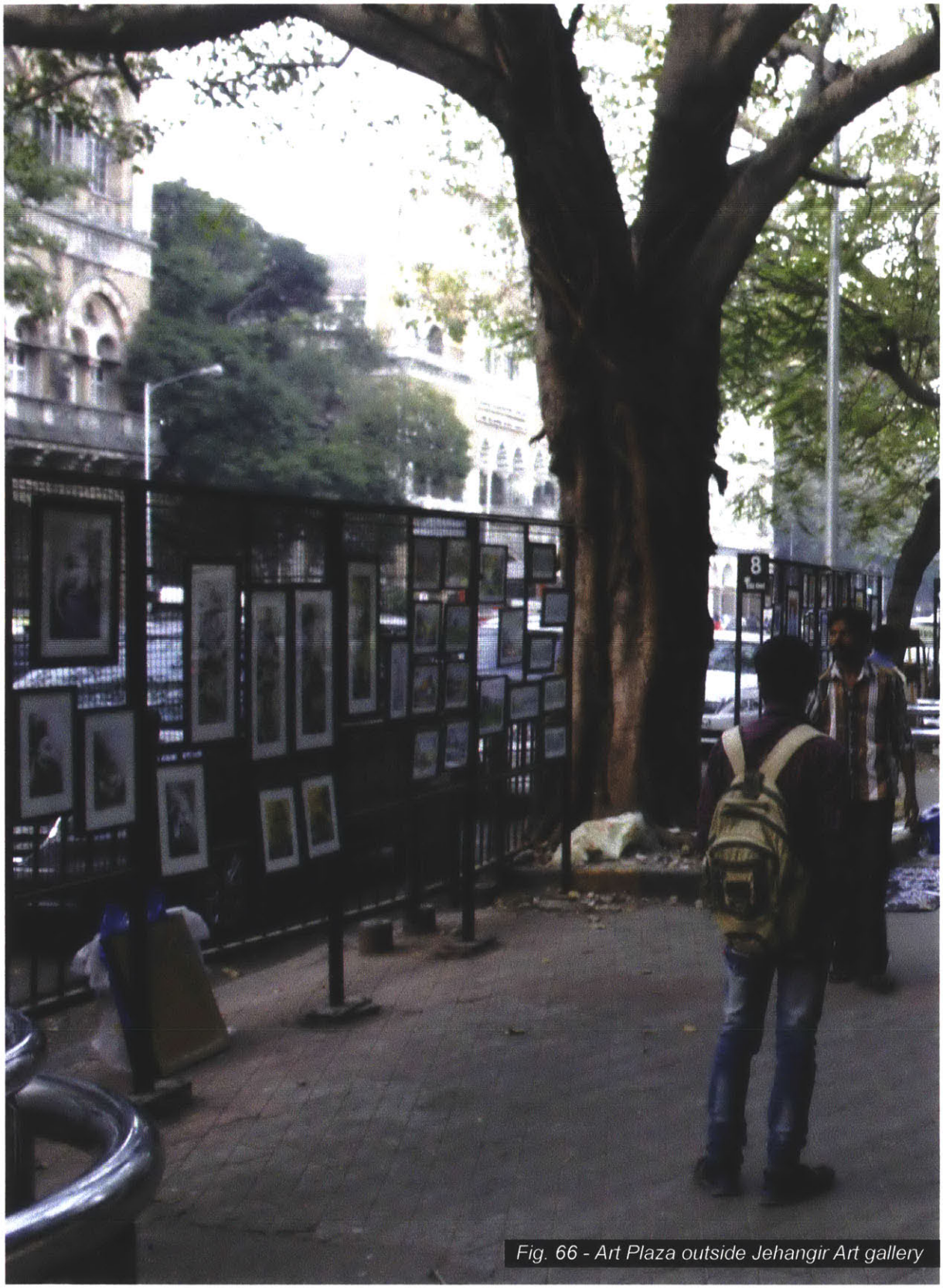


Fig. 66 - Art Plaza outside Jehangir Art gallery

Example 2: Hawker Pavements by Charles Correa

Charles Correa proposed building a 2m wide platform along an arcaded road, to structure the growth of the hawkers below the arcades. The platform would also form a barrier between the pedestrians and the cars.

The proposed platforms would be used between 9:00 am to 7:00 pm by the by the hawkers to set up their stalls.

After 7:00 pm, the hawkers could clean the platform using the proposed taps (at every 30 meters) in order to uses the platform as a place to sleep.

This system would help structure the hawkers below the arcades and ensure that the walkway was free for pedestrian flow.

"During the day these platforms will be used by hawkers — thus clearing the arcades for pedestrians. In the evening, water from the taps would wash the platforms clean —creating otlas for people to sleep on."

– Charles Correa[17], Architect

17 - The Hindu 'Crafting a new landscape' August 14, 2010

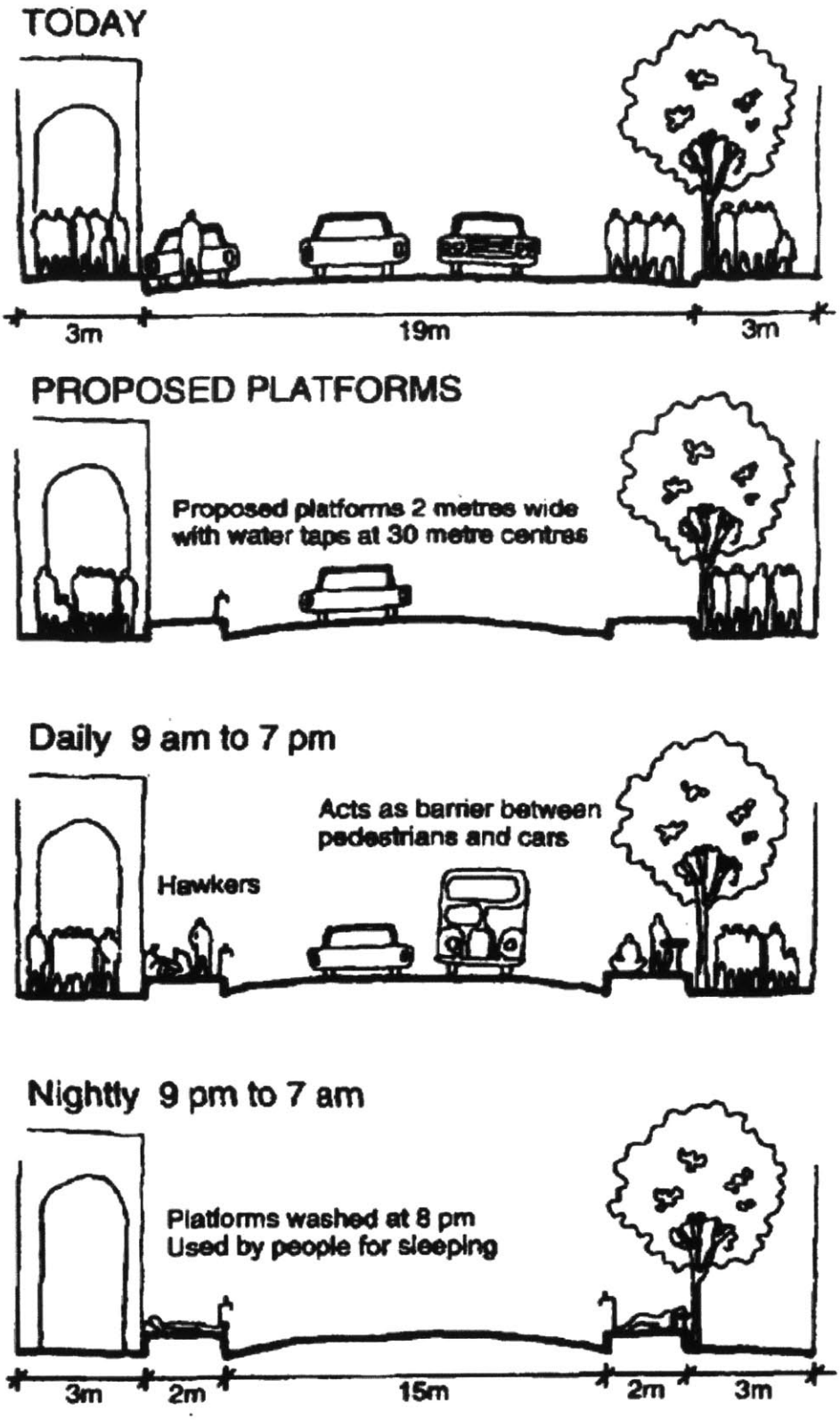


Fig. 67 - Hawker Platform schematic sketch by Charles Correa

Design Concerns

8.3 Space along the street:

Design without obstructing pedestrian flow

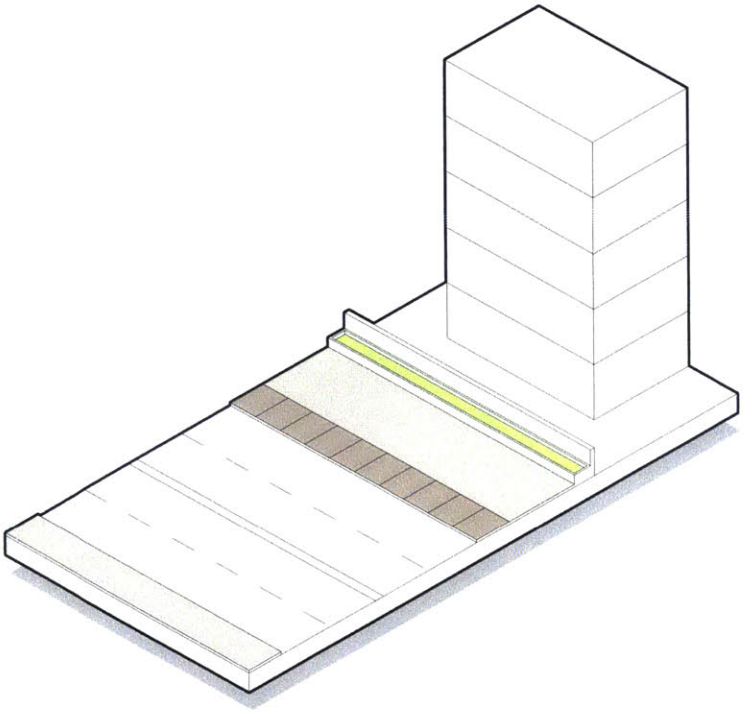
The biggest concern that people had was that the interventions would obstruct pedestrian flow along the sidewalk. While documenting these interventions and activities on site, I observed an interesting phenomenon:

Whenever any urban furniture (lamppost, dustbins, trees etc.) was placed along the sidewalk, a 1.5m – 2m zone was created along the edge that was used by pedestrians only to pause and socialize. This happened because the furniture itself prevented people from freely walking along the edge, and hence the pedestrians avoided walking in that zone.

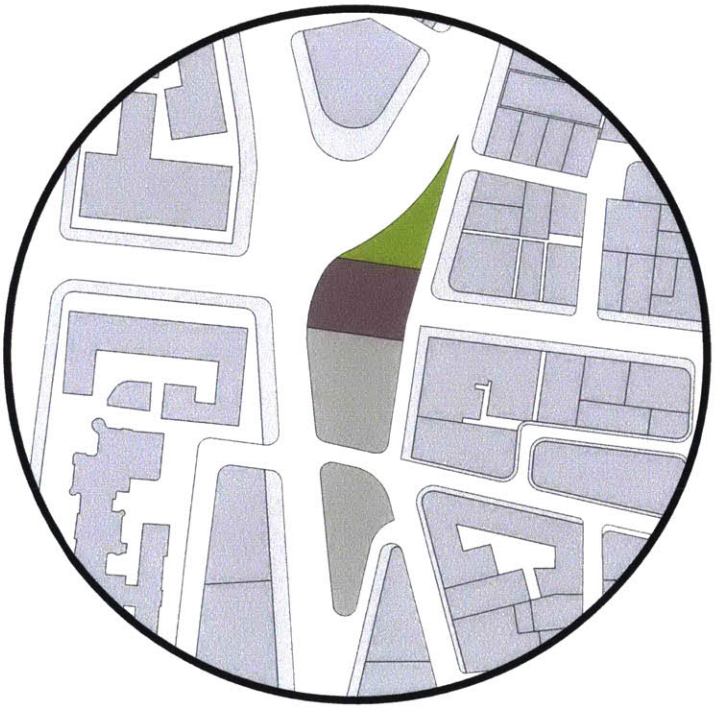
This phenomenon can be observed all across the city, and is highlighted in the image below. The 1.5m – 2m zone created between the trees (in white) is only used by people to paused and socialize.

Fig. 68 - 1.5m - 2.0m zone along the street used by people to pause and socialize

Fig. 69 - 1.5m - 2.0m zone along the street used by people to pause and socialize



Part 1: Organizational system along the street



Part 2: Network of nodes

9
DESIGN INTERVENTION

Design Intervention

9.1 Organizational system along the street:

Redesigned street strategy

The organizational system along the street is a proposed system that can structure the informality in the city, while satisfying different stakeholder perspectives. The system is broken down into the following steps:

Step 1: reconfigured existing sidewalks

The first step involves reconfiguring the existing sidewalks:

Currently both sides of the sidewalk have informal interventions on them. The proposal suggests shrinking one side of the sidewalk to a minimum of 3 meters and increasing the other side of the sidewalk by the shrunk amount. This edit will enable us to have 2 scales of sidewalks.

1. A large sidewalk capable to supporting informal interventions
2. A smaller sidewalk used only for pedestrian flows

Pedestrians that wish to engage in informal activities can use the larger sidewalk and walk at a slower pace. Meanwhile pedestrians that do not wish to engage in informal activities can use the smaller sidewalk for an accelerated pedestrian flow.

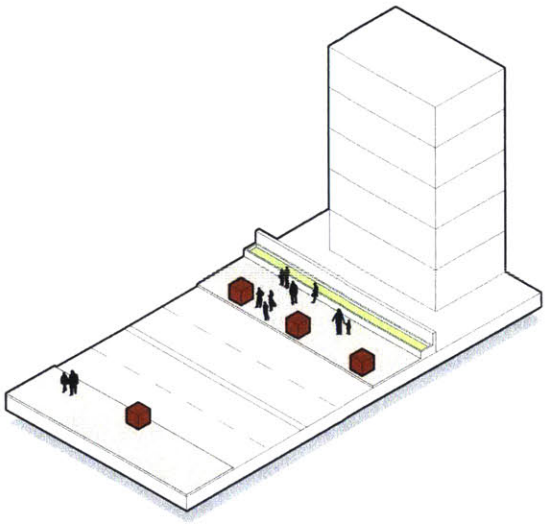


Fig. 70 - Current Sidewalk Situation

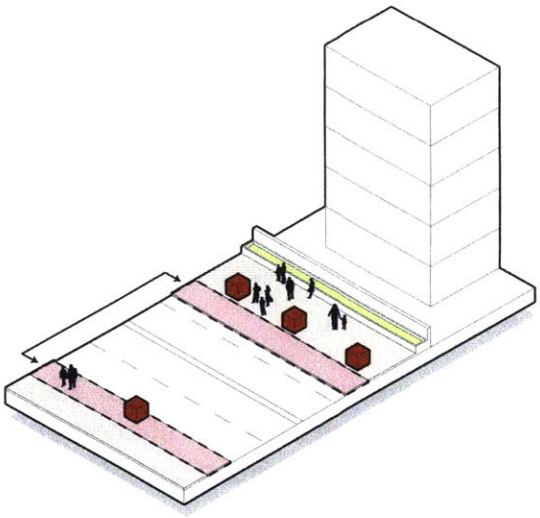


Fig. 71 - Proposed Sidewalk Edit

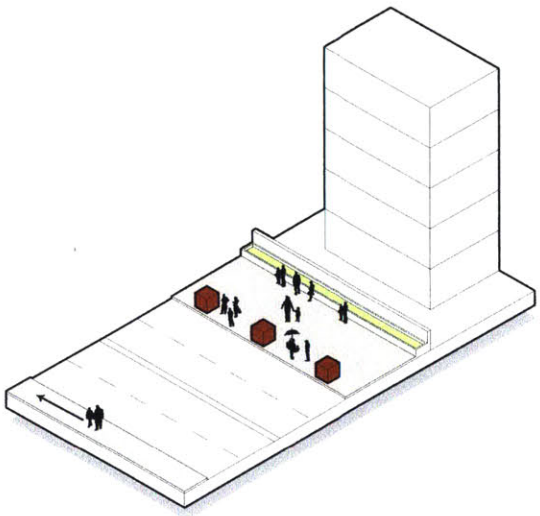


Fig. 72 - New Sidewalk System

Step 2: Sidewalks as an adaptable platform

The second step of the system organizes space for informal activities to take place along the sidewalk.

The **edge of the sidewalk is divided into a 1.5m wide zone**, and further sub divided into a grid of 1.5m x 1.5m. The 1.5m wide zone demarcates the **area where informal interventions can set up**, and the grid controls the number of interventions that can set up along the sidewalk.

The demarcated zone for informal activity offers a **low cost, small scale of production** that is missing from most cities. People from the lower economic sections of the society can use this space to **earn a means of livelihood and grow in the city**.

A few successful **examples** of people who grown using this low cost, small scale of production are:

18 - Times of India 'Restro review: Bade Miya' May 13, 2012

BadeMiya: was started by Mohammed Yaseen, who came to Mumbai at the age of 13. The makeshift kebab stall to grew into a thriving business and they have recently opened 4 restaurants across Mumbai.

19 - Tipini 'Mucchad Paan'

Mucchad Paan: was started by Jaishankar Tiwari as a small corner betel nut shop. The shop did phenomenally well and Jaishankar Tiwari became the first millionaire paanwala.

The **1.5m zone is also offers a flexible space** that can be **adapted to the changing conditions of the surrounding neighborhood**. It can be used as a recreational space in front of residential buildings or a space to sell goods in front of commercial buildings.

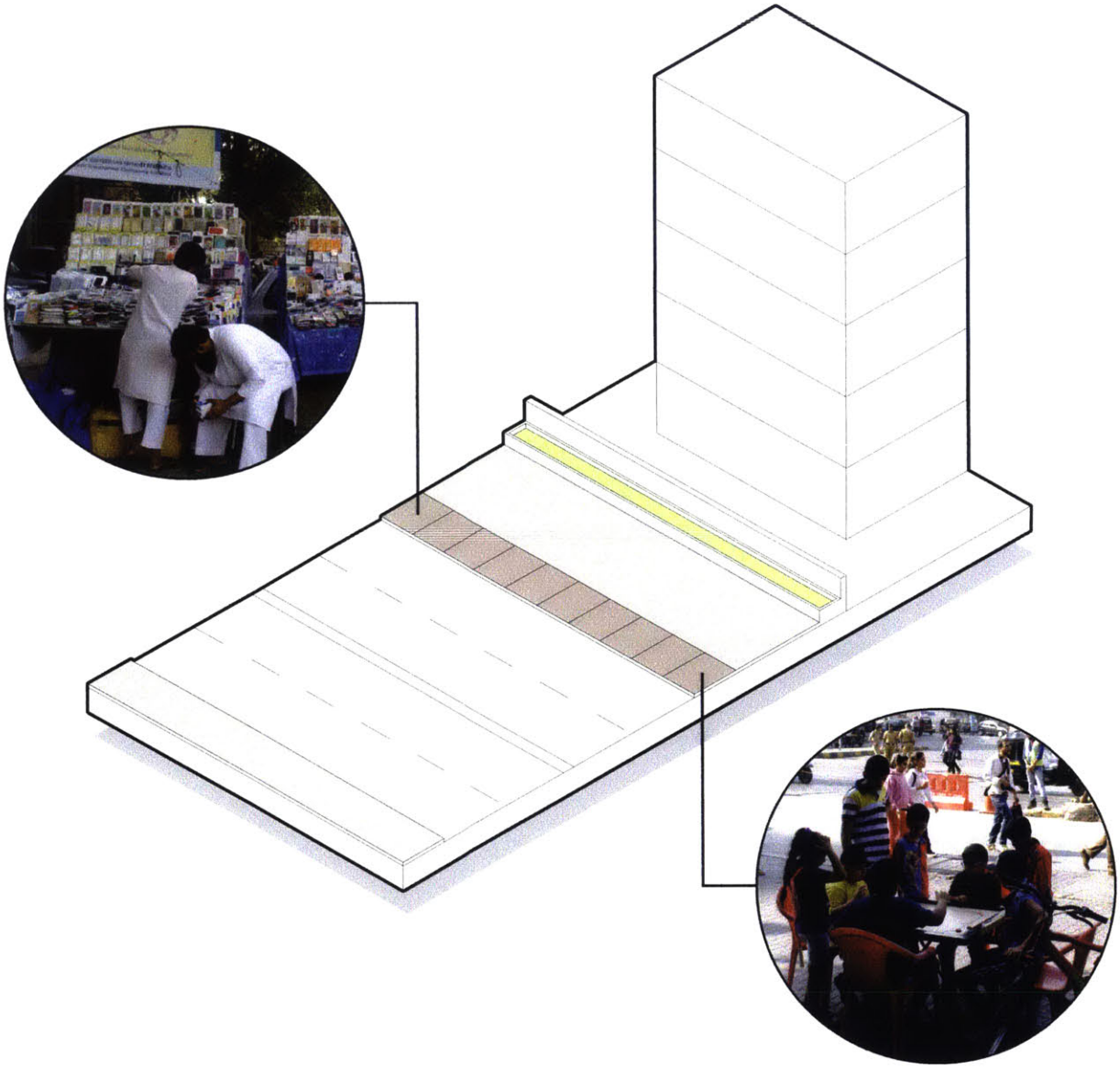


Fig. 73 - Sidewalks as a low cost, small scale of production and flexible zone

Rules for Step 2:

Depending on the size of the sidewalk, the system is enforced.

Less than 3 meters:
Sidewalks that are less than 3 meters do not get a zone for informal activity.

Between 3 to 6 meters:
Sidewalks that between 3 to 6 meters can get the 1.5meter zone along the outer edge of the sidewalk

More than 6 meters:
Sidewalks more than 6 meters can get the 1.5meter zone along both edges of the sidewalk

The rules for the different sidewalks are based on the existing condition of the city, along with the interviews of the stakeholders.

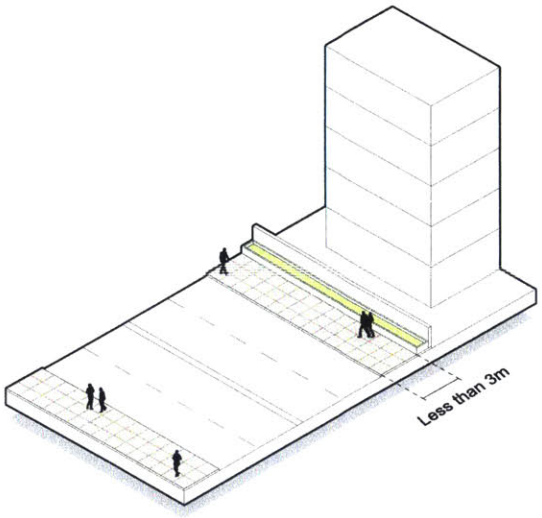


Fig. 74 - Less than 3m has no platform space

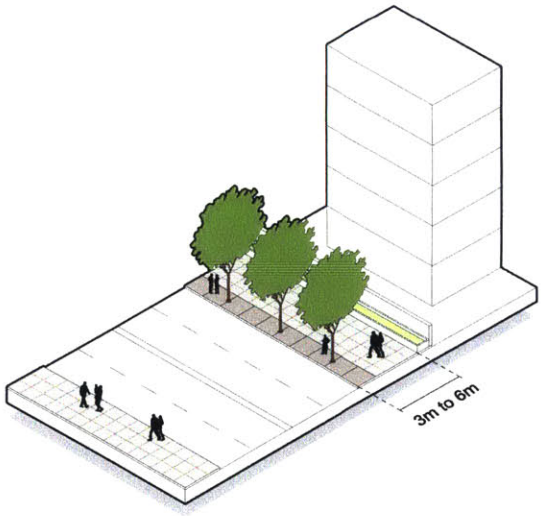


Fig. 75 - Between 3m-6m has platform space on one side

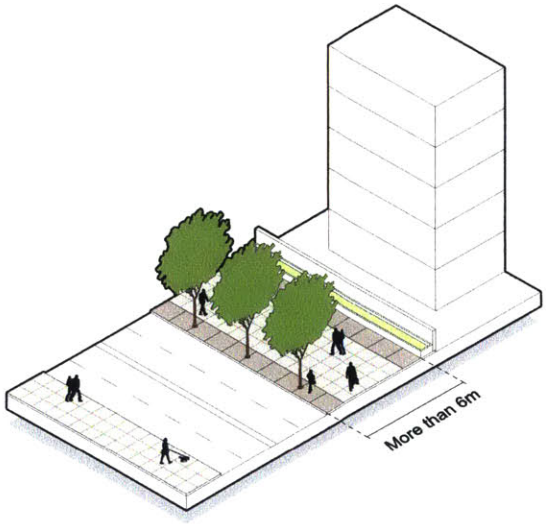


Fig. 76 - More than 6m has platform space on both sides

Step 3: Proportions for development

The next step of the system is to specify the amount of informal activity that can take place. The amount varies depending on the adjacent structures because residential and commercial spaces require different proportions of informal activities.

Residential spaces needed more recreational spaces and a few informal interventions such as vegetable vendors or convenience stores.

Commercial spaces on the other hand, need more informal interventions such as food stalls and stationary stalls that offer a low cost complimentary service to the commercial structures.

Hence the proportions for the informal zone in front of residential and commercial structure are:

Residential:
60% – Open Space
30% – Green Space
10% – Platform Space

Commercial:
40% – Open Space
20% – Green Space
40% – Platform Space

The ratio's for both zones was also based on analyzing the maximum existing levels of informal interventions that occurred in front of residential and commercial space.

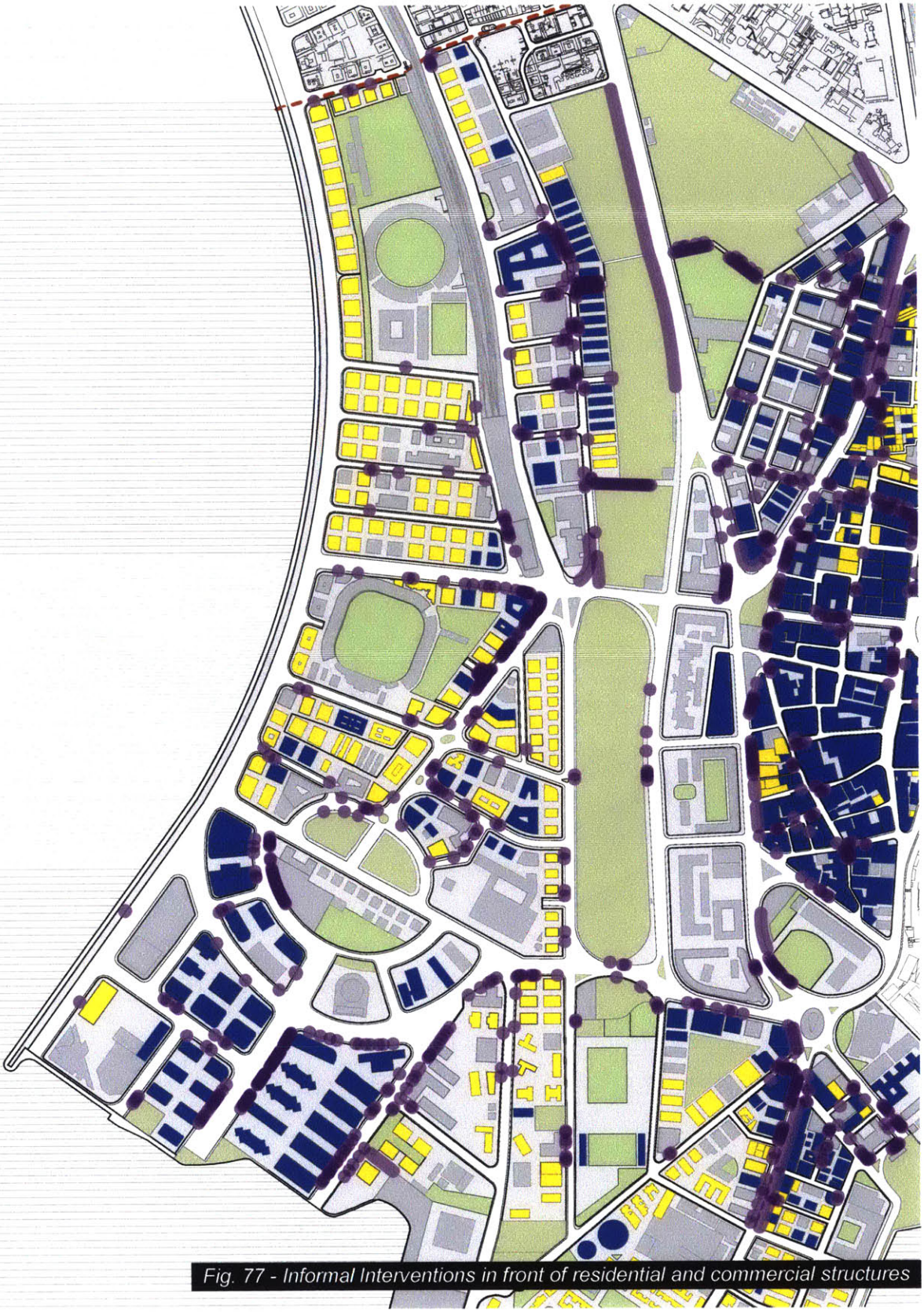


Fig. 77 - Informal Interventions in front of residential and commercial structures

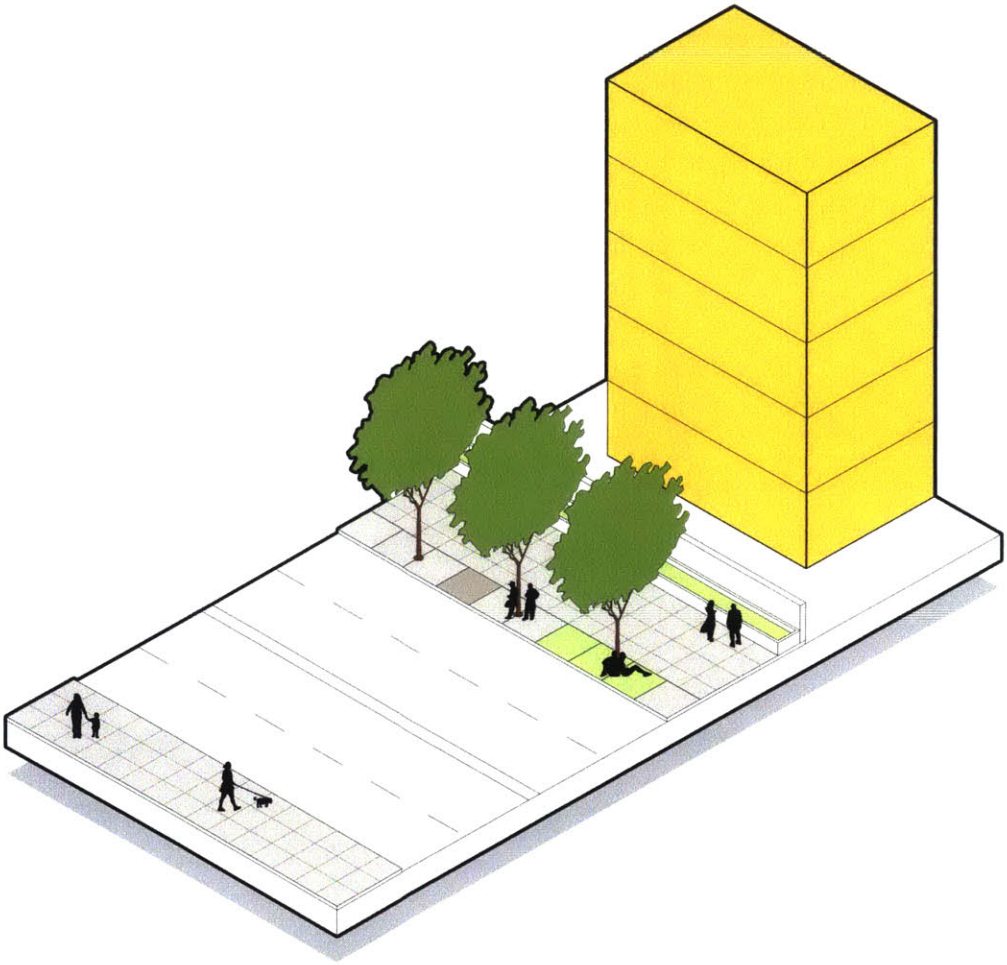


Fig. 78 - Residential Proportions: 60% Open, 30% Green, 20% Platform

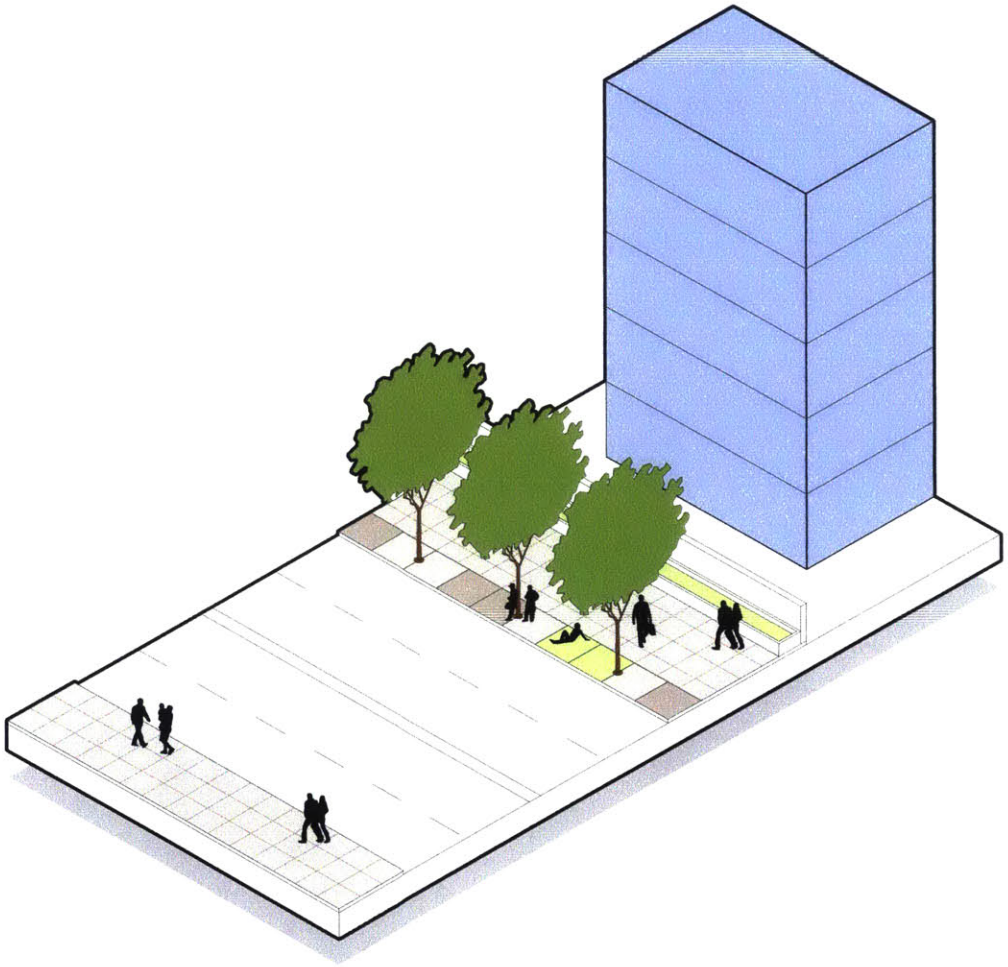


Fig. 79 - Commercial Proportions: 40% Open, 20% Green, 40% Platform

Step 4: Kit of parts

The next step of the system specifies a kit of parts for how the assigned space can develop. This is based on the existing activities that occur on the streets of Mumbai.

Platform Space: can be rented and developed as a space to work, sell things or grow fruits and vegetables.

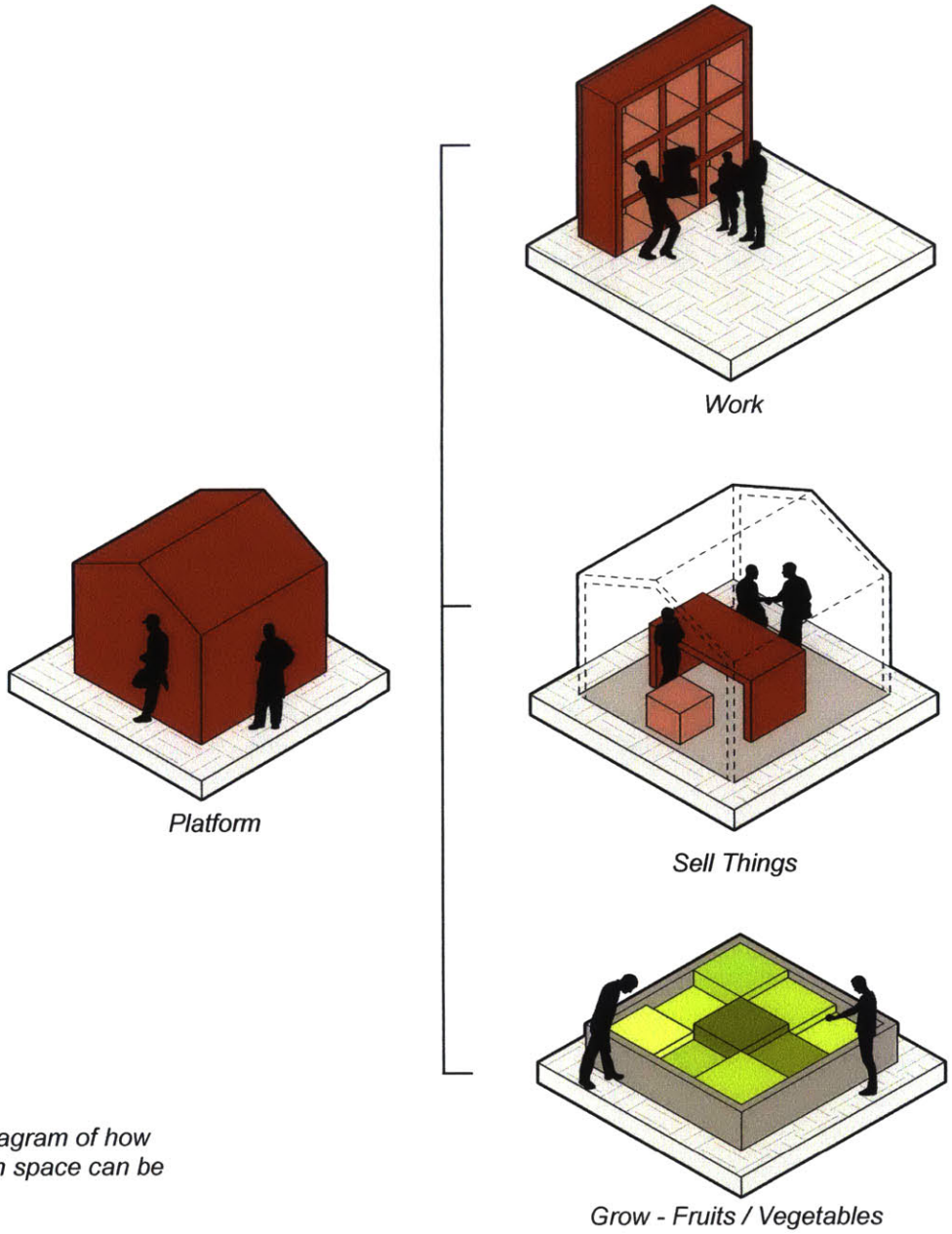


Fig. 80 - Diagram of how the platform space can be developed

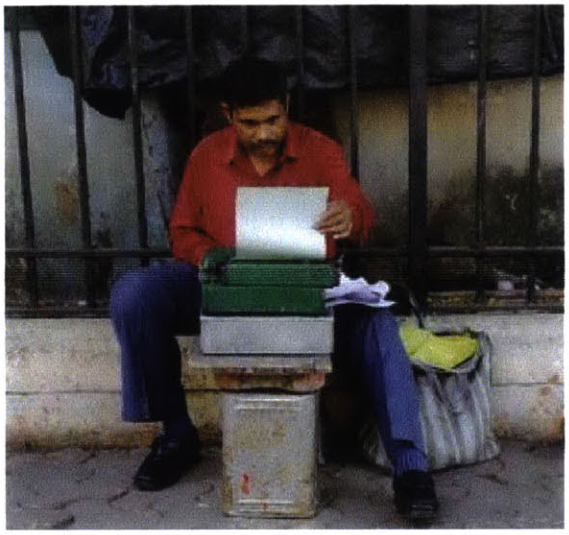


Fig. 81 - Work: Typewriter service

Fig. 82 - Sell things: Fruit seller

Fig. 83 - Grow: Vegetables grown along the railways

Green Space: can be developed as a space to play games such as chess, carom etc. or as a sitting space because of the lack of sitting space across the city.

Additionally smaller green spaces can be combined to form a larger relief space, an idea borrowed from the PARK(ing) Day program in San Francisco

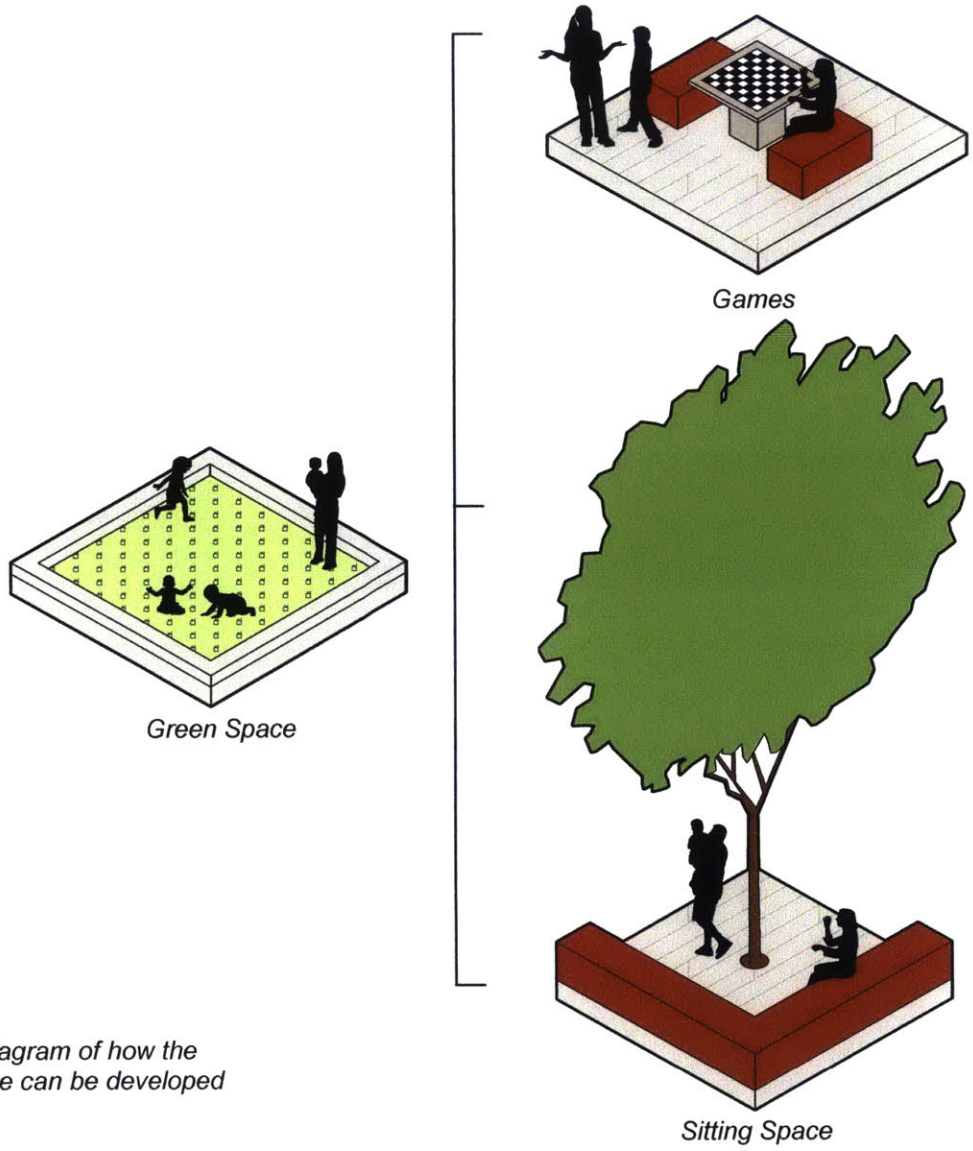


Fig. 84 - Diagram of how the green space can be developed

Fig. 85 - Games: Carom on the streets

Fig. 86 - Sitting Space: a boy uses the road divider as a sitting space

Fig. 87 - Sitting Space: a man uses a makeshift box as a space to sitting space

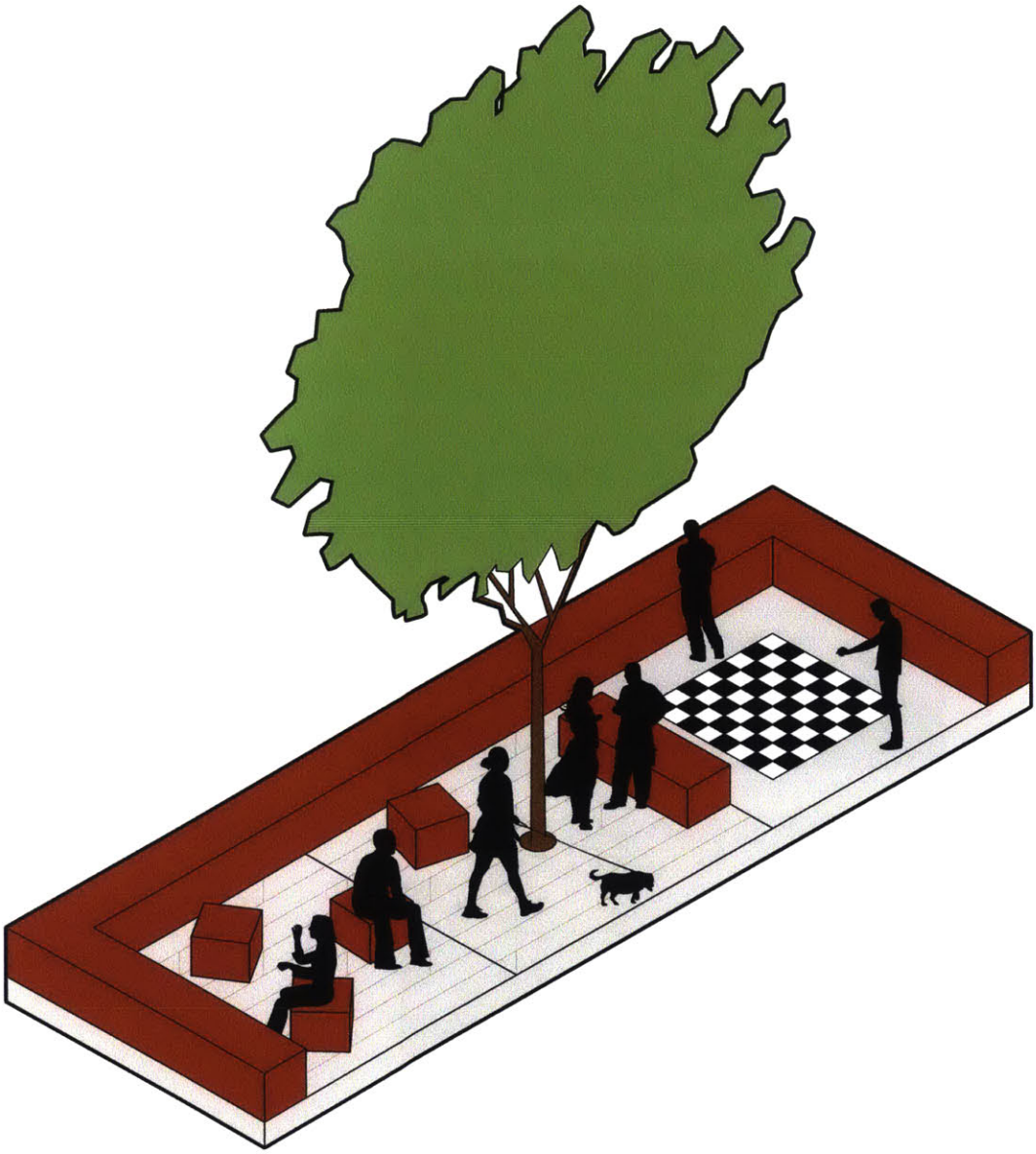


Fig. 88 - Green space combined to create a larger relief space

Fig. 89 - Park(ing) Day, San Francisco

Developed areas

Examples of how the residential and commercial sidewalks can be developed using the kit of parts:

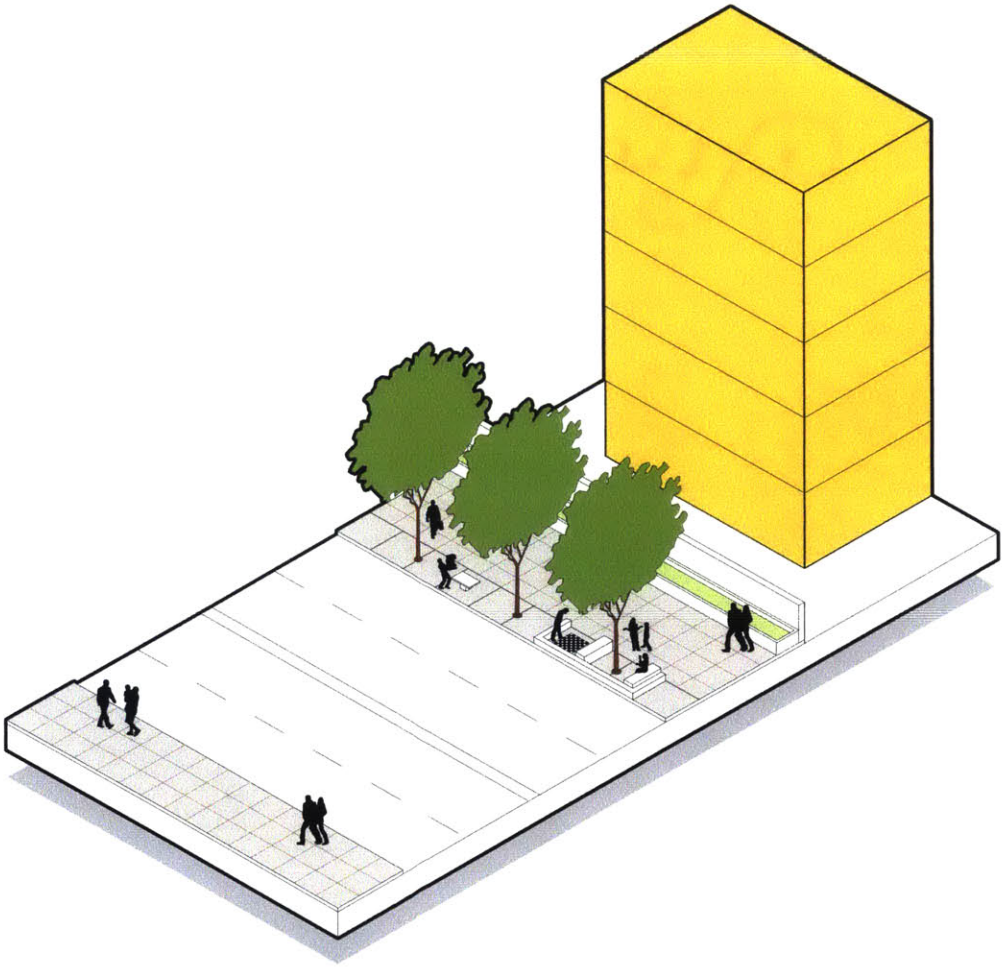


Fig. 90 - Residential sidewalk developed using the kit of parts

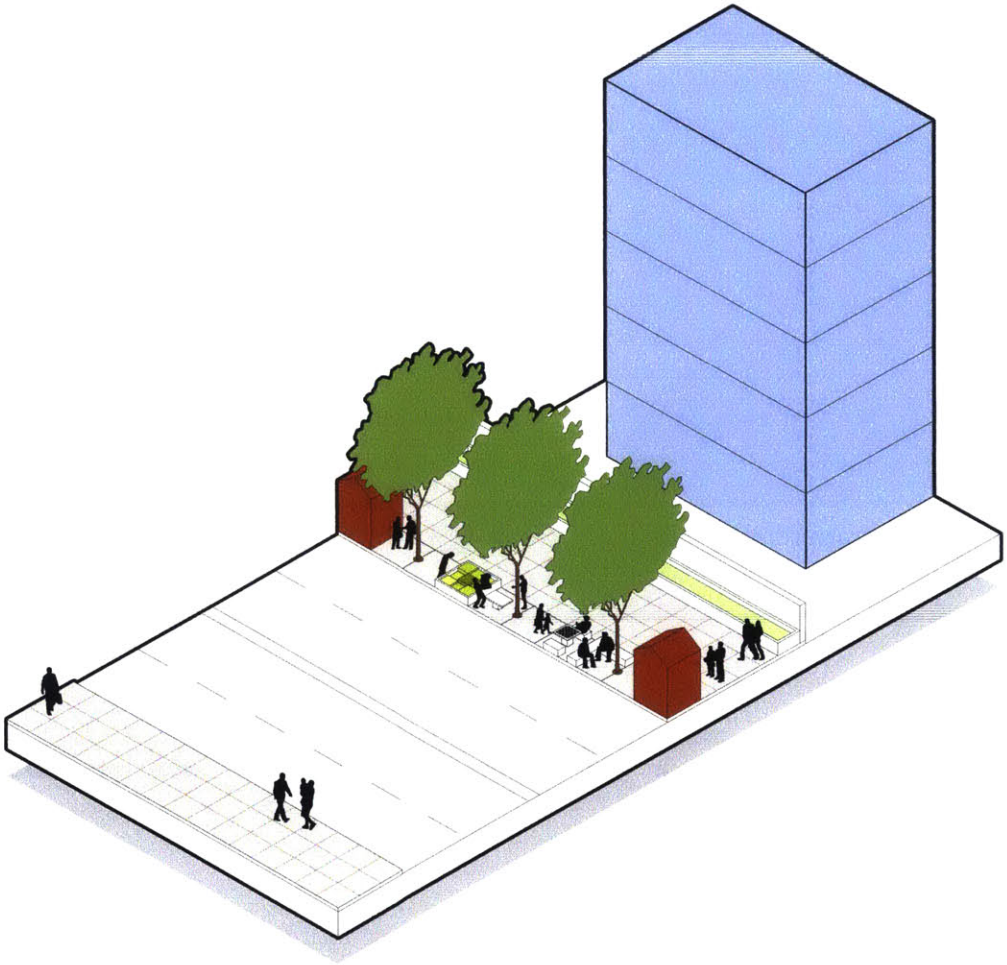
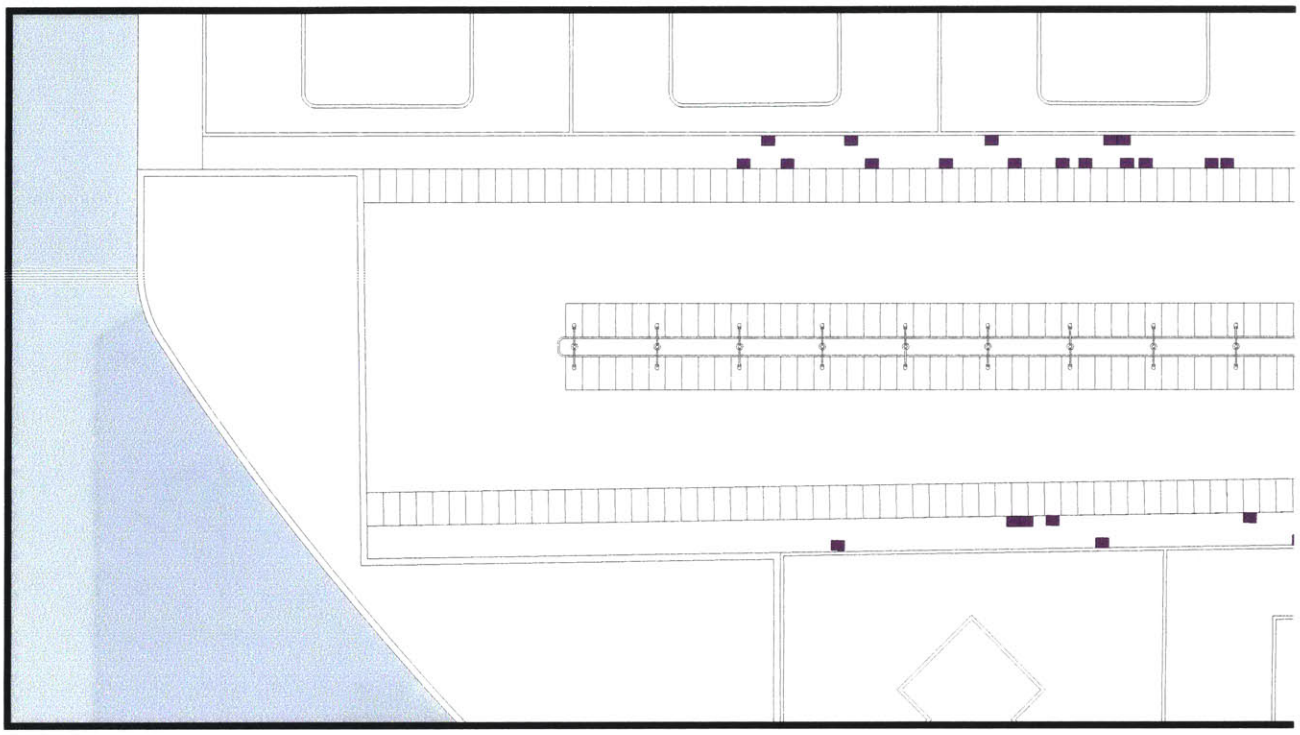
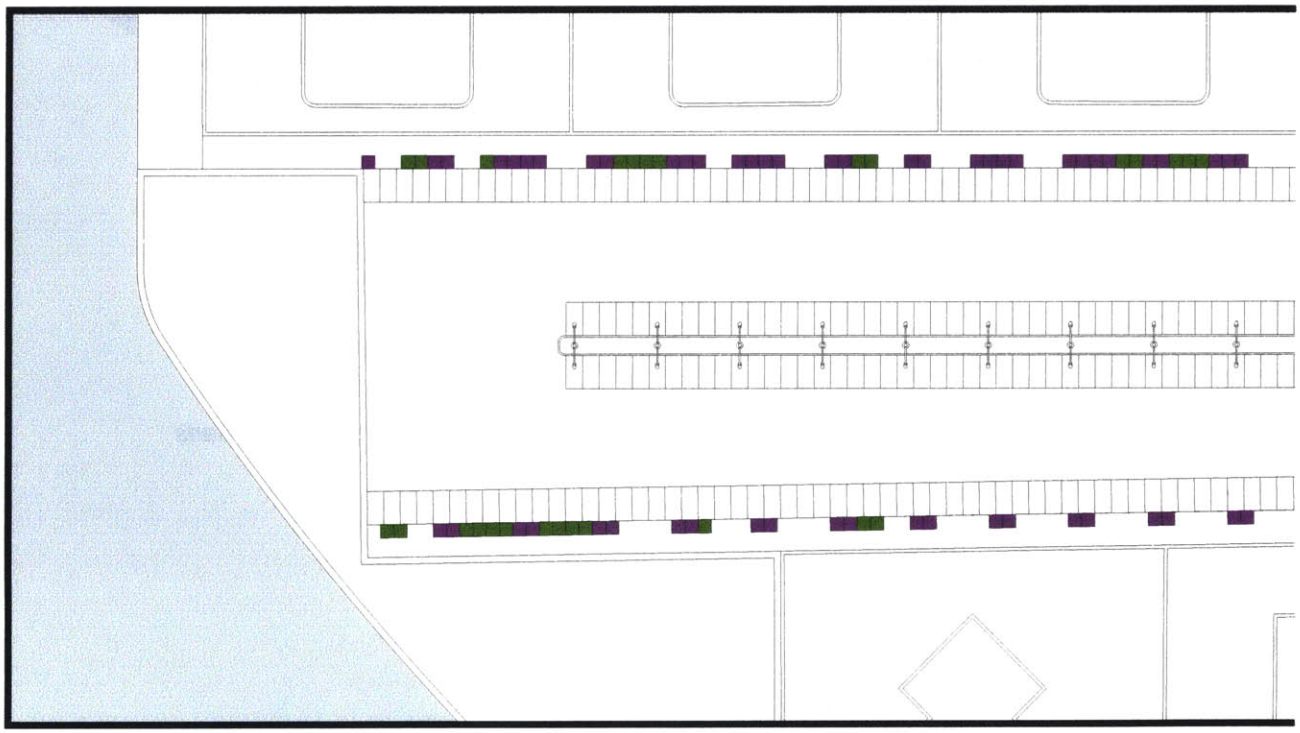


Fig. 91 - Commercial sidewalk developed using the kit of parts



Existing Commercial Street: 130 Platform Spaces



Redesigned Commercial Street: 150 Platform Spaces

75 Green Spaces

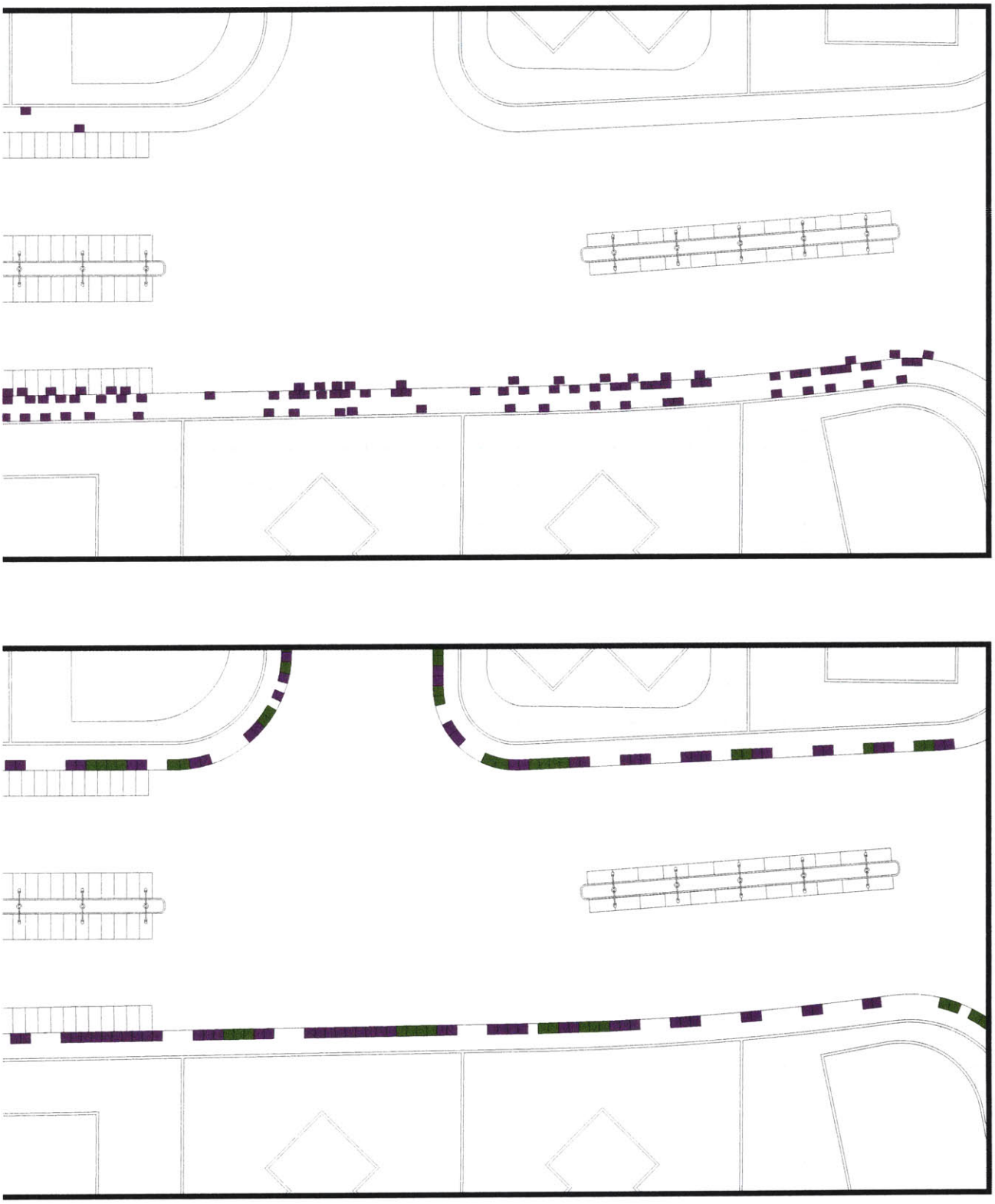


Fig. 92 - Redesigned commercial street, using the organizational system

Design Intervention

9.2 Network of Nodes:

Larger strategy to improve public life

The organizational system along the street was done to structure the informal interventions and prevent them from becoming chaotic. An additional plan was required to improve the overall public life in the city. The second part of the design intervention addresses this need by creating a system of networked nodes.

Instead of focusing on creating a larger solution, multiple smaller nodes are identified across the city which can be developed as public relief spots. The nodes are further optimized to the changing conditions of the city and thus provide relief throughout the entire day. Eventually after developing and networking all the nodes, we create a larger public realm that is made up of smaller public relief spots.

An area can be developed as a node if it has at least 2 of the following 3 characteristic:

- Informal Activity: Smaller scale of space used between 11:00am to 3:00pm
- Green Space: Public space used between 3:00pm to 7:00pm
- Big Program: Larger program used between 7:00pm to 12:00am

The characteristics were identified on the basis of the current shifting city timeline of Mumbai.

Using this selection criterion, multiple nodes were identified across the city and the nodes highlighted in red have been developed as a design example.

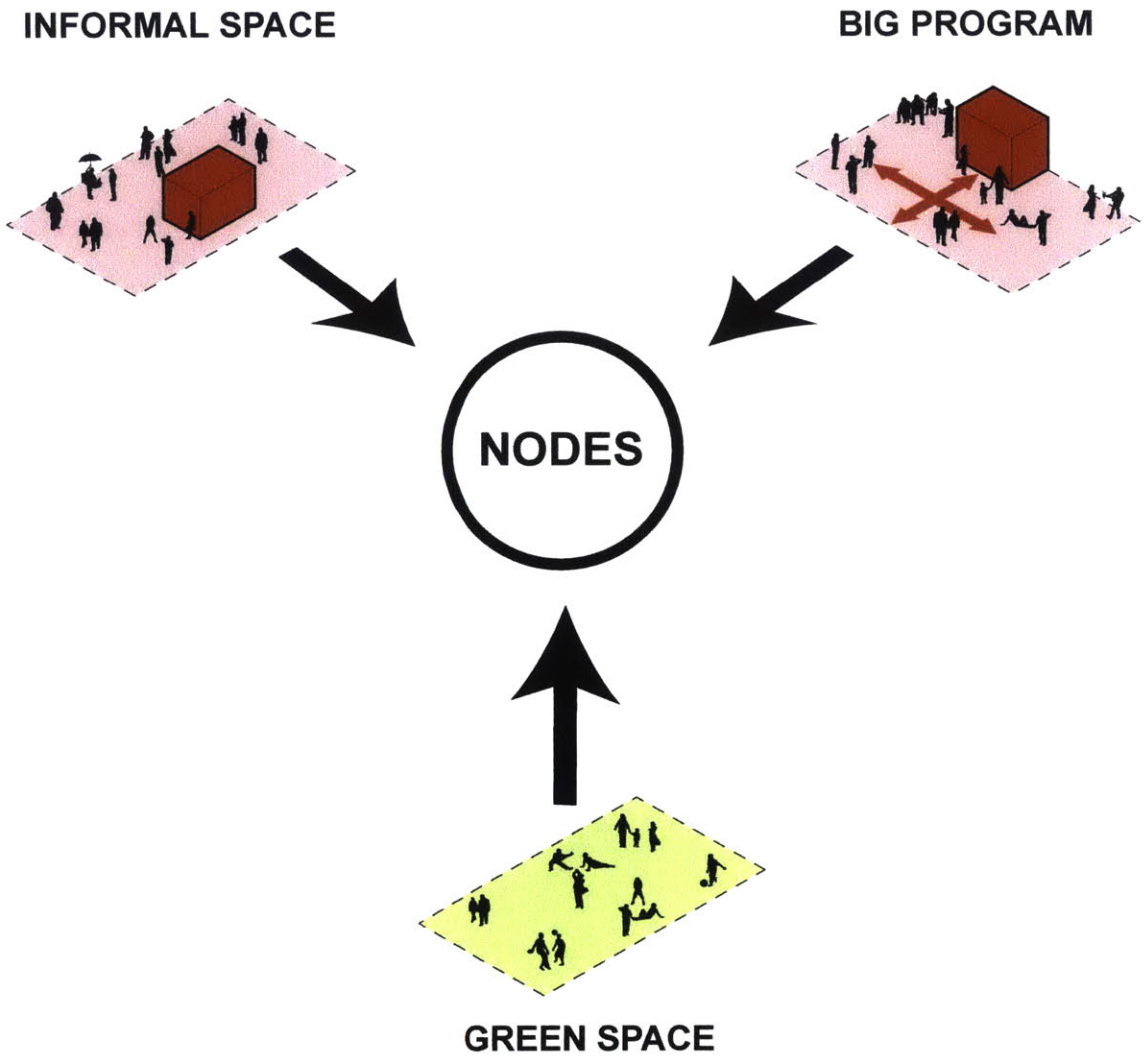
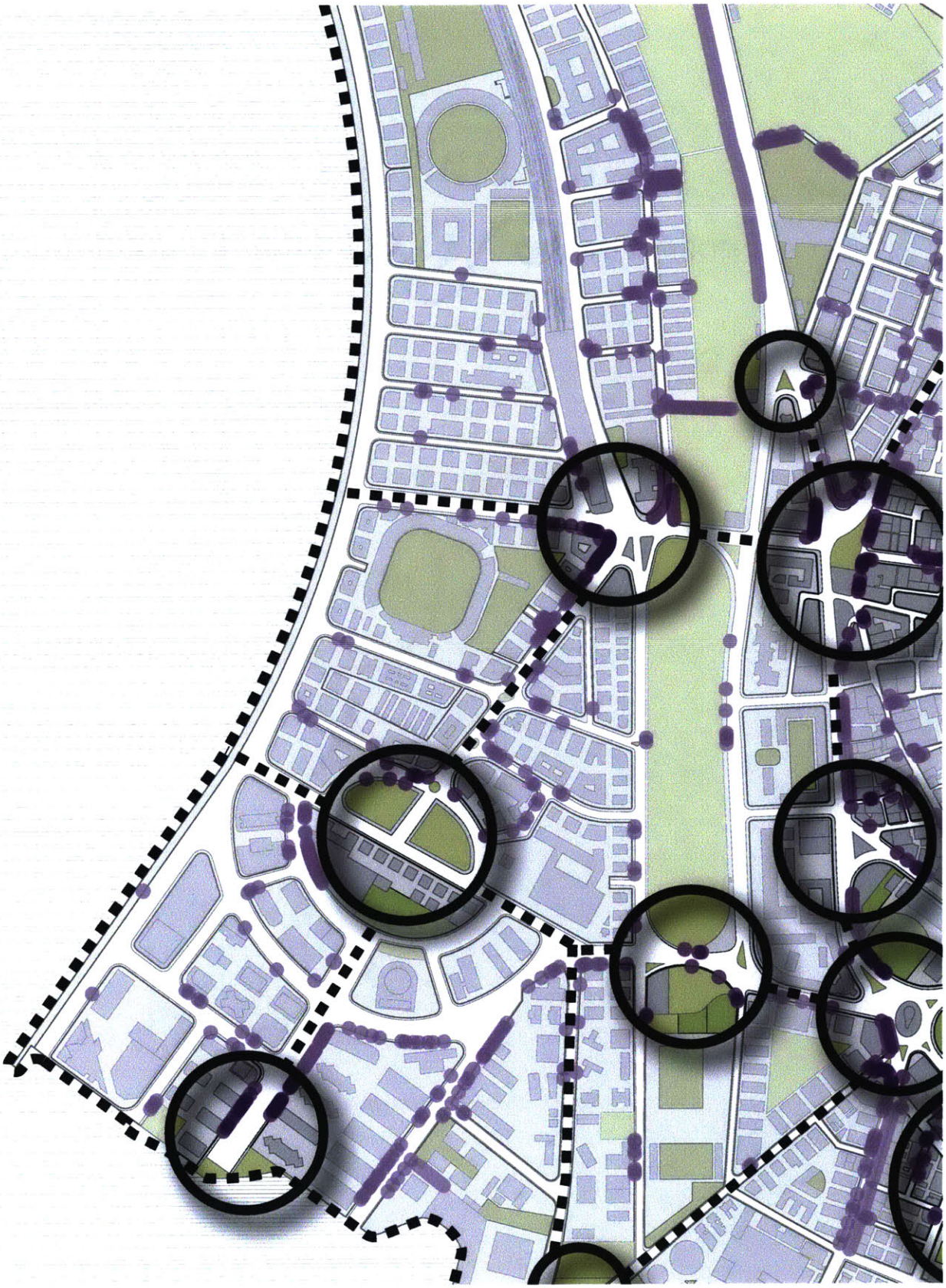


Fig. 93 - Diagram representing the criteria for identifying nodes



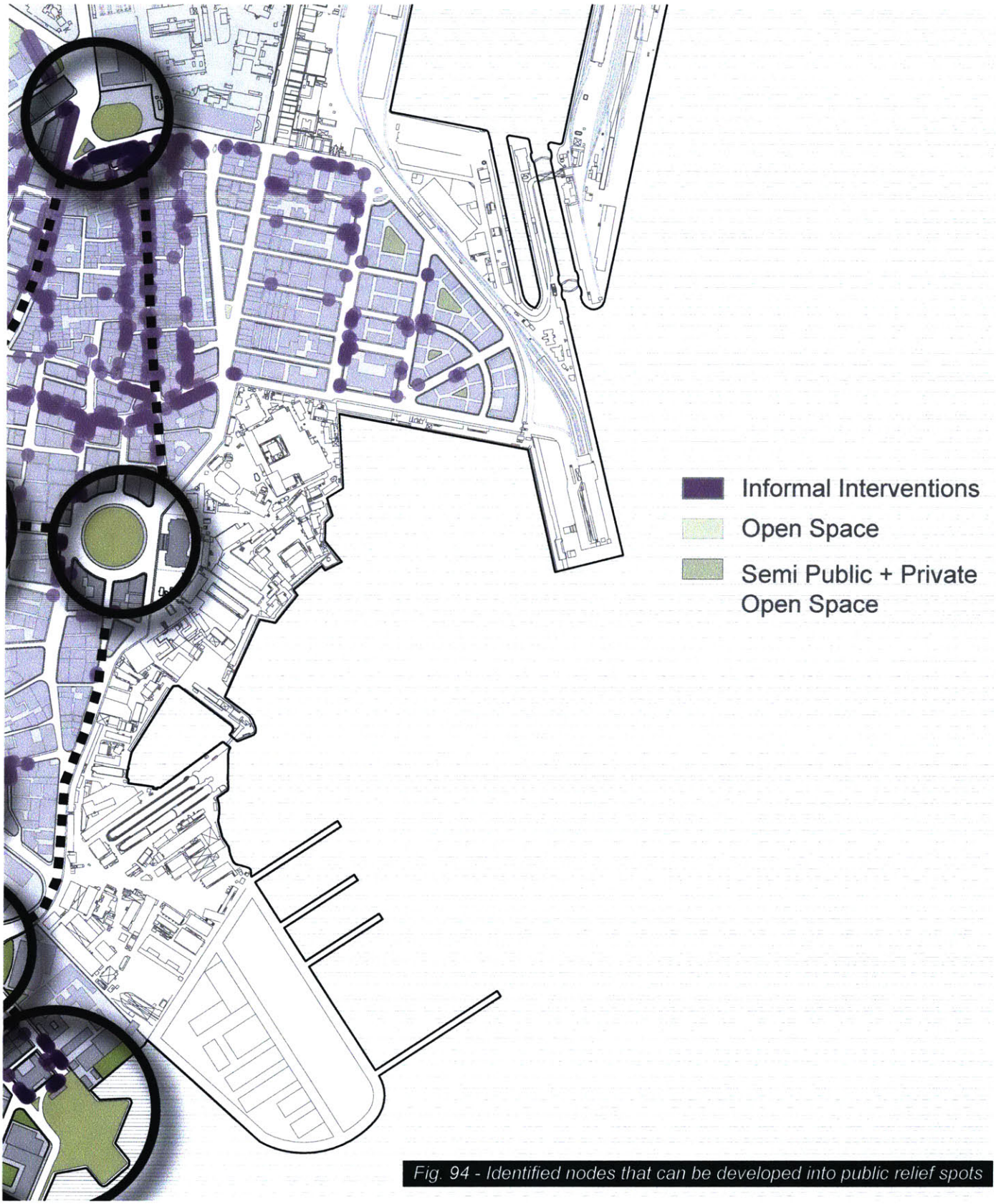
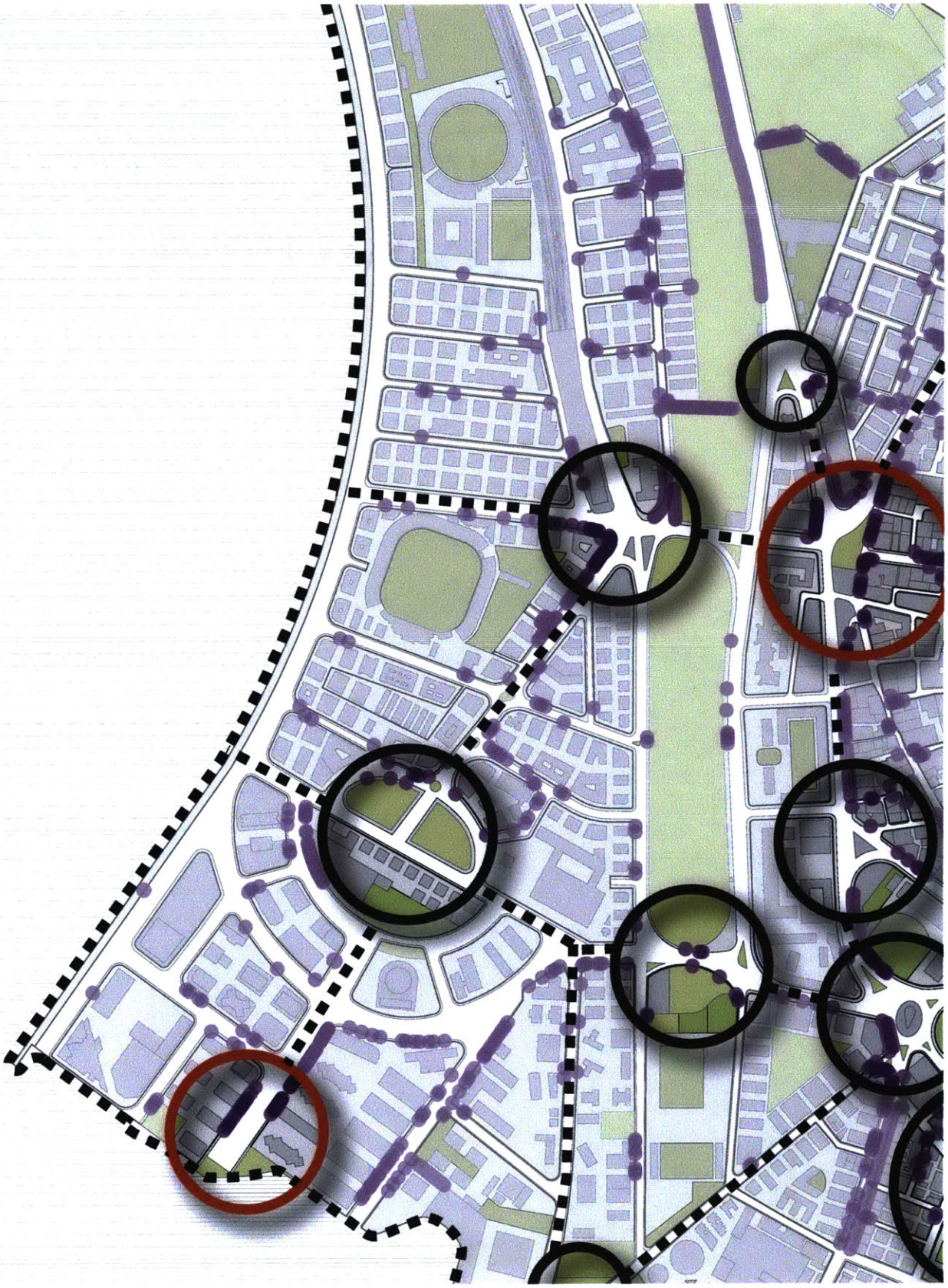


Fig. 94 - Identified nodes that can be developed into public relief spots



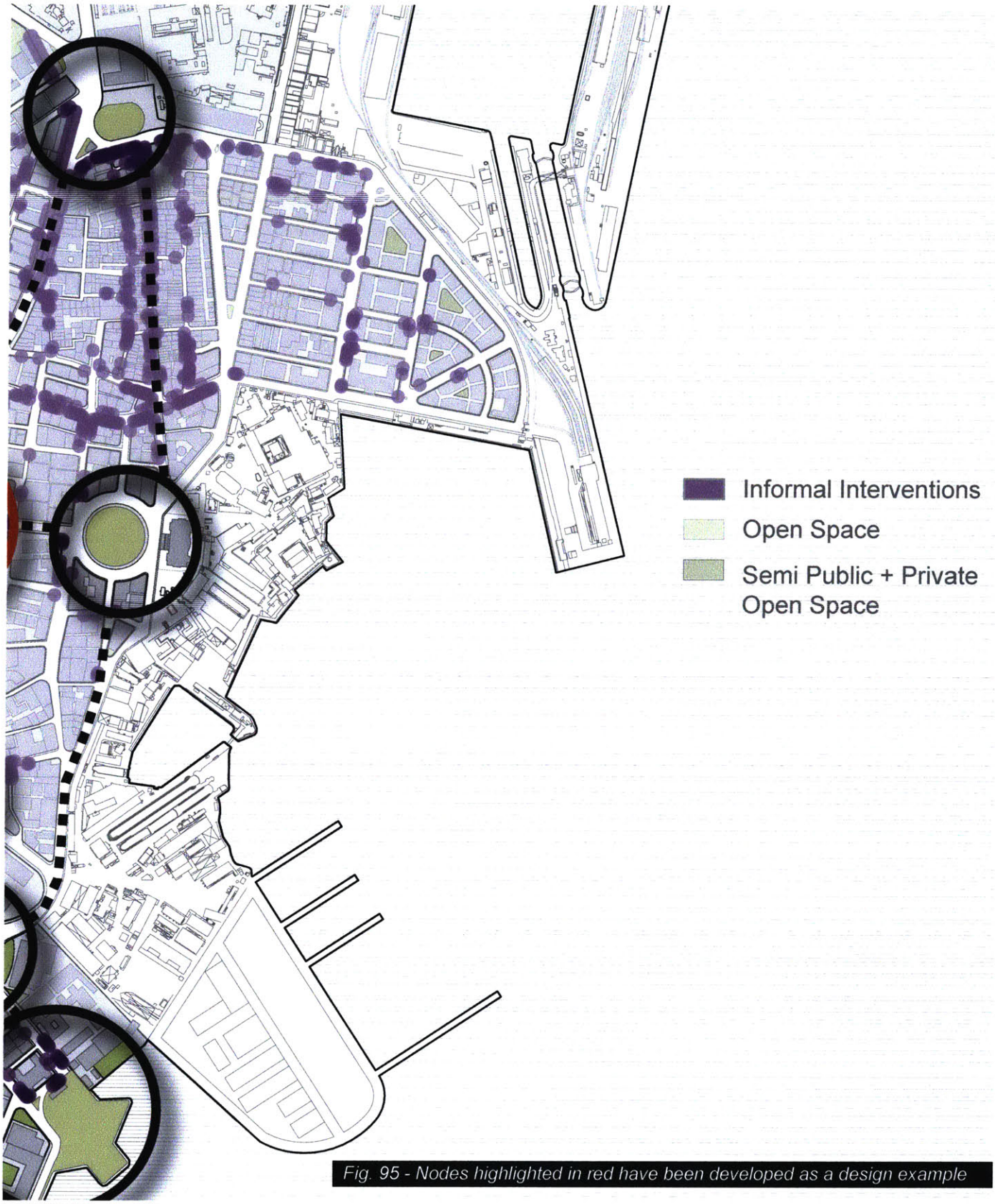


Fig. 95 - Nodes highlighted in red have been developed as a design example

Kit of Parts:

Each node should be developed with the following 3 components:

Formal Anchor:
The formal anchor serves a social function and should be designed to attract people to the node. It is important to attract people using the formal anchor because; it transforms the node into a destination that can attract people even if there are no informal interventions in the area.

Green Space:
The green space serves as a free space, where everyone can recreate and seek relief without spending money. It should be designed so that it is accessible at all times of the day, instead of being enclosed and restricted for a few hours.

Transformative Space:
The transformative space serves as an adaptable space that is dynamic and can keep changing based on the city's timeline. The same space can be used for multiple activities such as parking in the day, a fair at night and community activities on the weekend.

Using these 3 components two nodes were developed to show examples of how they can be designed:
Node 1: Nariman Point and Node 2: Flora Fountain

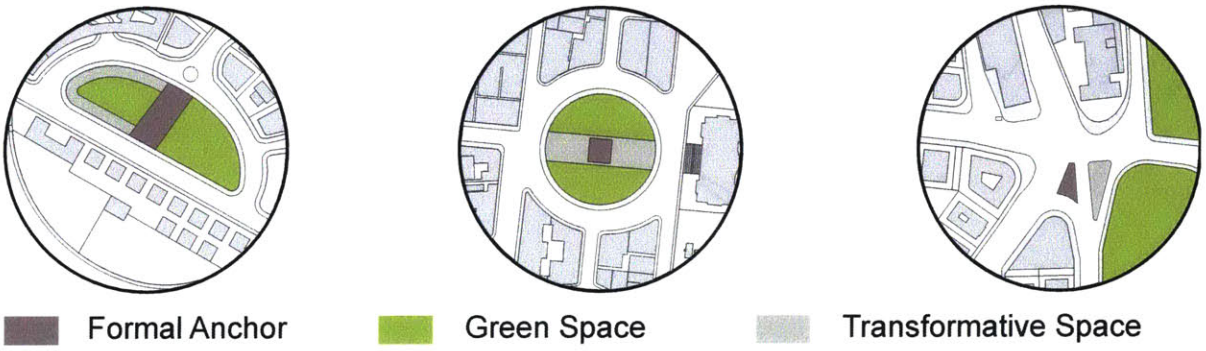


Fig. 96 - Demarcated zones for the development of each node

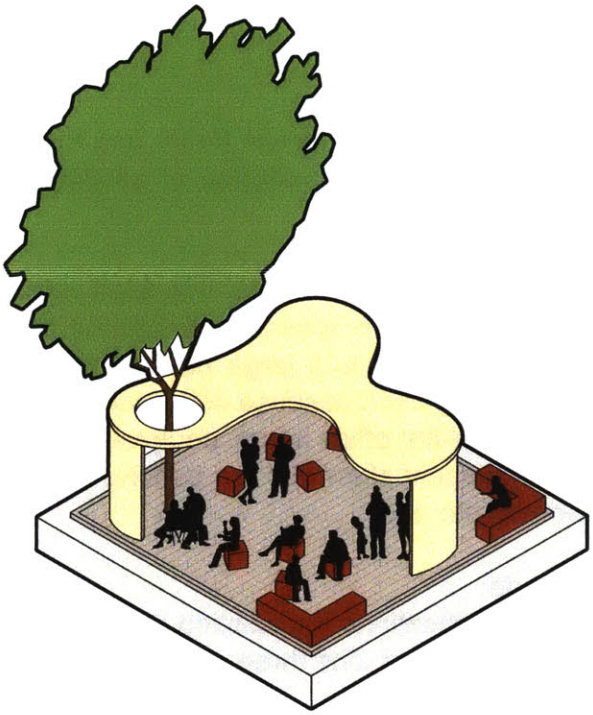


Fig. 97 - Diagram of a Formal Anchor space that serves a social function

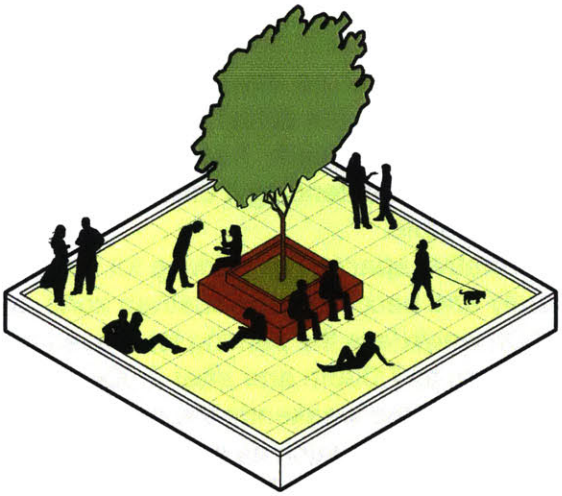


Fig. 98 - Diagram of a Green space that serves as a free recreational space

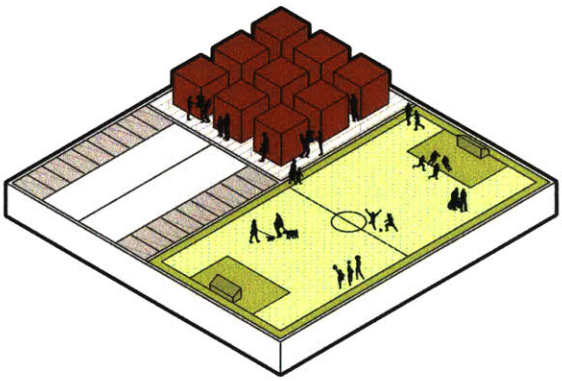


Fig. 99 - Diagram of a Transformative space that serves as an adaptable space

Node 1: Nariman Point

Existing Condition:
The first node is located at Nariman Point, and the area was selected because it has the presence of all three types of activities:

1. Informal space: the sidewalks are filled with informal interventions that are used for relief during the day.
2. Green space: there is a large park by the waterfront that is sparingly used because of the way it is designed.
3. Big program: After office hours, equipment is brought in from the adjacent slum and the parking lot completely transforms into a fair.

Redesigned Node:
Through subtle modifications the existing area is transformed into a node for public relief. The three components of the node have been designed as:

1. Formal anchor: The waterfront that is currently inaccessible has been opened up by designing an amphitheater that steps down towards the water. The amphitheater forms the social anchor for the node.
2. Green space: The park has been redesigned by opening it up and extending it onto the street, making it easily accessible.
3. Transformative space: The parking lot has been paved differently and becomes a pedestrian zone, after office hours. On weekdays the parking lot is used to park cars from 7:00am to 7:00pm and after 7:00pm it transforms into the fair. On the weekends the parking lot is used for community activities such as sports, yoga etc. between 7:00am to 7:00pm after which it transforms into the fair.

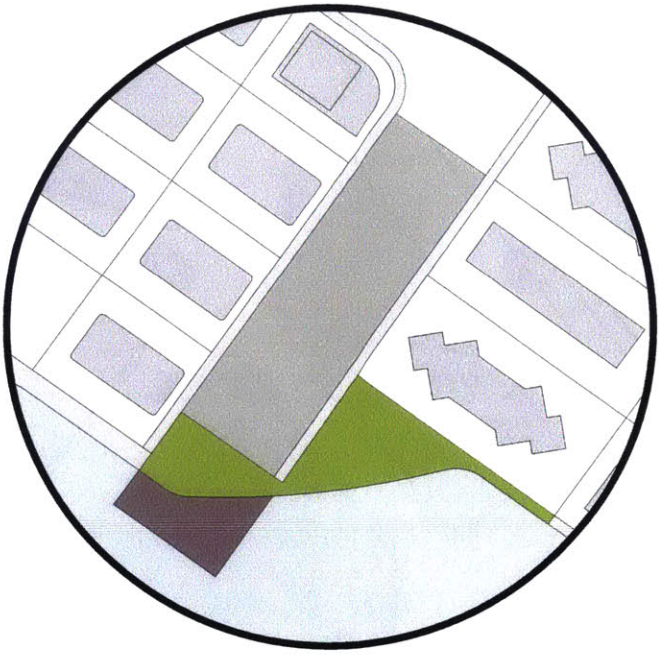


Fig. 100 - Demarcated zone for Node 1: Nariman Point

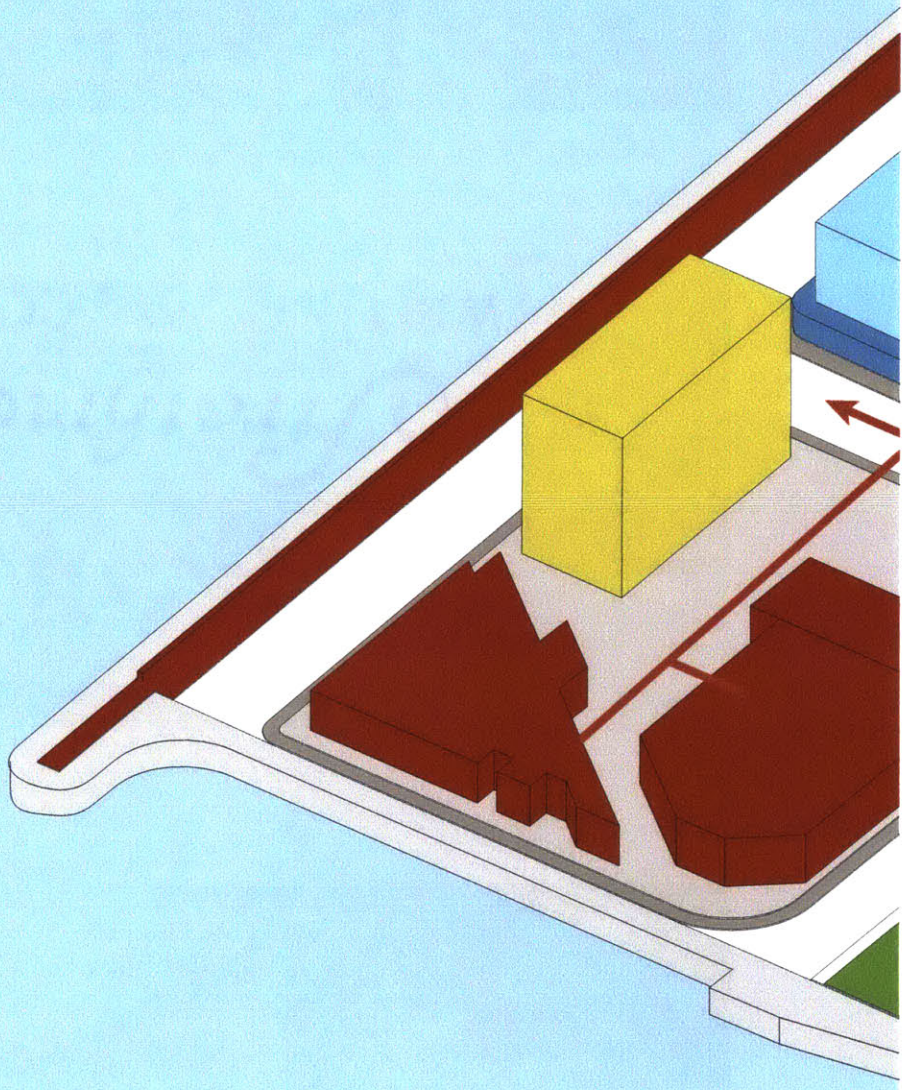
Node 1: Nariman Point
Existing Condition

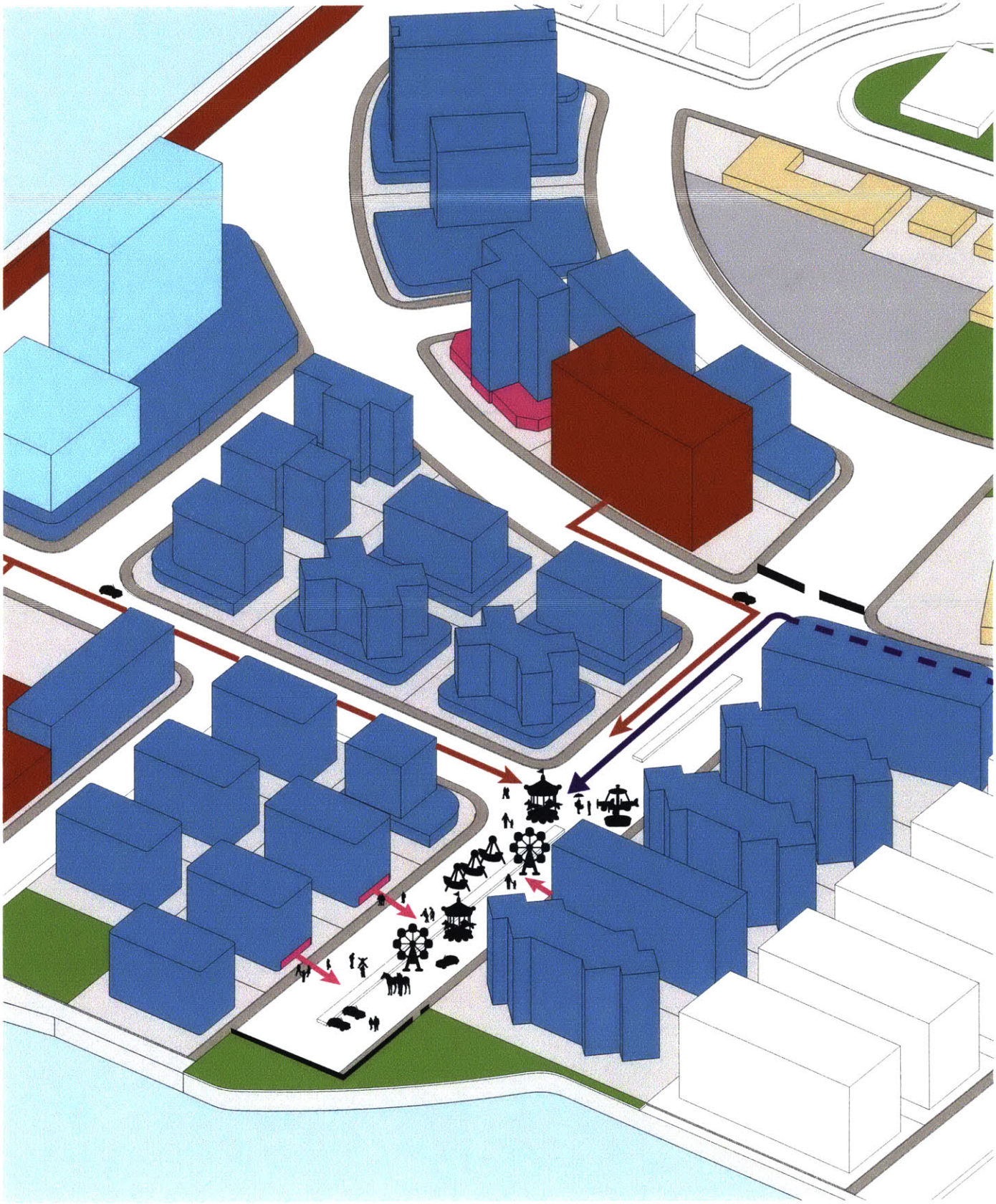
A= Informal Activities

B = Green Space

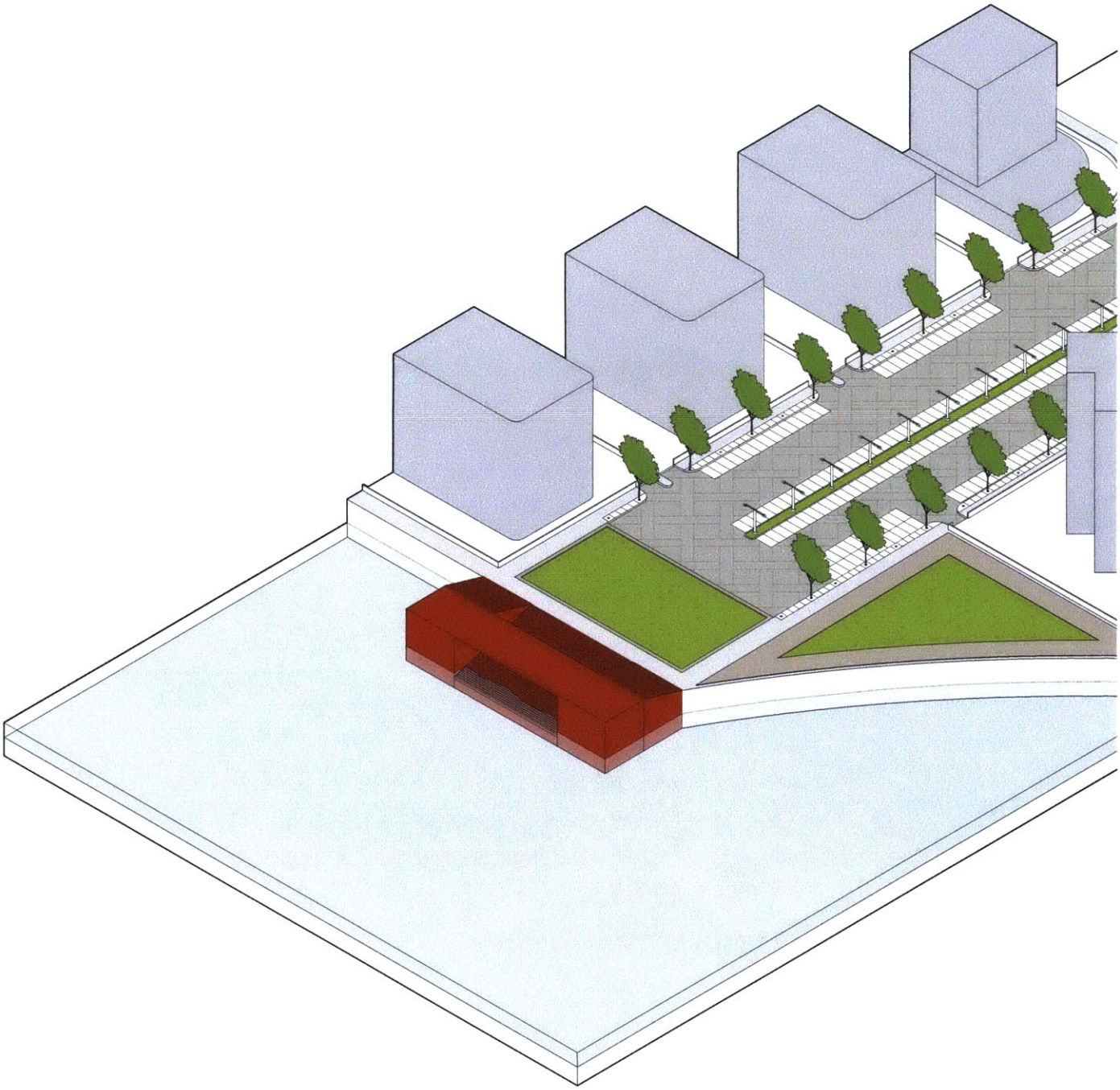
C = Big Program

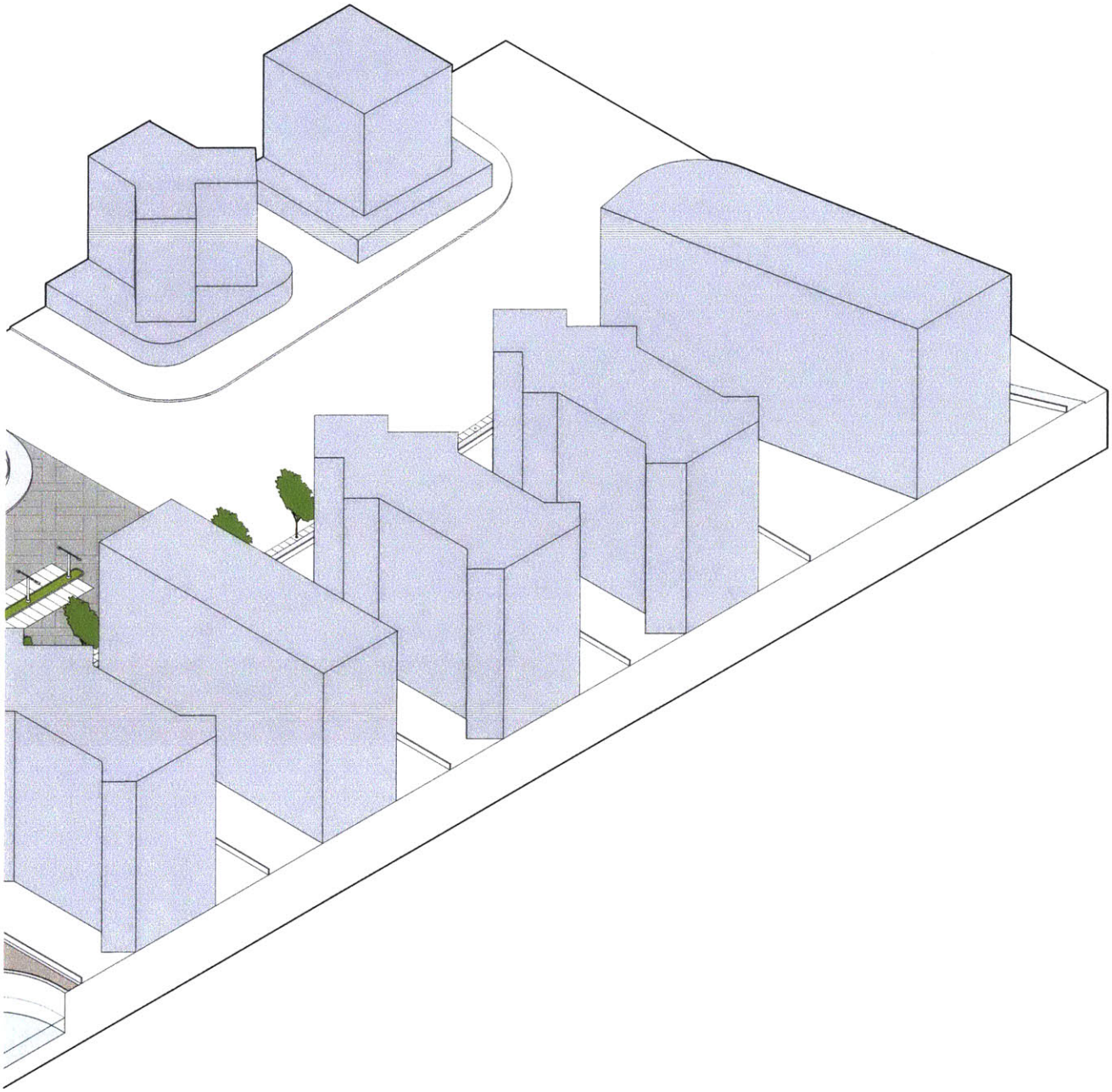
Node 1: Nariman Point
Existing Condition





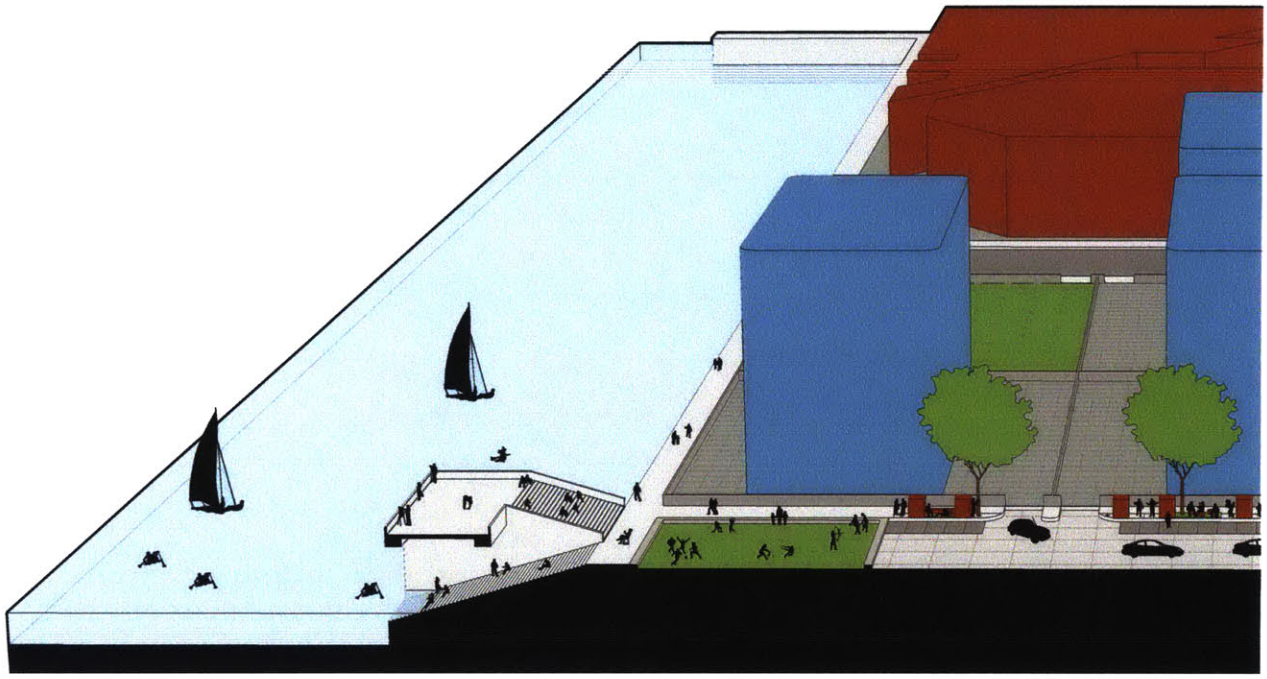
Node 1: Nariman Point
Redesigned Node



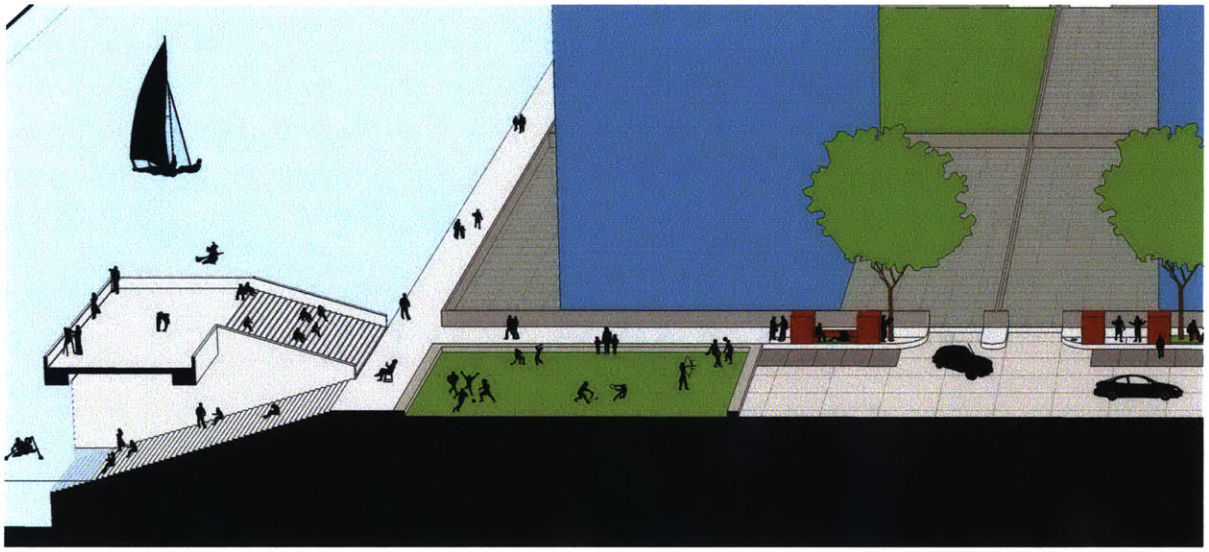


Formal Anchor Green Space Transformative Space

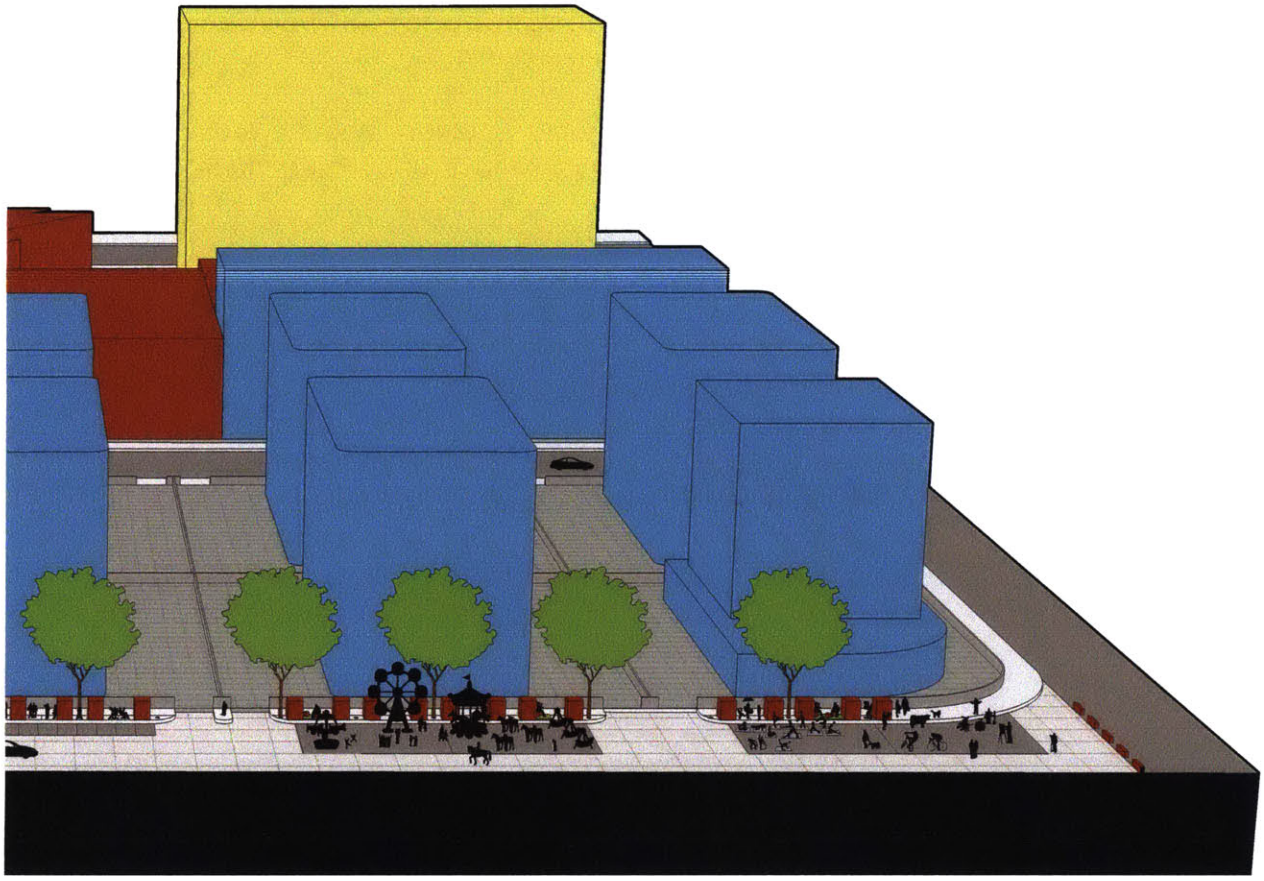
Node 1: Nariman Point
Redesigned Node



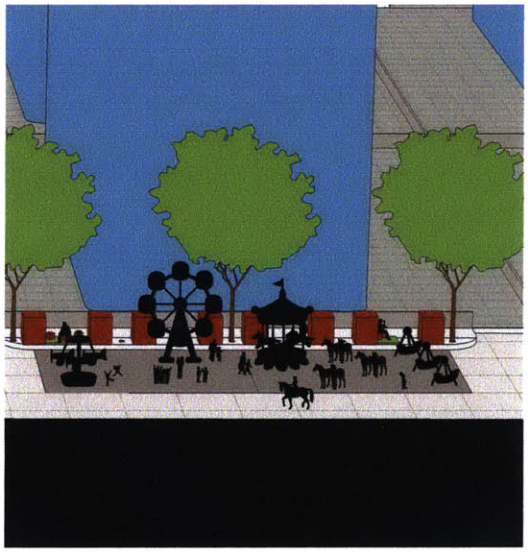
Formal Anchor	Green Space



Amphitheatre	Park	Parking Lot
Permanent	Permanent	7:00am - 7:00pm

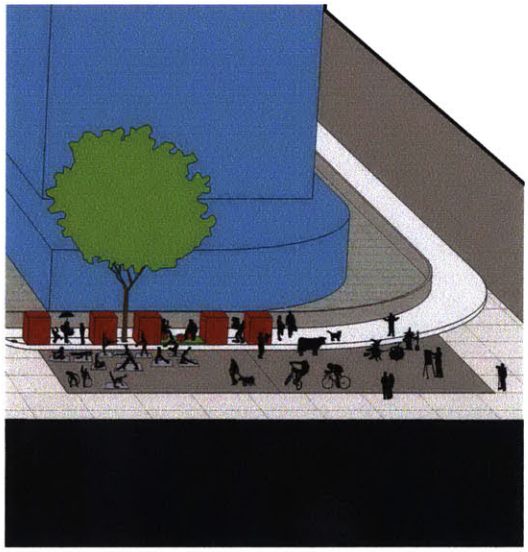


Transformative Space



Fair

Daily: 7:00pm - 12:00am



Community Activities

Weekends: 7:00am - 7:00pm

Node 2: Flora Fountain

Existing Condition:
The second node is located at Flora Fountain, and the area was selected because it has the presence of all three types of activities:

1. Informal space: the sidewalks are filled with informal interventions that are used for relief during the day.
2. Green space: there is a large green space that is currently fenced off from the public.
3. Big program: the book sellers that have clustered together along the sidewalk and the flora fountain form two big destinations in the area. The book sellers attract people from all across the city because they offer a vast collection of book which they sell at a low cost since their overheads are not as high as other formal stores. Flora fountain on the other hand is a historic fountain and hence attracts tourists to the area.

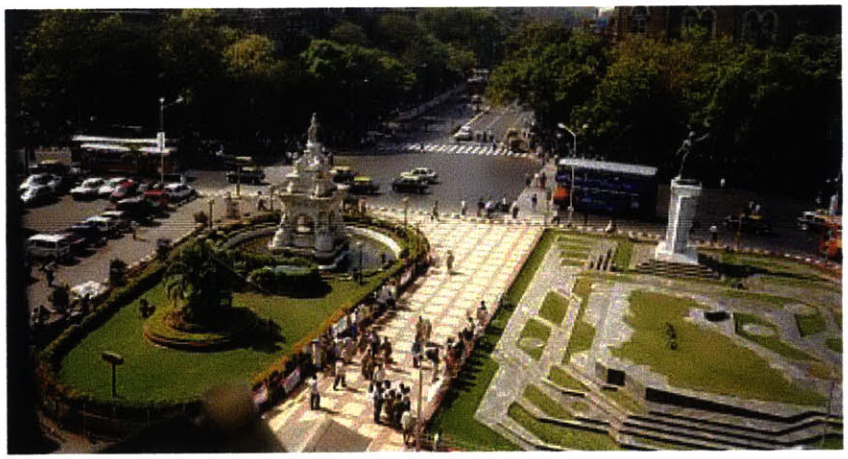
Redesigned Node:
Through subtle modifications the existing area is transformed into a node that serves as a public relief space. The three components of the node have been designed as the following:

1. Formal anchor: A portal has been built around the Flora fountain to frame it since the fountain is the main anchor on site.
2. Green space: The fenced off green space is opened up to the public and an additional corner park is created adjacent to the book sellers. The corner park is designed as an outdoor library where users can rent out books for the booksellers and read it in that space.
3. Transformative space: The parking lot adjacent to the fountain has been paved differently and becomes a pedestrian zone, after office hours. On weekdays the parking lot is used to park cars from 7:00am to 7:00pm and after 7:00pm it transforms into an outdoor market space. On weekends the parking lot is used for community activities such as sports, yoga etc. between 7:00am to 7:00pm after which it transforms into an outdoor movie screening space. The portal used to frame Flora fountain can conceal the screen that can be rolled down on the weekends to screen movies.

Fig. 101 - Demarcated zone for Node 2: Flora Fountain

Node 2: Flora Fountain
Existing Condition

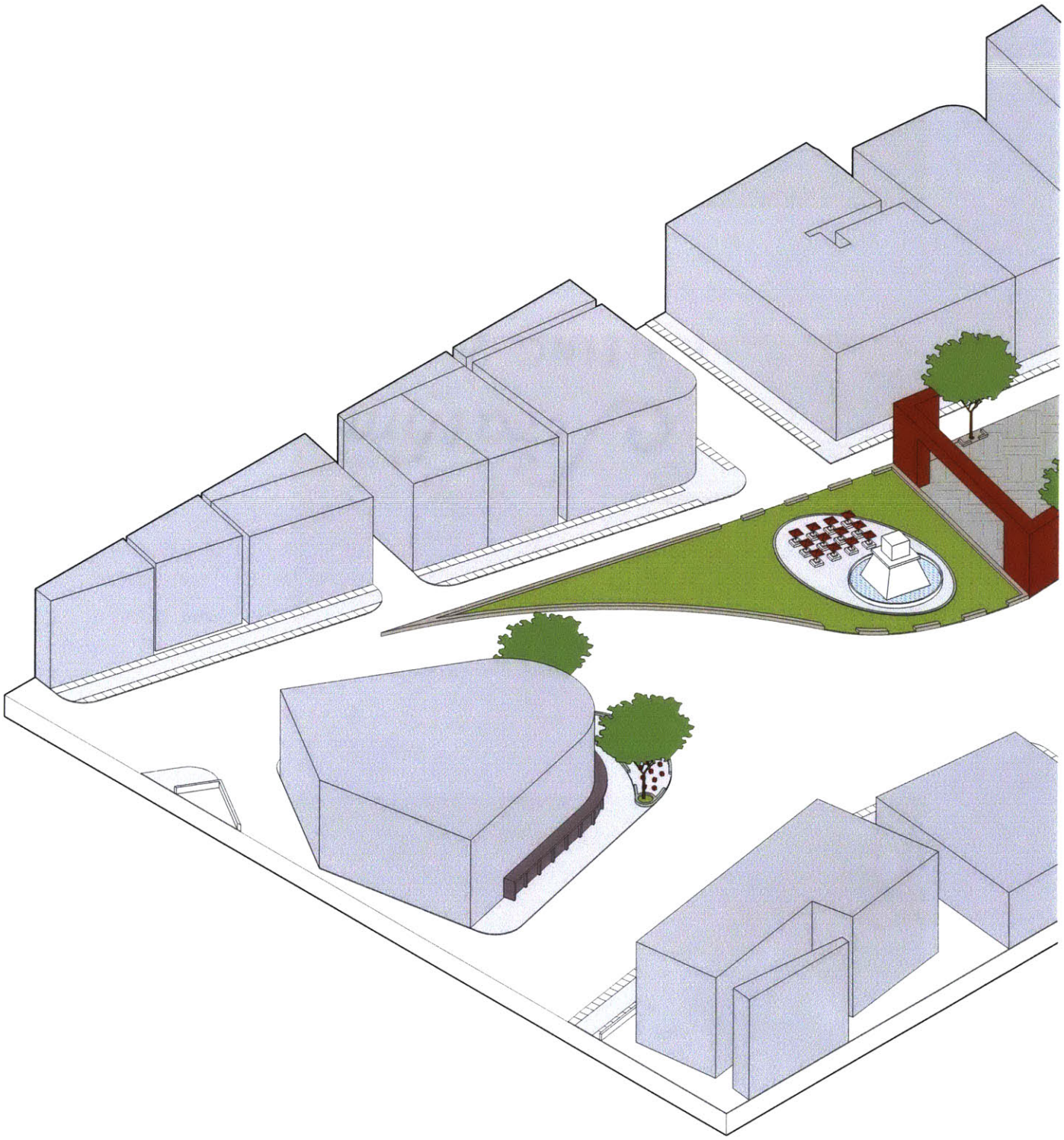
A= Informal Activities

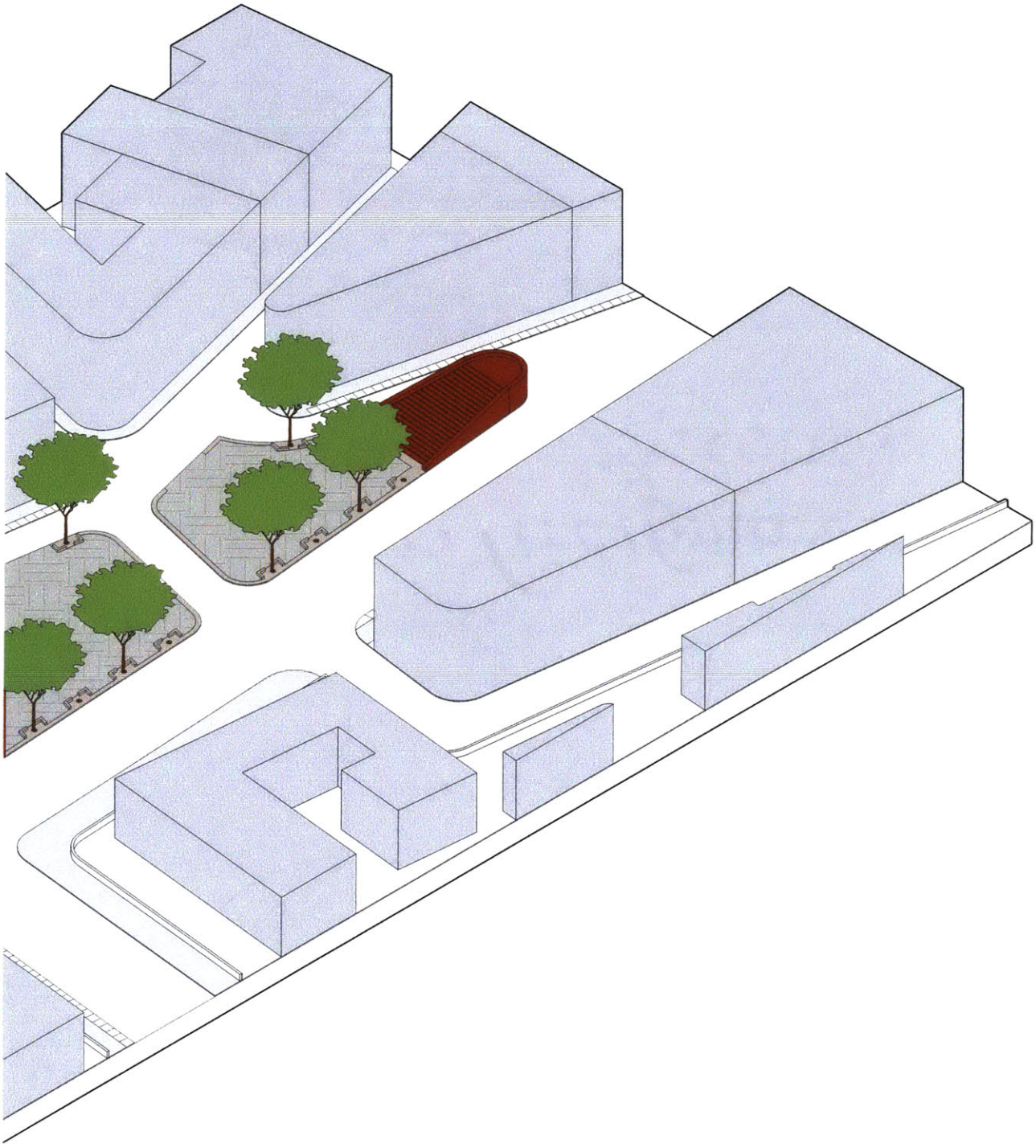


B = Green Space

C = Big Program

Node 2: Flora Fountain
Redesigned Node





Formal Anchor Green Space Transformative Space

Node 2: Flora Fountain
Redesigned Node

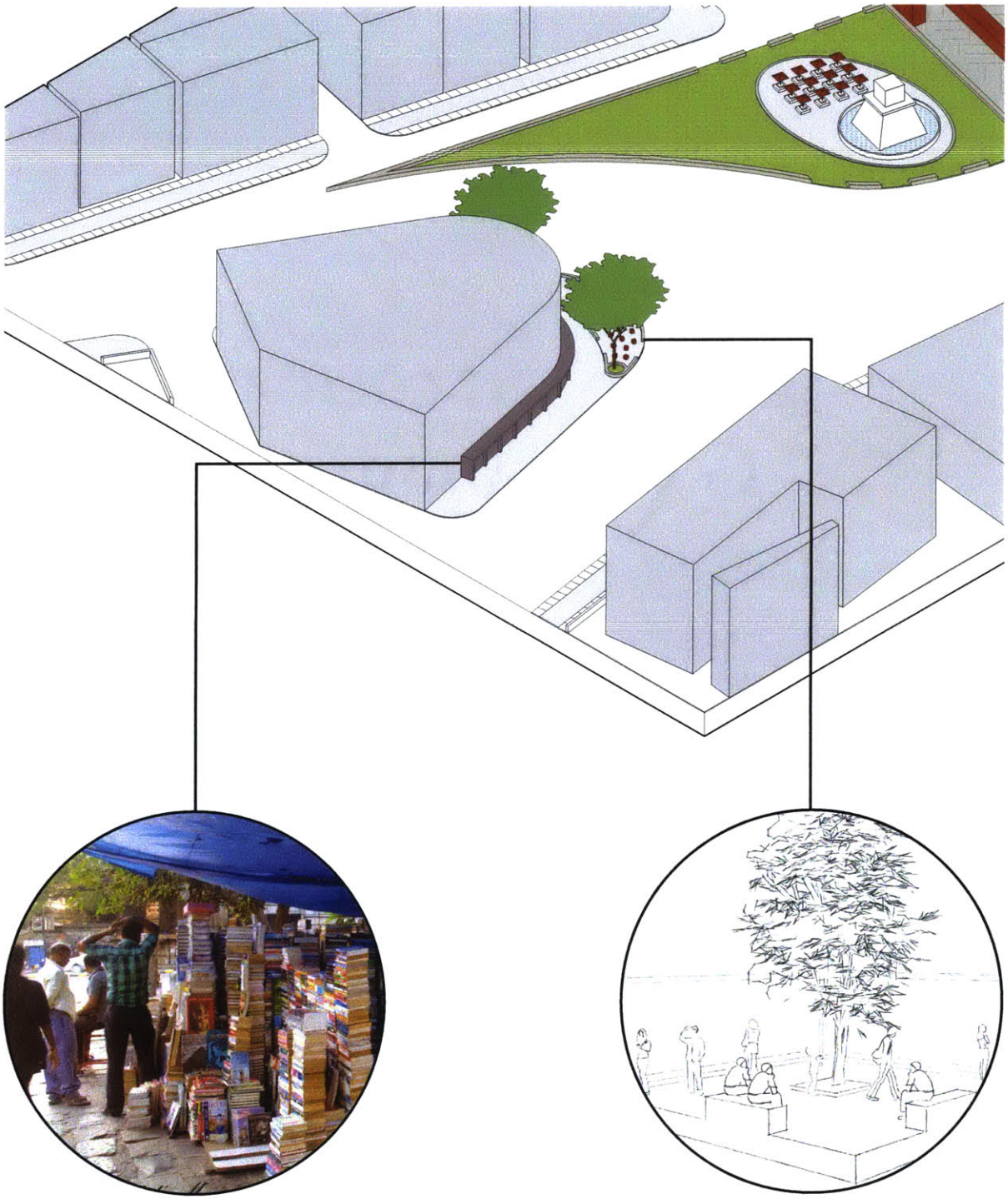


Fig. 102 - Creating an outdoor book library to enhance the informal book sellers

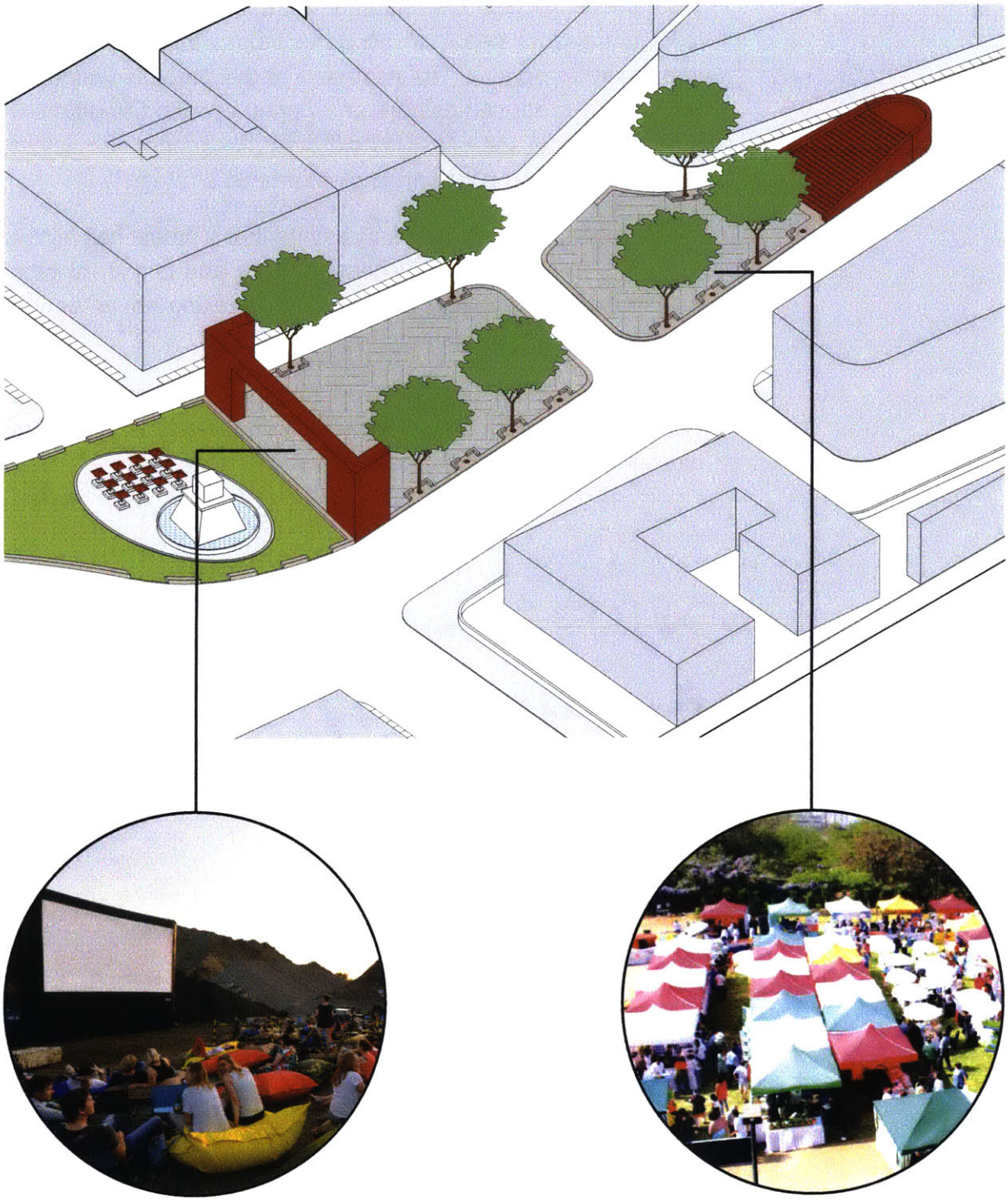


Fig. 103 - Parking lot transforms to an outdoor film screenign space on the weekend and a market on the weekdays

Conclusion:

This thesis is just the starting point of the process and a lot more work needs to be done before this idea can be implemented on site. The next step of the process would be to take the proposed system and negotiate with the different stakeholders in the city. This will help the proposed system evolve and develop into an implementable strategy.

I wish to conclude this thesis by saying that Mumbai has all the elements for creating a successful place and is just missing a system that is dynamic and capable of taking advantage of the informality that exists in the city.

This thesis sets up the framework for Mumbai to structure and celebrate the informality along with a strategy to improve the overall public life in the city.

Illustration Credits

Unless otherwise indicated all the images, diagrams and drawings included in this thesis have been created by the author

Chapter 1:

Fig. 3 - http://www.karmayog.org/mumbaidp/

Fig. 5 - http://blog.tehelka.com/striking-nightingales-milking-hospitals/
http://www.globalfundforchildren.org/education-comes-knocking/
https://sanitationupdates.wordpress.com/tag/irc-international-water-and-sanitation-centre/
http://webpothi.com/increasing-population-in-india/

Chapter 2:

Fig. 8 - http://indiatourconsultant.blogspot.com/2011/09/gateway-of-india-mumbai.html

Chapter 3:

Fig. 16 - http://www.lostinmumbai.com/what-mumbai-is-like/

Chapter 4:

Fig. 17 - https://fortheloveofchatter.wordpress.com/
https://plus.google.com/105054403801789580370/posts
https://www.pinterest.com/UCbyhn/mumbai-india/
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http://walkaboutsandwonders.com/page/2/
http://pixshark.com/indian-tea-stall.html
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http://photos.thenews.com.pk/e_image_detail.asp?catId=3&date=8/11/2012&albumId=0&page=2&picId=55493

Chapter 9:

Fig. 81 - http://www.dawn.com/news/608300/typewriters-still-thrive-in-modernising-india

Fig. 83 - http://theplanthunter.com.au/harvest/train-track-farming-mumbai/

Fig. 89 - http://galleryhip.com/temporary-parklet.html

Node 2: Green Space - http://www.zipmytravel.com/tourist-travel-guide-with-complete-detailed-information-of-mumbai_860

Fig. 102 - https://openaircinemas.wordpress.com/

Fig. 103 - http://karensfarmersmarkets.in/

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