Project III

‘Signage & Wayfinding design for Maharashtra State Road Transport Corporation’

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Declaration

I declare that this written submission represents my ideas in my own words and where others ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/ data/ fact/ source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Approval Sheet

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Contents

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Introduction

In an ideal world, there is very little that needs to be told about where to go, because on arriving at an unfamiliar destination, the next direction would be self-evident. Within the best architecture, finding ones way around should hopefully require minimal effort and, at least, minimal signage.[1] This implies that design, which has a holistic approach and which is centred around the users takes care of most of the problems, including wayfinding.

In a situation like Maharashtra State Road Transport Corporation (MSRTC) popularly known as ST, it is apparent that planners, architects and designers are not being consulted. The administration seems to be ignorant to the fact that designed interventions prove to be efficient and economical in the long run.

MSRTC is trying to update itself in a lot of areas by incorporating electronic tickets, computerised reservations, air-conditioned buses etc. It keeps on adding more and more buses to its fleet and it reaches out to citizens living in the remotest areas of Maharashtra. But, the problem in the current system is that it lacks functional foresight. The system starts loosing its integrity whenever there are additions and alterations. These changes should be anticipated in advance because they are natural, especially in an increasing population like ours which has increasing demands every day.

To cater to these demands there are make-do arrangements and casual signages which are inefficient, as a consequence, chaos prevails at all times. Due to inadequate planning and casual methods, there are loopholes in the communication system, due to which information is not understood and then there are further problems.

Things become even more confusing during rush hours. Buses arrive and depart continuously and anxious people are seen pacing around all the time. The staff is overburdened due to the immense number of passengers who keep on inquiring at the counter. The regular passengers become immune to the system because of the routine, but they still deserve better service. Among all, the people who suffer the most are the novice, elderly, non-marathi speaking citizens, handicapped, illiterate, women etc children.

1. Quote by Ivan Chermayeff in Signage and Wayfinding design, by Chris Calori

About MSRTC

The area covered by the MSRTC scheme is the entire area of the State of Maharashtra. The ST has around 15,500 buses which reach around 247 bus-stands, 570 bus-stops, and it transports people to around 4000 destinations.

The ST does not only carry people but also takes care of the postal mail, distribution of medicines, newspapers and even tiffins to children studying in the bigger towns. In rural areas, it aids farmers to transport their goods to the cities. All this in the face of bad roads, recurring losses, hiked taxes and yet it retains its identity of a transport service for everybody. [2]

2. http://www.msrtc.gov.in/history.html, on 07. 04.10

The ST reaches every village that is connected by road, however bad it may be, which it declares in its motto:

"गांव तिथे रस्ता, रस्ता तिथे एस्.टी."

Which means that wherever there is a village or a road, there exists an ST.

The MSRTC is trying its best to update itself and live up to the growing demands of its customers. Some of the areas where it is trying to develop itself are mentioned in its web site which are:

1. Beautification and cleanliness of the bus stands and the depots.
2. Electronic tickets.
3. CNG/ LPG operated buses.
4. Computerised reservation.
5. Comfortable and air-conditioned travel.
6. New buses in rural Areas. [2]

Panvel Bus Station

Gathering Information & Analysing data

Panvel Bus Stand, Google Earth Image, on 08.04.10

Panvel Bus Station

Panvel bus station is located on the highway (NH4). It has around 30 platforms which are distributed in four stands. Each stand is a small system in its own, it contains the waiting areas, platforms, inquiry kiosks, reservation counters, timetables etc. Apart from these there are utility and service areas like toilets, drinking water and some space allotted for retail like beverages, food, newspapers, magazines, books etc.

Panvel is well connected to the rest of India by road and rail, it lies on the Mumbai – Bangalore highway and is en route to the Mumbai – Pune expressway. It is point of entrance and exit to Mumbai and Navi-Mumbai, so the people who make use of this stand are a fair mix of urban and rural Maharashtra. The important reasons to choose Panvel bus station as an example to study the system of MSRTC was that, it is one of the busiest and the largest bus stations in the state. It is set in an area of around 18,000 square metre.

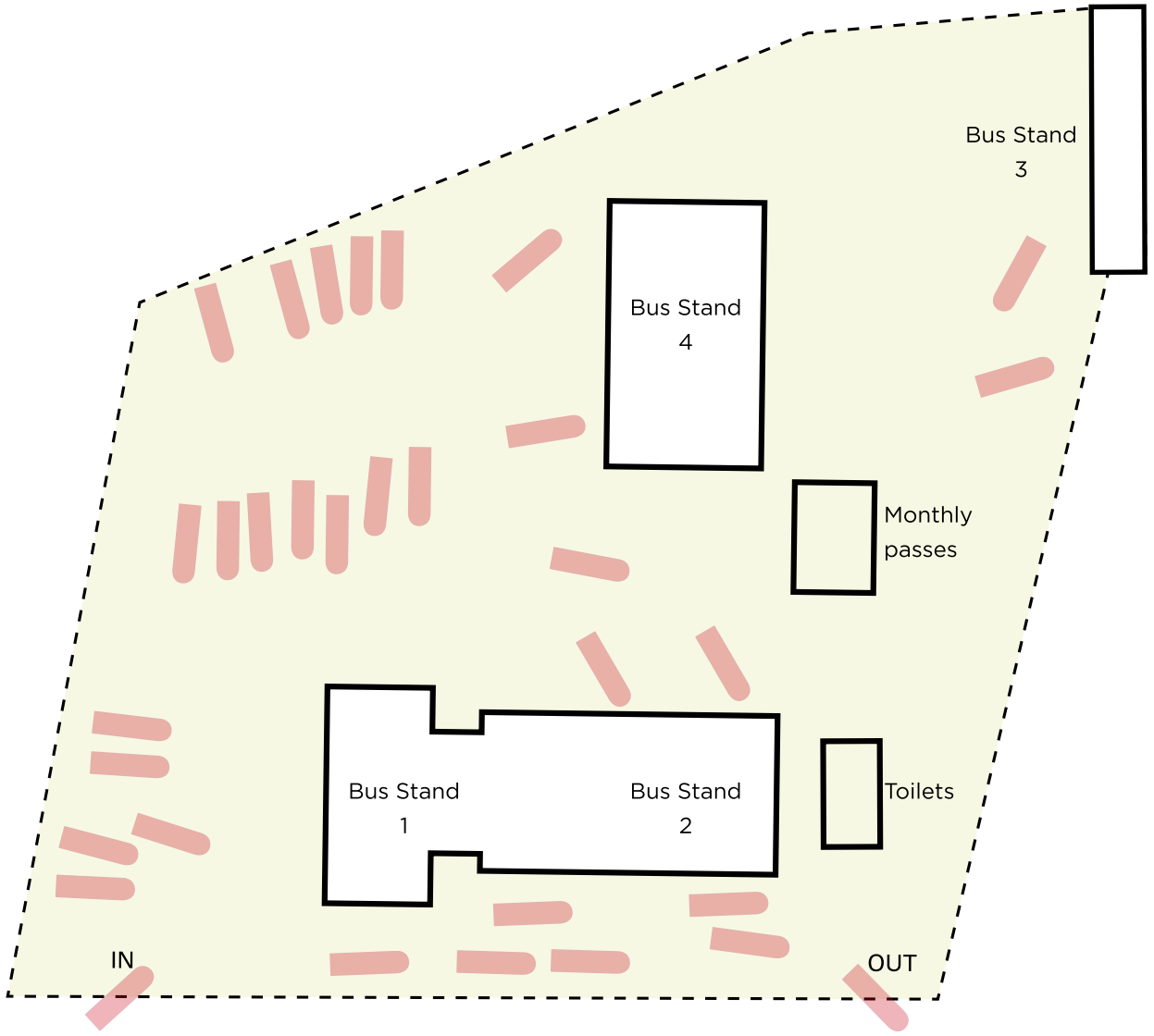
Panvel bus station has around 80 vehicles which cover an area of 2,500 kms every day. There are around 1,010 to 1,500 trips which are made by the vehicles every day. [3]

Panvel bus stand is spacious but a typical example of unplanned growth. Here, bus stands seem to have been erected as and when there was a need to accommodate more buses and passengers. There is a fixed entrance and exit for the buses but the people pour in from all possible directions wherever they have an easy access.

Bus stations are public spaces and Panvel is so pervious that it is occupied by salesmen, vendors etc. A bus stand is a favourable ground for business for these people because passengers are the probable customers. On the contrary, the passengers also need these services since they are in the middle of a long distance travel. It is convenient for the passengers to find the services within the premises rather than moving out when there isn't much time.

The Indian bus stands are unique, the public at large has the rights to these spaces, hence it is difficult to control the population of salesmen, vendors and passengers within the premises or the bus stands. These circumstances are natural and should be considered as a cultural context before designing for such spaces.

3. Source: Depot Manager, Panvel bus depot



Simplified Plan of
Panvel bus Station.

Visible spaces at Panvel Bus Station

Bus stands do not have a standard form, but it has some fixed components or spaces. To understand the bus stand as a system it is necessary to determine and understand them. All such spaces at the four bus stands at Panvel Bus Station are listed below.

Stand 1

For Uran, Avare, Govathane, Ulwa, Nhava.

- Enquiry counter
- Time table
- Waiting area
- Queue area
- Platforms (3 nos.)

Stand 2

For Dadar, Mumbai Central, Pune, Panjim, Aurangabad and west Maharashtra

- Computerised Reservation counter
- Enquiry counter
- Time table
- Waiting area
- Queue area
- Platforms (10 nos.)
- Book stalls
- General stores and food stalls

Stand 3

For Thane, Dombivili, Kalyan, Borivili, Nashik

- Enquiry counter
- Time table
- Waiting area
- Platforms (5 nos.)

Stand 4

For Thakurwadi, Bhatan, Shivkar Mohi, IGPL, college.

- Enquiry counter
- Time table
- Waiting area
- Platforms (13 nos.)

The other spaces in the bus station which are present in the premises but do not belong to any bus stand as such are the toilets, monthly pass counters, administrative offices etc.

The fixed components that have been determined at the Panvel bus station are:

1. Inquiry Counter,
2. Time Table,
3. Waiting Area, and
4. Platform.

The Bus Stand

Panvel bus station has four bus stands, each one of them cater to buses which go in a specific direction or directions. The bus stands in ST do not have a standard form but have some typical spaces which are listed below.

Platforms
These bus stands have a group of platforms where buses drop and pick up travellers. The buses are parked at a particular angle at these platforms so that people can easily enter and exit.

Waiting Areas
Waiting areas correspond to the respective platforms. It can be assumed that the people who sit here are waiting for the bus which is about to arrive at the platform.

Queue Areas
These areas are required when the frequency of the buses is high, which is due large number of passengers who travel daily for work. Buses after buses pick up people who are already standing in a queue. Queue areas are alternatives to waiting areas. They have different platforms since the buses wait only for a few minutes.

Inquiry Desk
These counters are manned by MSRTC employees who announce the arrival and departure of buses. People who need information are supposed to come here for help and directions. The drivers and the conductors of the buses also report to the people at the counter.

Reservation and Monthly Pass Counter
This counter provides computerised reservation for long distance travel. It also provides monthly passes for frequent travellers.

Time Tables
The time table is not an area as such but a common requirement in all the bus stands. The time tables are mounted or directly painted on walls which are generally located near the inquiry desk.

Other areas
There are public facilities present in some bus stands like toilets and drinking water. There are also shops for fruits, snacks, beverages, books, newspaper and magazines.

Exteriors of bus stand 2

Interiors of bus stand 2

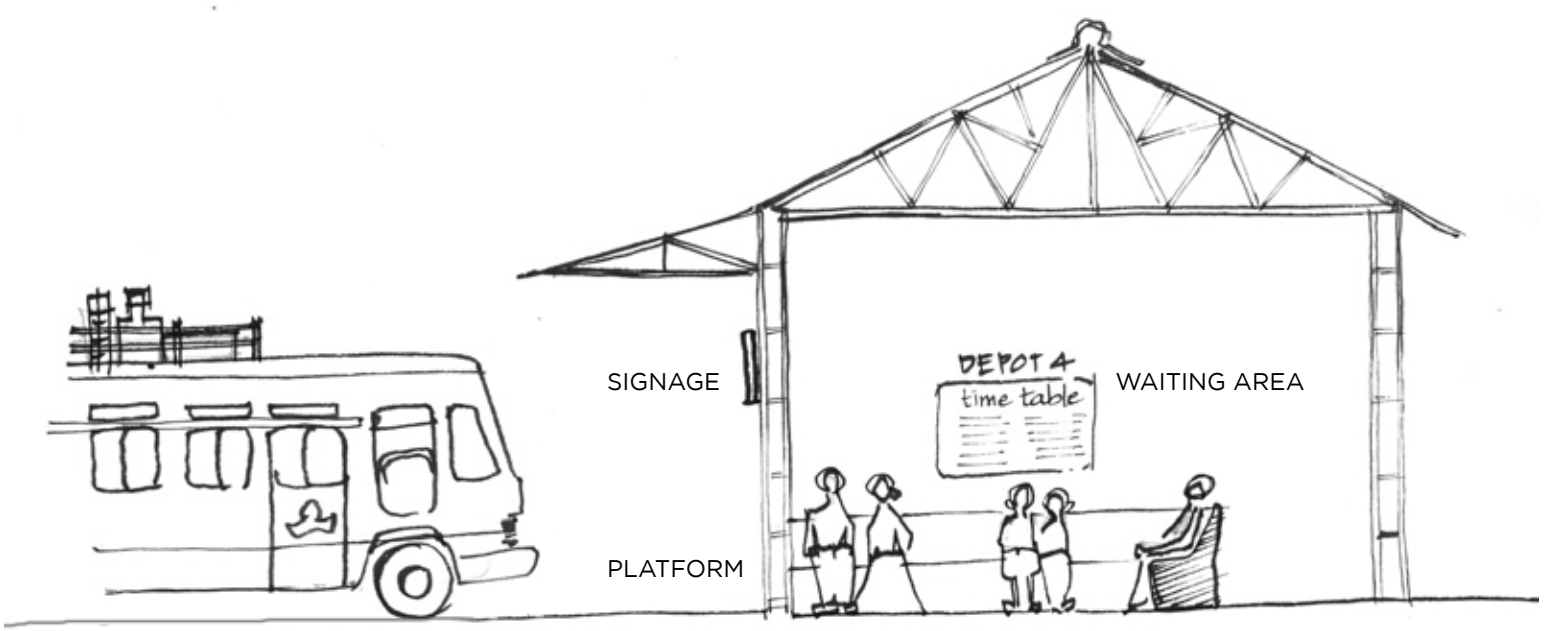
Exteriors of bus stand 3

The Platform & Waiting Area

In the local language — Marathi, the platforms are called *phalats.* In a bus stand, the buses pick up people from these designated areas. The buses wait at the platforms beyond which there is generally a shelter under which people wait, in Panvel these areas are designed as waiting areas.

The waiting areas have concrete or steel benches which face the platform.

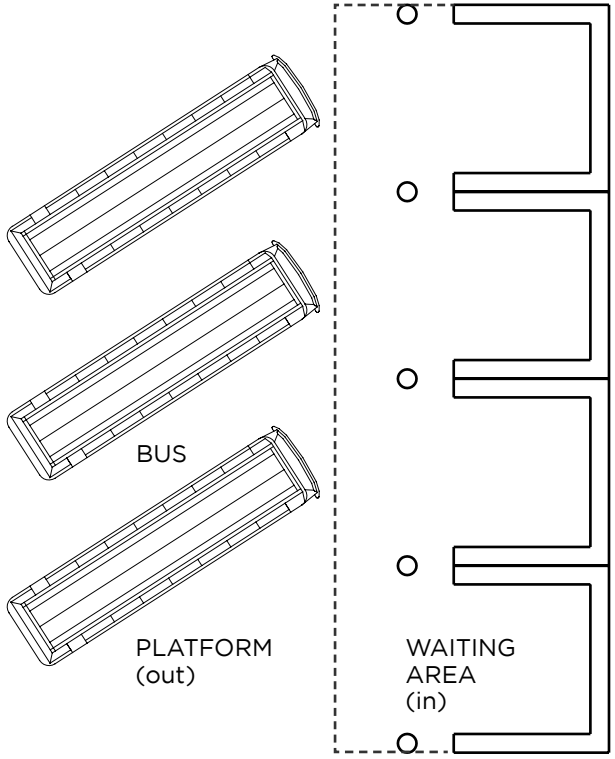
The platform area is the interface area between the bus and the passengers who are waiting in the shelter.



A typical platform and waiting area.

Platform

Waiting area



Typical plan of
Platforms and
waiting areas


तळगाव, राळणा,
घाट मार्गे


कोकण मार्गे
कडे जाण्यासाठी.


नेरा . वाजा
शांतीवन, गाढेश्वर
धोदाणी


बेलापुर , वाशी


स्वागत कक्ष.

Signage at the Platform & Waiting Area

Signage at the platform is very critical because people need to determine the accurate space where they can wait to catch a particular bus. A large number of identical buses come and go in a busy bus station like Panvel. It is very likely that a person could miss his/ her bus in the middle of commotion and crowd.

A parking area for buses near the waiting area is a sign for a platform. Here, the platforms might be numbered 1, 2, 3, etc. Which makes it easy for the people at the inquiry desks to identify a particular platform and make announcements. The signage at a platform should be visible to both — the people who are waiting and the bus drivers.

Observations

There are certain observations in the current signage scenario at the platform and waiting areas which are listed down below:

1. The signboards differ drastically from one bus stand to the other, the images on the left are the different kinds of signboards used in the four bus stands of the Panvel bus station
2. There is no standardisation of the type, hardware and the graphic system since the signage is done by hand.
3. The same hardware and type is used for different kinds of messages. Eg. The figures on the right shows signages which are similar in size, colour etc. but one of them is a directional signage whereas the other one is an identification signage.
4. The signages depend on ambient illumination for visibility during the night. There are visibility problems during the night and bad light conditions.
5. The function of the signboards is to communicate the destinations the bus would go from that particular platform. However, the route of the bus cannot be determined by looking at the sign board, neither does it give the details of the bus which is yet to arrive.

Different forms for same messages and same forms for different messages


स्थानक क्र. ३
ठाणे, डोंबिवली, कल्याण,
मुंब्रा, ठाणेमार्गे बोरीवली,
नाशिक, शिर्डी.


स्थानक
क्रमांक
४
ग्रामीण


स्थानक क्र. ३


स्थानक क्र. २

Inquiry desk/ counter.

Any room with a window (counter) in the bus stand is a sign of an enquiry booth or a reservation counter. There is always an enquiry counter in a bus stand, here announcements are also made which prompt the passengers whoa are waiting at the bus stand.

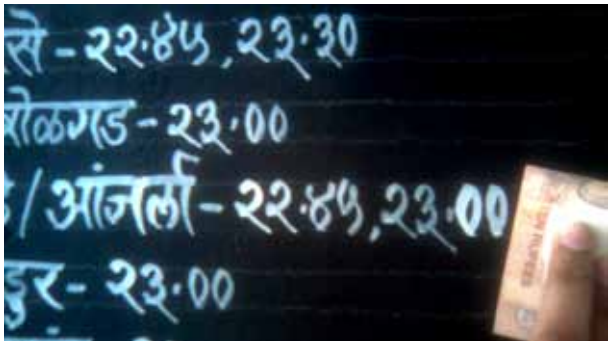
Due to poor signages, and literacy problems, people prefer inquiring here or with any other person. Moreover people trust oral messages more than casual signages.

Observations

1. A booth or a counter within the bus stand is a sign of an inquiry desk. The inquiry desk is located in such a position that can overlook the platforms and the arriving buses.

2. All the inquiry booths in Panvel are identified by signages, but they can be missed because they do not have a standard position.

3. The officers serving at this counter are overburdened with inquiries happening throughout the day. They often paste notices and answers to FAQ's right outside the counter.


से - २२.४५, २३.३०
लोकगड - २३.००
/ आंजर्ला - २२.४५, २३.००
र - २३.००


स्थानक क्रमांक ४ वरुन सुटणाऱ्या गाडयांचे-
वेळापत्रक


स्थानक क्र.३ वरुन सुटणाऱ्या गाडयांचे वेळापत्रक

Time-table

A time table is a common feature in all the bus stands. This chart consolidates the daily timings of all the buses which arrive at that particular bus stand. The time table is hand painted on walls inside the bus stand.

Observations

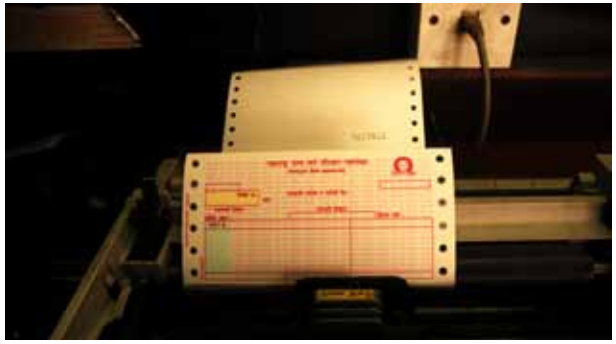
1. The timetable can be easily identified in a bus stand since it the only huge painting on the wall which bears only numerical figures.

2. The time-tables are painted at a human eye-level, in case of crowding, the people standing behind cannot see the timetable.

3. Only one language i.e. Marathi is used in the timetable which makes it difficult for the non-marathi literate.

4. The information load is so much that it is difficult for the people to determine a particular bus timing.

5. The time table is not very efficient, therefore people prefer to ask the officers at the inquiry counter, which increases the load on them.




World of Tiles
आरक्षण वेळ : ०८·०० ते २०·०० पर्यंत
आवडेल तेथे प्रवासी पास २०·०० वाजेपर्यंत मिळेल.

Other counters

The other counter which may or may not be present in a bus stand is the reservation counter. Here people can make computerised reservations for long distance travel. There could also be another counter for issuing monthly passes which are available for frequent travellers, students etc.

Observations

1. The reservation or the monthly pass counters are present only in some bus stands. If not in the bus stands they might be present somewhere in the premises.

2. Queues of people standing near a counter is a sign of a reservation or a monthly pass counter. There are adequate identification signs present for these counter. But a problem of regularisation still exists.

3. These counters come with their own share of notices and information. This information is posted right outside the counter which might increase the visual clutter.

The Bus

The ST buses today have destination signs or boards which are visible through the non-driver side of the windshield. These boards are steel rectangles of 3'5" × 9" size on which the destination and other details are painted by hand. The destinations are written in order of their arrivals from left to right. The start and the end points are written in bold while the destinations en-route are written in a smaller size, sometimes the route taken may also be mentioned. All the signages are hand painted and most of the destination boards follow the above mentioned

Destination boards on the buses.

format but sometimes there are irregularities in them, especially when the material or a painter is not available, there are makeshift signages due to which the information remains incomprehensible, hence, at times there is a lot of ambiguity about the route and other details of the buses.

These signs are not illuminated therefore there are visibility problems during night and when there are bad light conditions. The destination boards are in only one language which is Marathi, non–Marathi literate people might have a problem in understanding the signages.

One of the recently made destination boards which are painted plastic sheets which are sponsored by companies.

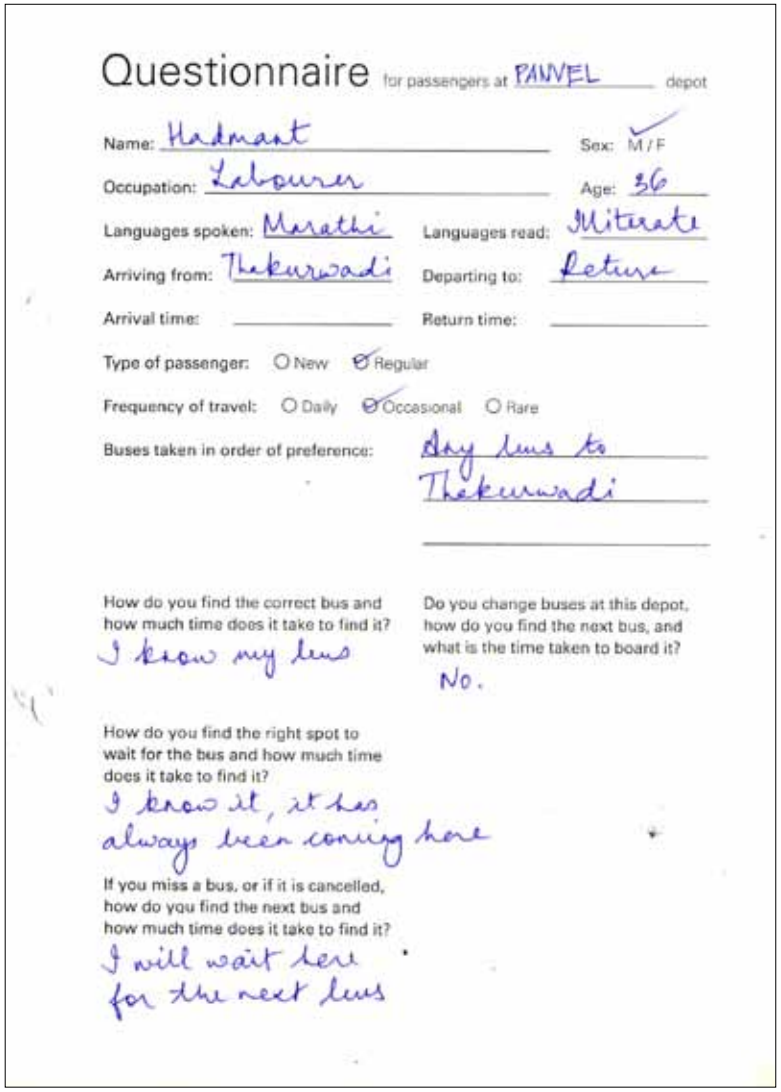
New signages keep emerging and need to be displayed with immediate effect. This creates visual clutter.

Miscellaneous signages

MSRTC is a large organisation. There are changes and updates which keep happening time and again. There are offers, notices, warnings and precautions. This information needs to be put up as signage for the sake of communication along with other identification and direction signs. This results in increase in the number of signs in a given space. Since, each sign belongs to a different time and is made by a different painter there is visual clutter. This chaos makes it difficult for the user to extract information which he really wants, he/ she might even miss something.

There is a need to bring about order and simplify the current scenario. The system lacks organisation due to which deciphering information becomes a burden for the user. Anybody might and ask at the inquiry booth or anybody else rather than spending time on such signages.

A system needs to be formulated so that such miscellaneous signs get the deserved importance and do not overshadow the regular signages with the overall objective of making the sign design program at msrtc successful and efficient.



Questionnaire for passengers at PANVEL depot

Name: Hadmant Sex: M / F

Occupation: Labourer Age: 36

Languages spoken: Marathi Languages read: Literate

Arriving from: Thakurwadi Departing to: Return

Arrival time: Return time:

Type of passenger: O New ✓ Regular

Frequency of travel: O Daily ✓ Occasional O Rare

Buses taken in order of preference: Any bus to Thakurwadi

How do you find the correct bus and how much time does it take to find it?
I know my bus

Do you change buses at this depot, how do you find the next bus, and what is the time taken to board it?
No.

How do you find the right spot to wait for the bus and how much time does it take to find it?
I know it, it has always been coming here

If you miss a bus, or if it is cancelled, how do you find the next bus and how much time does it take to find it?
I will wait here for the next bus

People at the Bus Station

MSRTC buses are well connected to all regions, People from all kinds of backgrounds use the bus service. Therefore in addition to analysing the bus stands, interviews of the users were taken.

Apart from the formal questionnaire, the following questions were asked casually with an objective to understand their intuitive methods of wayfinding.

Q

Name? Sex? Age? Languages spoken? Mother tongue? Languages read? Type of passenger? Frequency of travel?

How do you find the correct bus?
What would you do if you miss a bus?
How do you find the correct spot to wait for the bus?

How should I go to Dadar?
How much is the fare till Thane?
What time is next bus to Vashi?

Conclusions from data collection and analysis

1. Organically developed areas like MSRTC bus stations have too much variations and too little system.

2. The MSRTC bus stands can be called as a poorly designed products with respect to signage and wayfinding design. A large part of the of the project will be a ‘Repair Design’ of the problems discussed before.

3. Dependency is more on inquiry counters and other people present in the stand.

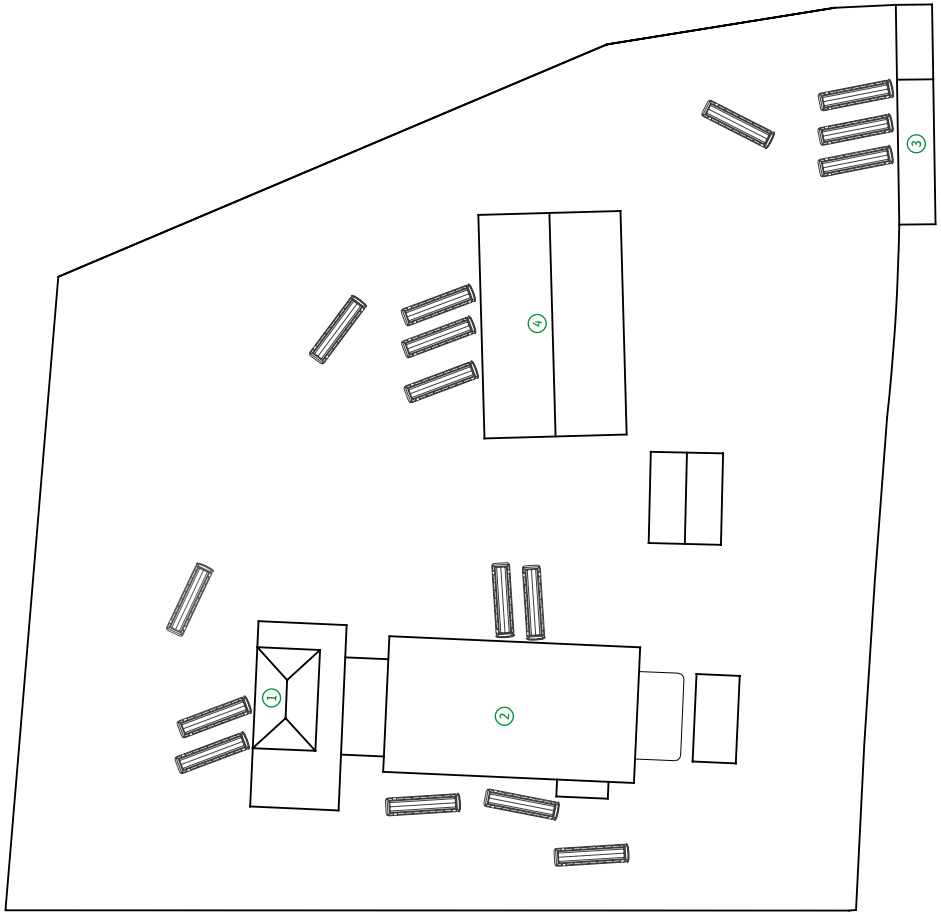
4. Frequent travellers follow the regular pattern of arrival and departure of buses.

5. In case of any confusion, people prefer consulting bus conductors, employees and inquiry counter rather than looking for signs.

6. Casual signages are not trusted, novice travellers cross check with other people.

Way-showing strategy

Concepts for planning signage



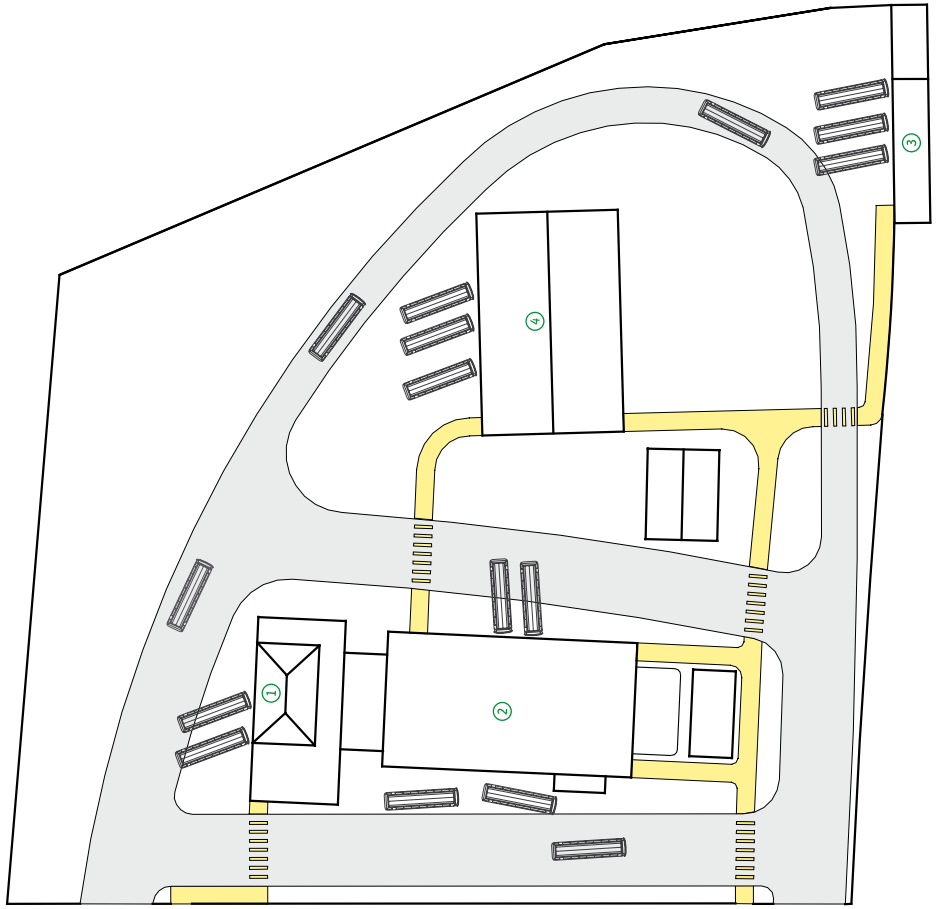
Planning for wayfinding

Current Scenario
Panvel bus station has grown according to the time and demands. I do not think there was a enough planning done when a bus station was proposed, even if it was, it is not apparent from the current situation.

Panvel has four bus stations which are nothing but shelters which exist in the huge premises. Although the space is adequate, there is confusion because there are no dedicated roads or paths for vehicles.

The bus station compound wall is porous and people enter from any direction. Moreover there is no approach routes to the bus stands. It is a challenge to do wayfinding design for people who can come in from random directions.

A photograph showing the scenario at the bus station. The vehicles and the people do not have a fixed route for approach. They move across the grounds and criss cross each other. Wayfinding in such conditions is a challenge.

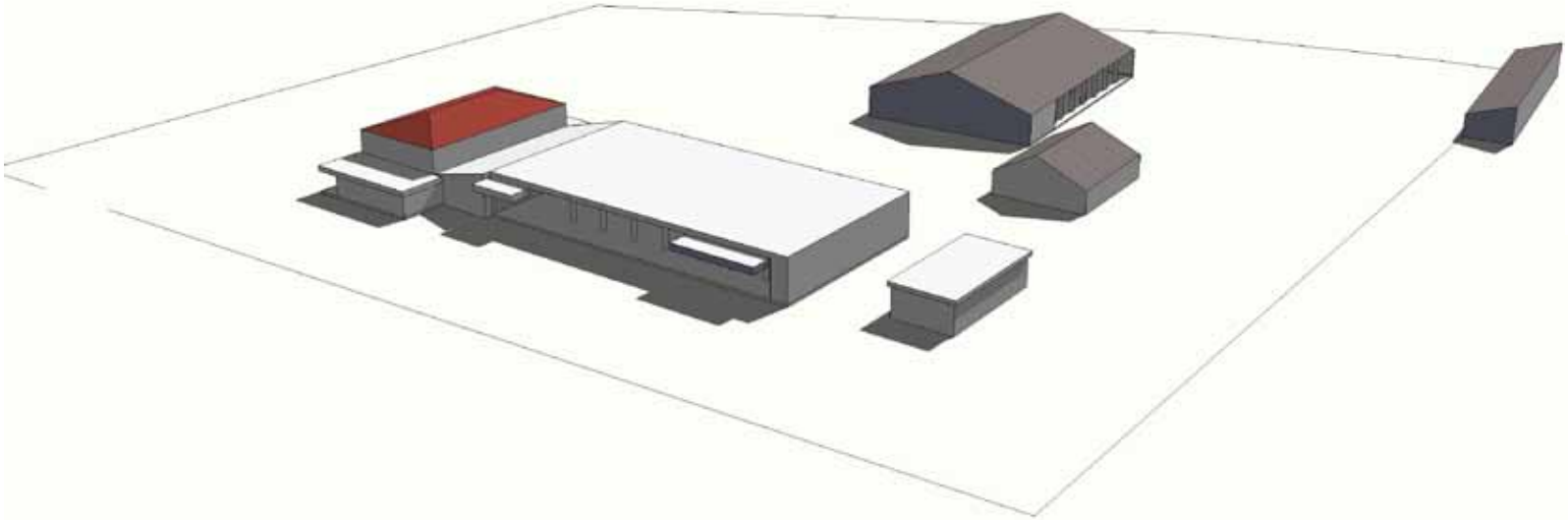


Planning approach

Vehicle route
A route for buses is proposed which reaches all the bus stands. The existing movement pattern of the vehicles was determined and a road was designed based on the same. The curvature and the widths of the road are according to the standards. This route can apparently noticed if it is tarred or constructed in concrete.

Pedestrian Route
The pedestrian entrances have been limited to two, footpaths were designed starting from these two points till they reached all the bus stands. The same footpaths can be used for leaving the premises. The pedestrian path can be constructed by using a paving material which will contrast the colour and the texture of the ground so that it is easily noticed.

Sign information is given through roads and footpaths which are non graphic signs that force a way finder as they are told. A marked route can give a notion of the space existing at the end of the route.



Planning sign locations

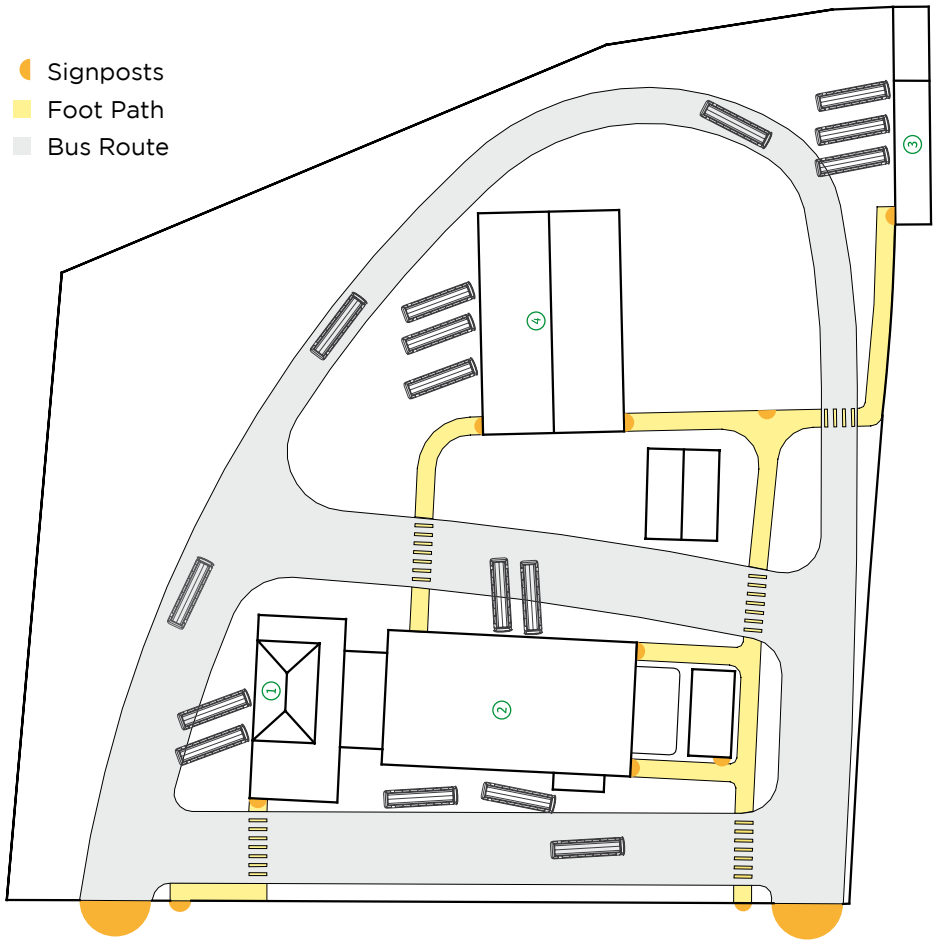
Directional Signage
Once the route is determined it becomes a bit easier to plan the sign posts. The signposts are located in situ, they are located where the traveller needs them.

Once the routes and directions are in place, there is scope for social navigation as well because people start following the crowd and the queues.

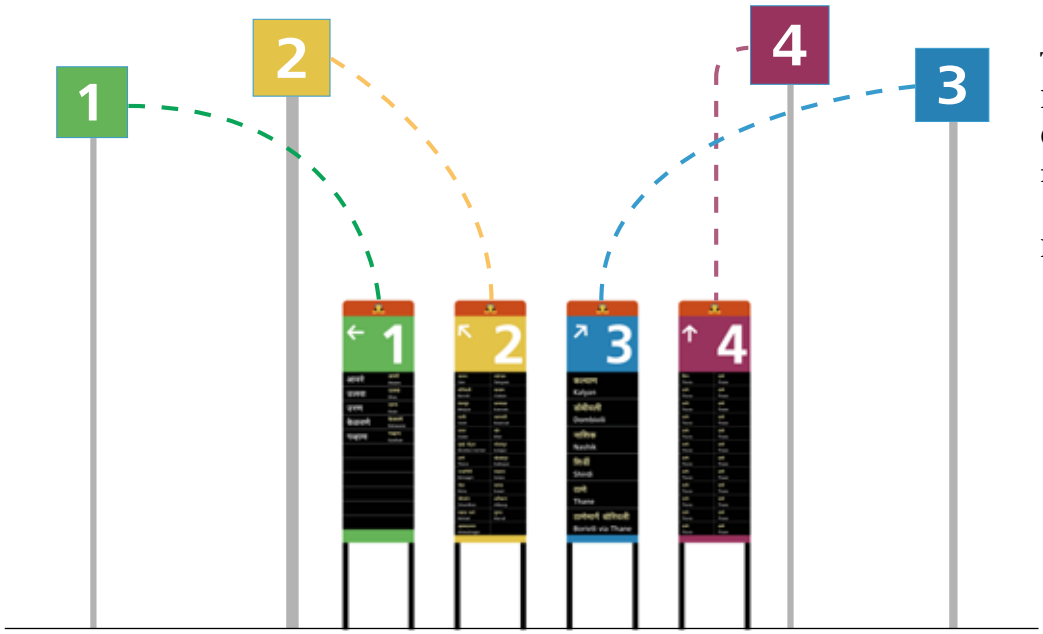
The orientation of the signs is kept perpendicular to the direction of the passerby.

They signs located in there positions would help a wayfinder to:

1. Choose among alternates.
2. To give information when there are new situations. e.g. when there is a rest room.
3. Information when they are unsure or insecure. e.g. Am I following the right corridor?



A conceptual sketch of free satnding a directional signage fixed in its decided location



Aiming

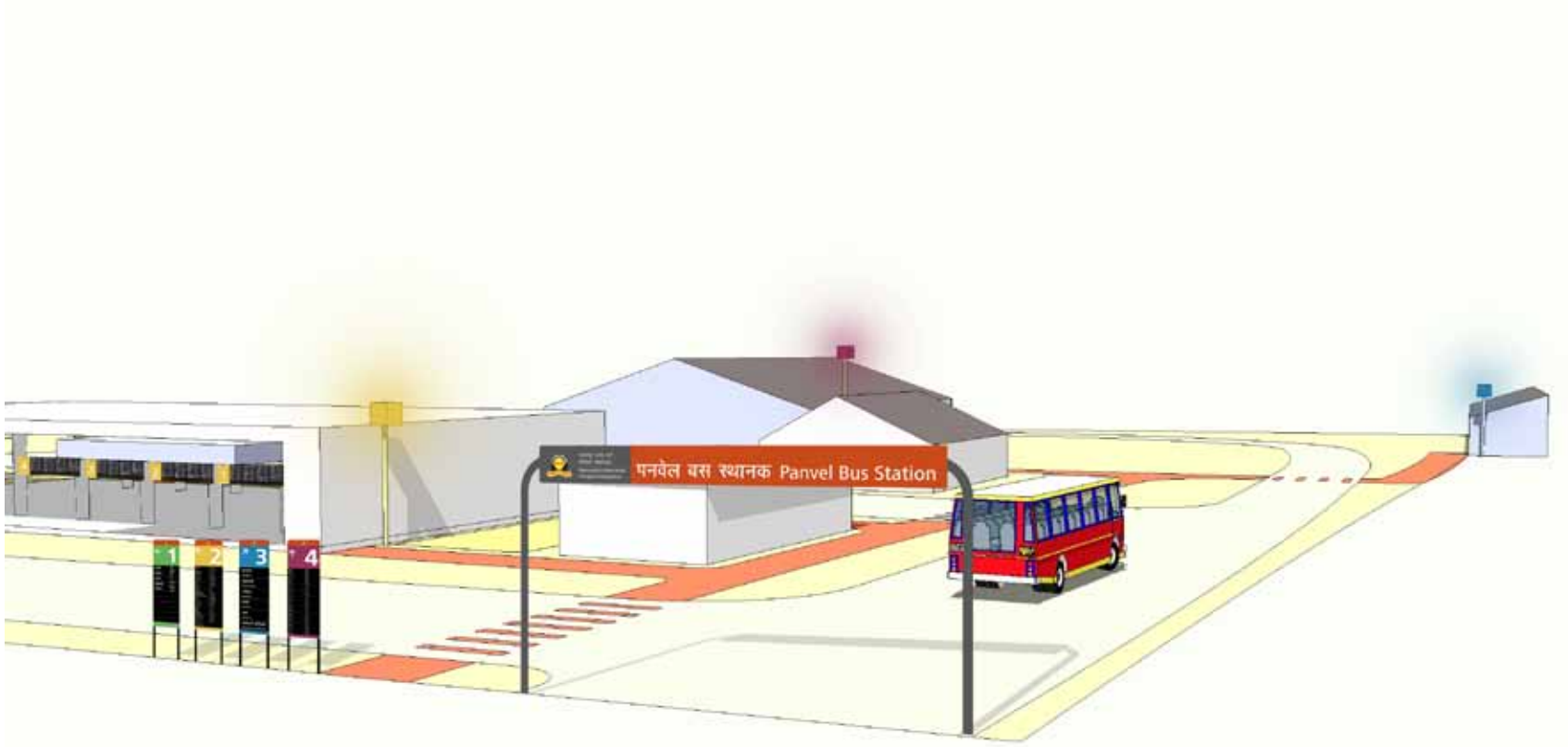
Landmarks
Each bus stand shall be identified with a number, Since, Panvel has four bus stands, they are identified as bus stands 1, 2, 3, and 4.

Details of the buses arriving at the bus stands will be informed at the very entrance of the premises. People would know where they need to reach at this point itself.

The identifications signs would be mounted on long poles so that the can be seen by the user. Once they are screened by the user, they can aim for it and wayfinding becomes easier.

Landmarks:

- Stand out in the surrounding.
- Attract attention
- They become a point of reference which we can talk about.



The identification signs can be aimed for right from the point of entrance. Wayfinding becomes easy due to this strategy.

Colours as signs

In addition to the direct aiming strategy. A specific colour shall be allotted to each bus stand. The colour association with a particular bus stand will be communicated to the user at the point of entrance itself.

Sign at the entrance

The same colour followed at the bus stand.

Colours Used

Bus stand 1
C 15, M 20, Y 80, K 00

Bus stand 3
C 80, M 40, Y 10, K 00

Bus stand 2
C 65, M 00, Y 80, K 00

Bus stand 2
C 40, M 90, Y 40, K 10

Colour followed at the bus stand which was indicated at the entrance

Sign at the entrance

Sign Design

Designing graphics & Hardware

Typography

Choosing a typeface
Typeface selection is key to the visual appearance of a sign program's graphic system, particularly as typography is the predominant graphic element for communication of sign information.

Legibility is a crucial factor for selecting a typeface for a sign program. A legible typeface is easy to read, and since the objective of the graphic system of a sign program is to communicate information, it must be easy to read and understand so that the viewers can act upon the information promptly.

Some characteristics of legible typefaces are:

- Clearly defined, easily recognisable letterforms.
- Sans serifs with large x heights.
- Medium weight, with stroke widths that are neither too thick or thin.
- They are of medium or normal character width, with letterforms that are neither too condensed or too expanded.

Scaling and matching for multilingual signage

Font Style

Signage at MSRTC will have three languages, the primary language is Marathi which is language of Maharashtra, The secondary language is Hindi because it is our national language which integrates all the different states in India. The third language is English since it is the most widely used language around the world.

Devanagari
Yogesh bold is a mono linear devanagari typeface which has clear and recognisable letterforms which makes it appropriate for signage. Yogesh bold is being used for both Marathi and Hindi languages.

Roman
Frutiger Next medium is a simple humanist, low contrast, sans serif typeface with large x heights and big counters which make it legible and appropriate for signage. Frutiger Next medium is being used for English language in the project.

Module, 3 languages

Typography and modular structure of the signages

Rule of thumb
The rule of thumb suggests calculating the reading distance as the multiple of x height times 500
Or
1 cm x height for reading distance of 5 m.

The *kana* height for *devanagari* letters is equivalent to the x height of roman letters

The Grid
A modular structure for the signage is designed so that it can be flexible when the text increases to two lines or when an additional column needs to be added

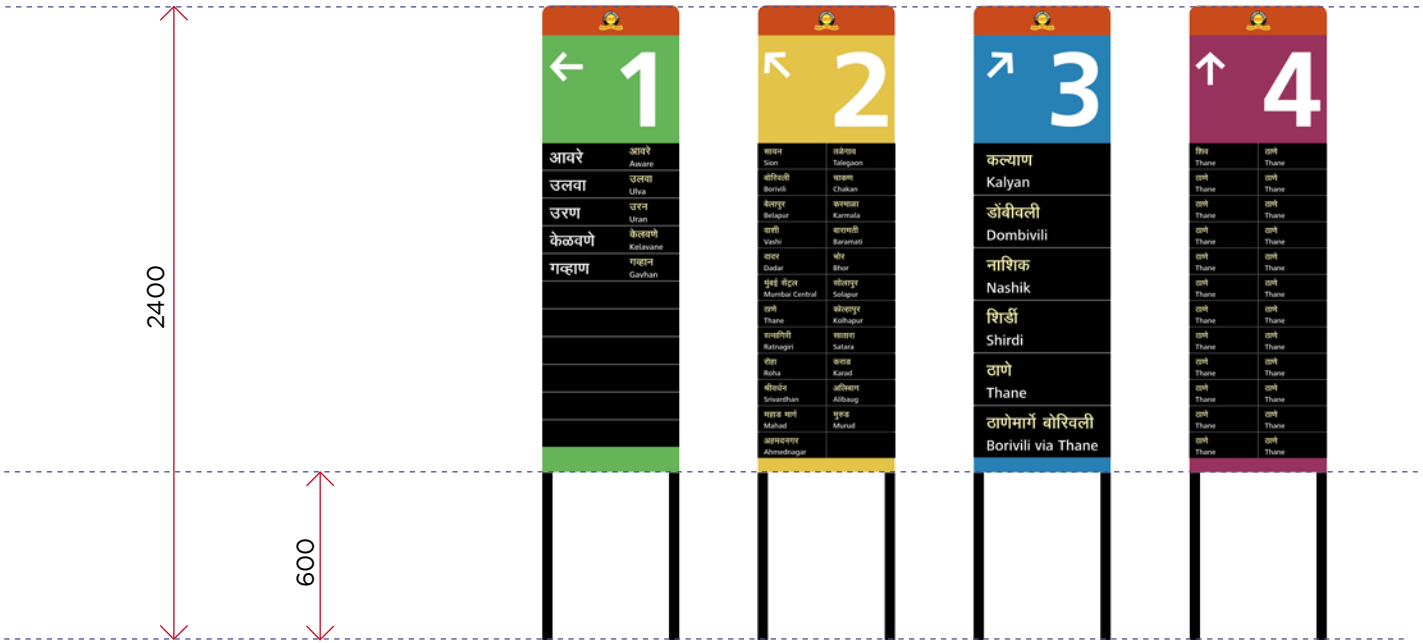
The margins and the typography is designed and standardised. This module shown on the left can be scaled to any size as per the decided viewing distance.

Gantry Signage

Gantry signage for identifying the bus station. This spans across the entrance road to the bus station premises. The gantry signage provides enough leeway for buses.

Signage at the Entrance

Signages at the point of entrance give directions for the bus stands inside and also give details of which buses would be arriving where. The user can determine which bus stand to go at this point itself. Colour coding and other navigation strategies start from this point. Wayfinding now becomes easier due to these signs.

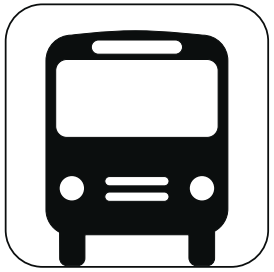


Symbols

Graphic Symbols for Bus Stations designed by Prof. Ravi Poovaiah

The graphic symbols were developed as part of a signage system for the various facilities in a public railway/ bus station environment.

Bus parking



Bus

Waiting

Drinking water

Toilet — Gents

Toilet — Ladies

Concepts

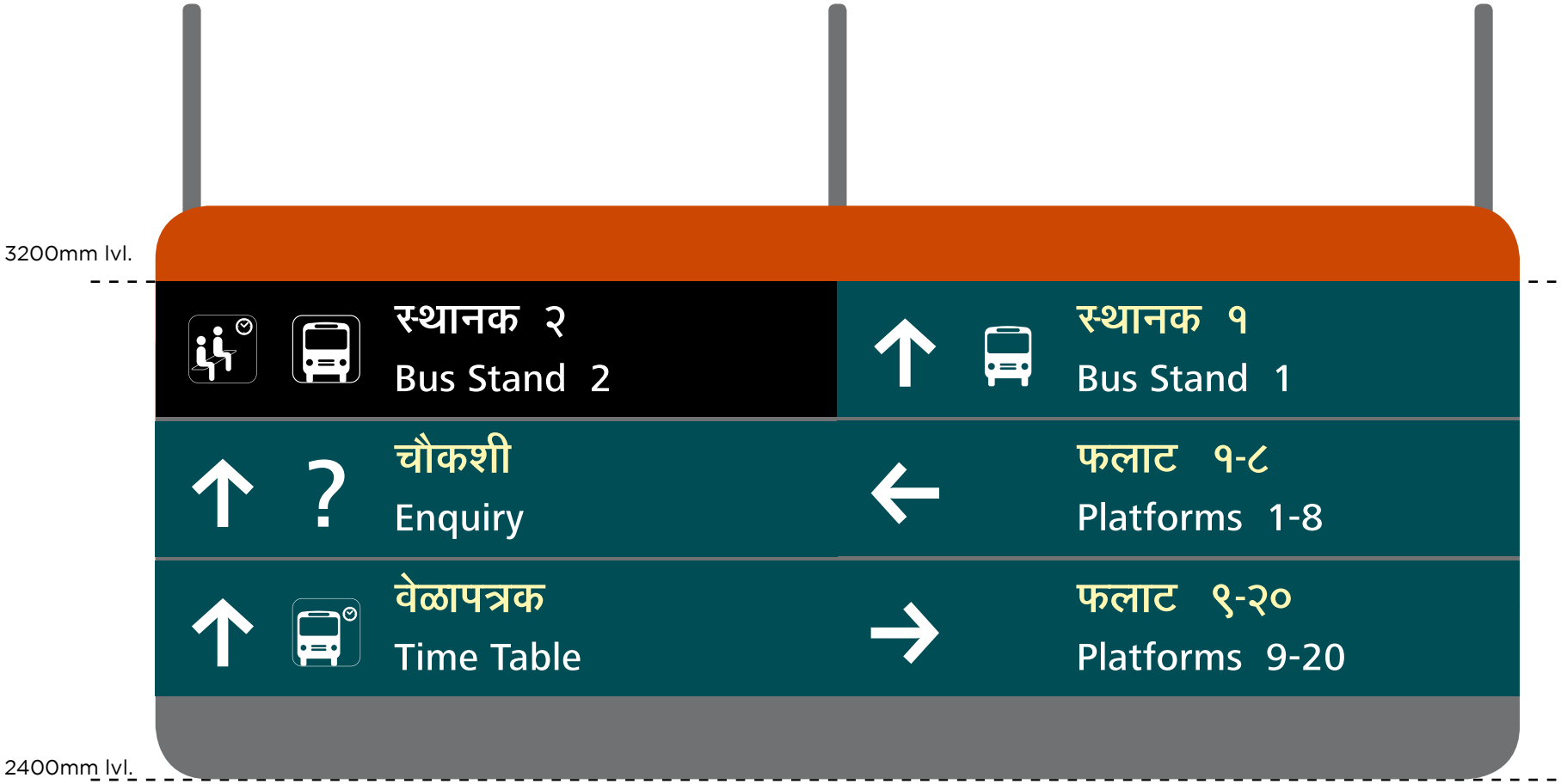
Some concepts and different options for directional signages.

Directional Signage

Free standing direction signages are planned on the map of the bus station.

They are located at strategic positions where the user might feel the need for directions

Suspended signages for directions and identification are used indoors and in corridors. They are used at the point of entrance to the bus stands. They provide enough leeway for people to pass from under it/


3200mm lvl.
स्थानक २
Bus Stand 2
स्थानक १
Bus Stand 1
चौकशी
Enquiry
फलाट १-८
Platforms 1-8
वेळापत्रक
Time Table
फलाट ९-२०
Platforms 9-20
2400mm lvl.

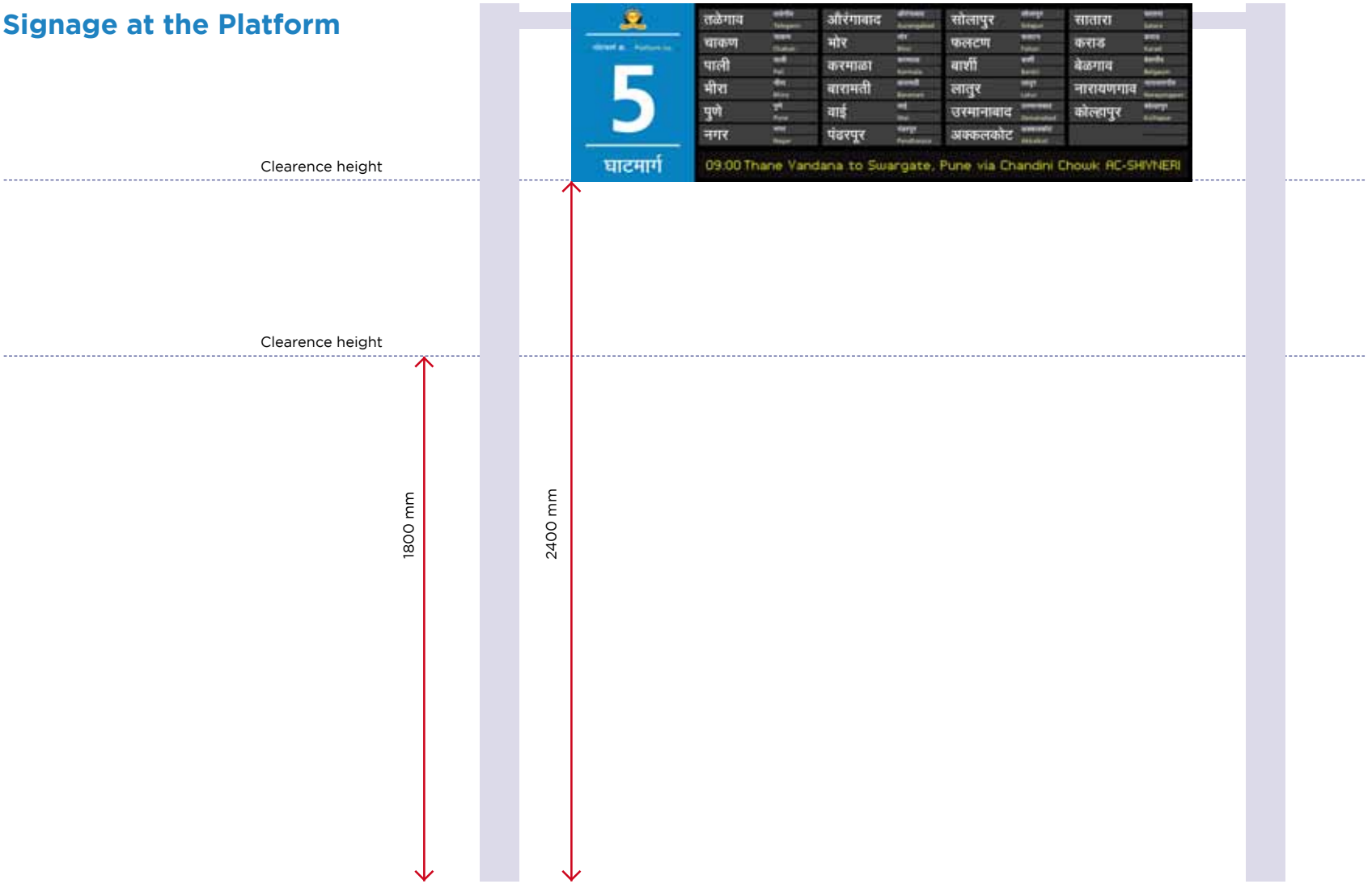
Signage at the Platform

Platform number
Retro reflective
paint

List of the buses which
will start
from this platform
Backlit display

Details of the bus
(route, timings,
destinations) which is
about to arrive
8 pixel, electronic
display in three
languages

Signage at the Platform




5
5
5

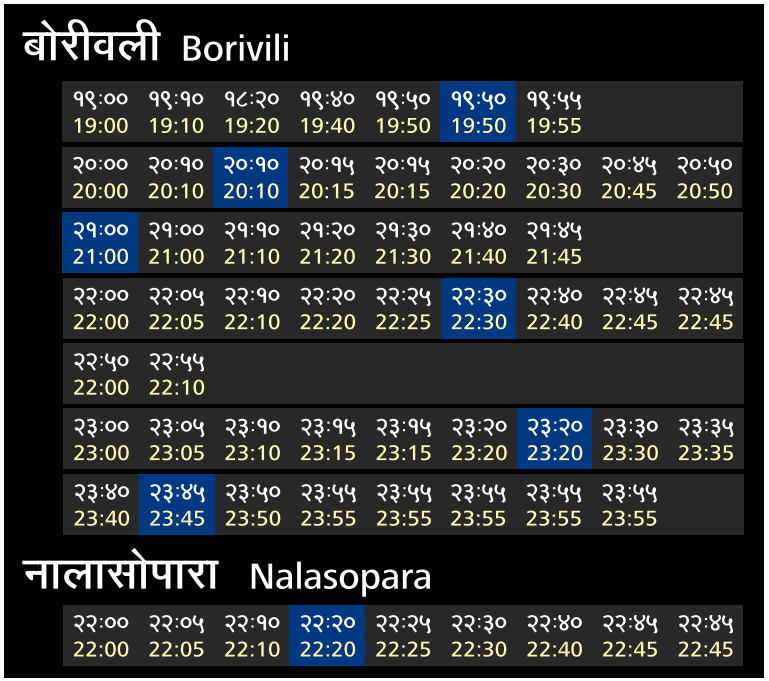

5
घाटमार्ग
09.00 Thane Yanda to Suargate, Pune via Chandni Chowk AC-SHIVNERI
कराड
बेळगाव
नारायणगाव
कोल्हापुर
5
घाटमार्ग


स्थानक क्र.३ वरुन सुटणाऱ्या गाडयांचे वेळापत्रक
मार्ग
सुटण्याची वेळ
कल्याण
ठाणे
मुलुंड
बोरीवली
(ठाणे मार्गे)
भिवंडी
पालघर
भाईंदर
वाडा
नालासोपारा
जव्हार
वसई

Time table

Time Table redesign

- The time table is redesigned keeping in mind the legibility problems in the existing one.
- Timings in two scripts are grouped together.
- Bus timings were written in time slots like 7am to 8am, 9am to 10 am and so on. This makes it easy for the user.
- The background colour changes according to the type of bus i.e. Ordinary, Asiad or Luxury.
- Bus timings for a specific destinations are grouped together and are separated visually from the others, This is a minor correction of the existing time table.



७

०७:२५	०७:२५	०७:३०	०७:३५	०७:४५
07:25	07:25	07:30	07:35	07:45

Buses arriving between 7 am to 8 am

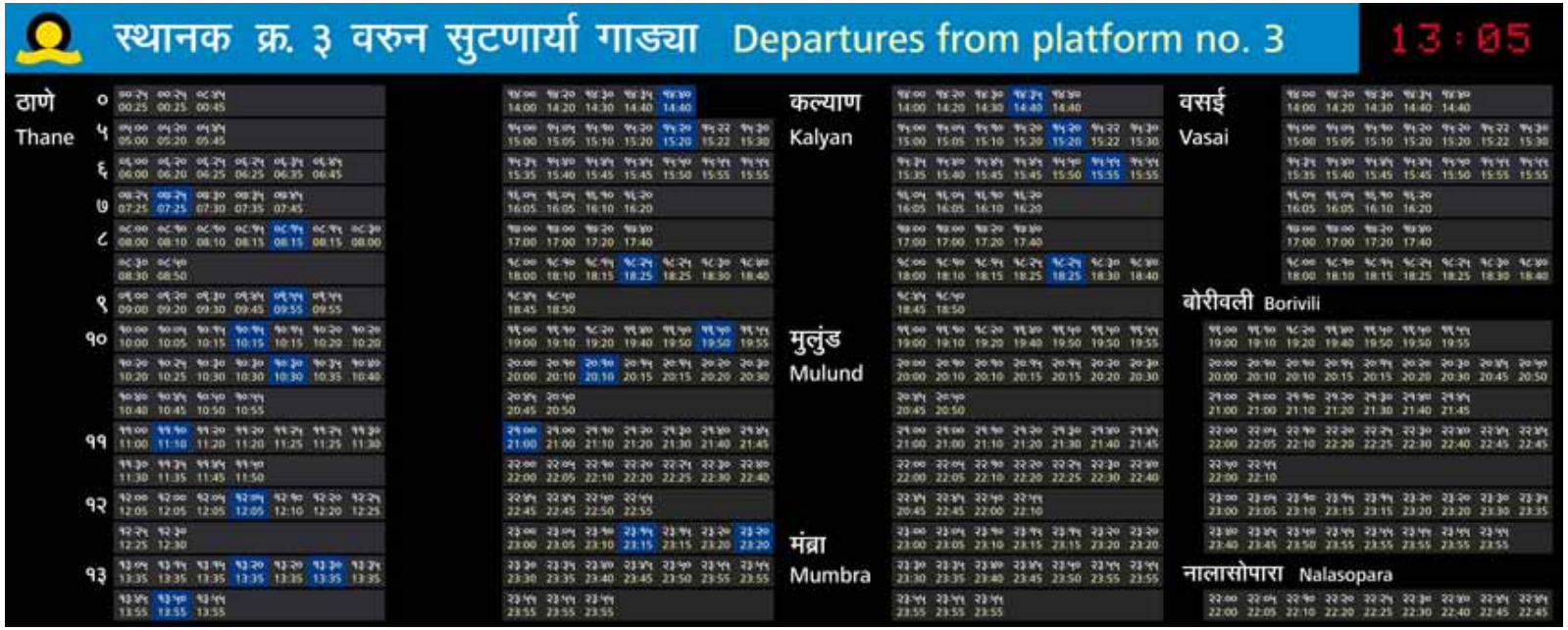
८

०८:००	०८:१०	०८:१०	०८:१५	०८:१५	०८:१५	०८:३०
08:00	08:10	08:10	08:15	08:15	08:15	08:30

Buses arriving between 8 am to 9 am

First option

Two scripts used.




स्थानक क्र. ३ वरुन सुटणार्या गाड्या Departures from platform no. 3
13:05
ठाणे
Thane
कल्याण
Kalyan
वसई
Vasai
मुलुंड
Mulund
बोरीवली Borivili
मंब्रा
Mumbra
नालासोपारा Nalasopara

Second option

The previous iteration was becoming too huge. In this option, the scale of the time table is reduced to that of a human being.

This timetable is dynamic andfits into any 16:9 LCD TV, The size and the number of the screens can increase with respect to the number of people expected at the bus stands.

Simulation

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Date, Baarish
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