Bicycle mobility in Rio de Janeiro

ANNEXES

Bicycle storage facilities to improve bicycle mobility in Jardim América & Vigário Geral

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Table of contents

ANNEX A. RESEARCH MODEL 2

ANNEX B. IBISS 3

ANNEX C. BUSLINES 5

ANNEX D. SURVEYS PRAÇA JARDIM 7

ANNEX E. DATA DUTRA 9

ANNEX F. NOT INVESTIGATED ZONES 10

ANNEX G. PROGRAMME OF REQUIREMENTS 11

ANNEX H. DESCRIPTION BICYCLES 14

ANNEX I. ALTERNATIVE ARRANGEMENT PLAN DUTRA LOCATION 16

ANNEX J. STATISTICS BICYCLE USE 16

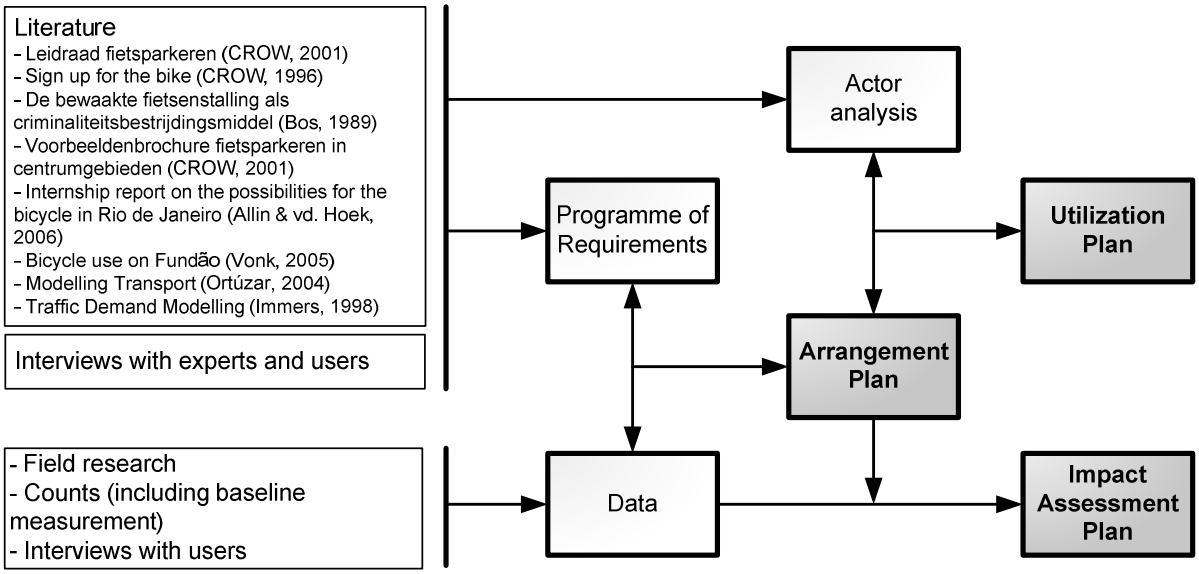
ANNEX K. SMAC-2 TYPE 17

ANNEX L. VISITS TO BANGÚ AND SANTA CRUZ 20

ANNEX M. MAPS 21

ANNEX N. PICTURES 23

Annex A. Research Model



First of all a Programme of Requirements is necessary. This will form the basis for the Arrangement Plan. After the Arrangement Plan is finished, the Utilization and Impact Assessment Plans can be created.

For the Programme of Requirements, a literature search and interviews with experts and users is required. A user is someone who uses the infrastructure in the research area. Interviews with users are necessary as a source for e.g. the rates that future users of the BSF possibly have to pay.

To create an Arrangement Plan, it is essential to have data of the research area. This data will be collected by field research, counts and interviews with users. Literature about bicycle storage will be used for the Arrangement Plan.

Several counts will be used as a baseline measurement for the Impact Assessment Plan. The Arrangement Plan will be an input for the Impact Assessment Plan. This plan will be used in the future to measure the effect of the realized solutions on the bicycle mobility in the area.

An Actor Analysis will be made after interviews with actors. Together with the Arrangement Plan, this analysis will form the basis for the Utilization Plan.

Annex B. IBISS

B.1. Main Operations

Street work. These projects are about taking care of the people that life on the streets. About young boys being used to sell drugs in the nightlife scene and young girls being used as prostitutes. They give these kids the possibility to join activities in several favelas. This forces the kids to adapt to the normal social behaviour and through that helping the socialization process.

Shelter homes. These projects are about shelter homes for former street children and victims of (sexual) violence. The judge has assigned a couple of children with a mental disability to substitute family Santa Clara because of their ability for taking care of 'difficult cases'. IBISS is assisting this family through a new programme. Other favela-children who lost their own parents have been adopted. IBISS assisted these new families by supporting the construction of extra bedrooms. Temporary foster homes for neglected/ molested babies are a new form of shelter homes since 2006.

District bounden projects. The projects are about mobilizing neighbourhoods to participate in the society. Children are encouraged to go to school, adults to find a job. This is being done by assisting children with homework and preparing adults for labour market. Also the life within the neighbourhoods is being upgraded by developing central places which offers education, sports and health for the neighbourhoods.

Neighbourhood constructing work. These projects are about supporting several poor and underdeveloped favelas by constructing water supply and electricity networks. The more covering procedure of upgrading favelas into endurable areas is a task of city hall. IBISS is putting favelas on the list for the projects city hall has for this procedure. One part of our research area, Vigário Geral, has already been upgraded through this project, which shows the success of it.

Specific groups. These projects are about catadores the last years. Catadores are people who differentiate garbage and collect and sell recyclable material. IBISS assists these people by organizing their work, ensuring a good market price for the goods and improving working conditions. Also temporary loans are offered for the purchase of important materials such as a squeezer machine.

Preventive healthcare. These projects are about fighting important diseases like tuberculosis and leprosy. This is being done by informing people about the risks and symptoms. Employees of IBISS go inside the favelas and talk with the inhabitants in person or in groups. To finance these projects the financier wanted to see official statistical results. Because to latest official statistical results on these diseases are from December 2003, he stopped financing the project. Thus a new financier is being searched for. Another project in this area is the work being done with female and male prostitutes. They get information about preventing sexual heritable diseases.

Disabled care. These projects are about letting disabled people participate in all the other projects and activities they already organize. Children that got hit by a lost bullet or had a traffic accident are in a social desolation are helped in this way. Also mentally disabled people are being pulled out of their homes. The government still sees the after school activities project as an excellent example.

Programmes. These are not really projects anymore and are not called programmes without a reason. These are ongoing activities on work, education and child care. Former members or leaders of drug gangs are working or studying and trying to get more members out of the hands of the drug gangs. Very young women that want to be a the girlfriend or wife of a guy that is a member of a drug gang are advised about other possibilities and pregnant women are assisted. Babies that often are neglected

or molested are placed in foster families or a substitute family. IBISS also has an own medical crèche where these babies are helped. Another programme is about preparing children for going to school. Children from the favelas are sometimes discriminated for their origin and called names like dumb favela kids. By giving them extra knowledge before going to school, it becomes easier to get along with the other kids. The number of early school dropouts therefore is declining. There are also more than 40 participants that are following an academic study and more than 60 adolescents following decent education at a private school preparing them for an academic study. This way a lot of people are being helped working on a better future.

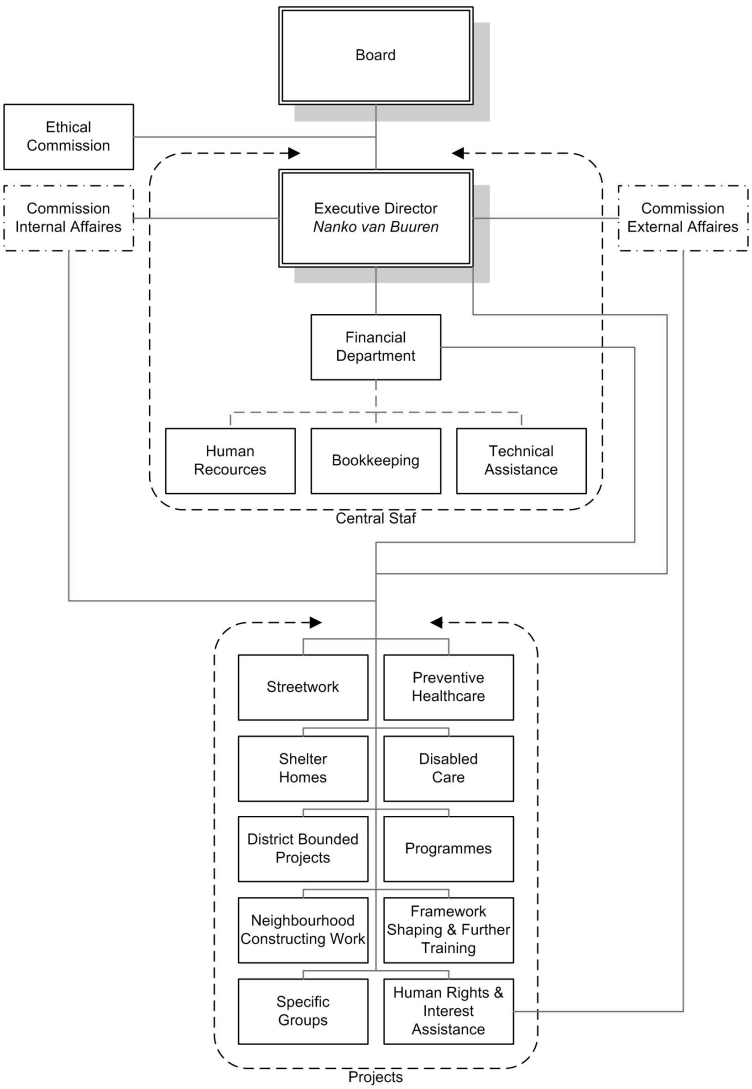
Framework shaping & further training. These projects originate in IBISS own training centre Espaço IPÊ where they offer several courses. An examples of these courses is training local persons in being the person that facilitates the contact between the inhabitants and social workers or psychologist. Another example is the training of young black leaders in fighting social inequality, discrimination, racism and violence in a decent and respectful way.

Human rights & interest assistance. These projects are about fighting human rights violations. An example are the actions against the use of armoured vehicle with police raids because of the lost bullets that cause a lot of innocent deaths. Another example is their work in the area of Copacabana where a lot of young men and women are recruited for forced prostitution promising a nice life or job in abroad. IBISS is spreading information on these issues under the target group. In general IBISS is active in a lot of panels and commissions that control the government on issues like public health and labour.

B.2. Structure

The board is the highest authority followed by the central staff. This staff is headed by the Executive Director Nanko van Buuren. He has direct contact with both the board and the financial department. The central staff has regular meeting every two weeks. The daily work is being done in the projects, divided in 10 different activity groups. The contact with these groups runs directly to and comes directly from the Executive Director and the financial department.

There are two commissions formed out of people from the projects; internal and external affaires. The first one is aligned with all groups, the second one just with Human Rights & Interest Assistance. These two commissions have direct contact with the Executive Director in case of any problem. Another commission is the Ethical Commission which checks all the plans that are being made by the central staff before they go to the board for approval.

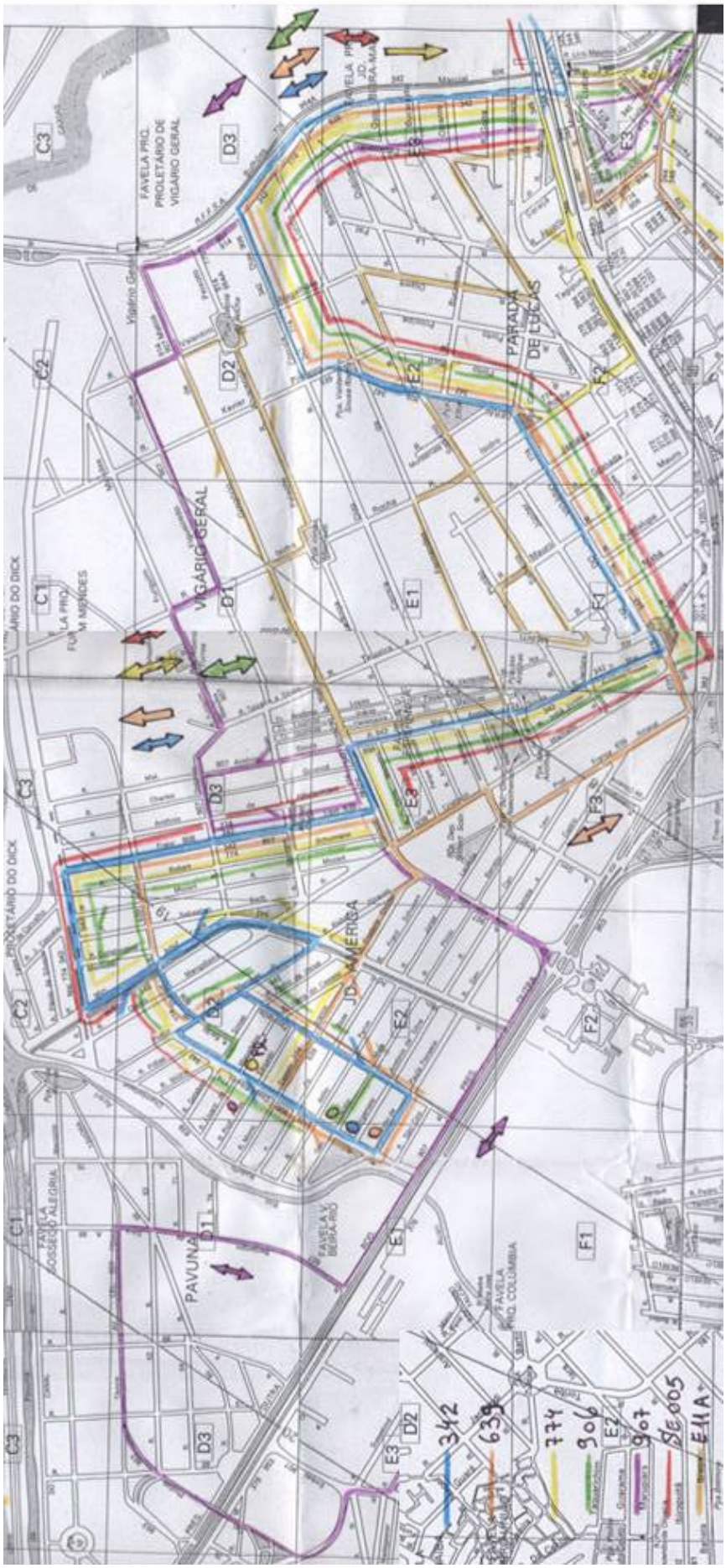


Annex C. Buslines

Bus number	Origin	Destination
342	Castelo	Jardim América
342	Jardim América	Castelo
639	Saens Pena	Jardim América
774	Madureira	Jardim América
774	Jardim América	Madureira
906	Caju	Jardim América
906	Jardim América	Caju
907	Pavuna	Hospital das clinicas
907	Hospital das clinicas	Pavuna

Table 1. Busses passing Praça Jardim

On the next page the bus lines are drawn in colour on a map of the research area.


FAVELA PRO. PROLETÁRIO DE VIGÁRIO GERAL
VIGÁRIO GERAL
PARADA DE LUCAS
JD. AMÉRICA
PAVUNA
342
639
774
906
907
SE005
E11A

Annex D. Surveys Praça Jardim

D.1. Health centre

Service offered	Number of visitors
Pediatrics	790
Nursing	712
Medical clinic	640
Dermatology	434
Gynaecology	213
Prenatal medical care	172
Phonoaudiology	149
Social service	108
Psychology	55
Total	**3273**

Number of questioned persons	52					
Number of useful questionnaires	45					
Do you have a bicycle? yes / no	25				20	
Did you come with bicycle? yes / no	9		16			
Would you use the BSF? yes / no	9	0	14	2	7	13

D.2. Supermarket

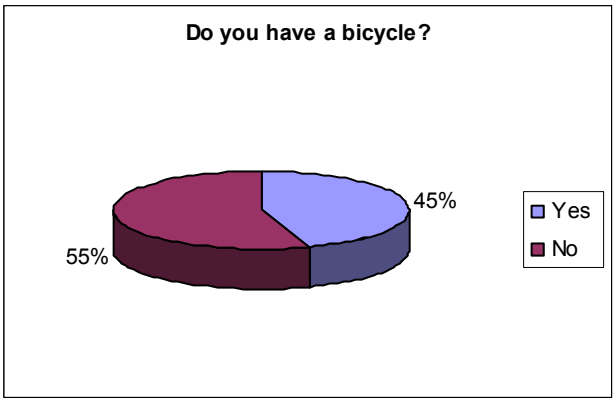
Number of questioned persons	51					
Number of useful questionnaires	50					
Do you have a bicycle? yes / no	32				18	
Did you come with bicycle? yes / no	18		14			
Would you use the BSF? yes / no	18	0	13	1	5	13

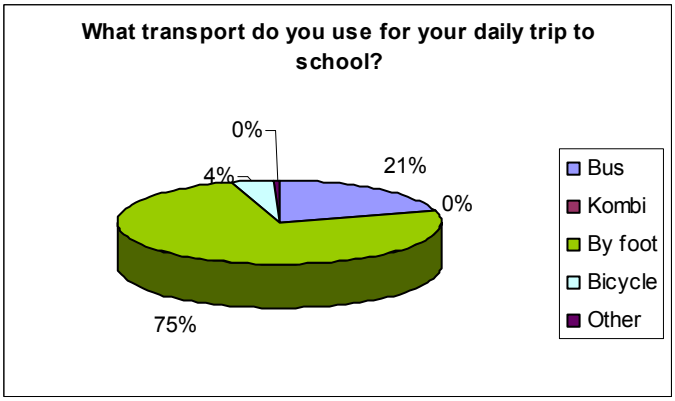
D.3. Demand

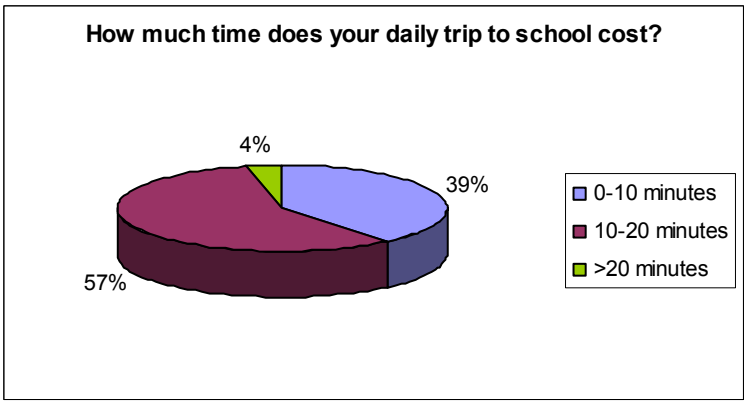
Praça Jardim	Peak moment	Present		Potential	Total
		peak	normal	peak	
School	Mon – Fri, 8 am – 5 pm	42	-	96	160
Health centre	Mon – Fri, 8:30 – 9:30 am	9	2	14	23
Supermarket	Mon – Fri, 7 – 8 pm	88	56	64	152
Church	Sunday, 6 – 8 pm	20	0	40	60
Football field	Fr, 8 – 10 pm	10	10	40	50
Stored bicycles	We, 11 – 12 am	26	-	-	26

The 42 cyclists from the school are based on the survey. According to the survey there were a little bit more than 4% students coming to school with their bicycle. Linking this percentage with the total number of students, gives the 42 present cyclists. The potential demand is made up of the ownership of a bicycle and the distance from home to school. For the health centre it is almost the same: 9 from the 52 respondents already came with their bicycle. Converting this to the almost 150 people that come to the health centre on one day gives a total of 26 present cyclists a day and 9 at the peak moment. The 14 extra cyclists that are expected is calculated on the basis of the people that said to start using their bicycle or to buy a one when the BSF is constructed. This goes on for the other attractors.

D.4. School


Do you have a bicycle?
45%
55%
Yes
No


What transport do you use for your daily trip to school?
0%
4%
21%
0%
75%
Bus
Kombi
By foot
Bicycle
Other


How much time does your daily trip to school cost?
4%
39%
57%
0-10 minutes
10-20 minutes
>20 minutes

Annex E. Data Dutra

E.1. Test counts

People getting out of busses

Location ►	**Dutra 1**		**Dutra 2**		**Dutra 3**	
Direction ►	►south	►north	►south	►north	►south	►north
17:30 - 18:00	20	24	24	15	19	26
18:00 - 18:30	29	15	13	13	12	16
18:30 - 19:00	20	22	7	8	16	24
19:00 - 19:30	23	20	4	10	15	19

E.2. Counts

Location ►	**Dutra 1**		
Direction ►	►south	►north	**total**
People getting in busses			
5:30 - 6:00	15	10	**25**
6:00 - 6:30	33	15	**48**
6:30 - 7:00	25	8	**33**
7:00 - 7:30	15	7	**22**
7:30 - 8:00	23	6	**29**
8:00 - 8:30	8	7	**15**
8:30 - 9:00	5	10	**15**
	124	63	**187**
People getting of busses			
16:00 - 16:30	7	13	**20**
16:30 - 17:00	16	25	**41**
17:00 - 17:30	14	18	**32**
17:30 - 18:00	18	22	**40**
18:00 - 18:30	27	16	**43**
18:30 - 19:00	15	22	**37**
19:00 - 19:30	11	15	**26**
19:30 - 20:00	6	16	**22**
20:00 - 20:30	2	5	**7**
	116	152	**268**

Annex F. Not investigated zones

The first zone that has not been investigated further is train station Vigário Geral. The amount of people that use the train station as a transport hub, given to us by the railway company SuperVia is 600. The largest part of which is coming from Vigário Geral. According to Farinha, inhabitants of Jardim América rarely use the train.
The reason for not selecting this zone is there is less potential for bicycle mobility. First of all almost all the people walk to the train station. This walk does not take more than ten minutes. When they would cycle instead of walk, this would not save more than five minutes. Therefore the benefit in time is too small. The fact that they walk, is a sign of their relaxed lifestyle. They do not care about the five minutes they could save by cycling.
Secondly a year ago there were two bicycle shops in Vigário Geral, now there is only one left. The reason for the movement from that one shop to another neighbourhood was because the market was becoming too small for two shops.

The second zone that has not been investigated further is location 2 along the Dutra. It is practically possible to construct a BSF at this location. But the social control is so low, a BSF would need to be guarded. It would have to be open from 5:30 am until 9:30 pm. This means there are 2 shifts needed which means 2 guards. With a minimum salary of R$ 380,= per person per month this means a cost of R$ 760,= per month. Of course there are other costs too, thus the total cost will be around R$ 850,= per month. There are around 100 people from the surrounding neighbourhoods that use this bus stop (see annexes). A reasonable tariff for storing ones bicycle would be R$ 0,50 (€ 0,18). At this price there would have to be 60 out of 100 people using the storage facility every day. To our opinion, this is far too optimistic for this pilot project.

The third zone that has not been investigated further is location 3 along the Dutra. There are two main reasons for this. The first is the tunnel near the bus stop which is very narrow and low: at some points only 1,5 meters. People are using it, but it really was not made for this use. Especially during or after rain the ground becomes slippery and the water in the river almost reaches the ground level. The second reason is that the bus stop on the south side is not being used as much as the bus stop on the north side. People prefer to take another bus stop when travelling to the south. Luciano, an employee of IBISS who has lived in Jardim América his whole life, told us that this is mainly because of the tunnel. Another reason is that people have to walk 150 meters from the bus stop before reaching this tunnel.
Another aspect that Luciano mentioned about this bus stop, is that the people that live in this part of Jardim América also use busses that drive through their neighbourhood instead of the busses on the Dutra. This may explain why the number of passengers on the north side of this location is just the same as at location 1 while there are far more inhabitants living close to this one.

Annex G. Programme of requirements

This Programme of Requirements is the basis for the Arrangement Plan. This Programme formulates requirements and desires for the location of a BSF. These set of rules and desires will be used in the Arrangement Plan for designing the BSF and possible adjustments of supply routes.

G.1. Location

G.1.1. Space

- The location should offer enough space to the BSF and its possible expansion. This space also includes the space needed for cyclists to enter the facility.
- Because the pilot project cannot cost too much, only available space or space that will become available in the future may be used as a location for a BSF.
- The BSF cannot be built underground, it should be constructed on ground level. An underground BSF is too complex and expensive for a pilot project.

G.1.2. Findability

The location of the BSF is attuned to the departure point and destination point of cyclists. This means cyclists should not walk great distances between the BSF and their destination.

G.1.3. Road safety

The BSF cannot adversely affect road safety. This means that road-users are not forced to make difficult manoeuvres to avoid the storage facilities and cyclists are not forced to make difficult manoeuvres to reach or leave storage facilities. For example, a BSF placed to close to the road, will be unsafe for motorists avoiding cyclists and unsafe for cyclists trying to store their bike.

G.2. Capacity

In this paragraph requirements for the capacity will be mentioned. There is a difference between the predicted demand and the starting capacity: the 80% rule.

G.2.1. Predicted demand

The predicted demand is the predicted number of places that will be used at peak times after approximately one month. This number is an extract of the interviews and counts and will contain the people that are already using their bicycle for one of these destinations and are willing to use a BSF.

G.2.2. 80% Rule

The turn-over (occupancy) on the normative 'regular peak moments' has to be maximal 80% of the capacity. This requirement has three reasons:

- To make a continue flow of cyclists possible, some storage spots have to be unused.
- Some bicycle spots will be forced to be unused. The reason for this is that certain types of bicycles are difficult to place next to each other.
- The time people will search for a free spot at an unguarded BSF has to be minimized.

G.2.3. Future capacity

There is enough space around the BSF to let the capacity grow in the future. This growth is the calculated potential demand.

G.3. Storage

Some of the storage requirements have been extracted from the normative document for bicycle storage systems produced by FietsParkeur. Wherever needed, requirements are adjusted to the

Brazilian situation. For this project it is relevant to know certain dimensions to determine the required space for the BSF. Also theft prevention and durability are issues.

G.3.1. Dimensions

The BSF should have such dimensions that all bicycles as described in annex … can be placed in or against the facility. The normative dimensions are:

- Height of steer: 970 mm
- Width of steer: 600 mm
- Length of bicycle: 1820 mm

G.3.2. Core-to-core distance

The core-to-core distance between two bicycle spots:

- in a rack or hang system which are located at the same level and in a straight or diagonal position of the BSF has to be a minimum of 65 cm.
- at a high/low BSF at a straight position has to be a minimum of 37,5 cm.

Note: In case the bicycle cannot be driven into the line of the storage spot, the required core-to-core distance has to be increased with the required space for this manoeuvre.

G.3.3. Height of space

- The space in a one-level storage should have a minimum height of 2.40 m.
- The space in a H/L system storage should have a minimum height of 2.70 m.

G.3.4. Width of walkway

The minimum width of walkway in a BSF is 1.70 m. The recommended width is 2.00 m.

G.3.5. Theft prevention facility

An unguarded BSF has to be designed in such a way that a closed component like the frame or a wheel of the bicycle can be attached to the BSF with a integrated or extern lock.

G.3.6. Durability

The BSF has to function for a period of at least 15 years. In this time the BSF has to withstand forces like weather and vandalism.

G.4. Social Safety

This concerns the social safety around the BSF.

G.4.1. Lighting

When the BSF is opened, there must be enough light around the BSF so that users of the facility feel safe when entering or leaving the facility.

G.4.2. Entrance

The entrance of the BSF has to be situated in such a way that cyclists do not feel socially unsafe when entering or leaving the facility. The entrance should not be placed in a, for example, small alley.

G.5. Fee

In the Utilization Plan the possible fee for each BSF will be determined.

G.5.1. Delay

At fee-paying storage facilities, the payment procedure is carried out quickly and smoothly: waiting times are minimal.

G.5.2. Height of fee

The maximum fee for storing a bicycle in a guarded facility may be a maximum of R$ 0,70. This is based on the fee that two other facilities in Bangú and Santa Cruz charge.

G.6. Desires

These are desires for the location and the supply routes of the BSF. These desires have an effect but, because of financial or other reasons possible, are definitely not requirements. The desires F.6.2. to F.6.6. apply to the cycle supply routes and concern safety (road- and social safety), attractiveness and comfort.

G.6.1. Location BSF

- The BSF should be located directly at supply routes.
- The location of the BSF should not force cyclists to cross hilly areas.

G.6.2. Safety

- The roads for cyclists to reach the BSF should be safe: no heavy or fast traffic.
- Along the supply routes there has to be as much social control as possible. Shops, bars and other busy points are an important factor for social safety.

G.6.3. Visibility

- There should be sufficient lighting to light up the road surface, obstacles and people along the route.
- Road-surface, side-pavement and road-marking should always be visible.

G.6.4. Road

- The road-sections should be designed in such way that the chance of cyclists being hindered by traffic or parked vehicles is minimized.
- The road surface should be of such quality that it enables cyclists a comfortable ride

G.6.5. Intersections

- All design elements should be clearly visible at junctions.
- The chance of conflict between bicycle-traffic and other traffic is minimized.

G.6.6. Orientation

At all decision points on the route road-signs with the direction to the BSF should be positioned so that cyclists are able to find the BSF by following these road-signs and these sign-posts should be visible in the dark.

G.7. Criteria

The choice for a BSF will be compared with the next five criteria.

1. Security: how compatible is the BSF with common locks and on which ways can a bicycle be locked?
2. Durability: are the used materials durable and how easy is it to damage the facility?
3. Ease of use: how easy, especially when there isn't a lot of room left, is the facility to use?
4. Visibility: how visible is the facility and recognizable as being a bicycle storage facility?
5. Costs.

Annex H. Description bicycles

This information has been extracted from information retrieved from Fischer, a bicycle manufacturer in Brasil, and from the internet site of Caloi. This information retrieved from Fischer is attached in Annex II.

All-terrain bike (ATB)

Steer width:	580	mm	± 20	mm
Steer height:	935	mm	± 35	mm
Tire width:	50	mm	(26 inch)	
Distance between axes:	1100	mm		

City bike

Steer width:	580	mm	± 20	mm
Steer height:	935	mm	± 35	mm
Tire width:	50	mm	(26 inch)	
Distance between axes:	1100	mm		

Racing bike

Steer width:	420	mm	± 20	mm
Steer height:	935	mm	± 35	mm
Tire width:	23	mm		
Distance between axes:	1000	mm		

A note about the city bike. It seems like a mistake that the dimensions are the same as the dimension of the ATB. But because of the condition of most roads in Brasil, also a city bike needs the firmness that an ATB has.

The following information was retrieved by e-mail on November the 8th, 2006, from Renata Morandi Gomes, an employee of Fischer. Fischer is a big bicycle manufacturer in Brazil.

DIMENSÕES DAS BICICLETAS

Bicicleta modelo MTB (ARO 26)

- Tamanho do quadro – 560 milímetros.
- Altura do selim
  – máxima 910 mm / mínima 810 mm .
- Altura do guidão
  – máxima 970 mm / mínima 900 mm .
- Distancia entre eixos – 1100 mm .
- Distancia X – 150 mm .
- Largura do guidão –560 á 600 mm .
- Pneu – 26x2125 (47 – 559) largura 50 mm .

Bicicleta modelo LINHA TRANSPORTE (ARO 26)

- Tamanho do quadro – 570 milímetros.
- Altura do selim
  – máxima 910 mm / mínima 810 mm .
- Altura do guidão
  – máxima 970 mm / mínima 900 mm .
- Distancia entre eixos – 1100 mm .
- Distancia X – 150 mm .
- Largura do guidão –560 á 600 mm .
- Pneu – 26x1.1/2x2 (54 – 584) largura 50 mm .

Bicicleta modelo MTB (ARO 24)

- Tamanho do quadro – 530 milímetros.
- Altura do selim
  – máxima 750 mm / mínima 650 mm .
- Altura do guidão
  – máxima 970 mm / mínima 900 mm .
- Distancia entre eixos – 1000 mm .
- Distancia X – 150 mm .
- Largura do guidão –560 á 600 mm .
- Pneu – 24x1.90 (47 – 507) largura 50 mm .

Bicicleta modelo MTB (ARO 20)

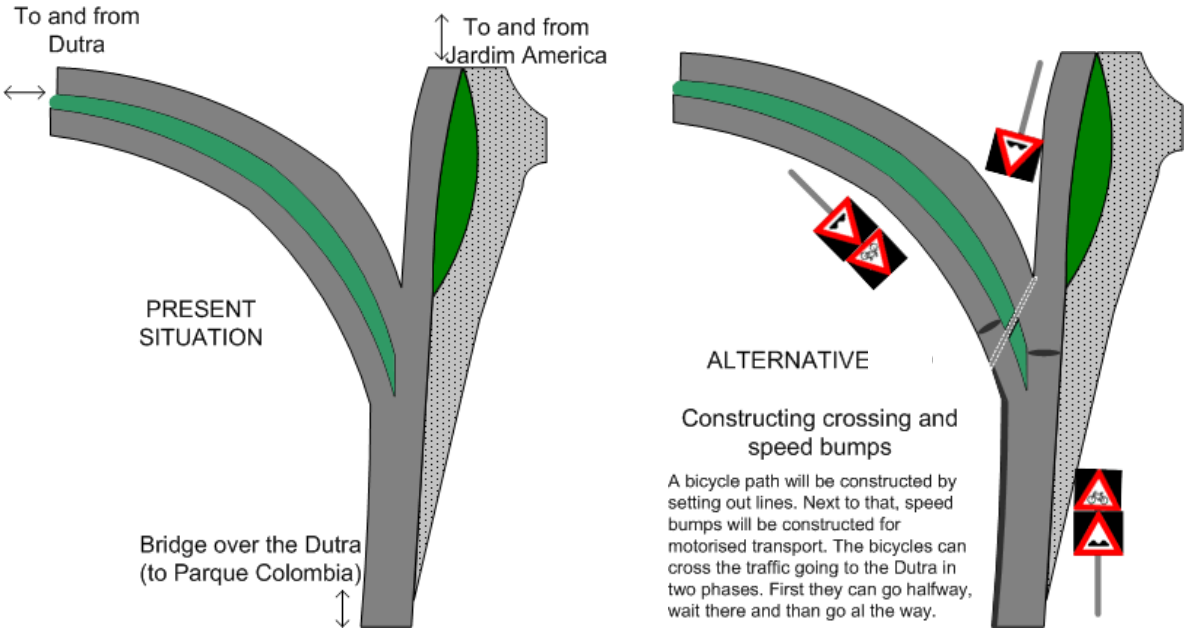
- Tamanho do quadro – 450 milímetros.
- Altura do selim
  – máxima 550 mm / mínima 450 mm .
- Altura do guidão
  – máxima 870 mm / mínima 800 mm .
- Distancia entre eixos – 870 mm .
- Distancia X – 140 mm .
- Largura do guidão –530 á 560 mm .
- Pneu – 20x1.75 (44 – 406) largura 45 mm .

Foto com os locais para medir em cada modelo .

Annex I. Alternative arrangement plan Dutra location

If the fence will not be moved, the BSF should be placed at the other side of the road. This alternative has disadvantages: users from Jardim América would have to cross the busy intersection (close to the police post) and cross the road to reach the stairs to take a bus. The first and biggest problem can be tackled: the intersection could be adjusted to be safer for cyclists.

The intersection – at the police post – is confusing for traffic. It is not clear who has right of way and there is no facility for cyclists and pedestrians to cross the intersection. Next to this, trucks and cars are speeding. It is definitely an obstacle for cyclists and therefore it should be tackled if 2A is implemented and turns out to be a success.
The following pictures show the present situation and the intersection with adjustments.



The chosen adjustments make the crossing for cyclists and pedestrians safer. But the adjustments are not dramatic and therefore the costs stay low.
The speed bumps force motorists to slow down, so cyclists and pedestrians have more time to cross and have a longer time to react on oncoming cars. The lines of the road make it clear to drivers that this space is for crossing cyclists and pedestrians. These lines are pulled through the middle green bank by lowering and paving of this part of the bank. This will create a safe spot for crossing cyclists and pedestrians.

Annex J. Statistics bicycle use

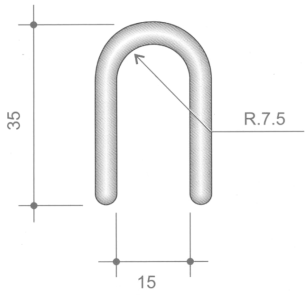
In this table the absolute and share of realized trips by bicycle in Rio de Janeiro.

Year	**Realized trips**	**(%)**
1994	645.510	3.24
2004	259.001	1.30

Annex K. SMAC-2 type

The pictures were taken at the beaches Ipanema and Leblon and show the SMAC-2 storage type.

Technical drawings of the SMAC-2 type.



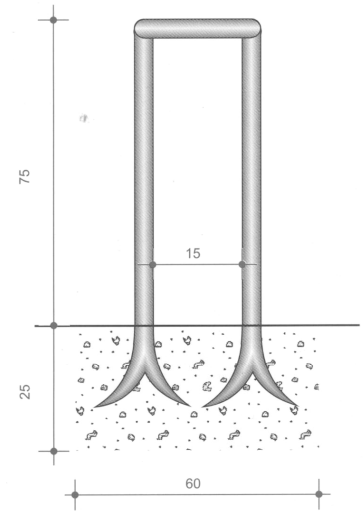
VISTA DE TOPO DO BICICLETÁRIO

Estrutura
Bicicletário em tubo de ferro galvanizado com diâmetro interno de 1 ½", espessura da parede de 2,65 mm, dobrado a frio em dios ângulos de 90° e um angulo de 180°.

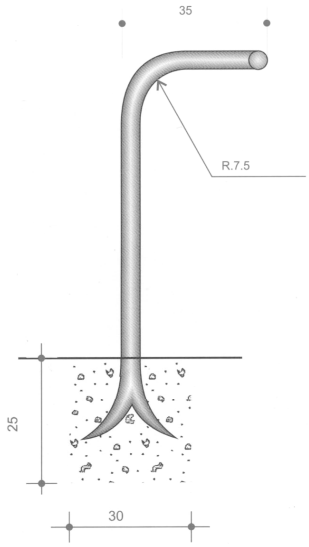
Fixação
Chumbado em bloco de concreto FCK = 13,5 II Mpa com dimensões de (0,30x0,60x0,25)m, com gola de proteção na junção Lubo/concreto.

Acabamento
Pintura eletrostática.

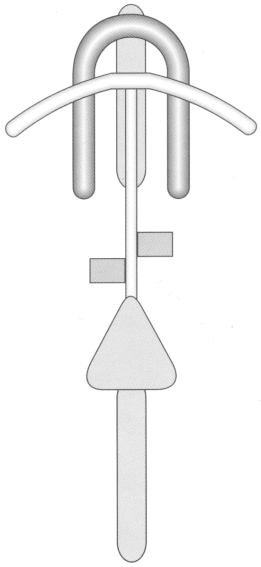
Obs: Todas as cotas estão em centimentros.



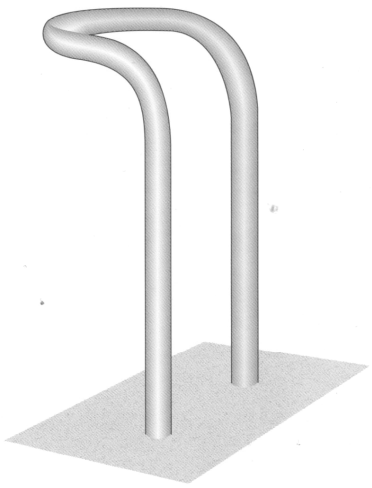
VISTA FRONTAL



VISTA LATERAL

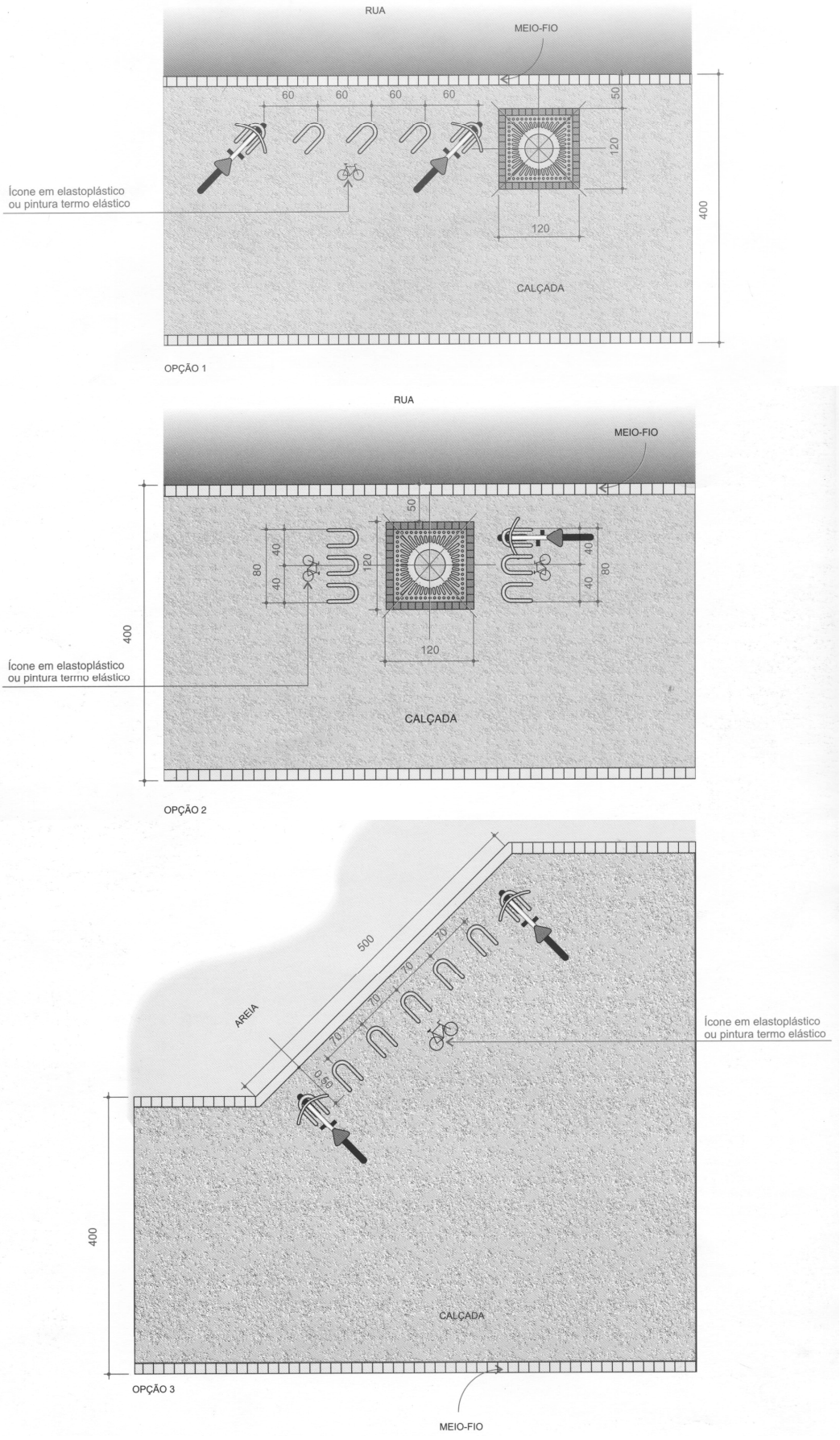


VISTA DO CONJUNTO DO TOPO



PERSPECTIVA

Three implementation options of the SMAC-2 type.



Annex L. Visits to Bangú and Santa Cruz

We visited two areas where there is a higher bicycle usage: Vila Alliança in Bangú and Santa Cruz. In the previous annex a map of Rio de Janeiro with the location of these two neighbourhoods is given.

Bangú

As can be seen on the satellite picture this area is surrounded by two mountains. Because of these mountains there almost is no wind which makes it approximately 5 degrees warmer than in Zona Sul, the southern part of Rio. You would except a lower use of bicycles, but the opposite is true. Cycling is very popular here. Naturally more facilities for bicycle parking are available here, guarded and unguarded. We visited a guarded facility that was situated at a central point. In 100 meters there is a shopping mall, a big supermarket, a bank and other shops. The facility was started 20 years ago and is doing good business. Because the facility is placed on a square, there is always space free for an extra bicycle. Some facts:

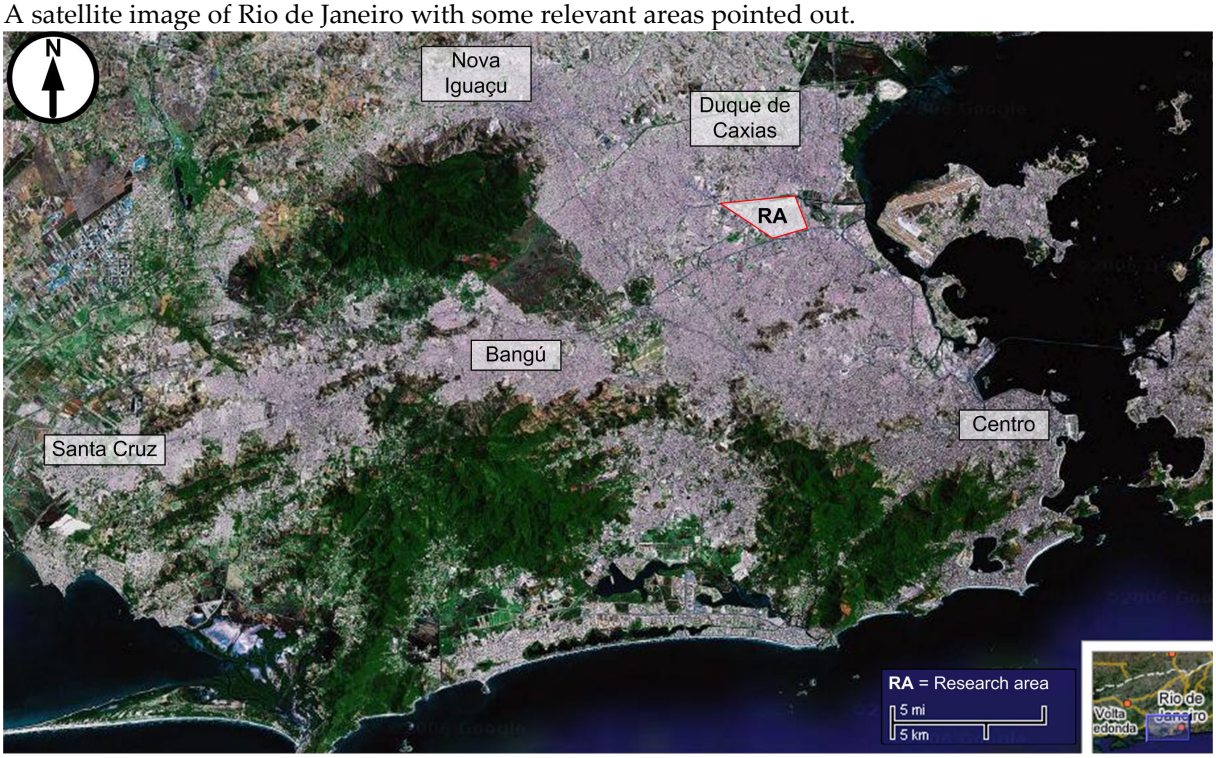
- At the time there were 40 bicycles placed, half placed in racks and the other half loose. There was also one motor placed.
- On a normal day the facility had 200 clients.
- Storing a bicycle costs 70 centavos, placing a motor costs 1 reaal.
- The facility is opened from 08:00 to 19:00, Monday to Saturday.
- There are four people working.
- The facility does not pay taxes.

Santa Cruz

Close to the train station, bus station and many shops there is BSF situated. This one is bigger and more professional than the one in Bangú. It is inside a building and has an integrated video system to monitor movements inside and outside the building. When customers buy 25 coupons in one time, they get a discount of 30%. This BSF is only three years old but grew from a capacity of +/- 250 bicycles to 400 bicycles. It is open 24 hours, and five people work here. The tariff for a bike (24hrs) is 1 reaal, with a coupon it's 70 centavos.

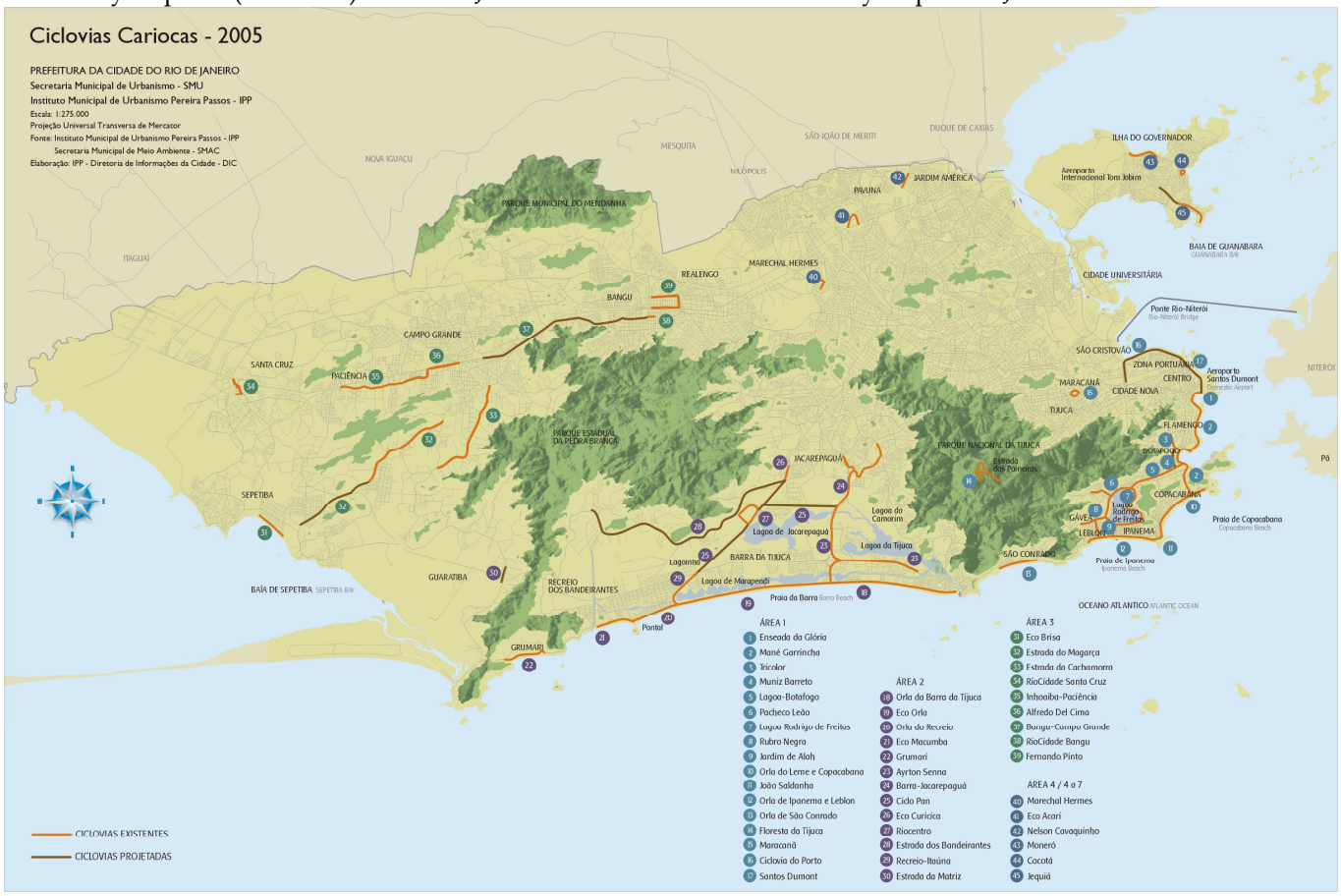
Annex M. Maps

A satellite image of Rio de Janeiro with some relevant areas pointed out.



Network of trains (SuperVia) and metro

Bicycle paths (Ciclovias) in Rio de Janeiro. Path number 42 is the bicycle path in Jardim América.



Satellite image of the research area retrieved from Google Maps (maps.google.com).

Annex N. Pictures

Pictures of Praça Jardim. At the time the new entrance of the health centre on the left was in construction. The comlurb is on the right.

Visible is the football field, the shops next it and in the background the health care centre and the comlurb. The situation in this asfalto area is much better than in a favela like Terra Encantada.

The main street in Terra Encantada

A picture taken of the stairs next to the Dutra location from the bridge.

Annex O. Used survey form school

Você quer perguntar essi pergantas para os alunhos? Escreve o quantidade dos alunhos de responsa possibilidade na forma, por favor.

Nome de classe: .....

1. Que tipo de transporte voce usa pra seu viagem diária para escola?

Ônibus	Quantidade:
Kombi	Quantidade:
De pé	Quantidade:
Bicicleta	Quantidade:
Outre tipo	Quantidade:

2. Quanto tempo é seu viagem diária para escola?

0-10 minutes	Quantidade:
10-20 minutes	Quantidade:
> 20 minutes	Quantidade:

3. Você tem uma bicicleta?

Sim	Quantidade:
Não	Quantidade:

Annex P. Used general survey form

1. **Você mora em qual bairro?**

☐ Jardim América	☐ Furquen Mendes
☐ Vigário	☐ Dique
☐ Vigário Geral	☐ Terra Encantada
☐ Praça 2	☐ Ficap
☐ Gringolandia	☐ Beira Rio
☐ Vila	☐ Outro: …

2. **Você tem uma bicicleta?**

☐ SIM

→ **Você veio aqui com a sua bicicleta?**

☐ SIM

☐ NÃO

Por que você não veio com sua bicicleta?

☐ Segurança na rua
☐ Segurança na destinação
☐ É perto demais
☐ É longe demais
☐ Outro: _____

☐ NÃO

→ **Por que é que você não tem uma bicicleta?**

☐ Segurança na rua
☐ Segurança na destinação
☐ É caro demais
☐ Não gosta ciclo
☐ Outro: _____

3. **Se houvesse um bicicletarió aqui, você usá-lo-ia?**

☐ SIM
☐ NÃO ⟶ **Por que você não usá-lo-ia?**

_____