Abstract

Fort is the business district of Mumbai. Once considered the heart of the city, this area is known for its side walks those are constantly filled with vendors selling books, music cassettes, CD, clothes, imported items etc. This area is also gifted with other gems include Bombay University, The High Court, the BMC Building and stately Horniman Circle. This area is jam-packed with visitors and commuters who came to experience this established commercial center of Mumbai.

In addition of my personal experience of finding way to my desired destination had a dependency on street vendors and local people. I also found many other people like face similar problems and it was much greater for people from foreign land due to language barrier. I decided to work in this particular area in order to help the visitors to reach their desired destinations and also arouse my interest as a Visual Designer to take up this problem of helping tourists to explore this area by providing them with a visual Map.



1. Introduction

To begin with this project I thought of taking a place which is rich in tourist spots and have famous markets. Tourist visit these places as they are either assisted by the guide or there are backpackers who want to explore this area. To my observation still the guide does not provide all information to the tourist which is considered to be important like timings of the museums or art galleries and in the issue with the backpackers is that they explore the area with the help of maps and depending on the local people.

As a residence of Mumbai I thought on few places like Fort, Bhuleshwar, Crofort Market, Colaba, Marine Drive. Coming to the conclusion I decided to work on Fort area, as this area has given me personal experience, and is blend of many flavours which can be tasted at a time and in the given time this area is suitable to explore.



1.1 Motivation

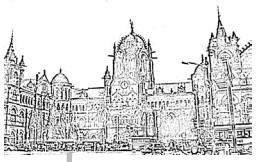
The Fort area of Mumbai which is considered to be the heart of the city is full of heritage buildings, art galleries, entertainment places, cafeteria, markets etc.. which is jam-packed with visitors, tourist, travelers and many type of crowd. In such a place you may tend to get confused and that may led to frustration. So to these crowd as a Visual Designer I really wanted to help them out by providing some sort of visual base information which help them to explore that area smoothly and effortlessly.



1.2 Project Overview

This project deals about the problem faced by the tourist in the jam-packed Fort area. The problem of the tourist is that they get exhausted while exploring this area because of lack of proper signages, very less availability of maps and there are web maps available but an extra effort has to be taken to print them. As Fort area is rich with famous tourist spots which are located at walk able distance if navigated in proper way.

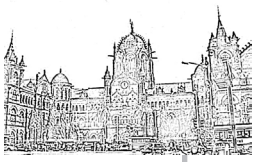
So the design solution is to provide them with a visual information, which in detail tells about this area. And the tourist doesn't have to be dependant on the local people or vendors while searching a particular place. The map will be guided telling the tourist how to navigate in the given time and cover all the places without getting tired and enjoy them.



1.3 Objective

The main purpose of this project is to give better solution from the existing designs to help the tourist to explore Fort area and navigate them in such a way that they can cover all the tourist spots. As Fort area is flooded with most vulnerable pieces of heritage only an effectively designed **map** in which intended message is clearly communicated to the map user will be the main objective.

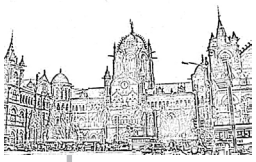
Thus creating an interesting map will no doubt engage a reader but also information richness or a map that is multivariate shows relationships within the map will help them to enjoy while viewing it. Showing several variables will also allow them to compare, which will add to the meaningfulness of the map.



1.4 Target Audience

Fort area is visited by all type of people but seeing from tourist point of view this area has many possibilities of getting them confuse and they will require for someone to guide them. Though tourist are assisted with guide but as this guide may or may not provide complete information. There are even backpackers who explore area by oneself or by depending on local people, traffic police, vendors etc. This type of tourist find necessary to have some sort of prior information, Thus considering this point of view I have focused on **tourist** as my target audience which can be Indian as well as foreigner who can understand English language.

Not necessary this map has to be used by tourist, it can be also used by anyone who is new to that area.

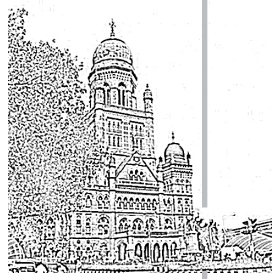


1.5 Scope

I will be designing the map for the tourist who will be visiting Fort area. This map will be in English language. It will be in print format which can be carried in the bags as the size of the map will be small and even can be referred while walking. This map will tell about the detail information of places of Fort area which will include heritage building and famous markets, famous places and also other information which can be enjoyed by the viewers in context with this area.

The sequence of the places to be visited is made in such a way that tourist by **walk** can cover this area without getting tired.

This map will also tell about main places of Fort area which can be covered in an hour specially meant for those tourist who wants to cover this area in less time.



2. Research

The study began in reading the existing information about how way finding is done. The research papers on how navigation is done and usually what problems are faced by the visitors who are new to that place. What are the important factors to be considered while designing the map.

Wayfinding Systems

2004 Lance Wyman

A Wayfinding system incorporates branding, signs, maps and directional devices that tell us where we are, where we want to go, and how to get there. An effective wayfinding system can add an important dimension to the image of a museum, a transit system, an airport, an office building, or an entire city.

It can be designed as a savvy helper that gives information and direction to people in a clear, appropriate, user friendly way, to assist them in finding their way into, through, and out of an environment.

Wayfinding offers the designer an opportunity to reference the history, culture, and essence of place in an immediate way that will be seen and used on a daily basis. An effective wayfinding system can be a visual ambassador.

The Language of Wayfinding

The character and effectiveness of any wayfinding system is in large part a result of the language (word and/or images) used to convey identity, directional and interpretive messages. (as shown in below images)





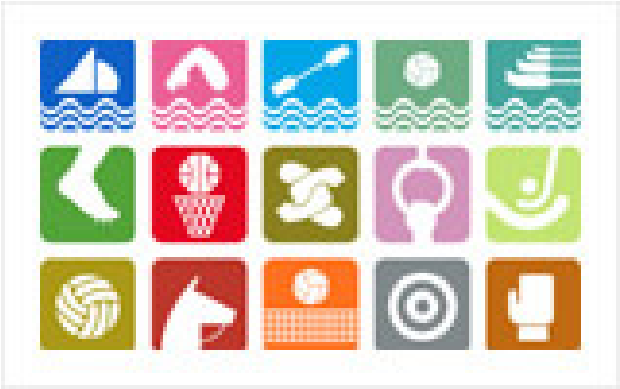




Choosing symbols Visual Variables

There are several characteristics of a symbol that can be manipulated, which are often referred to as the visual variables. These are size, shape, orientation, pattern, hue, and value. Hue and value are two characteristics of color. The names we assign to different colors correspond to different hues (e.g., blue, red, yellow). Value refers to how light or dark a color is, although value can also apply to gray. (as shown in below images)

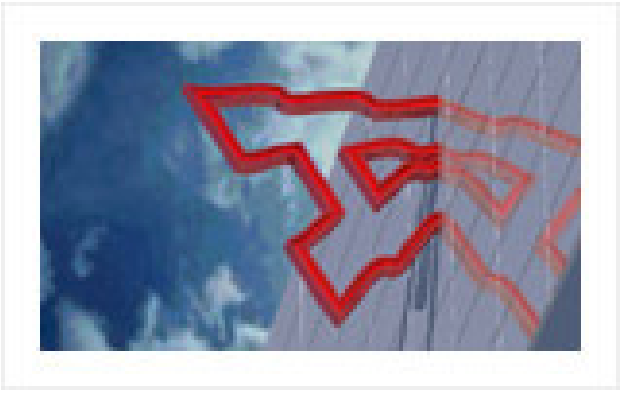




The Value of Symbols

Two basic ways we learn to represent and communicate the objects, actions and feelings in our lives are with words and images. Words are an effective method of communicating complicated interrelated ideas. It is symbols however that can communicate across the language barriers created by words. As obvious as that might sound, it is easy to overlook symbols when planning and designing a way finding system. (as shown in below image that LG's Art Center, the A is effectively used to convert the context of the name in playful manner.)







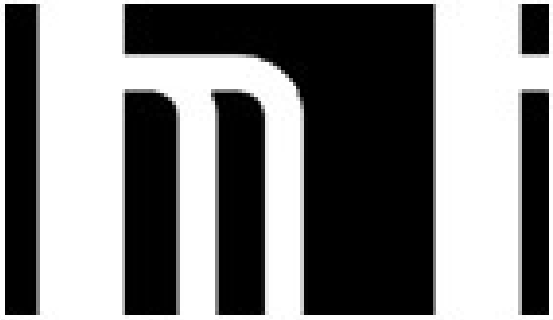
Navigating Different Languages

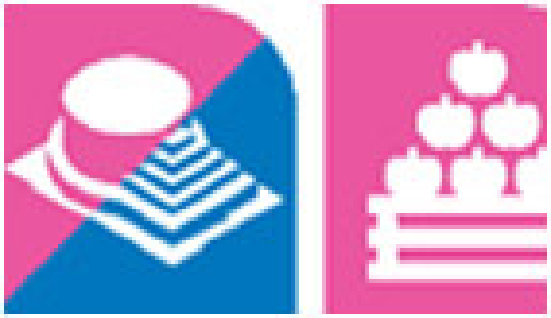
Symbols (icons) have also played and enormous role in enabling the public to interact with computers. Early experimental work at Xerox using visual symbols as part of the language needed to navigate a computer, and the icons implemented and made famous by the Apple Macintosh, have become standards for wayfinding on a computer.

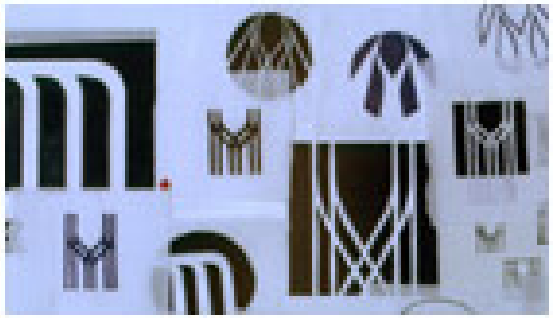
Symbols are helping make the virtual environment of the computer world, and the real world of our built environments, easier to understand and navigate. This fosters further intelligent design and use of symbols, & offers insight into other areas of wayfinding where symbols can be put to work.
(as shown in the right side images)

"Welcome, let me help you find your way around and enjoy yourself"

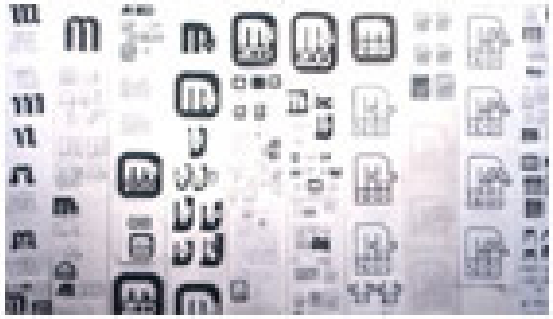
-Lance Wyman

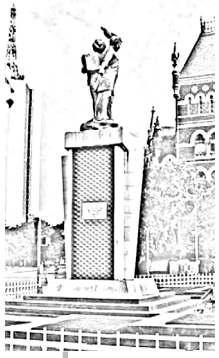












Making Symbols Work Harder

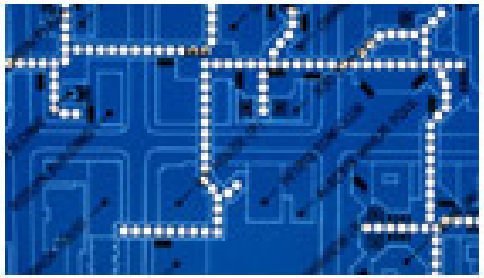
Symbols can engage with the environment in many ways and can enhance and make a wayfinding system work better. A symbol can be a reminder of history and a functional directional guide at the same time. The Calgary +15 Pedestrian skywalk symbol (bridges and walkways are 15 feet above grade) combines references to the city history and culture (local native Blackfoot star constellation circles, traditional white rodeo hat symbol) to establish a symbol that participates in all aspects of the wayfinding system. Circle patterns are also used to indicate the walking path on +15 maps, and are inlaid into the floors in contrasting materials to indicate the actual walkways.

The consistent use of the circle patterns become familiar +15 wayfinding information and is a reference to Calgary history.

Wayfinding Goals

Basic goals when designing a wayfinding system should include communicating to a multilingual audience, creating images that are appropriate and legible, utilizing the 3rd dimension, and developing a unique system with a refined aesthetic that functions well and can endure the test of time if required.

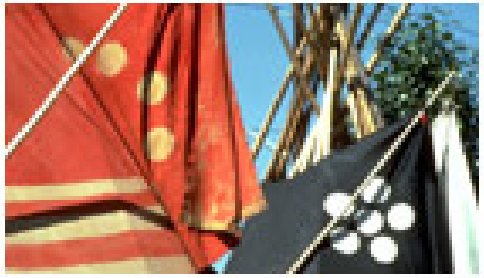














Pixel Inspiration launches 'Way 2 Go' touch-screen wayfinding system.
Bill Yackey editor

Way 2 Go, an interactive touchscreen wayfinding application. Interactive digital sign or kiosk, 3-D map of the building. Clear on-screen directions can be printed out or sent by SMS to the users' phone.



Creating a Framework for Situated Way-Finding Research

Nicola J. Bidwell and Christopher P. Lueg
School of IT, Charles Darwin University,
Darwin, NT, Australia

Preliminary themes to scaffold an investigative framework supporting human navigation from a egocentric (viewer-centered) perspective are described. These emerge from prototyping a **mobile information appliance** that supports, and is ecologically compatible with, human vision-based navigation and acquirement of spatial knowledge during movement through the physical world.

The device assists a person finding his/her way from an origin to a destination by providing route information between images of landmarks, presented as they would be seen when walking rather than from an abstract map-type view. The use of the device in a foreign, built environment of the scale of a small university campus is illustrated and related to its use as a community authored resource. Emerging themes, such as the proximity, alignment and spacial separation of ready-to-hand landmarks, are discussed.

Suggestions for further exploration are proposed and related to inter subjective and cross-cultural differences in communicating and using information for piloting navigation.

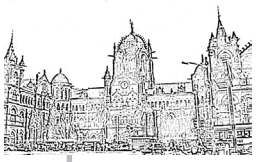
Mind the Gap:
Mobile Applications and Wayfinding

Katharine Willis1
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28359 Bremen, Germany

This paper will focus on Global Positioning System (GPS) and it's applied use as technological assistance for dynamic wayfinding. Through an overview of the cognitive strategies utilized in wayfinding it identifies some of the affordances offered by mobile GPS devices.

As background it discusses map use and the acquisition of spatial knowledge, and additionally outlines the nature of spatial data interpretation required by mobile devices. It establishes that GPS applications exhibit spatial and temporal variations, and that this gives rise to inaccuracies.

The discussion will then focus on generally characterizing these errors or 'seams' which are generated between the user, the interaction and the environment. It will summaries by outlining some possible features of GPS interfaces and the potential for communicating these seams as contextual attributes.



‘You Just Follow the Signs’: Understanding Visitor Wayfinding Problems in the Countryside

Catherine Findlay and Katherine Southwell
OPEN space, The Research Centre for Inclusive Access to Outdoor Environments,
Edinburgh College of Art

This paper presents original research from a study that investigated how visitors find their way to forest recreation sites, from the initial decision to visit a site through to arriving at and using a site.

The study particularly focused on signs as one of the key elements used by site managers to help visitors find their way.

The research methodology comprised semi-structured interviews, observations of visitor behavior, role play and a signage audit.

The research indicated that most wayfinding difficulties could be attributed to one of four factors: **informational consistency, route connectivity, entrance reassurance and arrival legibility.**

Findings were used to develop **‘VIEW’, a toolkit to identify the nature of visitor wayfinding problems and suggest potential solutions.** Signs are “…the most visible manifestation of corporate face” & “… provide reliable and accessible information to encourage and welcome visitors” (Forest Enterprise, 1997). Good signs also form part of a positive perception of woodlands and may be considered within the context of removing barriers to the countryside for people with disabilities and other socially excluded groups of people (Countryside Agency, 1998; Burgess, 1995; Ward Thompson et al, 2002).

Signs are expensive to design, construct and install, and a key concern must be to maximise the cost effectiveness of such investment.

Methodology

A multi-method approach was used, which comprised semi-structured interviews, spatial analysis to identify key approach routes, a route and sign survey, and behavioral observations. The key questions to address were:

- Are visitors finding their way easily to the sites they wish to visit?
- Does the information provided on site enable visitors to use the site effectively once they have arrived?
- Is the issue to do with signage or some other factor?

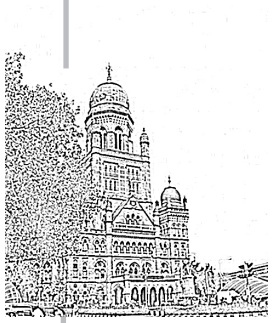


Results

A wayfinding information sequence Results suggested that there is a sequence of visitor information needs that fall into four distinct units or decisional stages, which provide a framework for wayfinding analysis.

These are described in Table

Sequence	Information need	Information provision
I. Pre-arrival information and visitor expectations	The decision to visit a site for a particular experience or activity.	Leaflets, magazines, internet, word of mouth, tourist road signs.
II. Approaching the site	Choice of transport and route to the destination.	Signs, road maps, verbal and written directions, landmarks.
III. Site Entrance	Local approach journey to site, orientation, traffic and pedestrian management.	Signs, staff, following other users, environmental clues (eg car parking spaces).
IV. Arrival and on site experience	Achieving recreational goal: where to go and what to do on site, opening hours,facilities,interpretation & education, site regulations.	Signs, information boards, visitor centres, leaflets, staff watching other users, environmental clues (eg sounds from cafe).



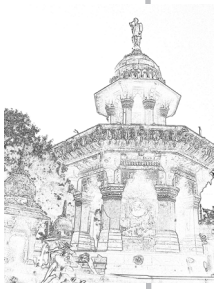
The study highlighted that most wayfinding problems experienced by first-time or infrequent visitors can be attributed to one of four factors:

- **Inconsistency in names and labels used for the site**, its facilities and directions to it: Visitors to a site will look out for signs, symbols, names, landmarks etc. that are named and indicated on the initial information source they access, eg a website or tourist information leaflet. If the names, symbols and appearance of information subsequently encountered are different, people become uncertain or confused. The more consistent information is, regardless of its source, the more confident people will be in using it to find the site.

- **Lack of advance warning and reassurance at route junctions:** Visitors approaching a route junction need both an advance warning sign or signs, directing them if and where they should turn off, and reassurance after the junction that they are still on the correct route. Reassurance can be provided by landmarks or signs. Both are particularly important for road drivers.

- **Missing the site entrance**: Drivers approaching a site will normally prepare to turn off the road only when they see both a sign marking the entrance and an obvious entrance gap in the roadside. A hidden road entrance and/or an obscured or nonexistent entrance sign means many visitors will drive past the site before they have time to react, or they will brake suddenly (and potentially dangerously) in order to make the turnoff. Although missing the site entrance is a particular hazard for drivers of motor vehicles, it can also be a problem for horse-riders and even pedestrians, if the entrance is obscure.

- **Becoming confused, lost or frustrated once on-site:** When visitors arrive, they want to be reassured that they are in the right place and find out where certain facilities are quickly. Drivers want to know where to park and where/if they have to pay, many people want general information about facilities such as toilets & information centres and some visitors want to go straight to key activities such as mountain biking.



Types of Maps

There are two general types of maps. Maps that give general information about the location of features are reference maps. Maps in a road atlas are an example of reference maps, as are **topographic maps**. Those that show the distribution of a specific topic are thematic or statistical maps. A map showing population distribution by county is a **thematic map**.



General Mapping Concepts

All maps are representations. It is not possible to show features at their actual size nor is it possible to show full detail. Some maps, such as diagrams of chromosomes or atoms, are at an enlarged scale, but generally, maps are smaller than the things they represent.

In addition, three dimensional objects have been flattened for a two-dimensional display. The transfer of features from three dimensions to two involves the use of a map projection. When you look at a map, you don't see real features like buildings or people; you see symbols that represent these things.

These symbols should be easily understood by the map reader. If they are not, the map will not communicate its message. Guidelines exist to help you use symbols effectively, but they are not absolute laws, like one might find in physics.

There is also room for artistic expression - an attractive map will catch the eye more easily than a dull one. By now, the map you see on the screen or page might look quite different than the things you see in the real world. Is it still an accurate view of reality? Map accuracy is difficult to assess. All maps show a selective view of reality, so rather than ask "Is the map accurate?" it might be better to ask "Is the map appropriate for my purposes?"

Once all the decisions about data, classification and symbols have been made, you'll want to create a map composition that includes the map, a title, a legend, a scale and any other information needed for a complete presentation of your data. As you can see, designing a good map involves more than choosing colors and type styles.

Fortunately, a geographic information system such as Arc View makes it easy to see the effects of your map design decisions quickly and to try several alternatives before committing to a final design.

Map Accuracy

Map accuracy (data quality) depends on several factors, such as positional accuracy, logical consistency within the data set, and the age of the data. Some of these factors can be evaluated by examining individual records, while others concern the data set as a whole.

Map accuracy and map detail are not synonymous. Accuracy refers to the amount of distortion (or lack thereof) in the representation of features. Detail refers to the amount of information or the number of features that are shown. The two are often confused, but a high level of detail does not guarantee a high level of accuracy.

- **Resolution**

  Resolution refers to the size of the smallest feature in a data set that can be discerned. This term "minimum mapping unit" is also used. If your map has a resolution of 10 meters, you will be able to object that are 10 meters by 10 meters or larger.

  Thus, you would be able to see a large building but you wouldn't be able to see car or a person. Resolution and positional accuracy are related, in that the positional accuracy of any object cannot be greater than the resolution of the map.

  Thus, if a map's resolution is ten meters, you can't measure the position of objects on the map in inches and expect them to be accurate. Resolution and scale are also related, in that the resolution of a data set should influence the scale at which those data are displayed.

  For example, a data set with a resolution of 10 meters can be displayed at large scales (e.g., 1:24,000 or 1:50,000). However, a data set with a resolution of 10 kilometers should be displayed at smaller scales.

- **Completeness**

  Completeness can describe both the areal extent of a data set, and the level of detail in the data classification. It is important to make sure have information for the entire area that you are mapping. A data set of the United States that omits California is incomplete.

  However, it may not be possible always to get 100% of the data you need. In such cases, you should note the omissions on your map, perhaps with a note in the legend. You may also find that you need to use several data sets to get complete coverage of your area of interest. Make sure these are compatible in terms of scale, age, and content.

  The completeness of a classification may be difficult to assess, but generally, you want to be sure the classification provides enough detail to describe all the features in the data set.

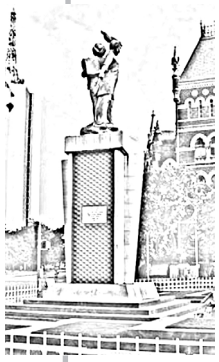
  In addition, the level of detail should be consistent across different classes. For example, suppose you are mapping tree species in a forest, and are using the following classes: Coniferous, Oak, Maple, Elm, Poplar. One class is very general and the other four are specific. It would be better to break the class Coniferous into individual tree species, such as Pine, Spruce and Fir. If this information is not available, however, an alternative is to make both classes general; for example, Coniferous and Deciduous.



Map Generalization

Generalization is an umbrella term for several processes, all intended to remove unnecessary detail. Because maps cannot show everything, the mapmaker must select which features to show and which to omit.

Features may need to be simplified to be legible at a smaller scale. In many cases, data need to be classified - divided into groups of similar values. Finally, symbols must be chosen to represent features on the map.



- **Selection and Simplification**

Typically, selection & simplification activities occur during the compilation of a database, rather than during the map-making process.

However, you may find that a data set has more features than you need, and that you want to map only a subset of the features. You could generalize the data base by selecting a set of features for your map (e.g., select only cities with a population greater than 500,000 or select only Interstate highways).

Simplification is a more complex process, and actually modifies the features stored in the database.

- **Classification**

For most maps, it will be necessary to classify the data before mapping them. It is not usually practical to have a unique symbol for each data record. For example, on a map of population density by state, it would not be possible to distinguish fifty shades of grey. Instead, states with similar values should be grouped together and shown with the same symbol.

Most people can distinguish about seven classes. Depending on the quality of your monitor or printer, however, five classes may be a more practical limit.

You should be sure that your classification adequately describes the phenomenon you are mapping.

Classes should be exhaustive (describe all possible values) & should not overlap (no value can fall into two classes).

For example, suppose you are mapping land use using the following categories: residential, industrial, park, & institutional.

As you are assigning parcels to these classes, you find a parcel that is farmland. It does not fit into any of these classes; how do you classify it? Your choices are to create a new class for farmland or to expand the definition of one of the existing classes to include farmland.

There are several approaches to classifying data, and the characteristics of your data set and the purpose of your map will determine which is best. An understanding of basic statistical concepts, such as mean, standard data distribution, is invaluable for understanding data classification.

- **Map Composition**

To communicate its message effectively, your map needs context: a title, a legend, a scale bar. Thus, the map is really just one element in the page layout (or map composition). Your layout can be designed for many types of display: **a paper printout, a computer monitor, or a wall-sized poster.**

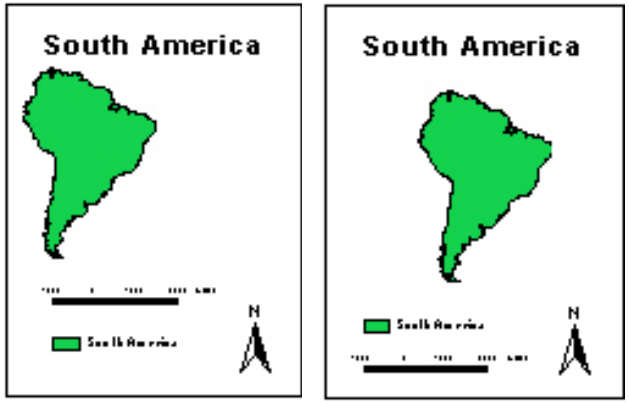
You should have some idea of how the map composition will be displayed before you begin designing the final layout, because that will influence some of the choices you will make. For example, if you are making a wall-sized map, you will need to make your text very large so it can be read from far away.

Map composition is really an exercise in graphic design. There are some guidelines to help you, but there are so many possibilities that it would be impractical to come up with a set of rules. Much of the design process is common sense: focus the viewer's attention on the important information and communicate your message as clearly as possible.

In practical terms, however, it may not be immediately obvious how to achieve these goals. Let's begin by looking at some of **the basic elements of design: balance, hierarchy,figure-ground relationships, and contrast.**

Much of the following discussion deals with perception, which is obviously subjective; the discussion is therefore very general.

- **Balance** refers to the arrangement of elements within the overall composition, and whether these elements appear stable or unsettled. A map with all the elements grouped on the left side will probably look unbalanced. If these elements are redistributed on the page, however, balance can be achieved.



Unbalanced Balanced

Research has shown that the visual center of a display is slightly above the geometric center of the display. This is the point that "naturally" attracts the viewer's attention. Organizing the map elements around the visual center can help achieve a balanced design.

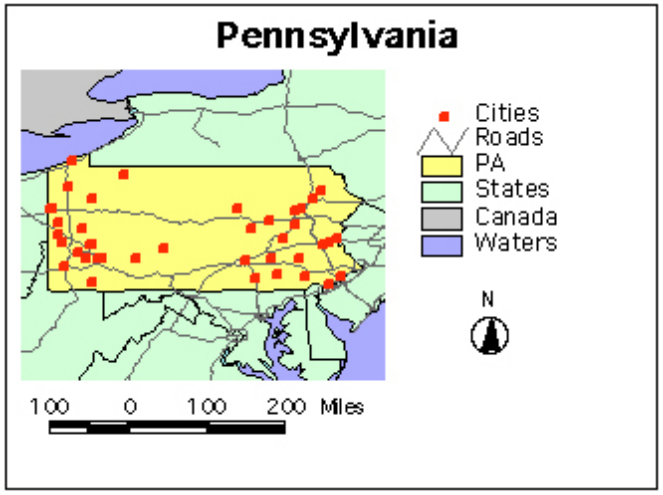
- **Hierarchy** refers to the perceived importance of the map elements. The most important information on a map should have more visual impact than the background information. This can be achieved by several methods, such as making important elements larger, or by using bright colors.

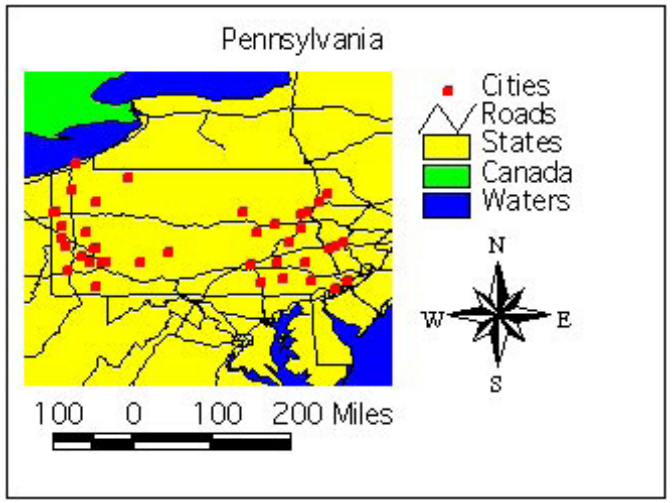
Generally, the map itself should attract the most attention, and the title also should be prominent. Secondary information such as a scale bar or notes about data sources should be less conspicuous. You might want to put the map in the center of the page and use a large type size for the title to draw attention to these elements.



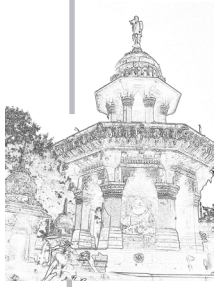
The following examples illustrate how the overall presentation of a given set of information can be changed dramatically by varying the position, sizing and coloring of various elements. By using bright colors, bold symbols, and large text, a clear visual hierarchy can be established. The map on the right down draws attention to the state of Pennsylvania, and specifically to the large towns.

Using a bright color for towns and subdued colors for states and water bodies draws attention to the towns. Different symbols have been used for state boundaries and roads, making it possible to distinguish between the two. Also, larger text has been used for the title than for secondary information, such as the scale bar.





In the map on the below, attention is drawn as much to the water bodies as to the cities of Pennsylvania. It is difficult to distinguish between roads and state boundaries. Because all of the text is the same size, one hardly notices the title. Also, the compass takes up as much space as the legend. There is no visual hierarchy; nothing on the page says “Look at me!”



The **figure-ground** relationship is part of the visual hierarchy. Objects that appear to stand out are “figures” while the background information is the “ground.” Important information such as symbols should appear as figure, while the context information should appear as ground. For example, black symbols on a white background will have a clear figure-ground relationship. The symbols will appear to be “above” the background. Transparent symbols on a white background will be less clear in figure ground representation.

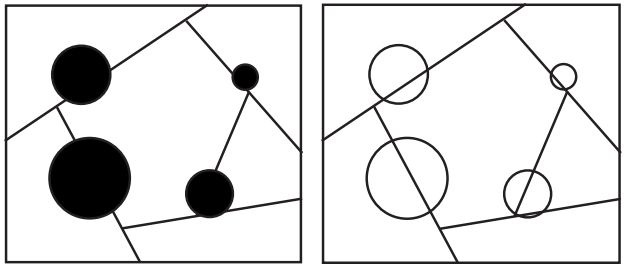


Figure-ground clear

Figure-ground unclear

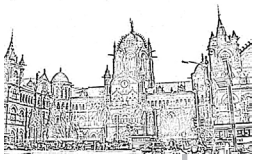
Whenever you map has both land and water bodies, you should establish the figure ground relationship so that it is clear what is land and what is water. Doing this can be as easy as shading the water bodies blue.

- **Contrast** refers to the degree to which different elements are distinguishable from one another. Objects that stand out from their back-ground have high contrast, while objects that seem to blend together have low contrast. Contrast, therefore, is useful for establishing figure-ground relationships.

  Contrast can be achieved through variations in color, value, pattern, line weight or type size. Using these design principles effectively will take some practice.

  Just as learning to type does not magically lead to a Pulitzer Prize, learning to operate GIS software does not magically lead to beautiful maps. Fortunately, software makes it easy to experiment with several alternative designs.

  In the days of hand- drawn maps, changing the typeface might require days of work; now, it can be done in seconds. Remember, also, that people’s taste differ, and there is no one as “perfect” map.



2.1 Analysis

There are many applications which help the tourist to navigate effectively in the unknown area. Like mobile applications, web maps, printed maps etc. But then each of these have problems because the need of the tourist who visit to Fort area has not been fulfilled. Like mobile applications can be used by the limited crowd as its not affordable. Web maps are not visible completely on the screen, so at a stretch you cannot see the whole map and also needs extra effort because it cannot be carried provided its printed. Coming to printed maps, they hardly provide information of a particular area.

There are few information brochure in which they have covered some specific area but not all. Considering the need of the tourist and the place, print map is considered to be the efficient option.

The above research tells the information about existing way finding applications & the important factors of map designing.

Findlay research paper helped in understanding the mentality of the tourist while navigating the area. So considering this point what factors should be added in the future map so that it helps the tourist to use the new improved map successfully.

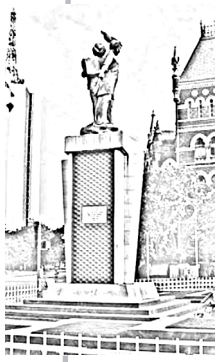
Lance Wyman tells about the importance of symbols while way finding and the procedure how symbols are created. For example as Fort area as many banks so the symbol which will show bank should be associated to it. Like it can be shown as bundled cash and pile of coins. This will help the tourist to locate Bank on the map very easily in less time. There are different types of map which follows significant factors while designing it. Those factors are notable while creating new map for Fort area.

They are **Map accuracy** which is different from Map details, accuracy deals with the distortion of the representation of features and details tell about the amount of information.

Resolution and scale are quite related to each other. For example Elphistone college will be smaller in size as compare to Chhatrapati Shivaji Terminus so this point should be considered while showing it on the map.

Completeness of the map will come only when all the important and famous places of Fort area will be shown. Like Fort area as a place where second hand books are sold in really reasonable rate and the collection of these books are really rare. So one should visit this place.

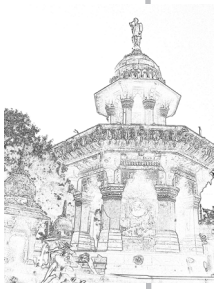
Even this will depend on



Selection and Simplification. It will be very difficult to put all places of Fort area so there has to be selection of the places which are known for Fort area. For example Fort area have many churches but only few of them are famous so that church has to be placed in the map.

There are other places also which has to be denoted though they are not specifically visited by tourist like banks. Fort area has many banks which has to be shown on the map. Simplification will lead to properly organized information which will help the tourist to locate the place on the map.

So for that **Classification** of the places has to be done. Fort area is covered with variety of places to be visited like heritage buildings, markets, art galleries, museums, food places, gardens etc. So accordingly they should be classified as per the preferences and should be denoted on the map using basic principals of design.



2.2 Data Collection

From the analysis it showed that a print map has to be created with the help of those significant factors. So it was necessary to know the complete information about Fort area, the existing maps, which maps normally tourist uses. What are the problems faced by the tourist using the existing maps.

About the area

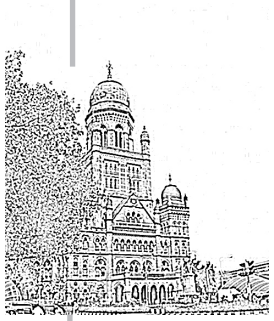
Fort is the business district of Mumbai, India. The area was the heart of the city during the 18th century. The area gets its name from the defensive fort, Fort St. George, built by the British East India Company around Bombay Castle. The area extends from the docks in the east, to Azad Maidan in the west; Chhatrapati Shivaji Terminus (formerly Victoria Terminus) in the north to Kala Ghoda in the south.

This area is the heart of the financial area of the city. Institutions such as the Bombay Stock Exchange, Reserve Bank of India and brokerage firms are located in this area. Dadabhai Naoroji Road (or D. N. Road) is an important road in Fort area. Siddharth Law College, J. N. Petit Library, Khadi Bhandar are on this road. The sidewalks are filled with vendors selling books, music cassettes, clothes, imported things like audio equipment, cameras, musical instruments and calculators etc.
The side streets from D. N. Road lead to schools, playgrounds, restaurants, cinemas and other important business houses.
This street is famous for its software vendors. Pirated versions of almost all software products are sold here, leading to frequent crackdowns. The vendors operate in a closed network in which they possess a shared stock of software products. The area is famous for its street shopping and the book stalls sell a myriad of books at negligible prices. Surrounded by old buildings the area is beautiful although getting defaced by the multitude of advertising banners.

The postal code for Fort is **400001 and Gatway is also situated in Fort area but its postal code is 400023.** So the fort area is covered with two postal codes.

According to the tourist point of view and giving apppropriate justice to the area following places were selected to be shown on the map. It begines with

1. Chatrapati Shivaji Terminus
2. Genral Post Office
3. Muncipal Corporation Mumbai
4. Hutatma Chowk
5. Flora Fountain
6. Ruttonsee Muljee Fountain
7. Horniman Circle
8. Town Hall
9. Reserve Bank
10. University of Mumbai
11. Raja Bhai Tower



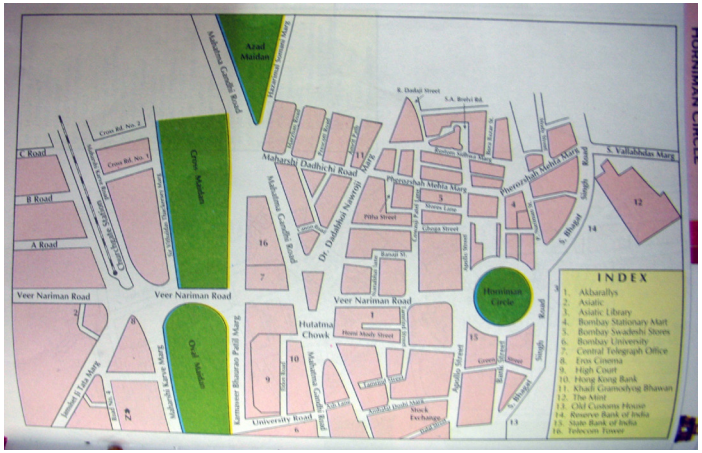
12. Mumbai High Court
13. Elphistone College
14. David Sasson LIbrary
15. Jehangir Art Gallery
16. Prince of Wales Museum
17. Lion Gate
18. Gateway of India

These are the significant places which should be visited by tourist. This takes almost three hours to cover above places by walk. As this area has many other places too which can be visited provided the tourist have time more than 3 hours or a day to cover Fort area completely with shopping too. The additional places are like Mumbai Stock Exchange, Khadi Bhandar, Second hand Book selling area, Shopping lanes etc.

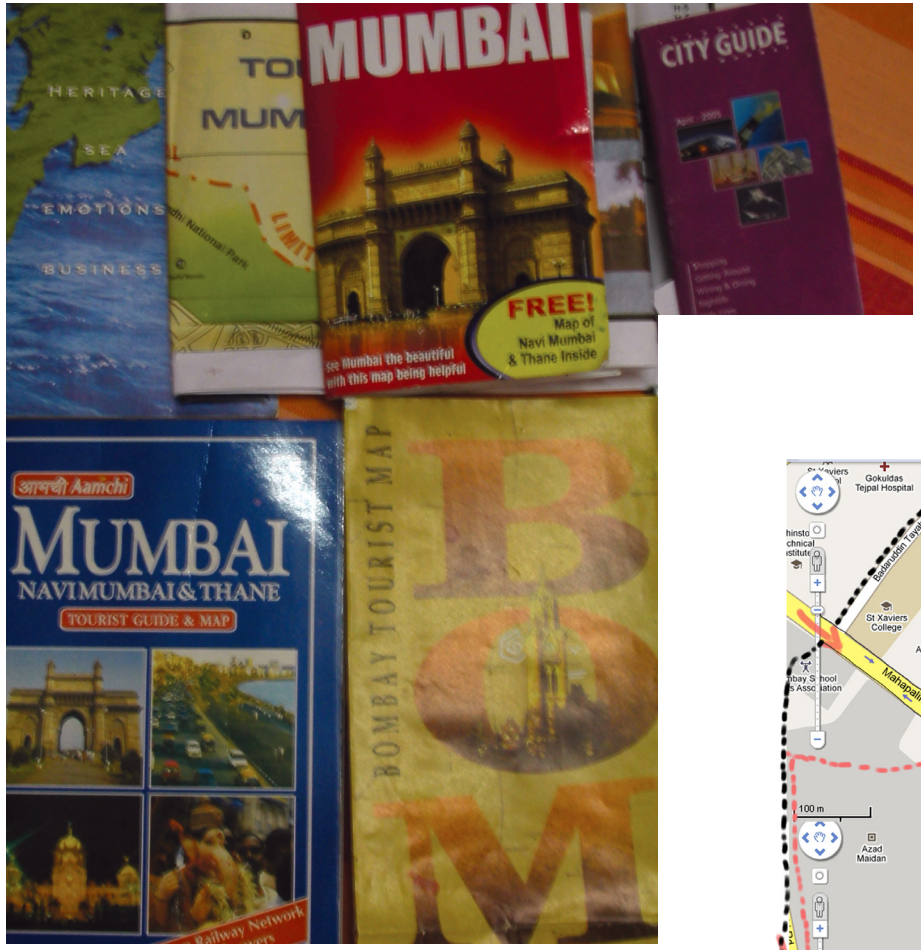
One of the existing map showed about the Fort area but it included so many adjacent areas which were really far from the main Fort area. So under the roof of Fort area the map included lot many other places too. So it was very necessary to find basically how much Fort area is spread out. There are few maps which zooms Nariman point and Horniman Circle respectively as shown in the above images. In Horniman Circle Fort area is also covered. But then its difficult to find how much Fort area is covered.











The main issue is the size of the map. All the exiting maps are of bigger size which cannot be handled. The adjacent images show all the existing maps available.



Thus Fort area begins with Chhatrapati Shivaji Terminus and ends at Gateway of India. Its very difficult to get a map which such zooms Fort area, so to know the actual boundary web map helped to solve this problem.(as shown in right side 1st image) The Black boundary runs from the border of Fort area. It also covers some adjacent places. To create this map I had to join the screens of the print screen images.
The other image shows the collage of the heritage place in the cutout of Fort area.



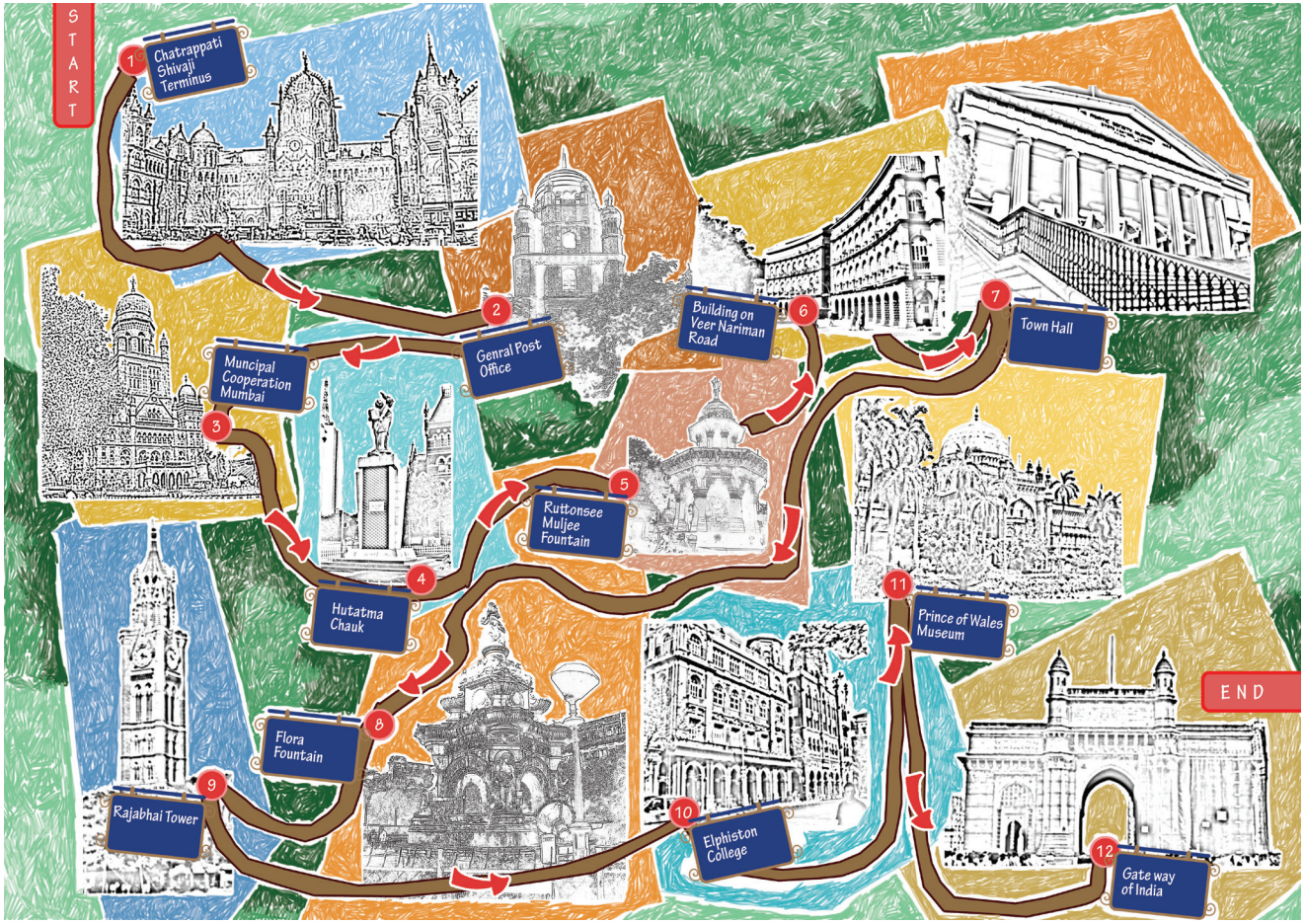


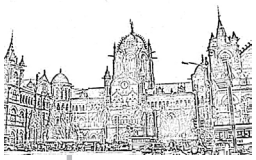
Problems faced by the existing Map

- Less visual representation
- Very less contrast used while showing certain landmarks.
- Loss of hierarchy which becomes difficult for the tourist to locate the place.
- There are no timings written about a particular place at what time it gets open at what days fort area is closed.
- It also does not provide extra information about a particular place. even it does not highlight the emergency places like hospital, police station.
- It does not even shows about the taxi stand or auto rickshaw stand, important bus stops.

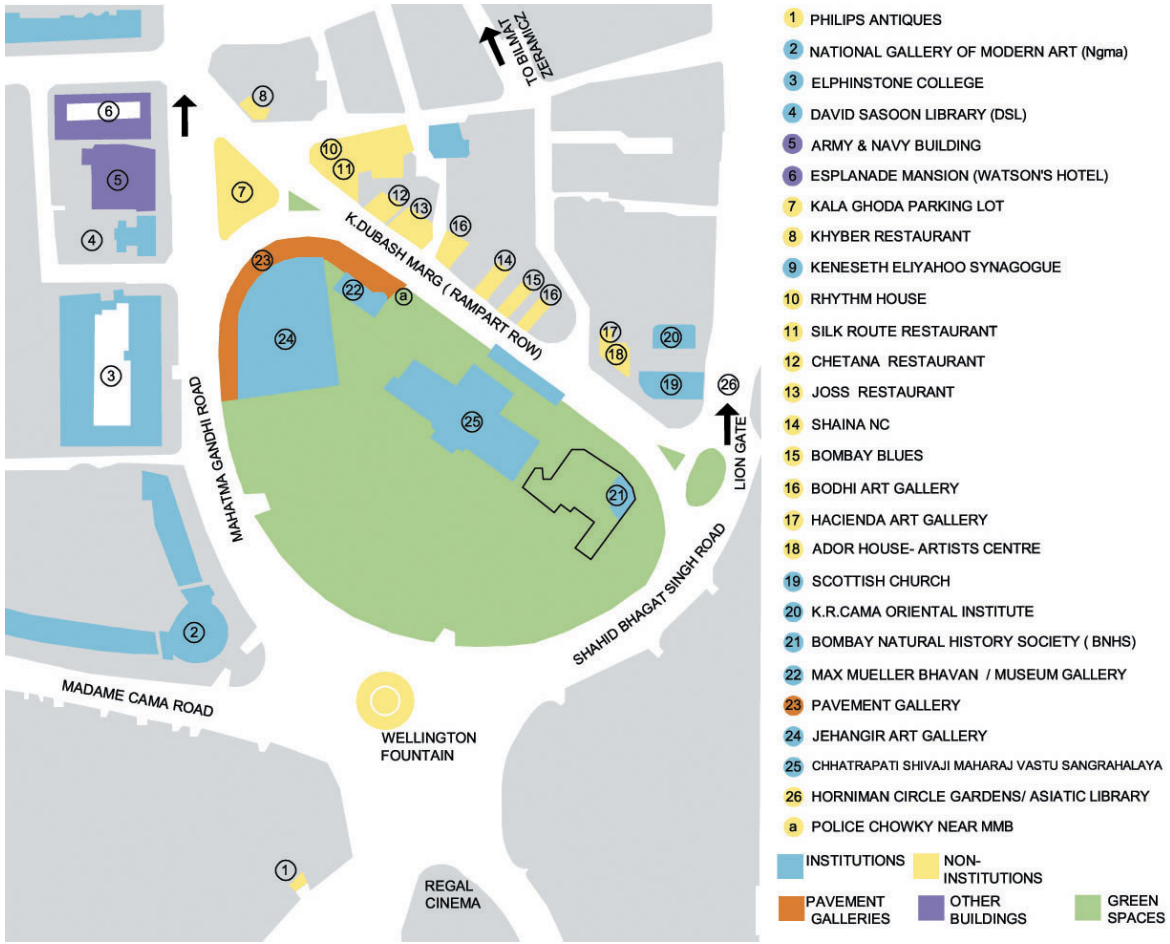
Considering the existing problems of the print maps and the need of the tourist visiting Fort area a Guided map was an efficient solution. Looking at Fort area map and navigating through it, viewed that the tourist places are located at walking distance if properly shortcuts are used. So to benefit the tourist by telling the shortcuts and roaming through this area by foot will be more fun because Fort area is filled with many attractive spots though they may not consider as tourist spots.
The image to right side shows the way I had gone through Fort area.

The map will also provide approximate time of walk between the distance of one place to another. For example from Chhatrapati Shivaji Terminus to General Post office it takes hardly 5 min. So accordingly all such time will be provided on the map which will help the tourist schedule there time for other things.





2.3 Existing Designs



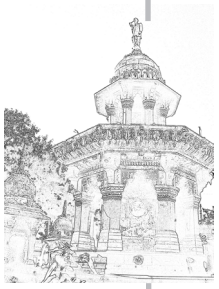
Kala Ghoda Map

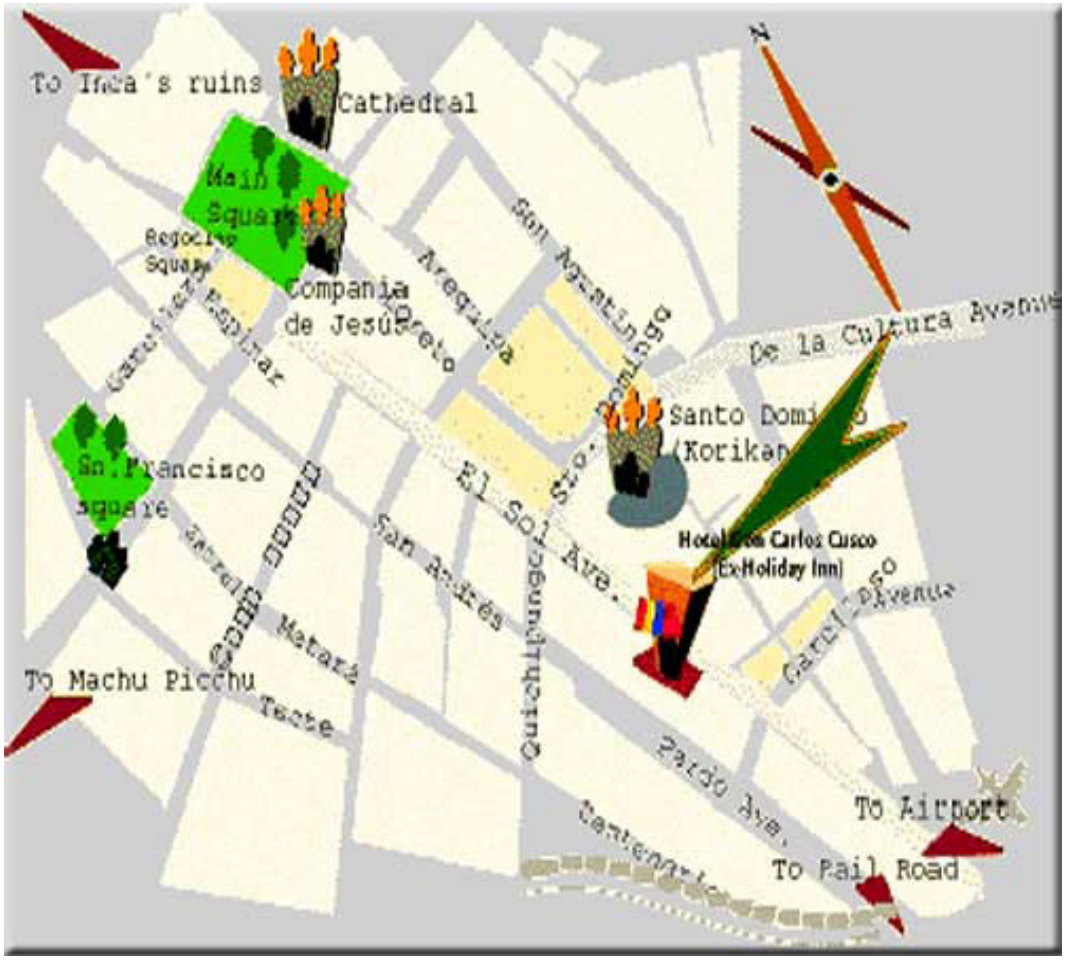
Pros

* Colour coding helps to read this map and understand it clearly.
* On the map numbers denote the place and a index is made which tells about the name. This is done because the whole name cannot be fitted.

Cons

* But in this map you don't understand from where the map begins, It takes time to locate number 1 place.



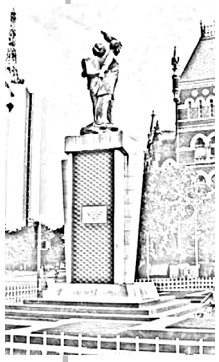


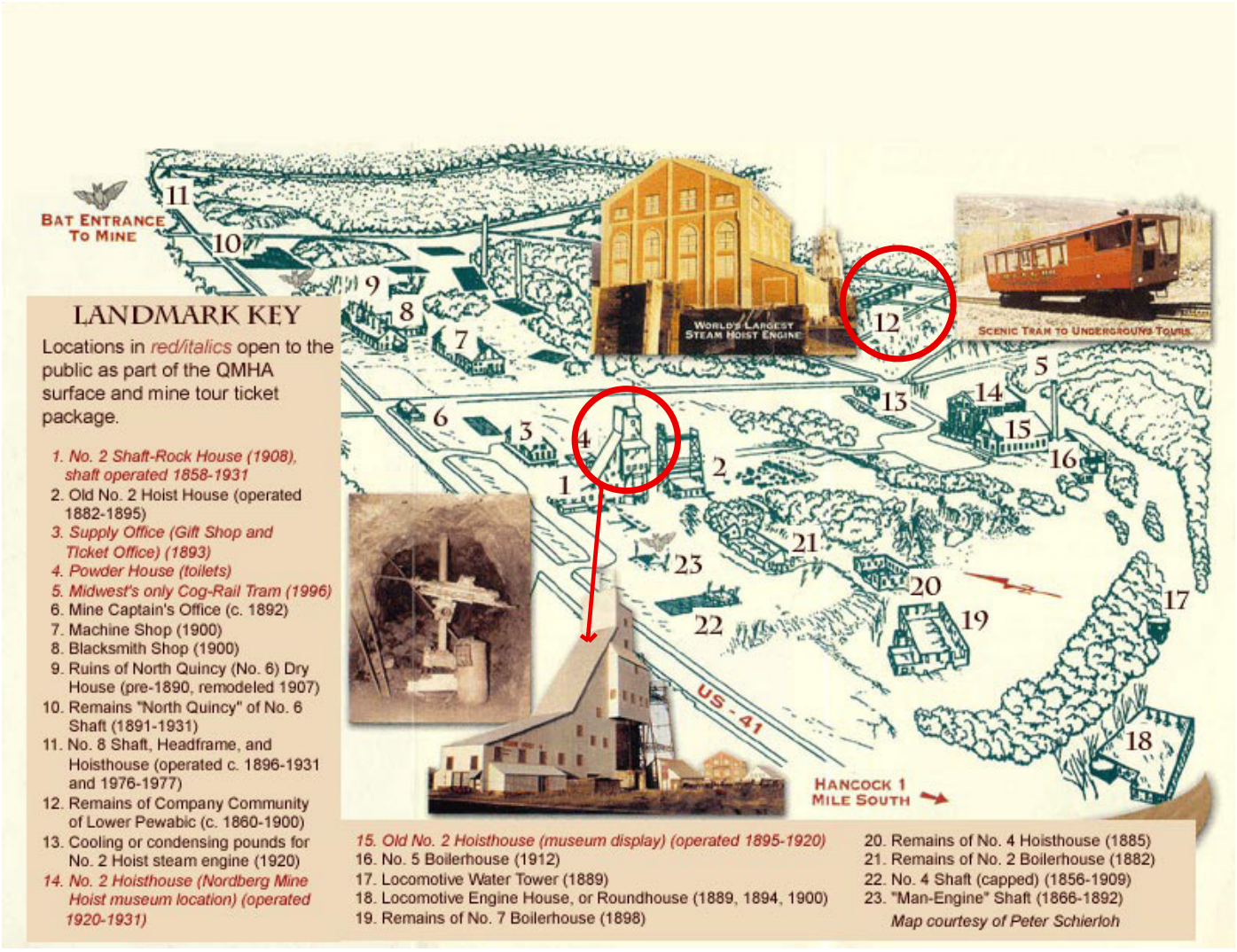
Pros

* The visual representation of the map is different.
* The names are written on the location itself.
* The symbols are placed in such way that it gives the feeling of three dimensions.
* The red triangles which are arrow showing the direction to a particular road and also indicates the number of entries in that area.

Cons

* There is no hierarchy in the font used in naming the roads and place name.
* Font size is also similar.



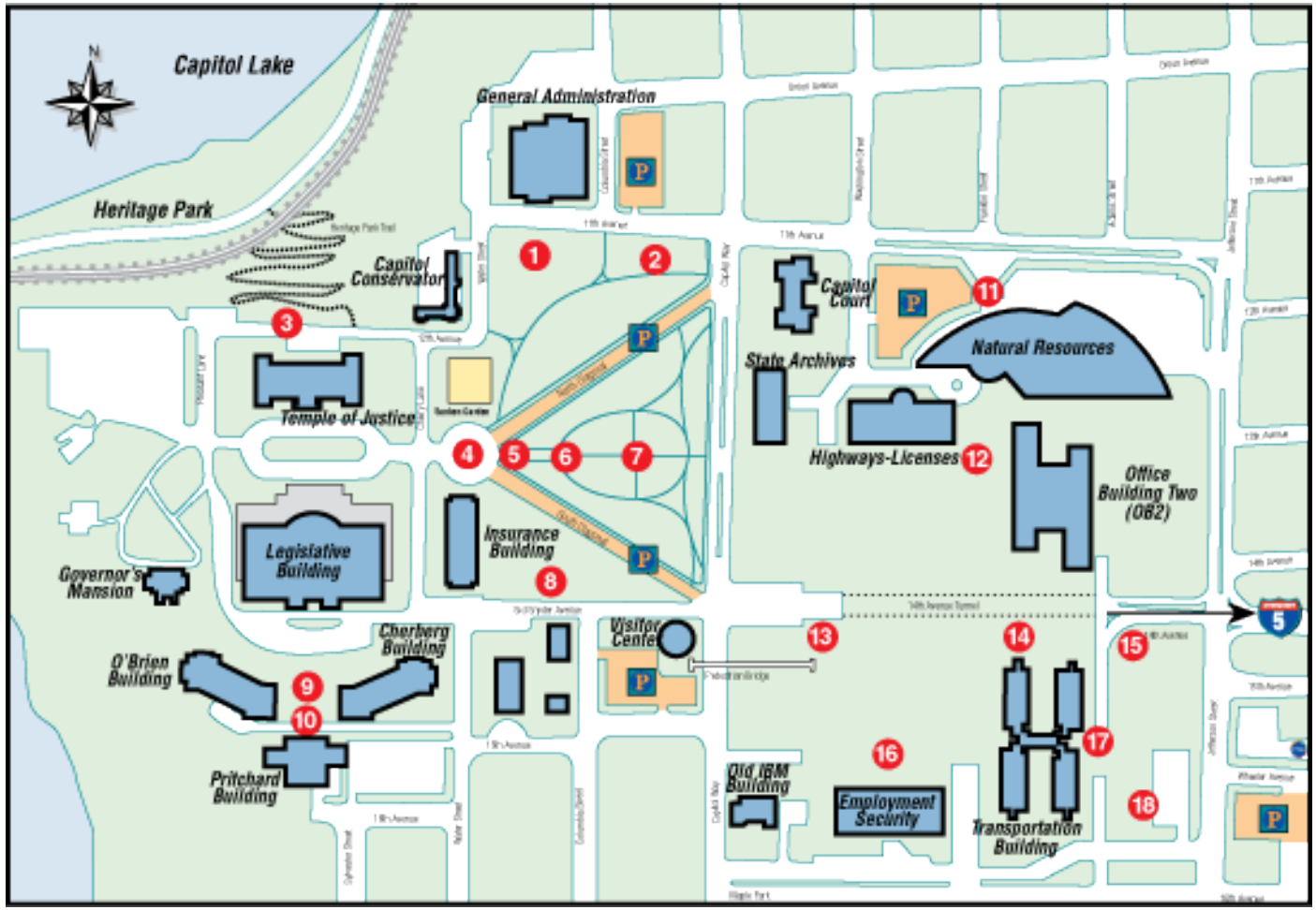


Pros

* The map has the actual images of the buildings to understand better.
* The view of the map is in perspective which is making it more look like three dimensional.

Cons

* The maps lacks the north direction sign.
* Though there are images but which number which building is not clear. It may create confusion building 12 is only 'Remains of Company Community' or the number where its placed is that area.
* Even Number 4 image is given so far that you have keenly see the image and then you can relate with it.

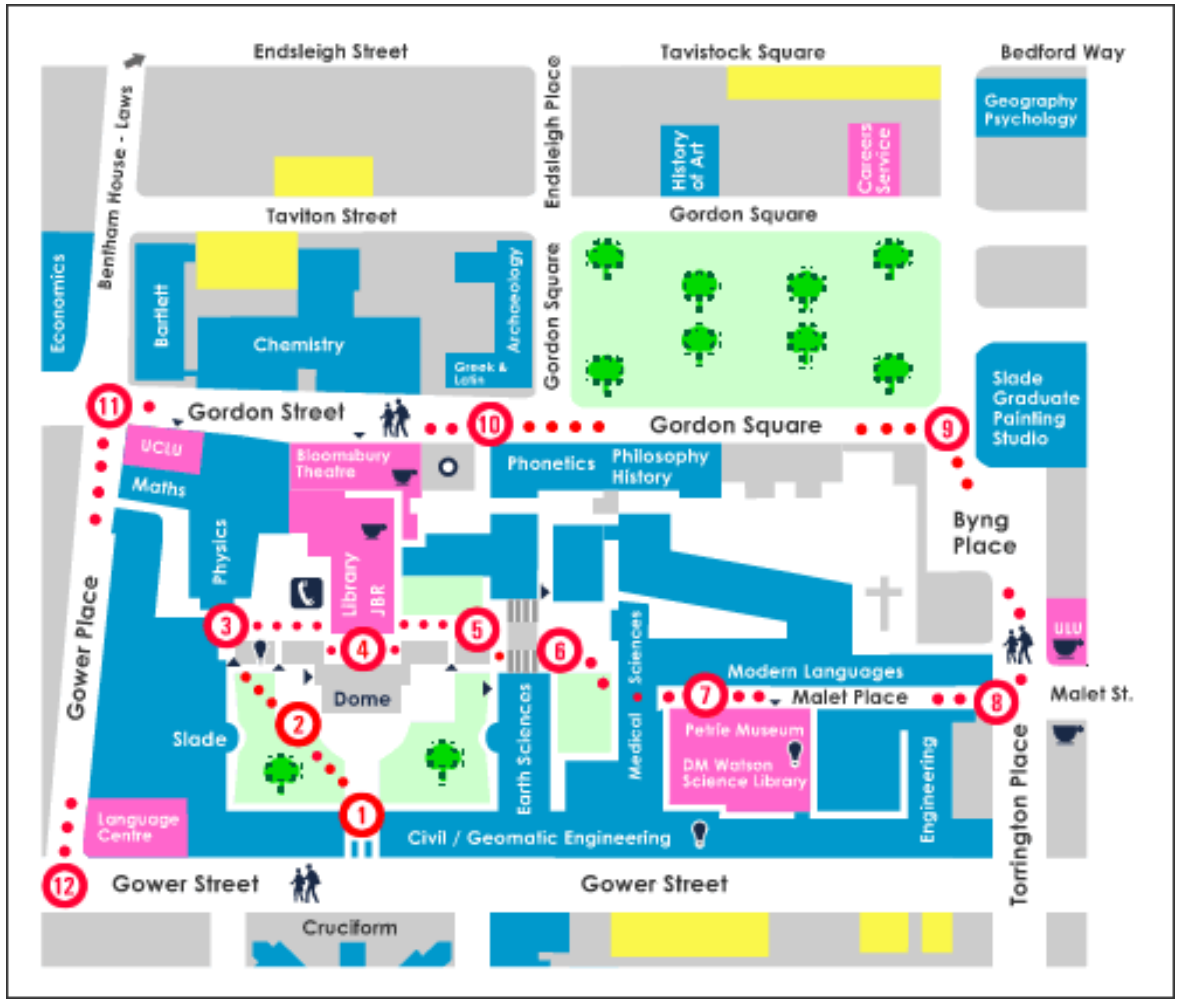


Pros

* This map has completely different representation of showing the building structure.
* The names of the place are written near the place itself.
* In this map its easy to locate number 1 as it goes from left to right direction.
* The top angle of the building that shape has incorporated.

Cons

* The Contrast of the map is weak.
* The colour coding is also weak.
* There are very few symbols used.



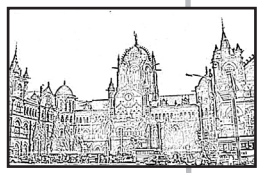
Map of Campus

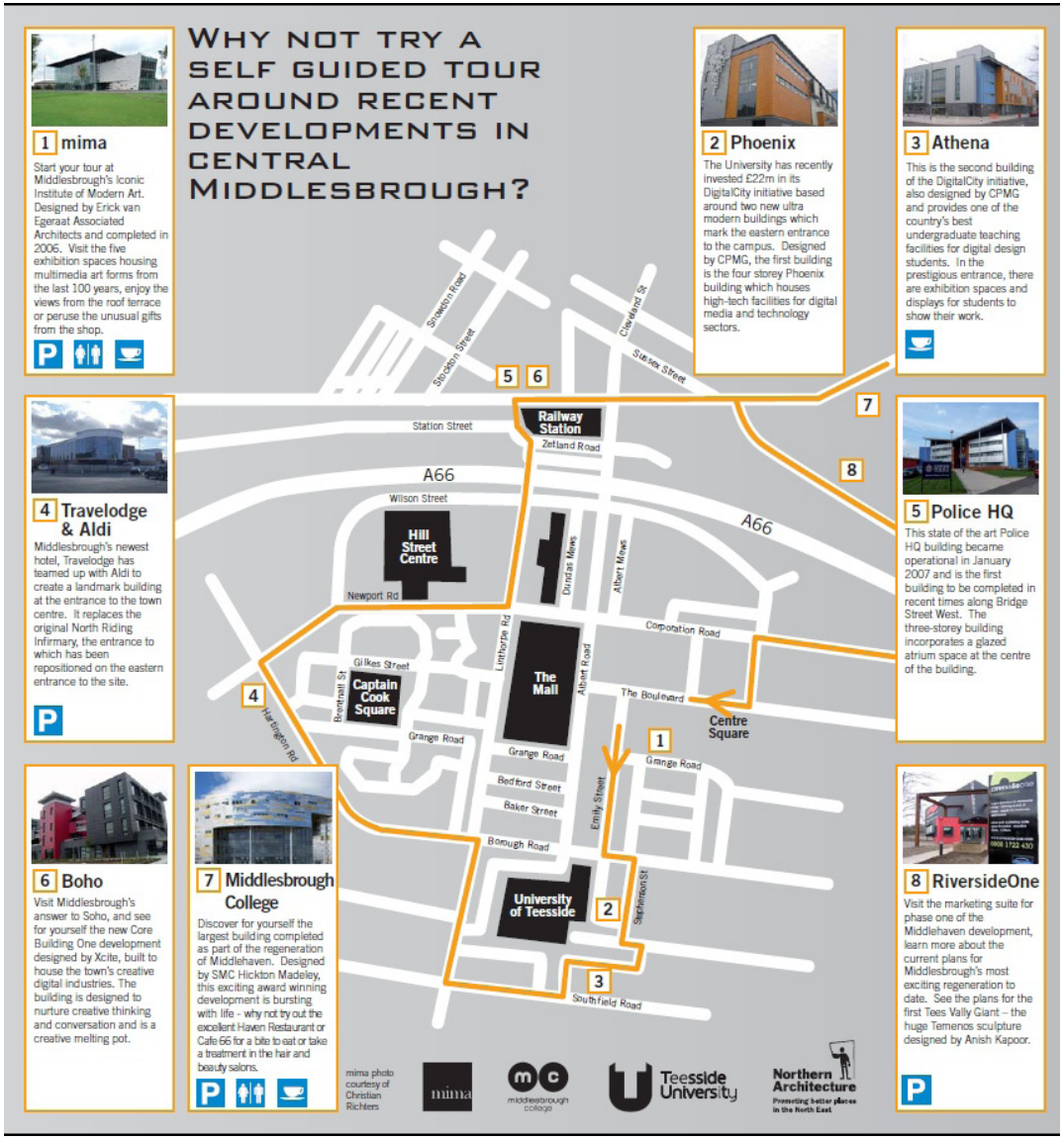
Pros

* This map has properly guided how well one can navigate through this area which is shown in red dots and a symbol of 2 students of college.
* The names of the building and there orientation depends how that building is actually in that area.
* The use of colour coding is done good all the blue patch shows the departments of the college and the pink patches shows the library. The map maintains the hierarchy with the help of colour coding.

Cons

* The area doesn't show the image of the building its just the patch covered.





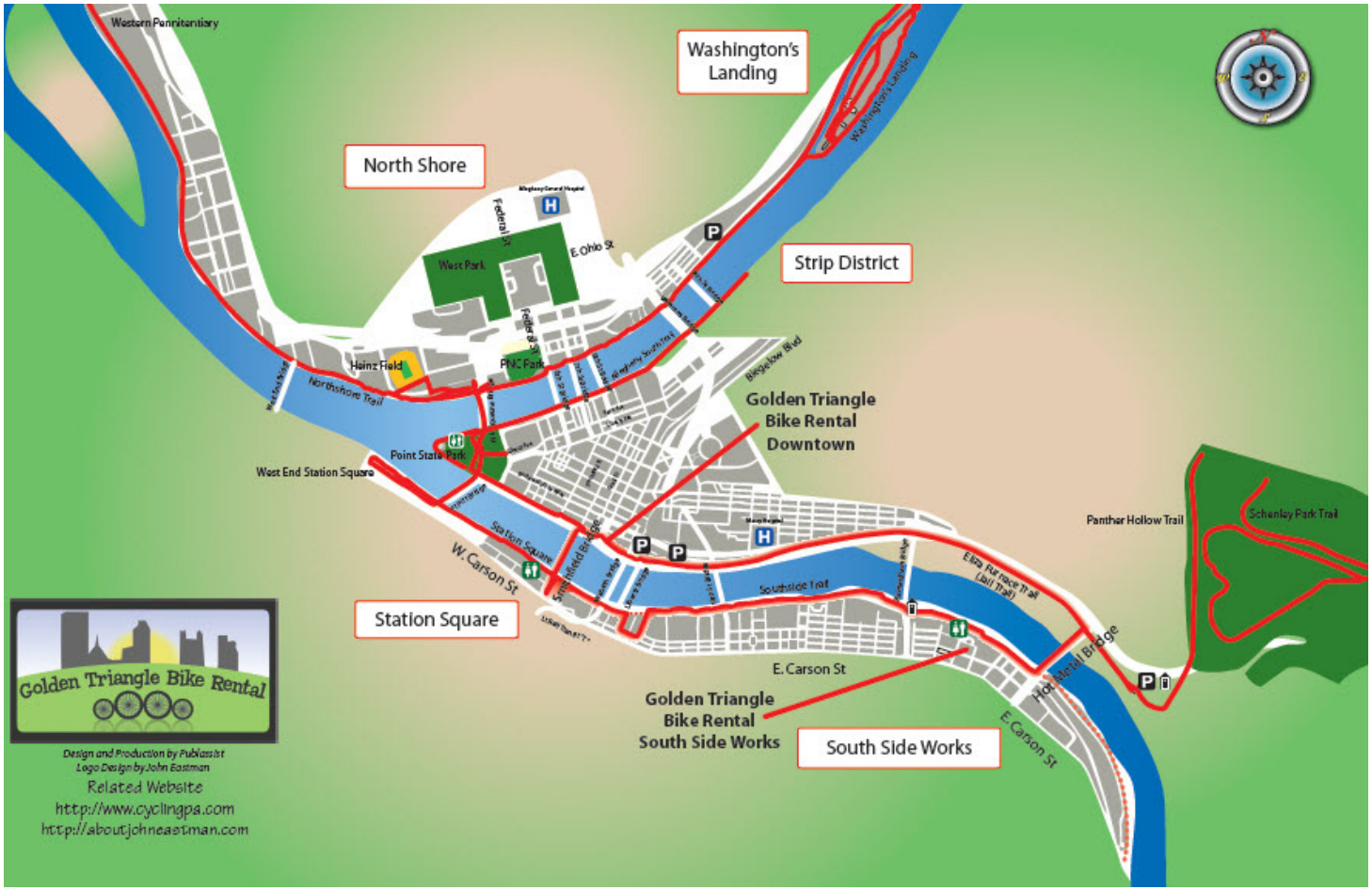


Pros

* Another really good example of self guided map.
* The images of the building with the information is unique feature of this map.
* It also incorporates the symbols.

Cons

* But this map lacks the beginning and end point.



Pros

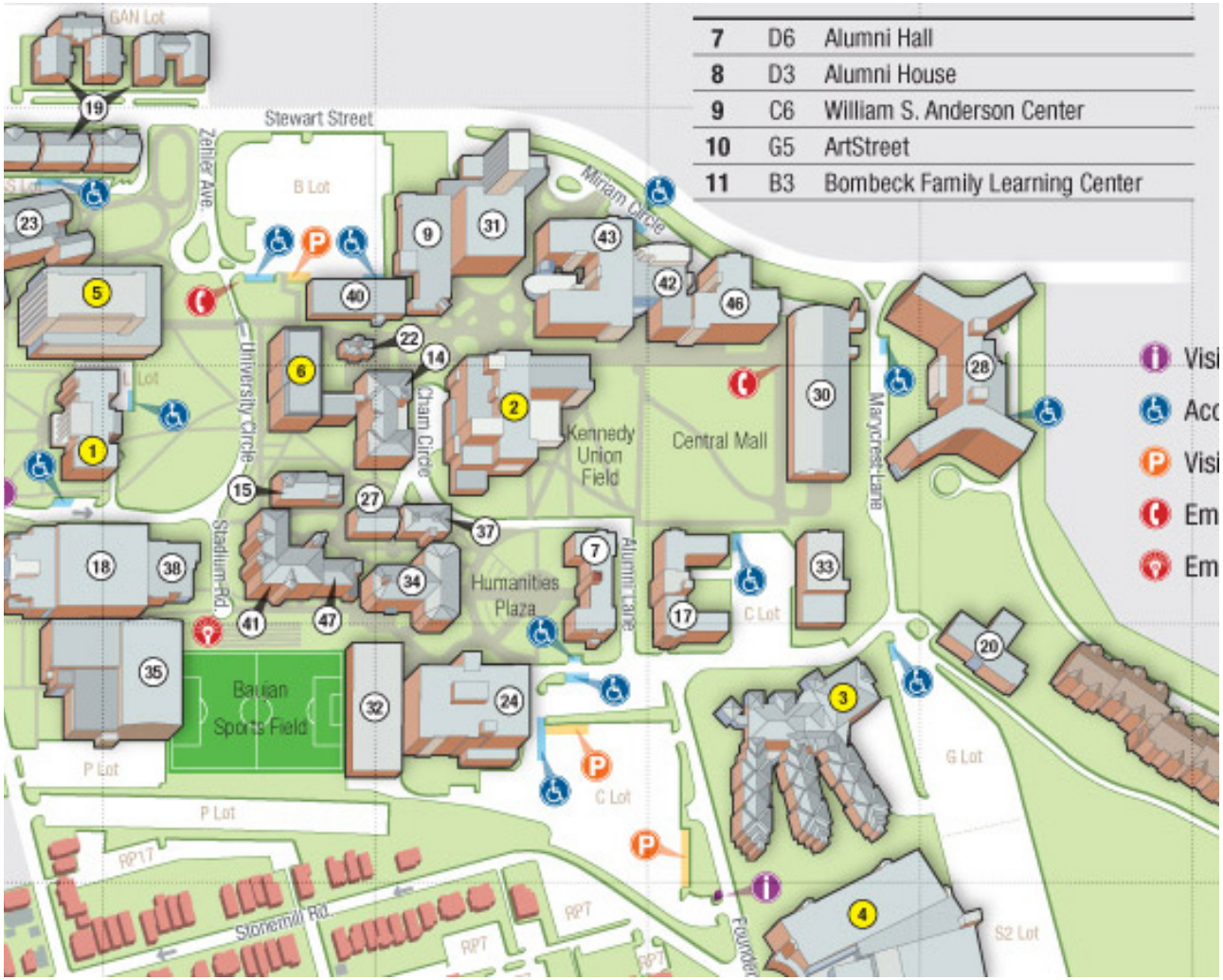
* The map is of Golden Triangle Bike Rental, its nicely shown in red line.
* The area names are also clear.
* There are symbols used to denote the place.
* Well use of colour coding is done which shows the hierarchy
* The names of the location are placed there it self.

Font size also suggest the importance of the area.

Cons

* There is no index showing what these symbols denotes.





Pros

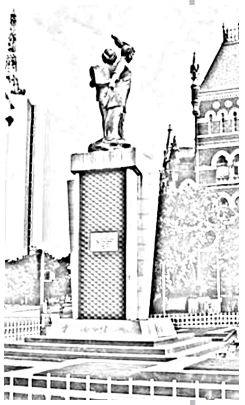
* This map shows the top angle of the building and that also with special effect of 3 dimensions.
* The map uses the symbols very cleverly which is very easy to understand.
* The map visually is very appealing because of its unique representation. The hierarchy, colour coding and the name of the place is located there it self.

Cons

* But its difficult for the user to imagine the actual view of the building. Because the angle is different.
* He may get confuse while
* locating it.



(The above image shows the complete view of the map)





Tree City USA

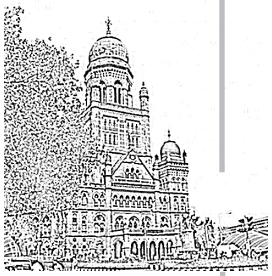
* Its a guided how to navigate in the map. Which is shown with the help of doted line.
* Its basically a map of trees in Westhampton Beach Perennial which gives the starting point.
* This Map is quite good example of the guided map.

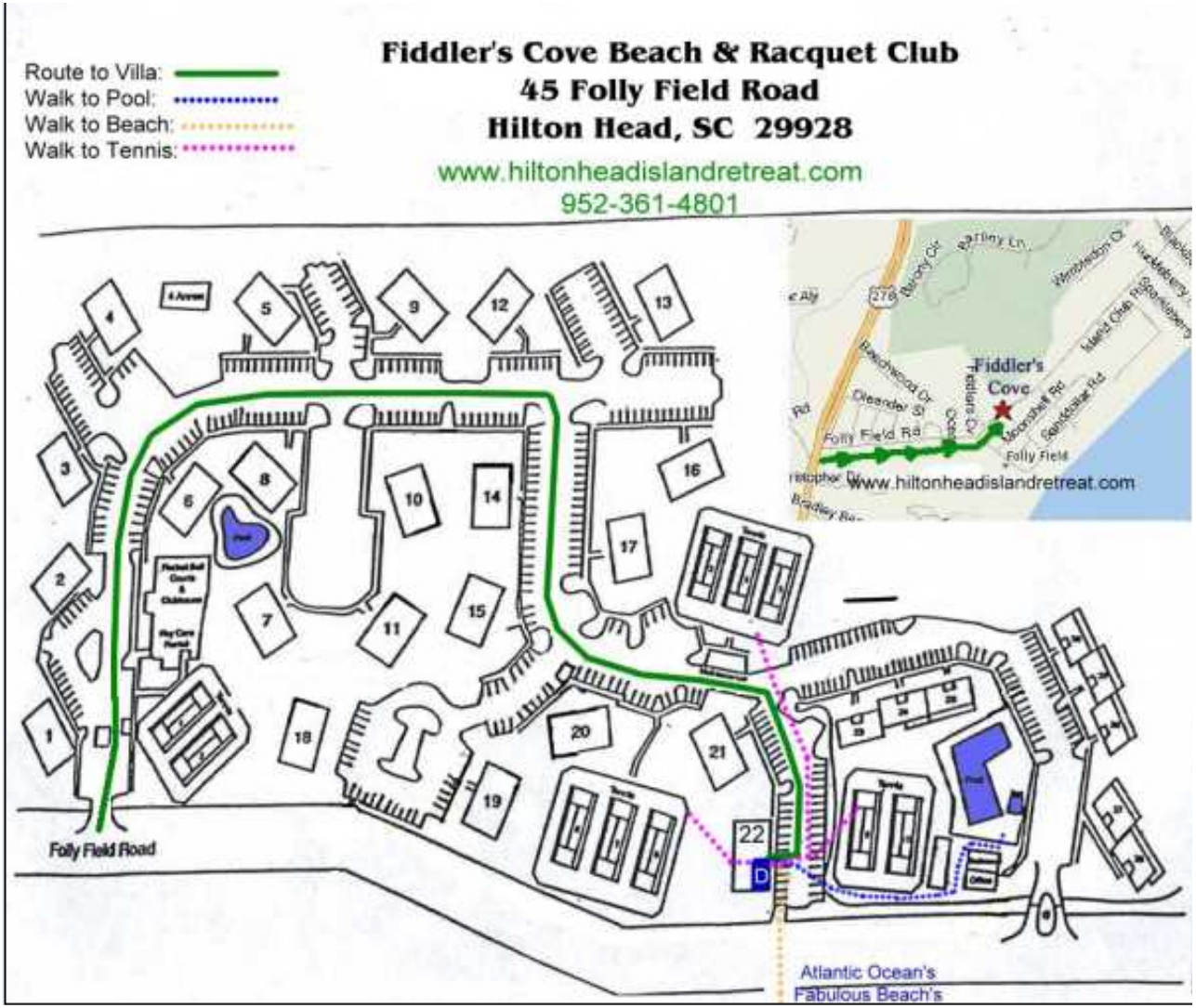


City of Brighton

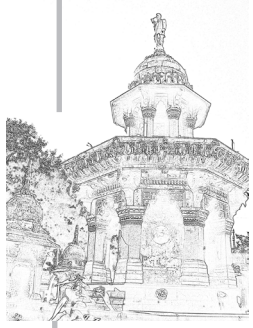
The representation of this map is really unique as its targeted to children. Very bright colours are used and the illustration style is suiting to the context.
The symbols used are also very attractive. The font is also used which will appeal to the context.

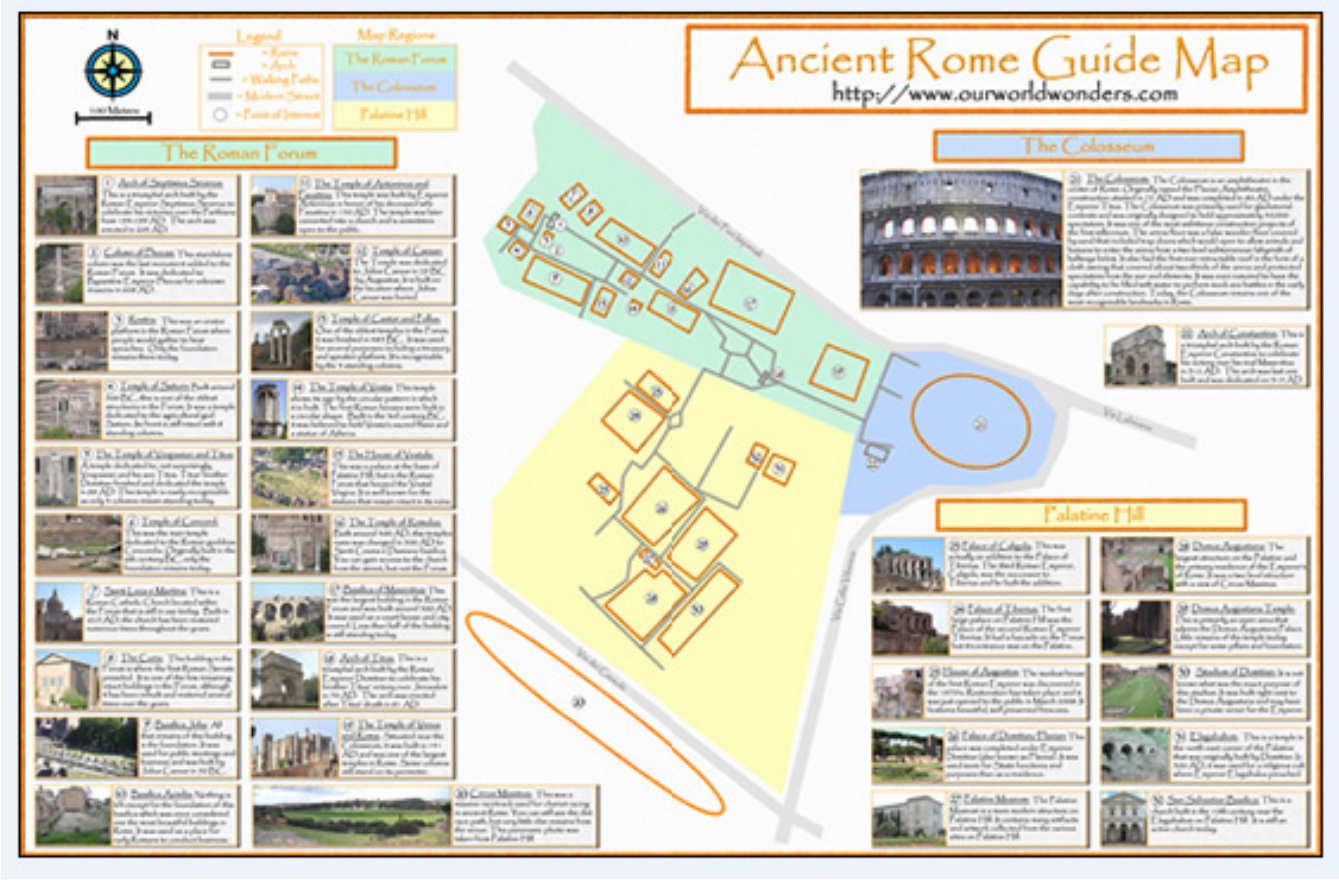
Each element put in this map is made in such way that the viewer will definitely enjoy it while exploring this area. As its for children very less attention is given to the proportion of the symbols. There is no scale used to depict the location like Brighton Museum and artist quarter is of same size.





* This map has shown four pathways which is denoted by the different style of lines and colour.
* This map is of Cove Beach but the illustration style is really dull.
* From the map it doesn't depict that its a map for beach because of less colour use.
* In the corner of the map it shows the enlarge view of one part but its not clear of which part of the map is zoomed.





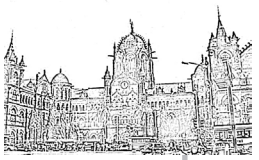
Ancient Rome Guide Map

Pros

* The map shows the visual as well as provide information.
* Actual images of the spots are taken so that it becomes easy for the viewers to compare it with actual building. For clarification it becomes really easy.
* The colour coding is done well, it becomes efficient to find the area in the map.
* The yellow thick line denotes the area of the spot covered in the map.

Cons

* The navigation in this map is not given.
* From where to begin to explore this area is not given.



2.4 Interaction with visitors

There was a **User study** done with 30 people asking a very simple question
how they find a place?
and following is the review.

- Most of the users use **Signage system**.
- If that is not available they ask **local people, shopkeepers, traffic police man**
- They **call a person or friend** who has already visited that place before and knows proper direction
- Takes help of **Map booklet.**
- Use **Google maps.**
- Use the **Map boards** which are put at the landmarks are at the beginning of the area.
- Some people have a sense of direction in built which help them to locate the desired place.
- They will ask at station on **help counters.**

So using this as refrence and including these important ponts in the design was the main task.



3.Focus Area

To begin with the design solution, the existing designs and the user study covered some important point which has to be included in the final output. Looking at the location and giving it appropriate justice as well as to the map users will be the focus area.

In the Map following things have to be focused...

Content

- The significant places which are selected have to focused and given utmost visibility.
- There are other places which has to be exhibit in the map but they don't have to explained in detail.
- The Fort map as its targeted to the tourist, thinking from his point of view the area for food, emergency places like hospital police station, washrooms has to be included in the map.
- As the existing maps doesn't show the timings of opening of art galleries, museums have to be included.
- It also fails in writing on which day that area is closed.
- The language and symbols has to understood by the user.

Material

- As the map has to be printed and it has to be carried with the user so the thickness and the size of the paper matters a lot.
- The durability of the material should be lasting because its in constant use while travelling.

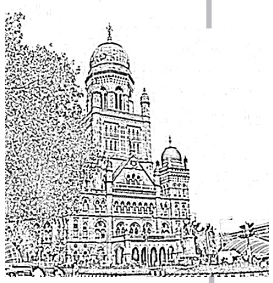
While folding the maps, the folds of that material should not get teared.

Size and Dimensions

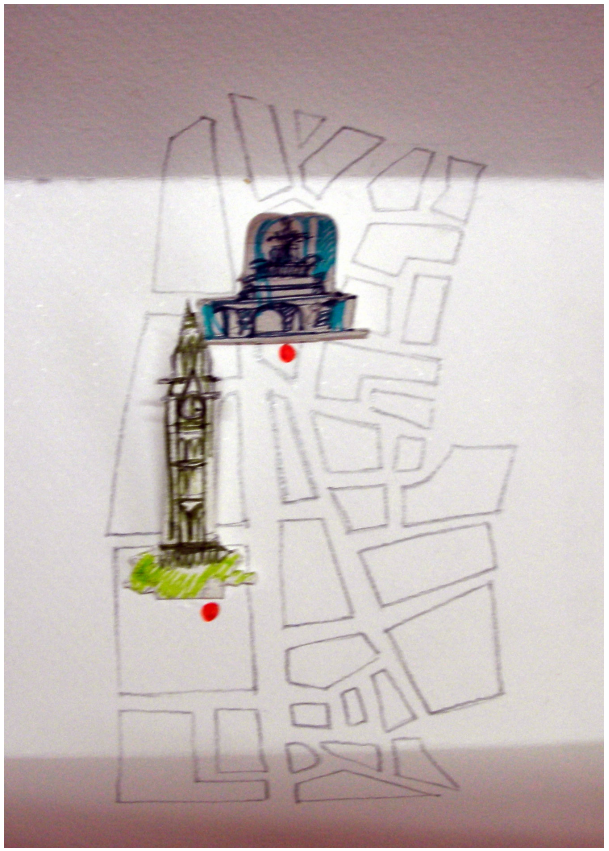
- **As this map content lot of information that much of layer of information has to be fited in the limited size is also focused.**

- **The weight of this map which depends upon the thickness of the paper is also important issue which is considered beacuse tourist has to refer this map while navigating through this area.**

- **Different types of folds of the map will open to lot many avenues of execution.**



4.Ideation



The objective of the project is to design a guided map for the tourist covering all the information needed by the user.
Following are the ideas which discuss different types of execution.

1. POP UP
2. SLIDE
3. LAYER
4. AREA

1. POP UP

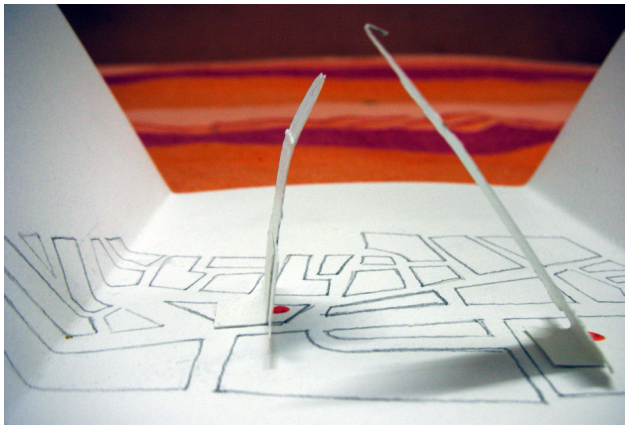
The image of the building will be popup after opening the map. The image of the building shows the front and back facade.

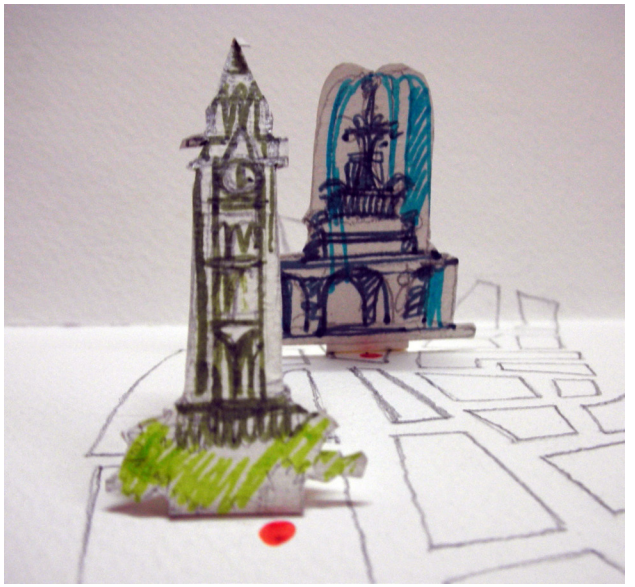
Advantages

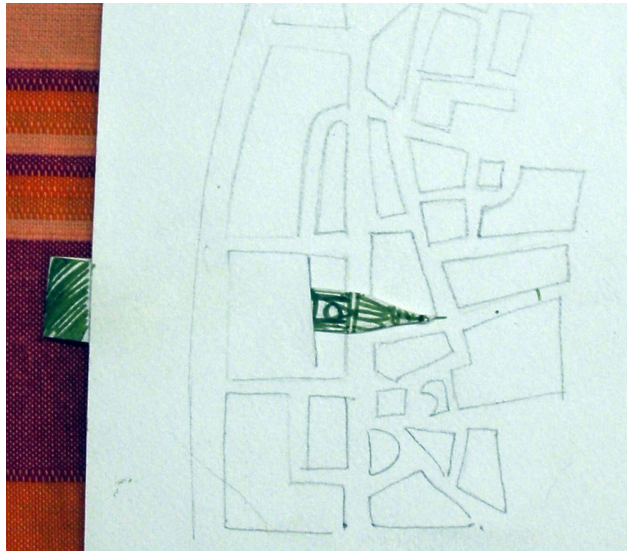
- Interesting view of the building.
- Occupies less space in the map while executing.
- Appearance of the map changes.

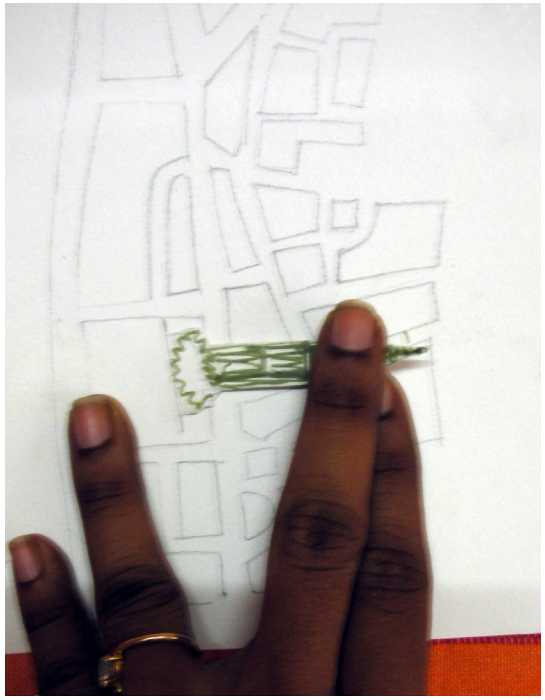
Disadvantages

- Difficult to fold the map
- Difficult to handle as its very delicate.
- Not easy to carry
- Investing more in manufacturing these types of maps.









2. SLIDE

The mechanism os sliding is that the image of the building would slides. First is shows partial part then after sliding its shows total image with information.

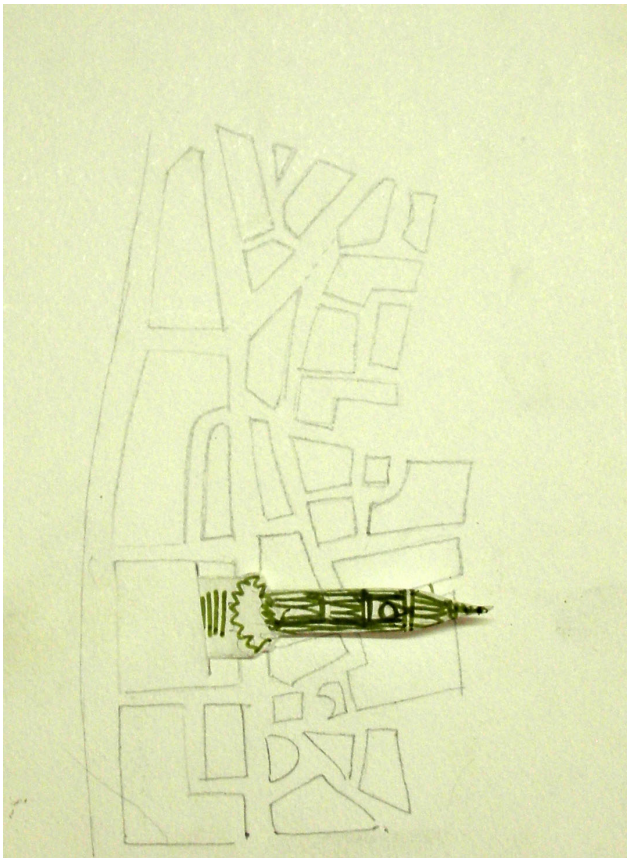
Sliding of the building was done in two ways depending on orientation of the building. In first case the building was slides in north direction and in second case the orientation was changed depending on actually according to the north direction how the building is located and how the user is going to see in the map.

Advantages

- Developing the curiosity
- While executing it takes less space.
- The placing of the building and the orientation can be played.
- Additional information can be added on the slide

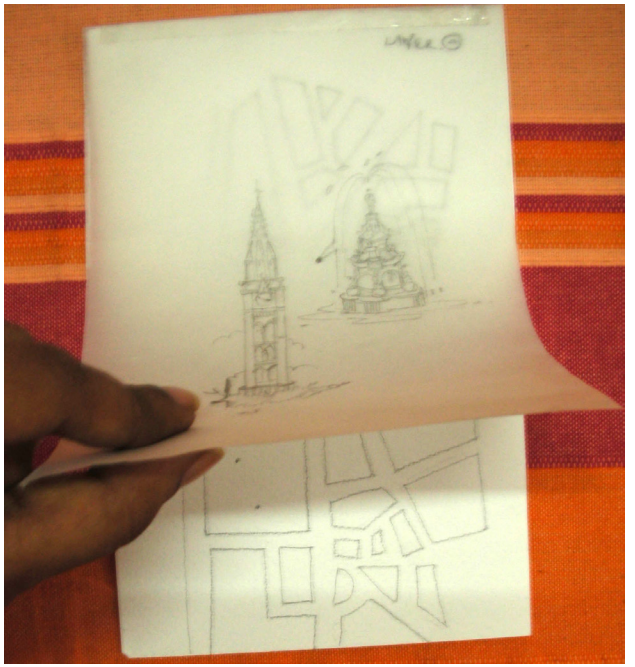
Disadvantages

- Thickness of the map increases.
- Difficult to fold the map
- Difficult to handle as its very delicate.
- Not easy to carry.
- Lot of cost will be required for manufacturing.



3. LAYER

The concept of layer came as there is lot of information needed by the user and to show the hierarchy it was better example. Here only one layer is added to show the enlarge view of the image of the building rest all the information is on basic layer. As per the information that much layers can be added. But the issue is the size of the map. Reduction in the size of the map can be handy as well there will be no folds, it will be printed on single page less than A-4 size.



a) Single layer

Advantages

- Important information with zoomed image is placed on the upper layer.
- Easy for navigation.
- Hierarchy has been created.
- Orientation of the building can be placed as per the building is actually placed in the area.
- More place for information to show.

Disadvantages

- Thickness of the map increases.
- Difficult to fold the map. If the size is more than A-4





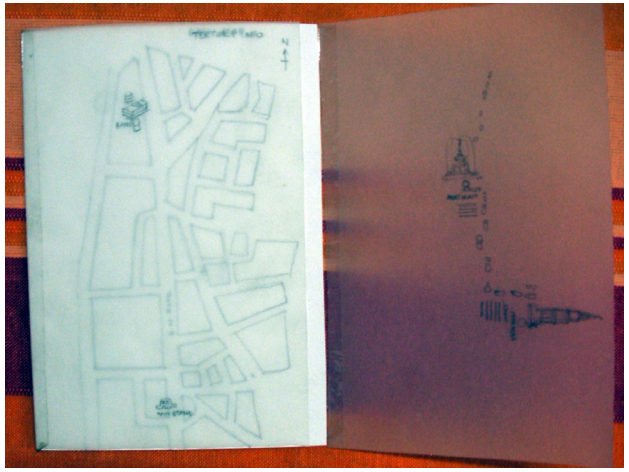
b) Double layer

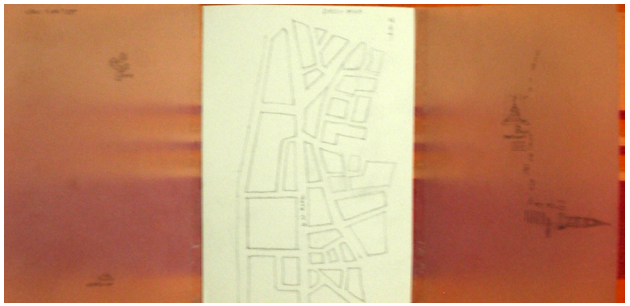
Advantages

- Important information with zoomed image is placed on the upper layer.
- Tertiary Information has been placed on the second layer.
- As per the need the layer page can be seen.
- Basic map would be on the main page.
- Easy for navigation.
- Hierarchy has been created.
- Orientation of the building can be placed as per the building is actually placed in the area.
- More place for information to show.
- The basic main page is quite blank where personal notes can be written.

Disadvantages

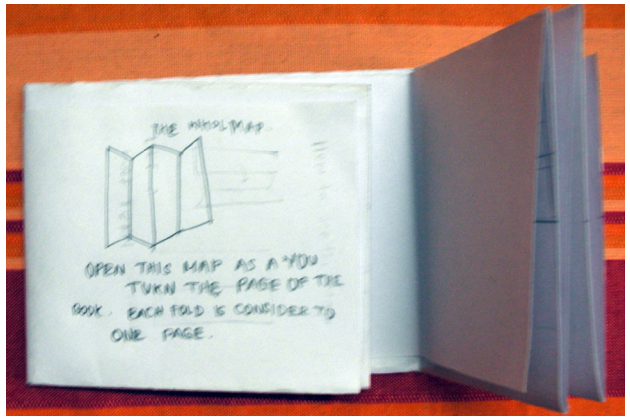
- Thickness of the map increases.
- Difficult to fold the map. If the actual size of the map exceeds A-4.
- Difficult to handle the layers while standing.











4. AREA

As the information is more trying out one option of increasing the size of the paper and folding it such way that it doesn't create a tough job for the users.

a) As per the fold.

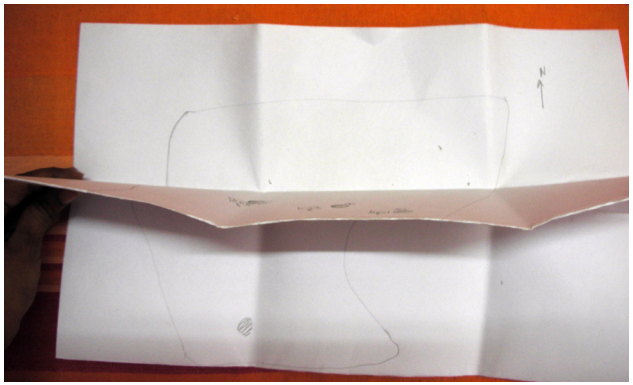
Advantages

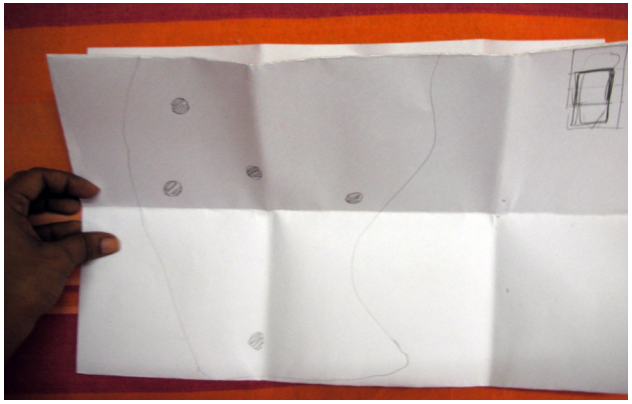
- Trying to increase the page size so that the visual and information of the building can be clearly visible.
- Folding of the map is done in such a way that only two places can be seen on the map.
- It becomes easy for navigation.
- Less chances of getting confuse.
- The map begins as per its guided.

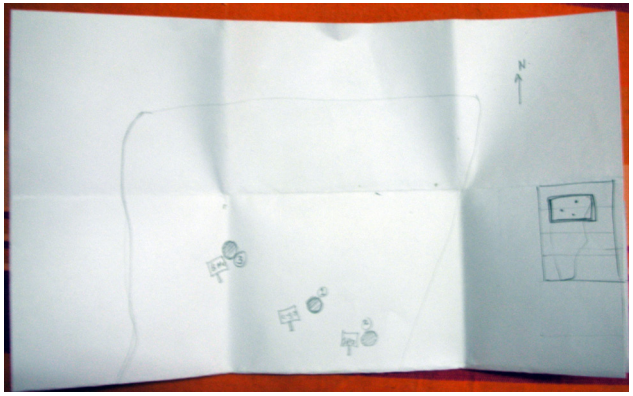
Disadvantages

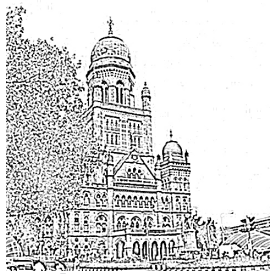
- Tendency of opening the whole map.
- Then difficult to handle.
- Then difficult to fold.

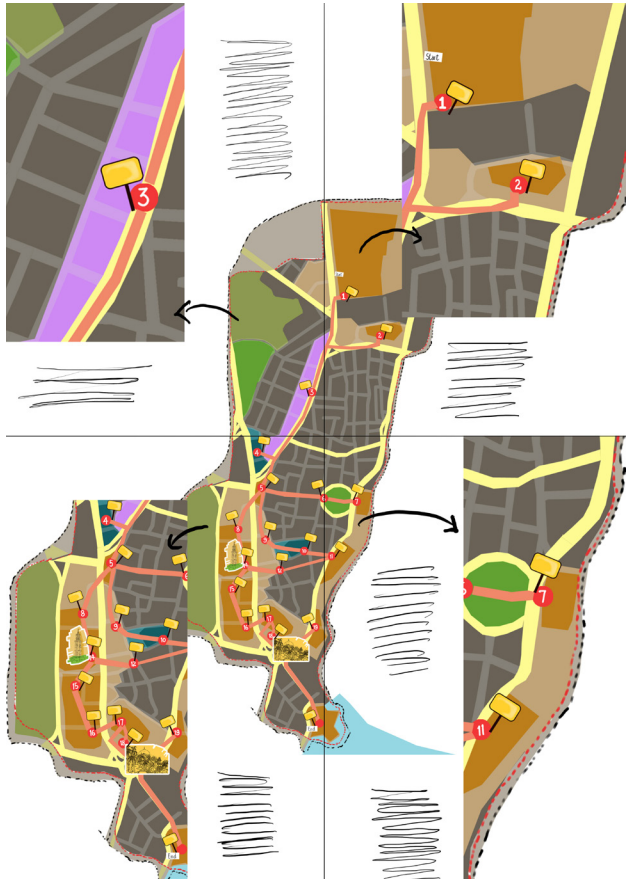
The images are arranged in sequence from left to right which explains the procedure of using this map.











The representation of this map is little bit different. Its done A-3 size sheet.

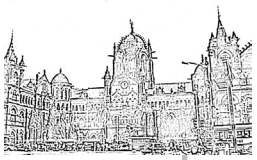
b) Divided into 4 parts

Advantages

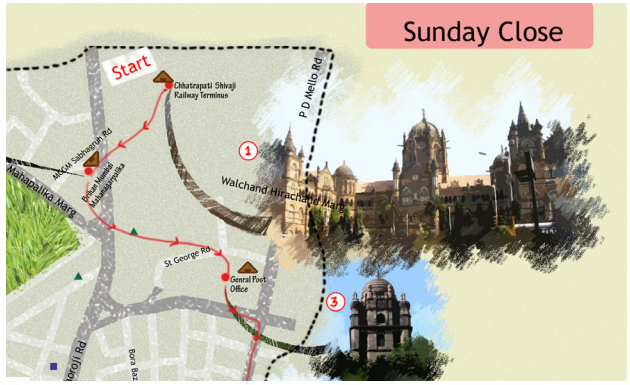
- Trying to increase the page size so that the visual and information of the building can be clearly visible.
- Dividing the map into 4 parts and zooming in that way.
- It becomes easy for navigation.
- Less chances of getting confuse.
- The map begins as per its guided.

Disadvantages.

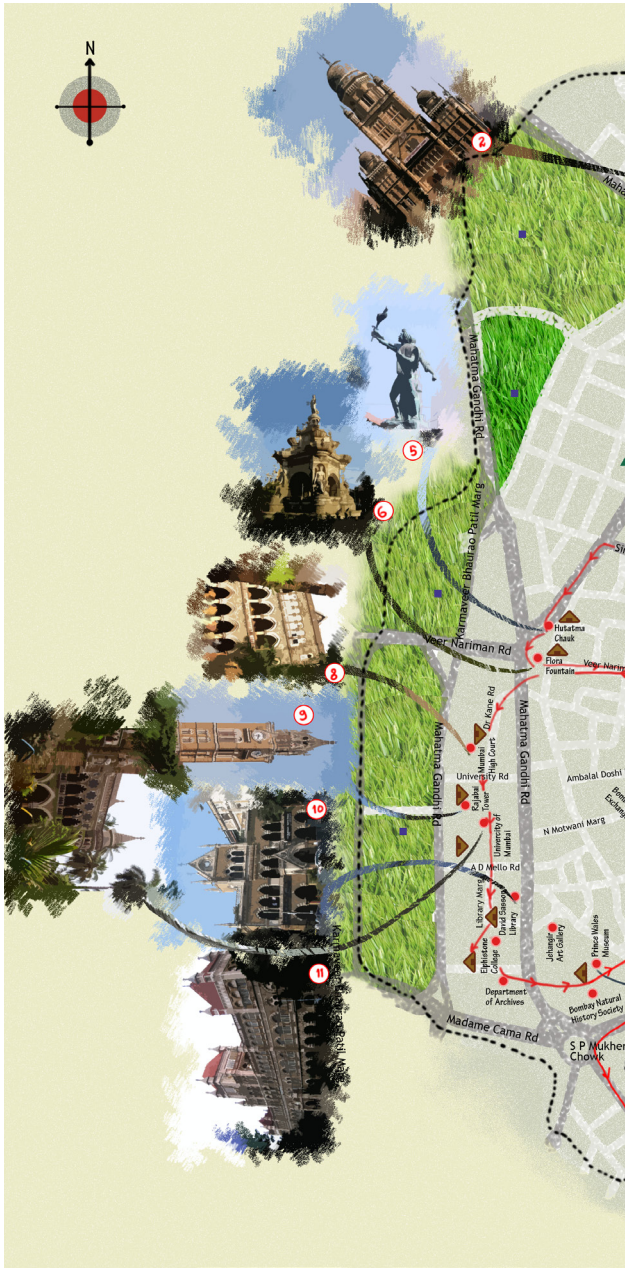
- It was very obvious way to show the information.
- Then difficult to handle.
- Then difficult to fold.







This was another folded map where a different type of illustration style is used.
The image to the right side shows clearly the illustration style.
Here in this map the images of the tourist places are shown nearer to the map itself so that the tourist can relate it faster.
The orientation of the building is purposely not towards north direction but are oriented as they are situated in that area.
The idea behind using this concept was that at a glance the tourist will recognize buildings oriented towards north, at least they would be confident about one direction and find the other by taking support of other buildings.





Moving Beyond the Basics

The **material** of the map can be playful. If this map has to be used at night it can be printed in radium or the ink which glows at night and is charged by sunlight.

The **Mechanism of Measuring tape**
The magnetic force which is used in measuring tape to pull back, similarly it can be used in map design. A roll of paper attached in the same will have the map and here there are chances to increase the size of the paper.

After rolling it becomes cylinder for which is easy to handle and there are no issues for folding it. Because of magnetic force it will automatically go back as you release it.

Maps do not have to be static images on a page. Maps can be integrated with text, sound and video as part of a multimedia presentation. Maps have even been turned into movies - a series of maps showing population changes in a city, for example, can be turned into an animated sequence. Technology is changing at a phenomenal rate, providing new tools for visualization and communication all the time. Keep your mind open to the possibilities.



5.Towards the Final Concept



Conclusion and future work

Fort area is rich in information because its covered with rich locations and which has to be conveyed to the tourist. Considering the existing problem and need of making map which will to some extent help the tourist to explore this area without getting exhausted.

From the concepts discussed in the Ideation chapter the idea of using layers to show the information in visual forms is one of the suitable solution which will fulfill the needs of the users. These layers will be divided depending on the information. The main 20 places which has to be visited by tourist are considered to be main layers. Even these 20 places have some heritage buildings, markets, art galleries etc so accordingly the layers will have the information about them.

As this map is guided map and its a walk able map it will also have the information about the time how much each place is located. The distance between two places will be measured on the average speed of walking.

This map is purposely done walk able because in Fort area all these 20 places are near by provided the tourist navigates using shortcuts. Therefore the solution will be guided, the map will tell from where to begin and end the journey. The total time required to see the fort area covering this map requires almost more than 6 hours. So in this map even places of eating and marketing too are added.

It will also include the main places of Fort area which can be covered in less time if a user has less time in his hand and is interested in exploring the area.

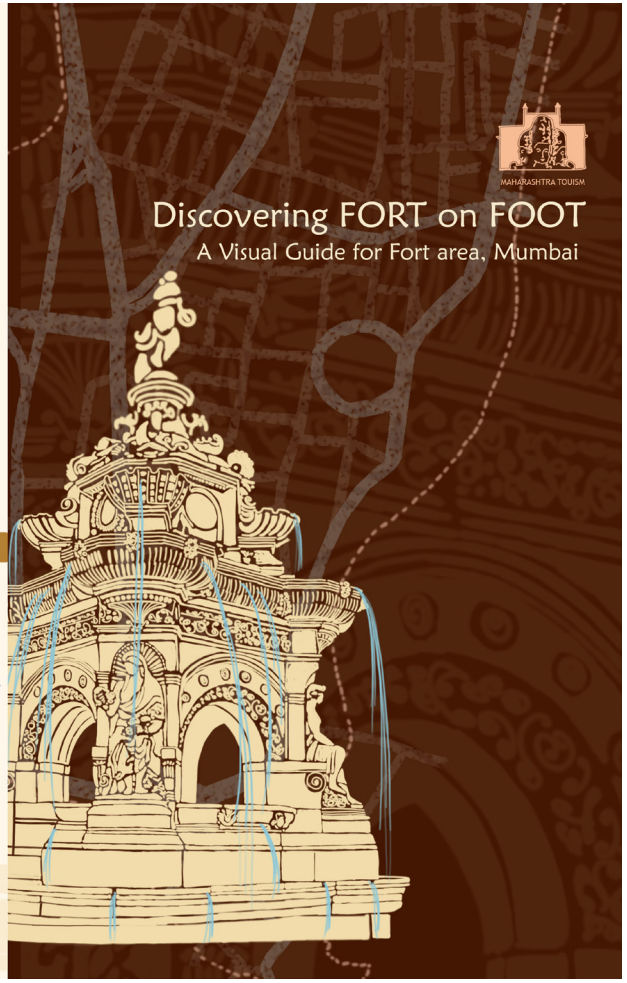
After making the prototype and testing on users will open to more conclusions which will be added to make it as much as user friendly also easy to understand.

Thus using as the final concept as a guided map which will in lesser size than A-4 paper. Which will have the information in the visual format.

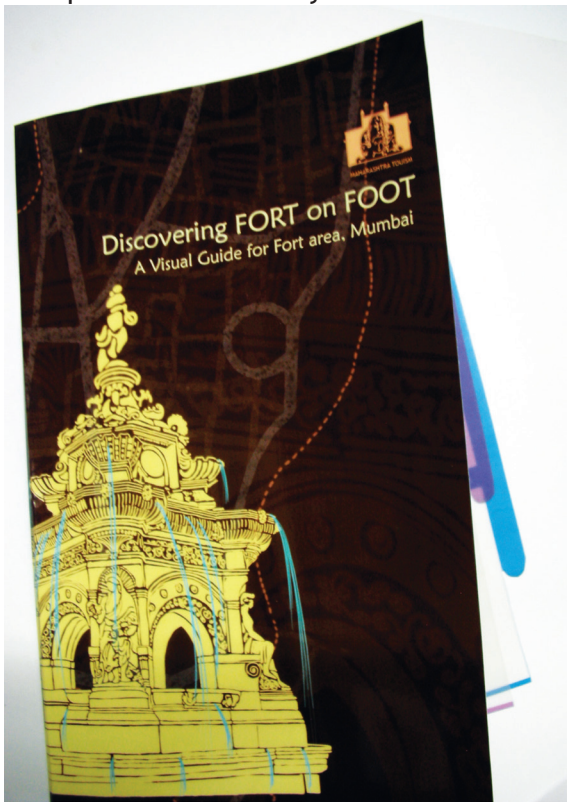
The next page shows more illustrations of the building used in the map.

6.Final Design

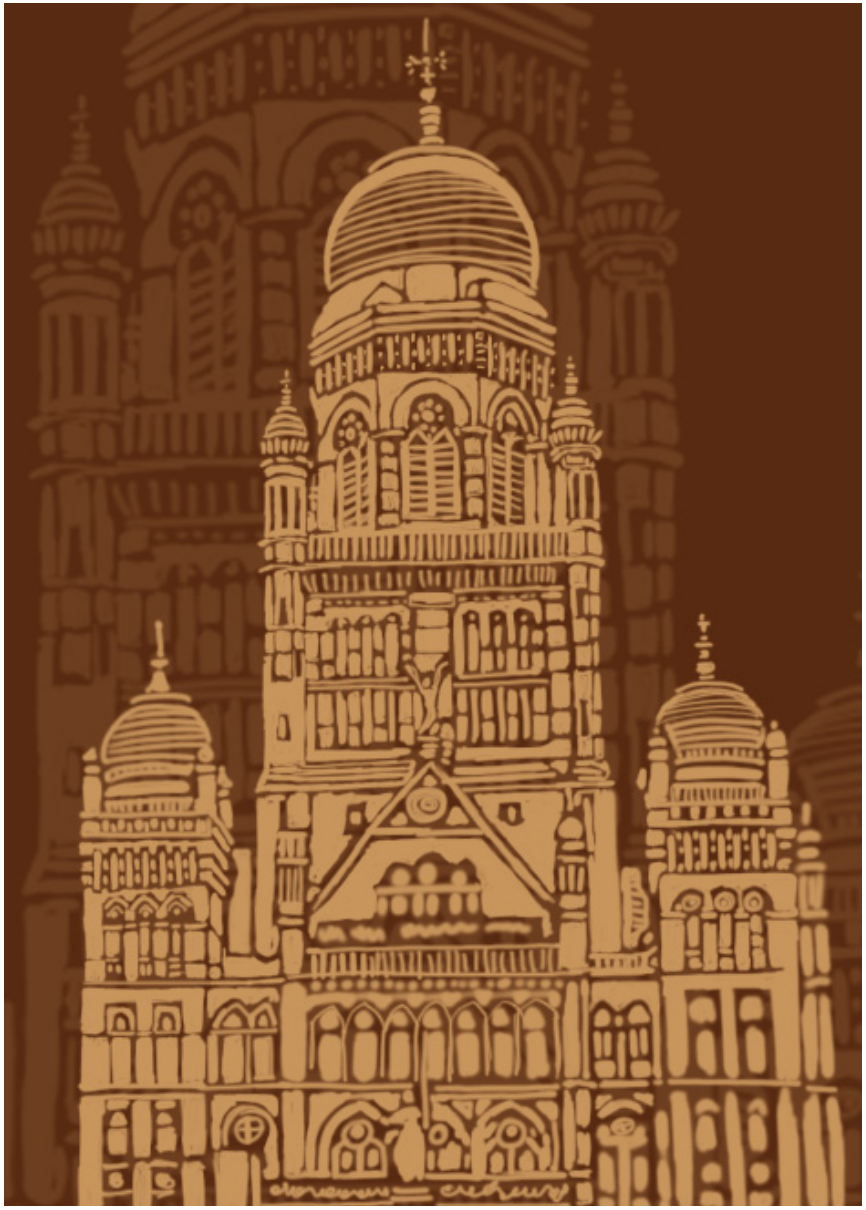




This is how the map appears when open completely. The image shows the front and back cover of the map.
The below image shows the actual map with attached layers.



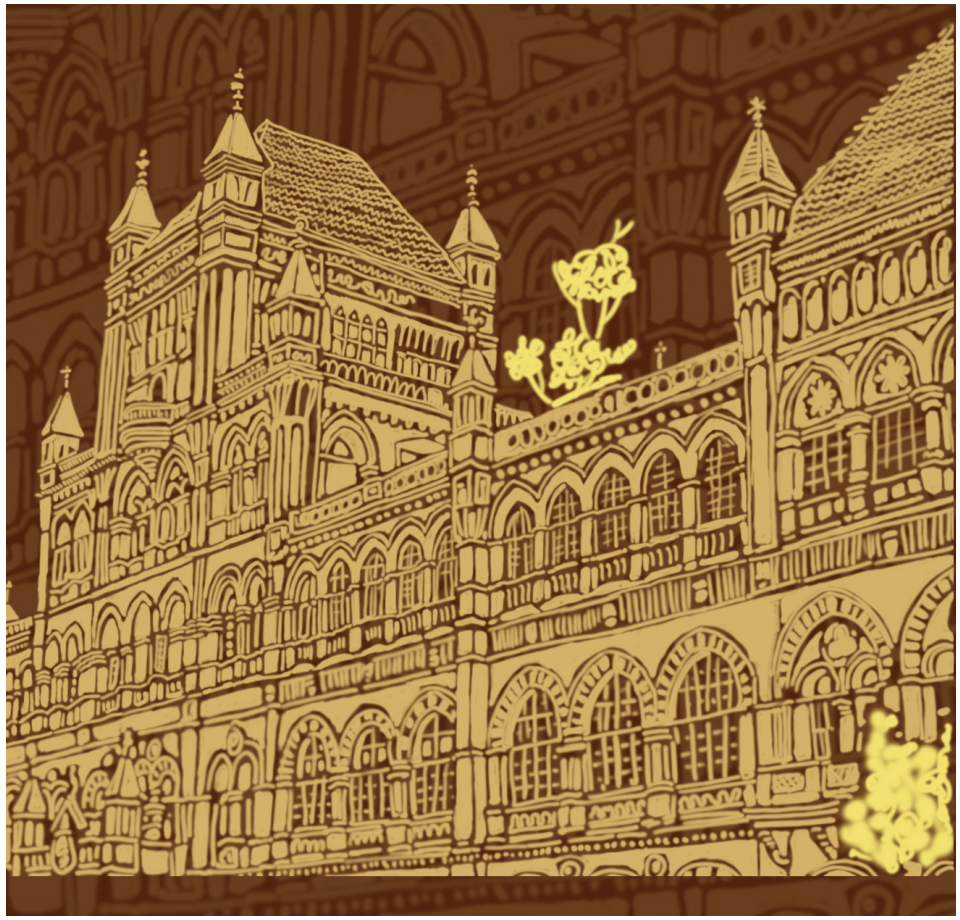
The backside of the folder has a basic bus route map showing the buses which goes to fort from Chatrapati Shivaji Terminus and vice versa.





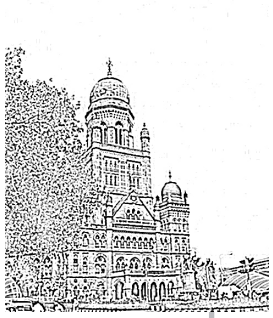
The above illustration is BMC building and the other illustration is of Mumbai High Court.

The illustrations shows the image of the place which is drawn in the graphic format so that the viewier can understand it in better way. The illustration style used is in semi realistic so that they don't get confused between the original building and the drawn one. The purpose of using this style was to show the uniqueness of that particular building and focusing on the significant structure of the building which stands out from the background.

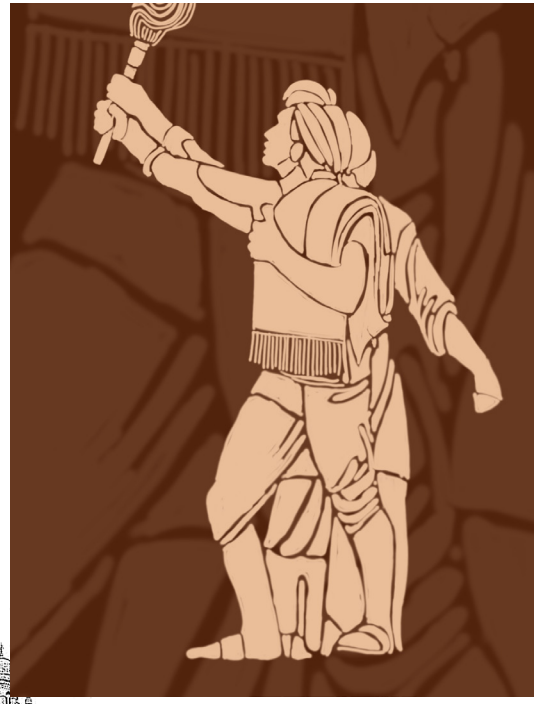




The left image shows the illustration Elphinstone college and the above image is famous historical monument
Gate Way of India which falls near the five star Hotel Taj.







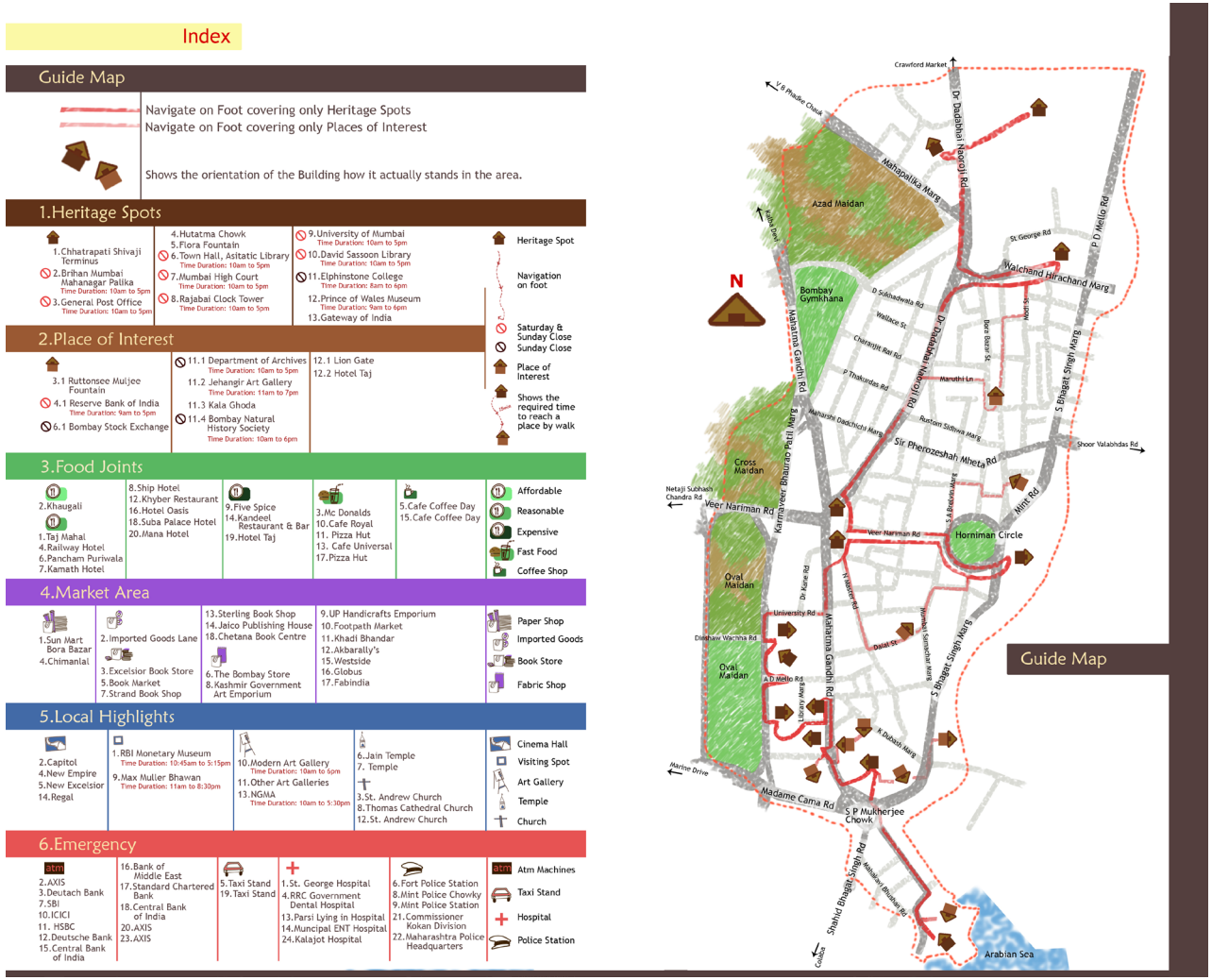
The above left illustration is of Kala Ghoda,
down left illustration is of Hutatma Chaouk.
The right illustration shows the layout of the map
placing all the historical monument.







The illustration shows the zoomed view of the illustration map of historical monument.



Following are the symbols used in the map.

- Heritage Spot
- Navigation on foot
- Saturday & Sunday Close
- Sunday Close
- Place of Interest
- Shows the required time to reach a place by walk

Food Joint

- Affordable
- Reasonable
- Expensive
- Fast Food
- Coffee Shop

Market Area

- Paper Shop
- Imported Goods
- Book Store
- Fabric Shop

Local Highlights

- Cinema Hall
- Visiting Spot
- Art Gallery
- Temple
- Church

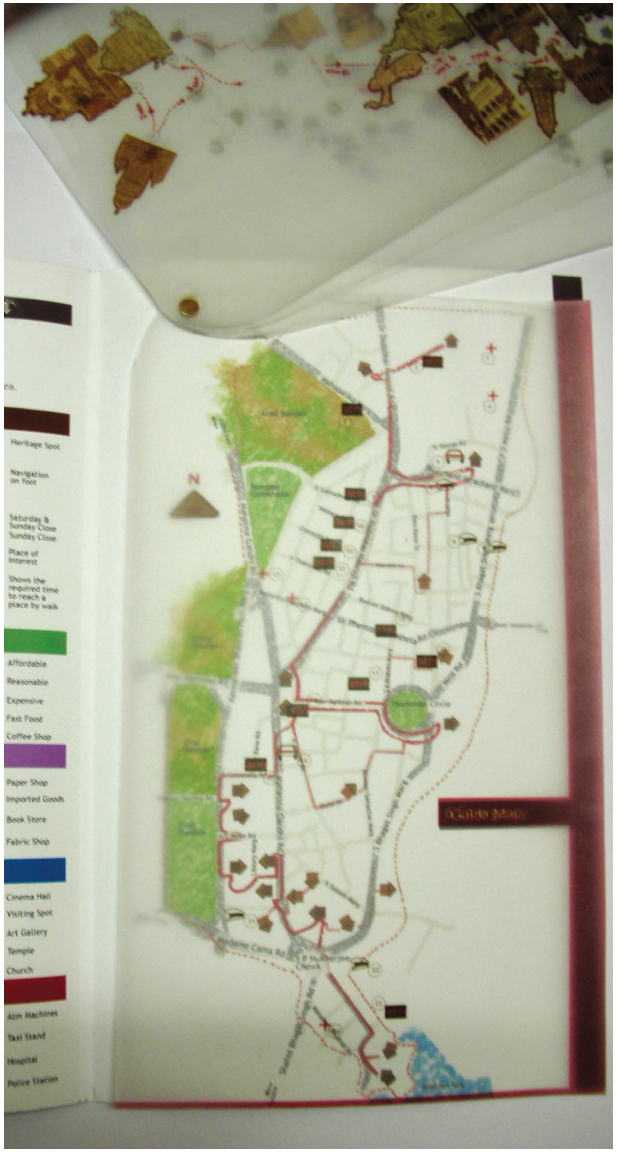
Emergency

- Atm Machines
- Taxi Stand
- Hospital
- Police Station



The above image shows the basic roads and boundary to guide other layers of the map.


Heritage Spot
Navigation on foot
Saturday & Sunday Close
Sunday Close
Place of Interest
Shows the required time to reach a place by walk
Affordable
Reasonable
Expensive
Fast Food
Coffee Shop
Paper Shop
Imported Goods
Book Store
Fabric Shop
Cinema Hall
Visiting Spot
Art Gallery
Temple
Church
Atm Machines
Taxi Stand
Hospital
Police Station
Heritage Spots
Outside Map
Madame Cama Road
Arabian Sea


Heritage Spot
Navigation on foot
Saturday & Sunday Close
Sunday Close
Place of Interest
Shows the required time to reach a place by walk
Affordable
Reasonable
Expensive
Fast Food
Coffee Shop
Paper Shop
Imported Goods
Book Store
Fabric Shop
Cinema Hall
Visiting Spot
Art Gallery
Temple
Church
Atm Machines
Taxi Stand
Hospital
Police Station
Outside Map

7. Bibliography

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http://www.visualcomplexity.com/vc/blog/
http://www.ucl.ac.uk/admission/access-ucl/self-guided-tour/

Books

Through the Looking Glass
The Grade I Heritage of Mumbai
-Abha Narain Lambah
Making Maps: A Visual Guide to Map Design for GIS

