Ciudadela

2.0

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WS 20/21 Master Architecture
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Fig. 1
1 History
### Historic Overview

**Montevideo**

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<td>People and fighter: fierce culture of horse riding and fighting against colonization through Spanish</td>
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<td><strong>Colonization</strong></td>
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<td>Extermination through illnesses and genocide of Charrúas through Spanish colonial masters. 1603: Spanish introduce livestock</td>
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<td><strong>Territorial fights</strong></td>
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<td>Fights between British, Portuguese and Spanish colonizers about zone between Brazil and Argentina</td>
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<td><strong>Montevideo and Buenos Aires</strong></td>
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<td>As center of Spanish royalists, Uruguay part of vice royalty of Rio de la Plata. 1814: Uruguay occupied by Argentinians, war of independence, 1830: first constitution, many Spanish immigrants</td>
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<td><strong>Port and trading</strong></td>
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<td>Natural situation of Port stimulates trading. Montevideo as economic center of region, strongener of agriculture sector</td>
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<td><strong>Dictatorship</strong></td>
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<td>1876-1890</td>
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<td><strong>Democratization</strong></td>
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<td>Through presidente Batlle y Ordóñez: demographic and socio-economic change: first social democracy of the continent, 1906: founding of municipality Montevideo</td>
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<td><strong>Social Reform</strong></td>
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<td>New pension system, unemployment, insurance,..in new constitution of 1919</td>
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<td><strong>Infrastructure</strong></td>
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<td><strong>First railway</strong></td>
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<td>Through European capital build up of infrastructure in Montevideo, also of educational system</td>
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<td>1897: opening of central station Montevideo Harbor</td>
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<td>1868: Mercado del Puerto was build</td>
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<td><strong>Electric streetcar</strong></td>
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<td>1906: first street cars introduced in the center of Montevideo</td>
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<td><strong>Official Opening of the Harbor 1909</strong></td>
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<td><strong>Economic crises</strong></td>
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<td>Putsch and dictatorship regime through Gabriel Terra 1934: women’s suffrage 1939: Uruguay on side of allies during second world war 1945: founding member of United Nations</td>
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<td><strong>Economic growth</strong></td>
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<td>Uruguayan export growth</td>
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<td><strong>1960: Decline of Democracy</strong></td>
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<td>and economic problems 1968: civil rights are not valid anymore through presidential change</td>
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<td><strong>1970 - state of war</strong></td>
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<td>Against Guerilla fighters, high economic crisis and military putsch</td>
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<td><strong>Secularization of Railway</strong></td>
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<td>Railway now belongs to Uruguayan state as reparation payments of British</td>
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<td><strong>Airport 1947</strong></td>
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<td>Airport terminal inaugurated</td>
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**Historic Overview**

**Montevideo**

### Political Timeline

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<th>Year</th>
<th>Event</th>
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| 1980 | Return of Democracy
Steady economic growth because of sanctions |
| 1990 | Mercosur
Uruguay as one of the founders of a common duty-free trading market of countries in South America |
| 2000 | Crisis
Economic crisis of Argentina reaches market of Uruguay
huge manifestations in Montevideo against neo-liberal government
2007: Manifestations against planned contaminating industries of paper and cellulose on Rio Uruguay |

**Montevideo Municipios**
City divided into eight political municipalities (letter A-G) as an aim for decentralization of municipality
furthermore 62 barrios

### Infrastructure

<table>
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<th>Year</th>
<th>Event</th>
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| 1993 | Tourist ferries “Buequebus”
yearly more than two million of passengers in ferry between Buenos Aires and Montevideo, mostly Argentinian
Tourist that spend holidays on Uruguayan coast, travel time 2h 30 min |
| 1999 | Construction of new Central station
“Nuevo Terminal”
1994: Installation of new Bus Terminal
“Tres Cruces’ as central traffic point of Uruguay |
| 2003 | shut down
of first central station “General Artigas” |
| 2009 | Installation of new central station
2009: Airport expansion |
In 1724, Montevideo was founded by the Spanish soldier Bruno Mauricio de Zabala as a strategic base in the Spanish Portuguese dispute over the platine region. To defend the city, which was populated from now on by immigrants from Buenos Aires and the Canary Islands, a Citadel and City Wall was built (Fig.2). In the year 1829 the urge of a military defending wall was gone and Montevideo grew in size (Fig.4). The district within the former city wall is nowadays known as “Ciudad Vieja”. In the year 1963 the district had 39,365 inhabitants, in the year 1996, 25,991 people lived there and by the latest census in 2011 the population of Ciudad Vieja shrunk to 12,555 people.

1 https://montevideo.gub.uy/areas-tematicas/turismo/historia-de-montevideo, 18.01.21

2 http://cerpeditoral.cfe.edu.uy/in dex.php/academicos/departamentos/historia/rtam/209-montevideo-noc-la-topado-txt-fundaci%C3%B3n%20de%20Montevideo,Buenos%20Aires%20y%20las%20Canarias, 18.01.21

3 https://theincidentaltourist.com/uruguay-montevideos-ciudad-vieja/, 03.12.20

Montevideo 1760


Plan de la Ville de Montevideo

A. Citadelle.
B. Gouvernement.
C. Batterie Royale.
D. Mag. à poudre.
E. Moulin à vent.
F. Quay où l’on débarque.
G. Corps de garde.
H. Porte de la Ville
I. Fontaine de la Ville.
Ciudad Vieja 1930
Ciudad Vieja Today

Harbor and Logistical Zone
Main Circular Street
Dense Urban Fabric
Free space, Park

Fig. 6
Analysis of Colonial Grid Structure

The Colonial grid city planning

When grid adapts to built environment, leftover diagonal triangular occur

Public places in form of a whole block in the grid or turned shapes

Main streets circulate the dense inner city grid structure

The outer layer around the Old Town is a free space (green) and the harbor (blue)
Montevideo and especially the district of Ciudad Vieja faced a radical idea of architectural intervention. In the year 1929 Franco-suisse architect "Le Corbusier" visited Montevideo. With the help of the aviators Jean Mermoz and Antoine de Saint-Exupéry, Le Corbusier studied on a flight the uniqueness of the landscape, and the contrast between the forest, open terrain and buildings. He got inspired and made the sketch (Fig.9) that would have changed the skyline of Montevideo. It highlights a giant business center under a motorway that juts into the bay, connecting the most important buildings and bypassing the preexisting urban chaos.

6 source: https://www.moma.org/collection/works/558, 28.11.20
Today:
Important Public Buildings
Ciudad Vieja

Fig. 10
Public Urban Squares

Parks and green spaces

Logistic Zone

Today: Zoning and Green Spaces

Fig. 11
2 Demography
Uruguay has an overall population of 3.5 million people, more than half of them are living in the urban area Montevideo (Fig.12). Comparing to other south american cities, the capital of Uruguay is ranked at place 30 regarding the size of population.  

7 source: https://www.ine.gub.uy/web/guest/censos-2011, 04.12.20  
8 source: https://populationstat.com/uruguay/montevideo, 04.12.20 

Montevideo Population 2020: 1,752,388 people
Density

Fig. 13
Register of Women

Femininity Index in Percent: 0-50%  51-65%  66-80%  81-100%
Unemployment

Unemployment in Percent: 0-1%  1.1-3%  3.1%-5%  5.1-7%  7.1-10%  >10%
Small Business: A Fruit Vendor in Ciudad Vieja
Food Chain at Social Security and Labor Ministry Ciudad Vieja
Fig. 18

Average Years of Education per Segment
- 0-8 Yrs.
- 8-10 Yrs.
- 10-11 Yrs.
- 11-12 Yrs.
- 12-14 Yrs.
- >14 Yrs.
3 Mobility
Guiding questions: Which modes of reducing the emission of transport exist? How to switch road-users mindset to use a more sustainable way of public and private modes of transport?

Guiding questions: Why only 3%? How can we increase the interest of road-users in biking?
Fig. 21

Mobility Statistics:
Electricity Generation by Source in Uruguay (total)
Throughout the history, the harbor was always the economic center of Montevideo and helped the city with the export of wool, beef and leather to become one of the wealthiest cities in Latin America. Nowadays it allows Uruguay to be sustained in the main foreign trade routes of South America.\(^9\) The port is outlined as one of the main cargo mobilization routes of MERCOSUR since it is located in a strategic geographical enclave of great importance.\(^9\)

The environmental consciousness of the Uruguayan Government is visible in current transformation of the harbor. For example, the APM Inland Services Uruguay Terminal is 90% CO2-free with the acquisition of 648 solar panels. The switchover will reduce Inland Services Uruguay’s carbon dioxide emissions by approximately 50 tonnes per year.\(^9\)

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9 source: https://eh.net/encyclopedia/an-overview-of-the-economic-history-of-uruguay-since-the-1870s/, 05.01.21

10 source: https://www.terminaltcp.com.uy/infraestructura/, 05.01.21
Tourism and Cruise Ships in the Montevideo Port

Next to be an international trading ground, the Port of Montevideo also welcomes tourists. Cruise ships are relevant for Montevideo from the tourist and economic point of view since the city has been consolidated as a port of embarkation and disembarkation of passengers. Between 2019-2020, approximately 134 cruise ships arrived at the port of Montevideo and this number is expected to increase.13

12 source: https://www.vesseltracker.com/en/Port/Montevideo/Dashboard.html, 05.01.21
13 source: https://montevideo.gub.uy/noticias/economia-y-turismo/bienvenidos-cruceros, 14.12.20
Buquebus Tourism: A chance for Ciudad Vieja

Buquebus is an Argentinian travel agency, has the second largest passenger terminal in Buenos Aires and transporting over 2,500,000 people per year between Argentina and Uruguay on their ferries. Four of them are needed daily to transport this large number of tourists. Every two hours the ferry from Buenos Aires arrives at the Port of Montevideo. The Ciudadela Terminal is in near distance (Fig.25) and has the potential to collaborate with the constantly wave of incoming visitors.


15 source: https://www.buquebus.com/english/about-montevideo, 02.12.20
Location Ciudadela
Terminal to Ferry Terminal

BIKE: 7 min - WALKING: 15 min - CAR: 3 min

Bus Terminal Ciudadela
Ferry Terminal
Coverage Bus Lines

Bus lines A Line B Line
Fragmentation of Bike Lines

30 Kmh Zone  Bike Lanes marked  Bike lanes constructed
4 Use
Retail and Pedestrian Zone
Café, Restaurant, Bars

Fig. 32
“In the last couple of years, Ciudad Vieja has gone through a major transformation that has made it the main nightlife center in town. It is in this area where most of the nightclubs are, and also it hosts the ‘Mercado del Puerto’ a traditional venue for Uruguayan food and beverages.”

1 https://en.wikipedia.org/wiki/Ciudad_Vieja,_Montevideo
5 SWOT-Analysis
Nightlife

High nightlife action leads to high request for E-Taxis.
High activity, through that, social security at night.

W
Vandalism? Noise?

O
Local businesses could thrive from nightlife activity.
“more traffic, more economy”

T
High demand for charging stations.

possible increase of informal sector?

Ciudad Vieja not yet ready for transformation: more pedestrian zones needed - planning conflict?
Tourism through ferry terminal

S
Ciudad Vieja high tourism through arrival point of ferry

W
Amount of parking cars around terminal: too many, no clear bike or pedestrian connection planned or designed

O
E-taxis and last mile mobility starting from Ciudadela terminal, react to arrivals

Small businesses can profit from tourism > E-Tricycles and E-Cars needed

Catching moment of tourism through E-Busses and other modes of E-Transport

T
Traffic jams through cars arriving on ferry, logistically not planned sufficiently
Low Density

S
Good location factors: close to harbor, close to green spaces and promenade, well connected

W
Area was once abandoned > bad reputation?

O
Make area more dense (in terms of housing, business, ..)

low density + nightlife: possibility for development of investments

potential location for more businesses from many sectors (productive industry, harbor industry, ..) > economic growth

T
Filling of urban gaps has to be moderated with citizens that live in the Old Town to prevent Gentrification Processes

Fig. 37
S
Ciudadela terminal embedded in green space around it that could be used in the concept of the design

W
Abandoned, missing landscape design, dangerous at night since public lightening is missing. No facilities, cultural offer or activities in the green spaces

O
Superior landscape architecture plan could upgrade green spaces. Plaza Indepencia is in 6 min walking distance and Tourist waves from ferries could be guided there. Activation of space. Continuous green connection

T
Only parts of the park gets designed. Fragmentation instead of continuous landscape design. Bike lanes are not accepted or used by citizens
“Ciudad Vieja a Escala Humana”

To design the public space, street and sidewalk space of the old town in a more appealing way, the municipality of Montevideo came up with the Project “Ciudad Vieja a Escala Humana” (Eng.: The old town at a human scale). Their statement is the following:

“The old city we want: This plan was designed to continue building together with our neighbors the Old City that we want, that unique conjunction of the historic center, neighborhood, port and cultural and financial center of the city. With it we seek to promote the use, meeting and enjoyment of each of its spaces, providing more options for mobility, coexistence, free time and urban activities, promoting a neighborhood, cultural and economic life, active, integrated and vibrant.” On the picture you can see the planned redesign of the Plaza Larocca, right next to the Ciudadela Terminal.

Source: https://montevideo.gub.uy/ciudad-vieja-a-escala-humana, 1.12.20
Il Design
7 First Steps
First Concept Collage
Walking Distance 25min

Electric Heart of Ciudad Vieja

Ferry terminal
chance for E-Taxis and Small Businesses

Plaza Independencia

Ciudad Vieja

Centro

Montevideo Promenade

Walking Distance 25min

E-Taxis

E-Tricycles

E-Tricycles

E-Tricycles

E-Bikes

E-Buses

Potential to provide charging spots for E-Taxis (Ferry, Nightlife hours)
Potential to provide charging spots for E-Tricycles (small businesses)
Potential to provide charging spots for E-Bikes (street transformation)
Potential to be the main connector of a new Green Corridor

Concept Finding Sketch:
the Electric Heart of
Ciudad Vieja

Radiance of Ciudad Vieja
Open to changes through Low Density + Streetsystem
Implementation of 100% E-Mobility
Transformed Ciudad Vieja would represent Uruguay

Nightlife of Ciudad Vieja
chance for E-Taxis and Small Businesses

Street System of Ciudad Vieja
chance to increase number of E-Bikes
Ciudadela Terminal embedded in Net of Other Transport Terminals in Circular Park
The Reef

The architectural intervention we pursue shall respect the surrounding nature and historical context of Ciudad Vieja. We came up with the idea of the “Reef”, which is a simple, wooden construction. The restrained shape will allow us to implement the construction in different locations and keeps us flexible to study different implementation ideas.
Minimal construction >
Possibility to source, produce and install by local carpenters

Expandable >
Size of reef can change and adapt over time, depending on use

Thermal envelope >
Reef can be roof structure or closed rooms

First Construction
Sketch of the modular wooden Reef Structure
**First Approach: Organizing the Terminal**

Our first idea was it to let the the circular park with small Reefs bypassing the Ciudadela Terminal and to have an excluded double height Reef at the Bus stop. After removing the rusty existing Bus stop waiting structure, we suggest to set up a fence to secure the Terminal in the future.

The next step would be to build the big bus stop reef, and let different businesses and renting opportunities move in (Fig.48).

In this design we see issues regarding the difficult traffic situation at the exit of the bus terminal. Moreover we questioned the necessity of the Reef size at this location and the lack of connection to the circular park. (Fig.50)
8 Historic Overlay
Course of Ancient Citadel of Montevideo and Intervention Area: The “Ciudadela 2.0”
9 The Reefs
Sequences of the Circular Park

- Productive Sequence
- Cultural Sequence
- Leisure Sequence

Fig. 53
Modular Structure: The Reef

Modular, wooden construction, framing Ciudadela 2.0: Like a reef attracts fishes, the construction aims to attract different stakeholders, providing jobs and opportunities for the local people of Ciudad Vieja. This construction will help us to connect the circular park and provide each segment with fitting uses.
**Construction Procedure and Stakeholders**

- **Inhabitants of Ciudad Vieja**
- **Urban Planners**
- **Investor**
- **Municipality**
- **Landowner**

- Planning Studio to implement a new reef
  - Kick off
  - Resources
  - Local carpenter building the basic reef
- Economical opportunity for inhabitants of Ciudad Vieja
  - Renting out
  - Local businesses bringing the reef alive
  - Extension
  - Local community prosper

- Material choice, Uruguayan red painted pinewood.

- High demand leads to extension of the structure
Adaptable Uses of the Reef: Bus Stop, Shelter, Shop
Adaptable Uses of the Reef: Renting out to small Transport Businesses
Adaptable Uses of the Reef: Dancing and Culture
Urban Vision: Circular Park filled with the different Reefs and uses
10 The Ciudadela Terminal
Current Situation: The Terminal as an undesigned, neglected place

The perception of the Ciudadela terminal is determined by a feeling of insecurity and the absence of convenience. Following google reviews of visitors underline the bad perception of the terminal:

“Not a very safe place with many people/pollution due to the bus/needs arrangements to make the bus more comfortable while waiting with a better protection” (by Libertad Vallassi, 3 Years ago)

“Very dirty and careless when it rains you get wet literally” (by Fabian Gonzales 4 Years ago)
Current Situation: Missing lightening and shelter at Ciudadela Terminal

"Needs more lighting" (by Valentina Manzini, 3 Months ago)

"It is a simple urban bus terminal, it is not well maintained. There are no amenities for passengers." (by Diego Carnales 2 Years ago)

"Lines for various destinations of montevideo, including Ciudad del Plata and Las Piedras. The structure is not the best." (by Damian Sebastian Silvera 3 Years ago)
Location Plan of Ciudadela Terminal embedded in Circular Park
The Electric Heart: Stakeholders and Uses of Plot
Over-thinking our first design (Fig.50) according to the remarks on page 56, we focus now on the connection to the circular park (ciudadela 2.0), the distribution on renting and charging spots at our plot (Fig.63) and the smooth, save moving around the Terminal (Fig.70). The Park Reef with the plaza in front would be the main attraction of the Ciudadela 2.0 (Fig.64). The structure respects the historical sight and is build around it. In this way, visitors get always reminded about the old citadel and can start to trace the wall within the circular park. Different stakeholders and businesses can rent into the ground floor and bring a variety of offers to the plaza (Fig.65). The first floor can host different exhibitions (Fig.68) and the roof is usable as a viewing point to understand the connectivity of the park better and to enjoy the view at the Rio de la Plata (Fig.66).
Rooftop with View Point

First Floor: Exhibition
The Park Reef

(1) Ground floor: Renting Out to Small Bushiness

(2) Exhibition Floor

(3) The Viewpoint

The simple Modular Wooden Structure

Fig. 67
Longitudinal section
Reef in Park
The Reef of the Bus Stop at Ciudadela

Perforated Pine Wood Modules

Modular Wooden Structure

4.6m

Shadowed Seating Area Ground Floor

Little Shop
11 The Future of Ciudad Vieja
Imagining the impact of Ciudadela 2.0, we scrutinize the justification of the six lane highway next to our plot (Fig.74 in purple) and visualized a possible growing of the circular park, spanning into the harbor. (Fig.75+.76)
Future Scenario: The Green Offset grows
¡Vamos Montevideo!
III References
References: Pictures

Figure 1, Self-drawn Plan,
Authors: Björn Langer and Pia Schauder, WS 20/21
Studio Urban Mobility Living Labs, Habitat Unit, Technische Universität Berlin

Figure 2, Montevideo 1752
https://imgur.com/Vn4xXHR, Zugriffsdatum 11.12.20

Figure 3, Montevideo 1760

Figure 4, Montevideo 1900
http://bibliotecadigital.bibna.gub.uy:8080/jspui/handle/123456789/5653, Zugriffsdatum 15.12.20

Figure 5, Ciudad Vieja 1930

Figure 6, Ciudad Vieja Today
https://www.google.de/maps/place/Ciudad+Vieja,+11000+Montevideo,+Departamento+Montevideo,+Ciudad+Vieja+Montevideo,+Uruguay/@-34.8920984,-56.2063312,94z,156.38h,108.03t/, Zugriffsdatum 17.12.20

Figure 7 and 8, Self-drawn Plan,
Authors: Björn Langer and Pia Schauder, WS 20/21
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Figure 9, 1929 Le Corbusier
https://www.moma.org/collection/works/558, Zugriffsdatum 15.12.20

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Figure 12, Poulation Graph Montevideo

Figure 13, 14 and 15, Modified Plan in Colors and Textures after Data of Intgis Montevideo
https://intgis.montevideo.gub.uy/pmapper/map.phtml?&config=default&me=548000,6130000,596000,6162000, Zugriffsdatum December 20 - February 21

Figure 16, Street Vendor Montevideo Google Streetview Screenshot
https://www.google.com/maps/@-34.9082554,-56.2079507,94z,71.34h,72.24t/, Zugriffsdatum 15.12.20

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Figure 30-33, Self-drawn Plan,
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Figure 34, Nightlife

Figure 35,36 and 37 Self-drawn Sketches,
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Figure 39 Ciudad Vieja A Escala Humana
https://montevideo.gub.uy/ciudad-vieja-a-escala-humana, Zugriffsdatum 22.2.21

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https://www.municipiob.montevideo.gub.uy/corso-en-ciudad-vieja-2020, Zugriffsdatum 22.2.21

Figure 41 Self-drawn Plan,
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Figure 43, Nightlife

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Figure 47 Urban Gaps
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Figure 58 Ciudad Vieja A Escala Humana
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Figure 59 60 and 61 Self-drawn Sketches,
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Figure 67 Urban Gaps
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