

NATURA 2035

SUSTAINABLE URBAN DEVELOPMENT

PLACES TO LIVE ,WORK AND PLAY

PART I : RESEARCH

PART II : PROCESS

PART III : PROPOSAL

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M. ARCH. DIPLOMA THESIS

SCHINDLER / FESSLER STUDIO

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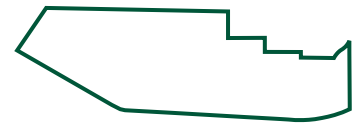


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ACKNOWLEDGEMENT

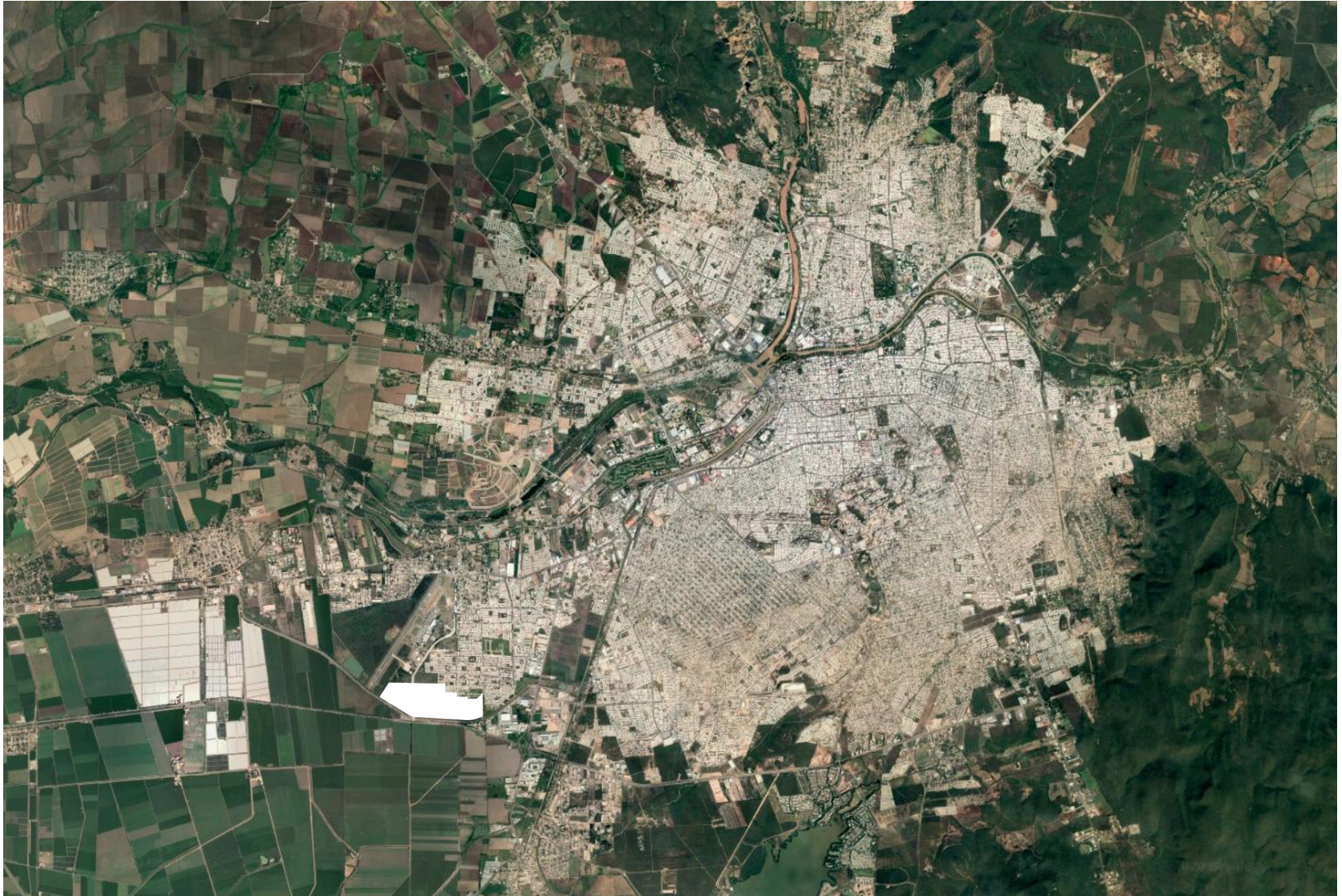
To the heads of our design studio Jan Schindler and Elan Fessler for their knowledge and patience in helping us finish the best design possible. I want to express my appreciation to all my teachers at Architectural Institute in Prague, for their time and dedication, the administration staff at ARCHIP and Regina Loukotova the founder and director of the school for her commitment to create an international community of future architects.

This book is dedicated to my parents, Martin Tamayo and Monica Ramos, for their unconditional love and support throughout my life.

To my wife Martina, my brothers Martin, David, Esteban, and their families.

Special thanks to Theoary Crisantes Enciso and family, for inviting me to participate on the urbanization of their farmland, Natura. I appreciate their trust on previous and future works and I hope this master thesis will be an inspirational tool to develop further the neighborhood, and together create a sustainable urban environment.

Note: Many of the photographs of this book are taken by Miguel Angel-Victoria. I am thankful for his work portraying the best side of our culture.



SITE OF NATURA 1950M X 600M

CULIACÁN, SINALOA, MEXICO



FOREWORD

As the city of Culiacán evolves, not only its population and urban fabric expands, but their lifestyle changes, improving as their possibilities grows.

From farmland to a sustainable urban environment, the site next to the airport is an opportunity to design the way of the future. New technologies and shared economies turns any apartment into a hotel and a shaded bench into an office, mobile everything is the new normal, school, work, dating, you name it. We live as digital nomads but our future is not restricted to screens. Humans as we are, we crave for fresh air and sunny days, time at the park or lunch at a terrace. In safety and comfort. Places to go, to be and to make. Organized on a grid with a twist, Natura's urban plan is flexible and embraces diversity of use. Promotes a smart, healthy and fun city life. (Not dependent on cars) Choices for people when strolling by.

The promenade. A network of social activity. Connecting attractive public spaces inviting people to stop and enjoy life at 5 kilometers per hour.

The average walking speed.

Cycling to your next destination. From end to end, the 2 kilometers journey along the promenade takes 7 minutes on bike or 20 minutes by foot.

It is easy to cross the boulevard, controlled by traffic lights prioritizing pedestrians. If prefers an interior circuit bus loop with 17 strategic stations at points of interest located approximately every 250 meters will drive the people from their homes to the baseball stadium, the food market, a hospital, schools and much more.

At the southern edge of Natura and the city, a waterfront park begins and continues around the site. Guiding people across the Air Force Boulevard over a pedestrian bridge to the west tip of the neighborhood where a small lake enclosed by vast greenery welcomes you to contemplate the airplanes as they take off the ground.

Natura is not a conglomeration of housing projects, but a vibrant cityscape. Walkable blocks of mix use. With useful interior courtyards, dedicated for service and light industry at the ground floor, providing green roofs for the residents on the floors above.

Regulated for active terraces at the top of buildings social life continues in the sky. The city code allows to build 45 meters high, and its Natura's plan to reach that height.

NATURA 2035
PLACES TO LIVE WORK AND PLAY

PART I : RESEARCH



CULIACÁN, SINALOA, MEXICO

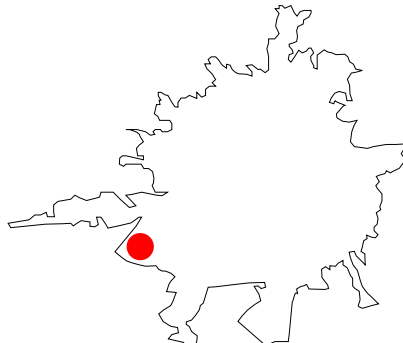
THE SITE



MEXICO



SINALOA



CULIACÁN

LOCATION

Mexico is a country located in North America with a North Pacific Ocean, Gulf of Mexico and Caribbean Sea coastline. Neighboring countries include Belize, The United States, and Guatemala.

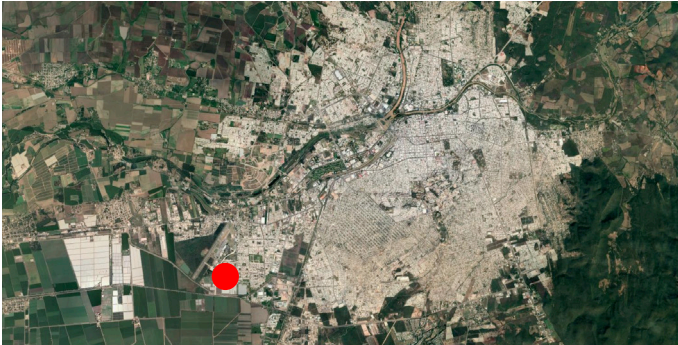
Population 126,190,788 (2018) Sinaloa has 600 kilometers of coast in the Pacific Ocean. The population in Sinaloa is 3.2 million people, from which 46% of the population is younger than 24 years old and 34% is younger than 19 years old. The capital and the most important city is Culiacán. The Northern Economic Corridor (COEN) connects Mazatlán with the East coast of the United States, crossing an area that produces 23.14 % of the national GDP (Gross Domestic Product). GDP per capita: \$ 87,462.94.

According to the Economic Census (INEGI) 2014, 34,406 companies operate in Culiacán, of which 98.8% are micro and small, and there is an Economically Active Population (PEA) of 357,702 as of March 2017. (<https://en.www.inegi.org.mx>)

Culiacán is the leader in the state with a production of around 5 million tons of corn. It also leads the production of vegetables (tomato, cucumber, chili, eggplant and pumpkin) and fruit (mango, melon, and watermelon), beans, soybeans, sunflower, rice, wheat, and sorghum. (<https://www.Culiacán.gob.mx/informacion/demografia/>)

The site is next to the airport at the southwest edge of the city. The airstrip is located 250 meters from the site's west end. The site used to be farmland. A 10 meter wide irrigation canal flows around its south edge.

There are two existing streets running from North to South and the city perimeter highway passing outside its southern edge. It is the plan to extend two boulevards from the Northern neighborhoods. With one of them connecting to the highway with a bridge. There is a preparation to connect the existing East and West Boulevards from its center.



CULIACÁN



SOUTH WEST EDGE



SITE

LAND USE

Currently, there is no land use. It is a goal from this study to find out the best use possible. Can the grid be flexible enough to allow all functions to take place everywhere? And if so what would it be its regulations to keep organized chaos?

Existing regulation is solely for agricultural purposes but is in process to change, the following estimation is based on previous proposals, to be designed after market analysis. It is now in the process of negotiating the change in land use, there have been proposed a few possibilities of assigning housing, commercial, industrial and public spaces but nothing is defined yet, this is the opportunity of the thesis project, to help the owner of the site to design a masterplan proposal for changing the land use.

Culiacán is a major agricultural exporter and respecting the history of the site and anticipating the future trends of urban farming. In the proposal we will see how to incorporate its origins.



AIR FORCE BOULEVARD



ACCESS TO BOULEVARD FROM AIRPORT



ACCESS TO BOULEVARD FROM HIGHWAY

AIR FORCE BOULEVARD

To the north of the site is the airport which is connected by Boulevard Air Force and eight lane fast transit boulevard passing through the site connecting to the highway over the canal through a bridge. The boulevard design is optimized for fast traffic to access the airport. It consists of eight lanes for going in each direction. The boulevard is separated in four parts from which runs north and south. The edge lanes are meant to be for slower traffic and parking space for commercial businesses along the boulevard. With the aim to initiate the growth of the city towards the south, a wide street has been built with a cost of 10 million dollars.

SPECIFICATIONS

Boulevard is 2 kilometers in length, with hydraulic concrete 20 centimeters thick, 4 kilometers of continuous circulation of 3.5 meters each, as well as two lateral bodies of 6 meters each for local traffic and continuous stops, with sidewalks 3 meters wide. A central ridge of 4 meters and two lateral ridges 2 meters wide each and two bridges will also be built.

The distance of the boulevard from the south to the north is 600 m. I can imagine proposing a crossing point at the center of the boulevard to unite the west and east part and not segregate functions. Although it's not visible from the photographs you can imagine that there is greenery to be planted on the divisions between the traffic lines making the boulevard greenery and shaded.



ACCESS FROM AIRPORT



CONNECTION WITH NEIGHBOURHOOD



NORTH EAST CORNER

PERIMETER

2020 meters waterfront, the canal is 10 meters wide but might extend.

2030 meters shared boundary with existing social housing developments.

720 meters shared boundary with the airport zone.

The plot on the north side between Natura and the airport is not developed. It is uncertain what will be built in there, but we are taking into consideration the extension of an existing Boulevard from the northern neighborhood.

CONTEXT

There are several neighborhoods on the northwest side of Natura Maine Boulevard that will be extended to pass through Natura all the way to the side over the canal in a future bridge to connect to the highway parallel to the Air Force Blvd.

It is very important to consider a friendly connection with the neighborhoods.

Natura is meant to be an inclusive development and it is open to bringing its neighbors to make use of its parts and vibrant streets.

Several functions like the church and parks will be in the border of the neighborhood to promote a friendly and familiar transition.

In the last picture, we can see that a few houses are located right in the border of Natura. They have an existing wall which will have to be considered when designing the proposal in order to avoid a long and boring facade.



SOUTHEAST CORNER



ACCESS TO HIGHWAY



AIRSTRIp RELATION AT WEST END

WATER CANAL

There is an opportunity to have an attractive recreational area near the water around the canal on the southern border of the site. To avoid flooring and create a healthy distance from the noise and pollution of the highway a greenbelt can enhance the public space along the canal. The water is meant to be used for the irrigation of the agricultural land. Therefore no swimming will be allowed in the water also for security because the flow might be fast. Taking advantage of the continuous supply of running water. There is an existing road parallel to the canal. That road could be moved to the opposite side of the canal to have a direct connection between the Park in the water.

AIRPORT LIMIT

To the North of the site is the airport which is connected by Boulevard Air Force and eight Lane fast transit Boulevard passing through the site connecting to the highway over the canal through a bridge.

On the bottom picture, we can see the West end of the site. Because the airport is next to it, there is a security wall along the West perimeter of Natura.

ACCESS TO HIGHWAY

On the southeast corner as we can see in the top picture there is a boulevard standing over the canal to an industrial area. It is the third connection to the highway. The southern access to the highway is a critical point in the project because the boulevard Air Force is guiding the traffic to the airport. It will be a busy and fast intersection which must be carefully crafted to avoid congestion.



BOULEVARD LUIS G. URBINA



BOULEVARD RAMON LOPEZ VELARDE



TENOCHTITLAN STREET

BOULEVARD RAMON LOPEZ

On the second photograph is the boulevard Ramon Lopez which connects to the highway. As we can see it is an underdeveloped street with no buildings on one side but a wall dividing one neighborhood with another.

BOULEVARD LUIS G. URBINA

Boulevard Luis G. Urbina, it is connecting the northern neighbors to the south highway over to canal.

The existing boulevard on the east end of this site has a circular shape making it complicated for the square buildings to sit along its edge. A buffer zone is needed between the road in the buildings filled with greenery or leave some space for an open-air parking lot. The type of trees planted on the boulevard should provide shade and grow thicker than the existing palm trees. The main boulevard connecting the neighborhoods to the north of the site is Luis G Urbina. It is an important connection because it will bring thousands of people living nearby to Natura. Since there was no proper planning when developing the social housing in this neighborhood, we can see on the top picture how there is no hierarchy of land use. .

DRAINAGE AND CANAL

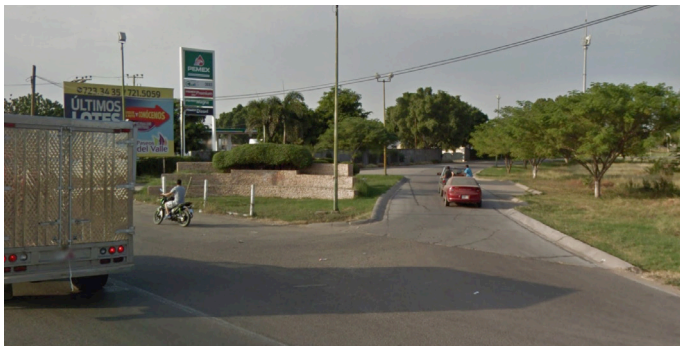
In the middle of the boulevard, we can see on the top picture the water drainage. It is open and dangerous and there is no proper limited infrastructure from cars to prevent falling down in the drainage. The reason why it is probably open is that it serves as a rainwater collection device and this water runs down to join the irrigation canal that passes along the southern edge of Natura. Therefore the drainage system will have to prolong inside the site but there are alternatives to how can it be done properly. Such as doing it on the ground and preparing all the necessary drainage grids to collect the water. The reason why we don't want the open drainage, besides being dangerous for cars and people to fall down, is that it prevents pedestrian crossing by limiting it to the use of bridges.



ROAD TO AIRPORT FROM CITY



HIGHWAY SOUTH OF THE SITE



HIGHWAY ACCESS ON SOUTH EAST CORNER

LIVABILITY

There are several concerns that will have to be solved towards living near the airport and Highway. There is no doubt that noise will come from the airport and highway therefore through greenery and carefully placing the functions of the nearest buildings to the noise exposure the problem can be solved. According to the information from the airport no flights fly during the night

DRIVING TO THE AIRPORT

In the top picture, we can see the road leading from the city to the airport. It is a fast road since people are usually rushing to get the flight. It is always exciting as you drive to the airport to see on your right side the airstrip with the landing planes.

On the opposite side of the road, we arrive at the highway crossing Natura. It is a major intersection with busy and fast traffic that connects the south and north of the state but also it is part of a mobility ring for motorized vehicles that's around the city.

The highway ring connects La Primavera, which is a gated community of mix-use with an area of 1000 hectares located 8 kilometers from the site.

In the third picture we can see the access from the highway on the southeast corner with a gas station to the left.

It is a smaller road with slower traffic. To the right, it is an existing industrial warehouse and nearby logistic centers.

LIVING BY THE AIRPORT

The visual connection from the ground to the sky is important and attractive and should be reinforced in the project. There are still ways of dealing with the airplane so close by. One way would be to try to ignore it by keeping as far as possible from them. The second option is to embrace the flights and create opportunities for people to contemplate the flying planes. Every time we will fly more and more as the world become more globalized.



SOUTHEAST CORNER BOULEVARD



BOULEVARD RAMON LOPEZ VELARDE



LARGE MID STRIPS ON BOULEVARD

STREETSCAPE

The ratio between the building height and the street should be enough to provide shade and comfort to pedestrians.

When the sidewalk is considerably higher than the street it is unwelcoming for pedestrians to cross the street. It is subjective if the pedestrian feels safer on a higher sidewalk done on the same level as the streets. The benefits of a higher sidewalk might be against flooding when rain, but this can be fixed with proper infrastructure for rain collection. A problematic difference between the levels is that when riding the bicycle, pushing a stroller or for people who are handicapped, it is very uncomfortable to climb on the sidewalk. It is way more efficient and pleasant when the sidewalk and street share the same level. The invitation for people to cross the street should be a priority and this can be achieved by making a special ground for communicating the crossing.

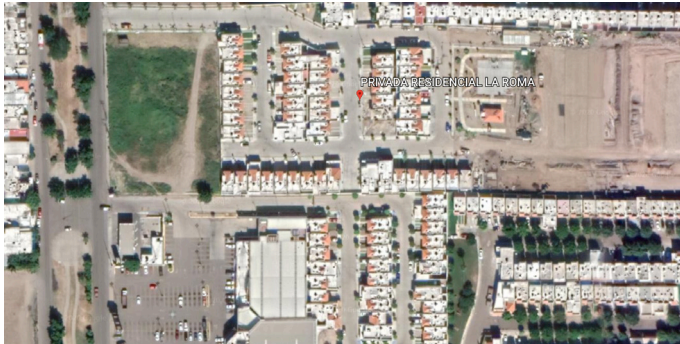


CULIACÁN, SINALOA, MEXICO

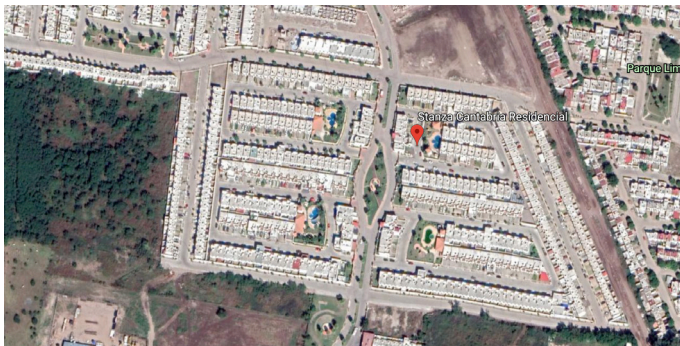
LOCAL MARKET ANALYSIS



PUNTA AZUL GATED COMMUNITY



RESIDENCIAL ROMA GATED COMMUNITY



STANZA CANTABRIA GATED COMMUNITY

HOUSING

Strengths:

The highest percentage of placement of the offer analyzed is within the horizontal type with 46% of the 1,234 units vs. 45% of the 549 vertical housing units.

The highest placement is found in horizontal housing with an average of 2.4 units per month vs. 2.2 in vertical housing.

Horizontal housing

The highest horizontal house sale price per square meter is found in the residential plus segment, with an average of \$ 33,945 pesos, more than double the price of the middle segment with an average of \$ 13,586 pesos.

The largest placement of horizontal housing is found in the popular segment with the placement of 7.8 monthly units, with an average value of \$ 586,000 pesos.

The Roma Residencial project (1.4 km) in the middle segment is the closest to the evaluated site, with the placement of 3.6 monthly units in houses of \$ 1.5 million pesos on average.

Vertical housing

The department of Las Mañanitas (1.3 km) has a placement of 3.9 monthly units, the average price per department is \$ 394,500 pesos.

Opportunities:

Horizontal housing projects with proximity to shopping centers have better acceptance among buyers.

The dwelling for the middle-income population is the most developed within the analyzed area since there are 9 projects within the segment. Its average placement is 2.5 units per month.

Due to the characteristics of the property, a planned community project could be carried out with housing aimed at different segments of the population, in addition to complementary uses.



PUNTA AZUL GATED COMMUNITY



RESIDENCIAL ROMA GATED COMMUNITY



STANZA CANTABRIA GATED COMMUNITY

Weaknesses:

Currently, there is an available stock of 661 houses in 18 nearby horizontal housing developments, 71% are from the middle segment. There are also 422 vertical housing units, 86% of the popular segment.

The residential and residential plus segment developments are the ones with the lowest placement with an average of 0.9 units sold each month.

Vertical housing in the residential segment has an average placement of 0.1 units per month, while that of the traditional segment is 0.6 units per month.

Threats:

As a preliminary, horizontal housing has a low placement, during 2018 the placement in the analyzed area was 4 units sold monthly on average, currently, it is 2.4 units. Las Mañanitas (1.3 km) still plans to develop more on-site apartments that are still available. The immediate area is not yet so densified that it will be difficult for the vertical offer to grow in the term cost.

Within the study area, there is still undeveloped land, so it is not ruled out that in the future more housing projects will be built.

Conclusions:

It is proposed to use 50 hectares of the property for the construction of 2,600 to 2,800 units (this last figure will be used for the income year).

The construction of stages is proposed and that each stage complies with preserves, each an average of 100 units, so there could be around 28 preserves.

Surfaces of 100 m² and 110 m² of construction with 110 m² of land respectively.

Prototypes of 3 bedrooms with two parking spaces.

A presale price of \$ 14,450 pesos per square meter of construction is suggested (from \$ 1,450,000 to \$ 1,656,000 pesos per unit).



LA CEIBA SHOPPING MALL



EXPLANADA SHOPPING MALL



PLAZA SENDERO SHOPPING MALL

COMMERCIAL

Strengths:

The shopping centers anchored in operation that were analyzed have an average occupancy of 97% of their profitable area. The average monthly rent per square meter of the analyzed shopping centers is \$ 303 pesos in premises between 24 m2 and 103 m2. The Strip Center analyzed has an average occupancy of 93% and an income of \$ 275 pesos per square meter in premises between 24 m2 and 66 m2.

Opportunities:

The new shopping center will form part of a mixed-use complex with housing that will be able to supply new tenants and captive clients in the area with a novel design. According to the capacity model, there is an opportunity to integrate 20,706 m2 into self-service store sales floors. The analyzed property is located less than 800 meters from the Culiacán International Airport which received 2.4 million passengers in 2019, this population could be a consumer of a new shopping center. It is estimated that the new Blvd. Fuera Aérea Mexicana has a flow of four to five thousand cars a day, reaching 15 thousand cars in peak demand.

Weaknesses:

Competition: According to the capacity model, there is an oversupply of more than 53,000 m2 of a profitable area in the analyzed area, this due to the forthcoming opening of Explanada Culiacán. There is also an oversupply of three movie theaters, also for the upcoming opening of Cinemex in Explanada Culiacán. Explanada Culiacán, the first Entertainment Center in the city, is located 1.2 km from the evaluated site. It will have 74,912 profitable m2 and marketing of 81%, it is expected to open in the first half of 2020.



LA CEIBA SHOPPING MALL IN PROCESS



EXPLANADA SHOPPING MALL IN PROCESS



PUNTO CULTIVO FUTURE EXPANSION

Competition: According to the capacity model, there is an oversupply of more than 53,000 m² of a profitable area in the analyzed area, this due to the forthcoming opening of Explanada Culiacán. There is also an oversupply of three movie theaters, also for the upcoming opening of Cinemex in Explanada Culiacán. Explanada Culiacán, the first Entertainment Center in the city, is located 1.2 km from the evaluated site. It will have 74,912 profitable m² and marketing of 81%, it is expected to open in the first half of 2020. There is a profitable area on offer in at least eight Strip Center-type spaces within the analyzed area that do not exceed 2,000 m² of profitable area. Within the primary Trade Area there are about 32,000 households, however, the socioeconomic level which predominates, has an average family income of \$ 14,500 pesos per month, that is, 14% lower than the national average of \$ 16,536 pesos per family per month.

Threats:

La Ceiba (6.1 km) is another shopping center under construction that is located within the analysis area, it will have 40,000 m² of profitable area and will have anchors such as Cinépolis VIP, Coppel and Cimaco.

There is a commercial area in planning that is contemplated in an area of 36,000 m² belonging to the Industrial Park La Costa (0.5 km), which includes restaurants and services.

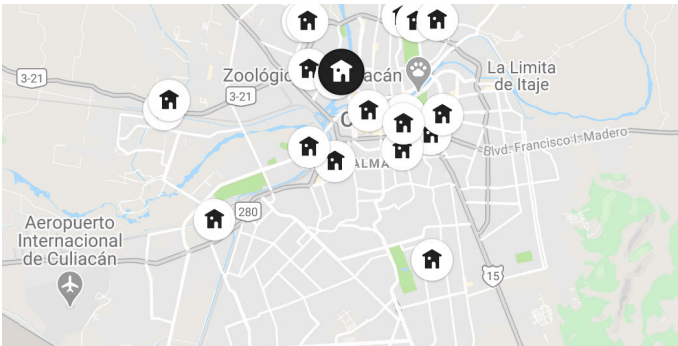
Conclusion:

The main commercial area is a Neighborhood Center-type commercial services and convenience area with a profitable area between 10,000 m² and 11,000 m² in phases.

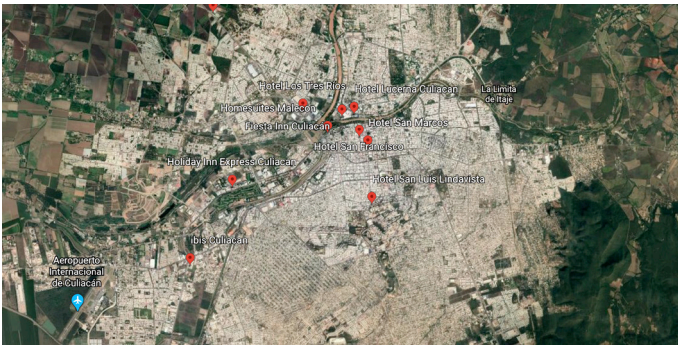
(<https://creasoluciones.com.mx>)



TYPE OF HOTELS IN CULIACÁN



AIR BNB LOCATIONS IN CULIACÁN



LOCATION OF HOTELS IN CULIACÁN

HOTEL

Strengths:

The analyzed hotels have an average occupancy of 65%, all of them 3-star category. The average rack rate presented by the analyzed hotels is \$ 1,099 pesos per night. The arrival of tourists to Culiacán in the period 2015-2019 grew 49.6%. These tourists stay mainly in 3-star and 4-star hotels. Culiacán International Airport during the period 2015 - 2019 had a 72% increase in passenger arrivals, mostly domestic.

The number of flights at Culiacán International Airport during the period 2017-2019 presented an increase of 26.7%.

Opportunities:

The hotels analyzed are 3-star, there is the opportunity for a new hotel with a higher category.

The proximity of the evaluated site to the Culiacán International Airport is definitely an opportunity for new hotels. The new hotel could have between 110 and 120 standard and suite rooms.

Weaknesses:

Because the analyzed area is still in the consolidation stage, there is a lack of shops and services that are attractive to future guests.

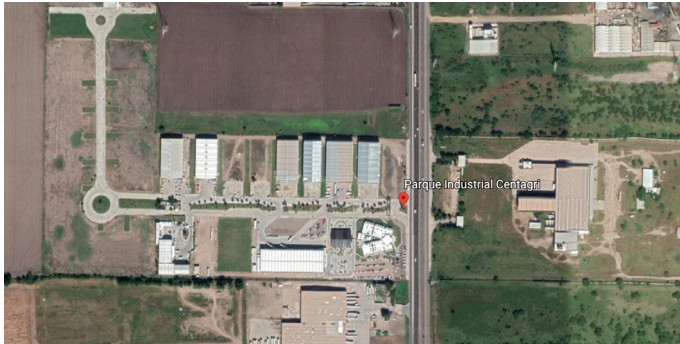
Threats:

Two hotels under construction were identified: Fiesta Inn Express in Explanada Culiacán (1.2 km) of a 4-star category. Fiesta Americana Culiacán (6.1 km) of a 5-star category.

The Airbnb platform represents a threat to the hotel sector, in Culiacán there are currently 336 units, with a growth rate of 16% quarterly on average. The average monthly occupancy of Airbnb units is 53% and the unit rate is \$ 822 pesos per night.



EL TREBOL INDUSTRIAL PARK



CENTAGRI INDUSTRIAL PARK



QUAZAR INDUSTRIAL PARK

INDUSTRY

Strengths:

The warehouses within industrial parks have an average rental price of \$ 78 pesos per square meter, which is 38% higher than the stand-alone warehouses with an average of \$ 56 pesos per square meter. The site is located within an industrial corridor with parks such as La Costa (0.5), El Trébol (1.3 km), Quazar (2.4 km), so it would have excellent synergy.

The property is located in a strategic place: less than three minutes from the Culiacán International Airport and the Benito Juárez Highway, which connects to Culiacán - Mazatlán, and Culiacán - Los Mochis roads.

Exports in the Industrial sector in Sinaloa registered an increase of 10.1% in 2018.

Opportunities:

The logistics park could be divided and sold under a condominium regime with lots in progress for the construction of warehouses by the owners. Within the industrial parks analyzed, there is little supply in wineries with surfaces less than 1,000 m², so offering surfaces from 500 m² would be attractive.

Weaknesses:

According to José María Cadena, president of the Council for the Economic Development of Sinaloa (CODESIN), some of the problems for installing more companies in the state are land use permits in industrial sectors (<http://codesin.mx/category/reportes-economicos/>).

Threats:

Currently, Parque Fundadores, PyME (Industrial park of small business) (1.4 Km) is being built, which will have about 59,000 m² of area in lots within the park.

Parque Centagri (Industrial park) plans the purchase of land of about 98,000 m² to expand its park, which would reach close to 300,000 m² of total land.

Conclusion:

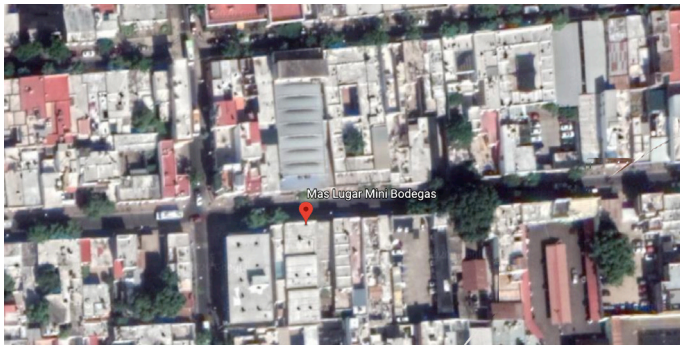
It is recommended to use a surface of 30 hectares of industrial



PERSONAL STORAGES ON HIGHWAY



FACADE OF PERSONAL STORAGE



PERSONAL STORAGE IN THE CITY

STORAGE

Strengths:

The mini winery developments analyzed have an average occupation of 87%. The occupation of the warehouses that are within the Trade Area is 92%. In 2013 the Mexican Self Storage Association (AMDAAC) was created with the aim of achieving a standard of competition, generating synergy, and making agreements between the associations. They have 13 associated companies. The proximity of the property with the Culiacán International Airport favors that the mini-warehouses can also be part of a logistics center for e-commerce.

Opportunities:

The industrial warehouses located within the analysis zone are important demand generators for the development of mini-warehouses. The tenants of the future shopping center could be potential clients of the mini-warehouses.

The new development of mini-warehouses could offer complementary services such as removals. The urban sector Bachiguatlato which is in the process of growth does not have a supply of mini wineries.

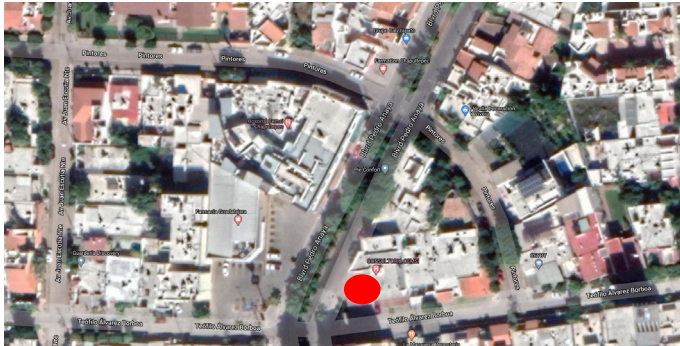
Weaknesses and Threats:

One of the main generators of demand for mini-warehouses is vertical housing developments, which are not yet well established in the analyzed area. Within the primary Trade Area there are about 32,000 households, however, the socioeconomic level which predominates, has an average family income of \$ 14,500 pesos per month, that is, 14% lower than the national average of \$ 16,536 pesos per family per month.

Conclusion:

The inclusion of a 3 to 4 thousand m² area for the sale of mini-warehouses in the analyzed property is considered viable.

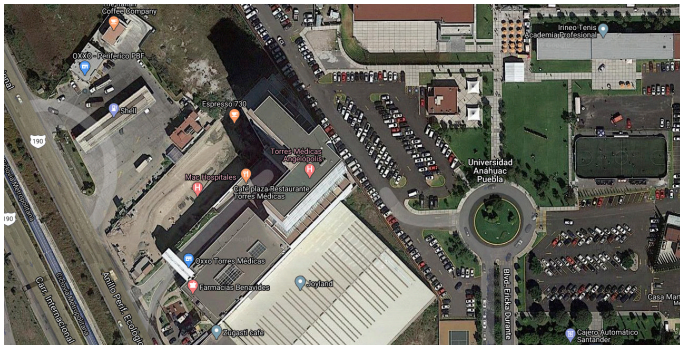
(<https://creasoluciones.com.mx>)



CORNER CLINIC IN THE CITY



LARGE HOSPITAL IN THE CITY



HOSPITAL COMPLEX IN SUBURBS

HOSPITAL

Strengths:

The analyzed offer of medical offices is located in the downtown area of Culiacán where there is a medical cluster. The rental prices in doctor's offices range from \$ 125 to \$ 423 pesos, depending on the conditions and age of building.

It is estimated that in 2020 in the municipality of Culiacán there are more than 256,000 people under the age of 14 and more than 89,000 over the age of 60 years old. These segments of the population generally demand more medical services.

Opportunities:

Currently, the only hospital within the analyzed area is Hospital Angeles Culiacán, which is 15 minutes by car from the evaluated site.

A hospital and consulting project would be the first choice of private health services for the industrial parks around the site.

In the analyzed area, there are 7 pre-sale and sale housing developments, for a total of 639 units, which could mean more than 2,300 new inhabitants in the area who will demand medical services.

Weaknesses:

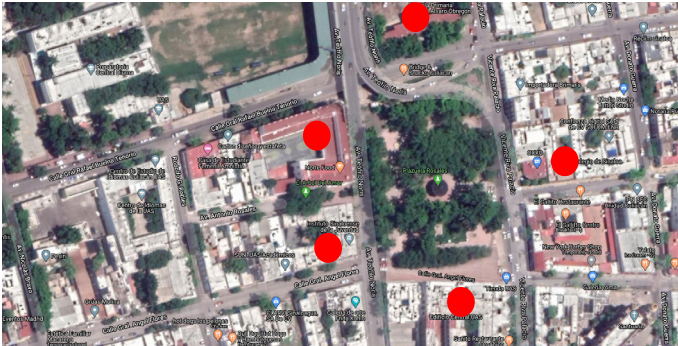
The site is located away from the cluster of hospitals and clinics located within the first square of Culiacán (downtown area).

The average monthly family income in the primary area is \$ 16,903 pesos per month, making it a population that dedicates few resources to private medical care.

Threats:

82% of the population of the municipality of Culiacán is affiliated with some public health services such as IMSS, ISSSTE, or popular insurance, among others.

(<https://creasoluciones.com.mx>)



SCHOOL IN HISTORIC CITY CENTER



STUDENTS IN PUBLIC SPACE



SCHOOL BUILDING TO THE LEFT

SCHOOL

Strengths:

Prestigious universities such as the Tecnológico de Monterrey and Universidad Tec Milenio occupy properties of more than 50,000 m². The property in Natura could offer that surface to similar universities.

About 27% of the population of Culiacán are potential users of basic education services (preschool, primary, and secondary). Another 27% are in an age range between 15 years old and 29 years old, that is, potential users of upper and upper-middle level, including postgraduate degrees.

Opportunities:

Many higher-level students from other towns in Sinaloa such as Los Mochis, Ahome, and Guasave migrate to Culiacán in search of an educational offer. A mixed-use project that includes housing would be a generator of demand, mainly for basic education services (preschool, primary and secondary).

The analyzed area is one of the growth poles of housing.

Weaknesses:

The property, Multiversidad Latinoamericana Campus Barrancos (3.2 km) and Colegio Valladolid (3.4 km), have the lowest tuition fee with \$ 1,400 and \$ 1,470 pesos per month, respectively, the sample average is \$ 3,983 pesos. Currently, public transport routes do not pass in front of the property, the most are Bachigualato - Paraíso, Bugambillas, and Bugambillas Norte, so you would have to walk for more than 10 minutes.

Threats:

In the municipality of Culiacán during the period 2017 -2018 there was a decrease in enrollment at the primary and secondary levels of 1% and 5% respectively.

(<https://creasoluciones.com.mx>)



OFFICE AT LA CEIBA MIX USE DEVELOPMENT



TARA OFFICE SPACE IN LA PRIMAVERA INDUSTRIAL ZONE



120 OFFICE BUILDINGS NEAR THE RIVER

OFFICES

Strengths:

The average rental price per square meter of the A + offices analyzed is \$ 260 pesos, that is 29% more than class. An office with an average of \$ 202 pesos and 60% higher than class B offices with an average of \$ 163 pesos. Class A offices have an occupancy of 91%, that is 10% more than Class B with 81% and 23% more than Class A + with an average of 63%.

Opportunities:

There is an opportunity to have spaces for virtual office operators and coworking, this concept already has a presence in Culiacán with a rental price of \$ 1,500 pesos per m2.

Weaknesses:

The analyzed property is not located on the financial corridor of Blvd. Pedro Infante - Tres Ríos, so an office project would not have the same synergy. The companies installed in the area usually have offices within their industrial warehouses. Accessibility to the site is primarily by private cars since there are currently no public transport routes that pass in front of the property.

Threats:

Currently, there are several projects under construction with sale and rental of office spaces, all on the financial corridor Blvd. Pedro Infante - Tres Ríos:

Ceiba with 24,900 m2 of office area.

Estela Corporate center with 25,400 m2.

Corporate 4 Rivers with 12,000 m2.

These projects add 62,300 m2 of the office area.

(<https://creasoluciones.com.mx>)



ISLA DE ORABA, CULIACÁN

CULIACÁN AND ITS PEOPLE



SAN IGNACIO, SINALOA



MAZATLAN, SINALOA



COSALA, SINALOA

CULIACÁN

Culiacán is the capital of the State of Sinaloa in Mexico. Located at the Northwest of the country, it is 46 kilometers from the pacific coast. With a population of 1.4 million inhabitants on its metropolitan area and it occupies a territory of 180 km². Although founded on September 29, 1531, Culiacán exponential growth was seen in the last 100 years.

CITY OF THREE RIVERS

The city of Culiacán is crossed by three rivers, the Humaya, the Tamazula and that the confluence of the latter form the Culiacán River. The Sierra de las siete Gotas is a mountain range located in the foothills of the Sierra Madre Occidental, located to the south-east and bordering the urban sprawl.

In 1991, Urban Development Tres Ríos began one of the most significant urban projects of the modernization of the city, considered by specialists as the watershed of the transformation of the city.

CITY GROWTH

In 1954 the Regulatory Plan of Culiacán was drawn up, the first instrument in modern urban planning, prepared by Arch. Mario Pani, a renowned Mexican architect and urban planner.

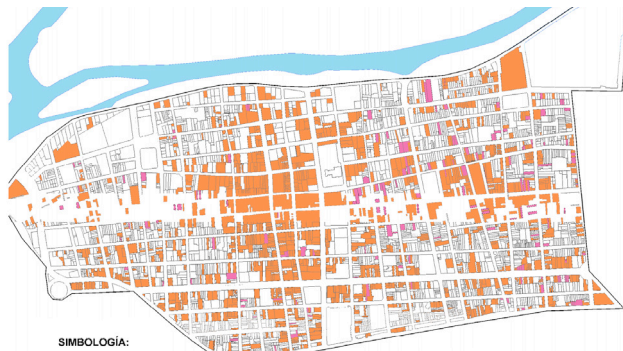
In 1960, the urban area reached 1,094 hectares. Its growth is mainly due to the migration of the countryside to the city. For this year, the city has a population of 84,024 inhabitants.

For 1973 the occupied surface is estimated to be 2,600 has and this year the city reaches a population of 165,956 inhabitants.

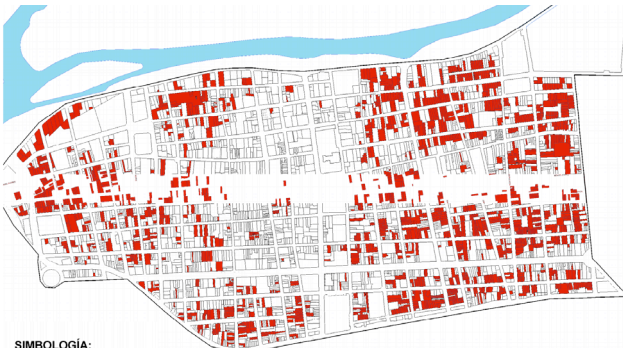
The year 1980 the city registered an urban area of 5,163 hectares and the population exceeds 300 thousand inhabitants.

The city of Culiacán in the 2010 census had a population of 675,773 inhabitants.

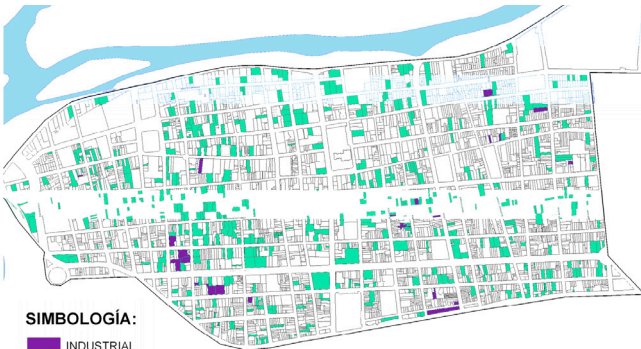
In 2020 the number of inhabitants of the city of Culiacán is estimated to be 850,000 people.



COMMERCIAL



HOUSING



SERVICES AND INDUSTRIAL

HISTORIC CENTER HISTORY

It was naturally the first place to develop in Culiacán. Since 1532 the city was founded and its city core traced. Located next to the river, the city center started as it was used to by the Spanish conquerors, with a church and a square. Like most early cities, the growth was mainly linear following the main avenue from the church up north and south.

GRID

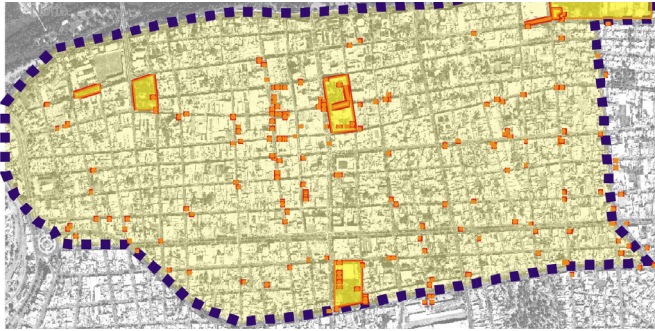
Total area of historic center is 2.2km², and is composed by a grid of 20 x 10 blocks of average size of 80 x 80 meters. Each Block has an average of 6400 m².

WALKABILITY

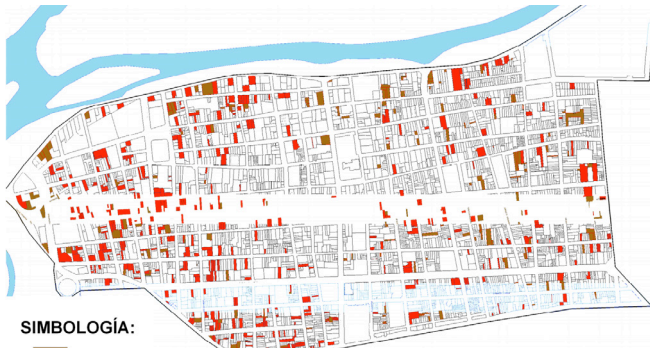
The city center is the most walkable area in Culiacán. The variety of shops, restaurants, schools, hospitals, businesses and housing makes the perfect environment for people to walk. It is also the main destination for all public transport. All bus lines arrive at the city center bringing people from the villages on the outskirts of the city to its core. The principles of the center were used in Natura to plan for and organize a mixture of functions.

DENSITY

Even though it is one of the densest areas in the city, it is actually quite low density. When it comes to housing there are big houses with few people living in them. Around half of the houses have been turned into commercial office spaces. The high density is achieved by the local tourism and working people. There is plenty of small empty plot to be further developed. Many of them are being used for parking and storage place but it is encouraging to build more housing in the city center, since many of the commercial streets become empty when work is done.



STREET COMMERCE



EMPTY PLOTS



PARKING, PRIVATE AND PUBLIC

GOALS OF PARTIAL PLAN

- I. Establish the bases that allow the congruence of programs on the Historic Center, propose the public and private sectors.
- II. Provide the historic center with attractive and satisfying urban areas that consolidate it as a pole of social, cultural and commercial development.
- III. Distribute the equipment in a balanced way, in areas suitable for urban development, avoiding centrality and congestion in the study area.
- IV. Control the transformation process of the historic center, avoiding changes in land use, and prohibiting those that directly affect the conservation of cultural heritage.
- V. Increase and promote housing use in the historic center and allow activities permanent and animation. Disseminate the importance of the conservation of cultural heritage and raise awareness society, to avoid transformations, alterations and demolitions to urban spaces and historical, artistic and environmental buildings within the historic center.
- VII. Promote the cultural potential contained in heritage value areas and establish necessary links with the historic center.
- VIII. Establish the necessary bases for the protection and conservation of the ecological heritage.
- IX. Promote with the responsible authorities a comprehensive conservation policy for the center historical.

STRATEGIES FOR IMPLEMENTING PARTIAL PLAN

- I. The avenues bordering the study area would be considered mixed urban corridors, Composed of commerce, offices and housing.
- II. In the center of the study area the commercial zone would be maintained, with a transition area of mixed use, offices, commerce and housing.
- III. Relocation of some entry-level schools.
- IV. General structure of nodes of various activities that are linked together, through a program to improve the urban image of its roads, with a housing area inland of mixed-use corridors and axles.



SIDEWALK NEXT TO CHURCH AND MAIN AVENUE



SHOP, RESTAURANT, PARKING, OFFICES



STREETS FOR TRAFFIC IN SINGLE DIRECTION

A COMPREHENSIVE PLAN

The elaboration of the plan was developed supported by the various aspects attended in the planning of the city of Culiacán. From the comprehensive vision of city and territory and its proposals already aimed at new ways of operating in the city. The Mobility Plan and the Master Plan of Culiacán Urban Development. As well as various studies that are directly related to the center of the city as the Las Riberas Park Master Plan, the Comprehensive Storm Drainage Study, the Atlas of Municipal or other risks of no less importance. All instruments have full consistency in the proposals generated, thus responding to the comprehensive vision of the city planning process.

AN INCLUSIVE PLAN

The plan gathers the voice of those who have spoken to give solutions to the current problem of the center historical city. The programs and projects respond to what is expressed by society. The plan Culiacán Zona Centro adds and ties the proposals to make sense of the shortest path to reach the paradigm raised. The vision was built with more than three hundred opinions and it was agreed with the opinion of each of the representatives of the Citizen Committee.

A SUSTAINABLE PLAN

The Plan aims to guarantee tangible and immediate results but, above all, it aims to give solutions that strengthen the social, economic and environmental structure of the sector to such a degree of guaranteeing its sustainability. A desirable future for the historic center is in which its inhabitants have dignified quality of life and is also a meeting place for the entire Culiacán population. "The quality of public space is today a main condition for the acquisition of citizenship. The Public space fulfills urban, sociocultural and political functions. It fulfills functions of giving connection and continuity to the various urban territories and to provide an image of identity and monumentality "



HISTORICAL CITY CENTER

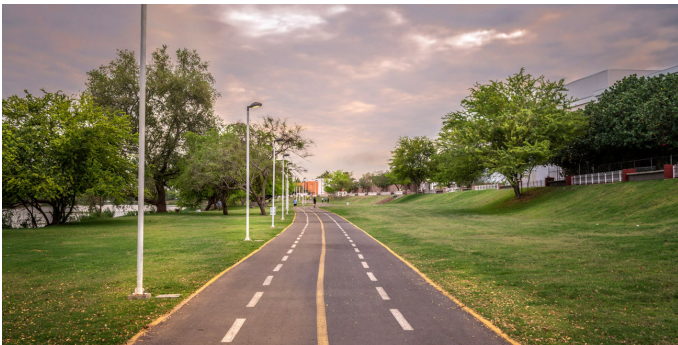
CULIACÁN, SINALOA, MEXICO



ISLA DE ORABA, CULIACÁN



MALECON CULIACÁN



PARQUE LAS RIBERAS, CULIACÁN

RIVERSIDE

Due to the geographical location by the rivers and sea, there is a tradition of Malecon, extensive roads along the waterfront. Culiacán is made out of three rivers. In total there are eleven rivers in Sinaloa. This urban element is often seen in the cities along the coast of Mexico.

On the southern edge of Natura, there is a canal surrounding the site, with a width of 10 meters, therefore an opportunity to learn from what exists and use it in the project.

The waterfronts are normally made of wide avenues of four to six lanes, with a tree line in the center and on the extremes, so the sidewalks are shaded. Plenty of businesses are located along the waterfront. It is a desirable place to be, therefore there is high traffic of people.

People usually arrive by car and once parked they walk for hours enjoying the street foods while their kid's bicycle or skate by the wide sidewalks.

Abundant street lighting is very important for the success of the Malecon, due to the insecurity of the place, light provides visibility and a sense of safety.

MALECONES OF CULIACÁN

In Culiacán there are two Malecones (riverside promenades), the old and the new one. They run parallel to each other, surrounding the river and its parks on both sides.

The highest price of land per square meter in the city is along with the Tres Rios development, which is the built sector along the Malecon. The highest buildings are also located along the riverfronts.

Traffic can be a problem, especially to find parking spaces during the weekends.

Sometimes on special days, the street is closed for parades or demonstrations. People enjoy driving aside the riverfronts with loud music and sports cars.



MOCORITO, SINALOA



COSALA, CULIACÁN



MOCORITO, SINALOA

LA PLAZUELA

The kiosks, and its people

Plazuelas (in english squares), just like in any culture, is an important element in every city center. Culiacán is no exception. La Plazuela is located next to the main Cathedral and alongside Avenida Obregón, the main axis connecting the south and north of the city. People dance at La Plazuela. Music is played live and the most rooted inhabitants of the city center, most of them in their senior ages, enjoy with their partners and friends tango under the kiosk. At La Plazuela the visitors can find shoe cleaners. It is a tradition that remains from the old times of Mexico. For a few bucks, a person can enjoy reading its newspaper while getting their shoes polished and listen to many stories the workers have witnessed during their long years at the square. Since The Cathedral is located at the square, often one can appreciate weddings and other kinds of religious events.

There was a time that La Plazuela and The Cathedral were separated by a street, and I am proud to say that my grandfather Mario, during his Municipal presidency ordered the street to be removed and extend the Plazuela unifying it with the church.



MERCADO GARMENDIA, CULIACÁN



MOCORITO, SINALOA



MERCADO GARMENDIA, CULIACÁN

MARKETS

Like the rest of the world in Culiacán there is a tradition for local markets. This tradition was forgotten for most of the population due to the supermarket franchises that offer air conditioning and plenty of parking lots. For restaurant owners, the local market is still the best option to buy fresh groceries at wholesale prices.

There has been a comeback for local markets, as the world has become more standardized and impersonal. There is a nostalgia for the humane feeling of markets, which is an opportunity to innovate.

The flea market is a big part of Mexican culture. Many people from the villages outside the city come both to sell and buy goods and enjoy the markets.

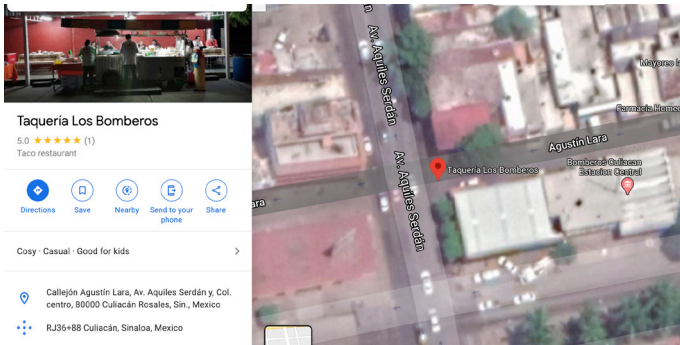
Every Sunday on different streets among the city of Culiacán the flea markets are set up at running from the early morning towards midday when the sun gets too hot. A visitor can find second-hand clothing and accessories as well as enjoy a warm dish or some fresh seafood.



TAQUERIA LOS BOMBEROS, CULIACÁN



STREET VIEW GOOGLE, TAQUERIA



GOOGLE MAPS. TAQUERIA

STREET AND FOOD

Before food trucks became cool, in Mexico it has been a way of starting the gastronomic enterprise since the early days. It is such a strong tradition that tacos are hard to find in restaurants, tacos are meant to be served at the street, seasoned by the buses driving by.

It is important to consider in Natura the design of the street and sidewalks spaces for food trucks, because even though they are temporary structures one can say they are permanent tenants of the streets, and no one will disagree with having them. There is a need for the food trucks for week or weekend getaway for tacos with friends and family. Often food trucks are located not on the main avenues but on smaller streets that are accessible by the main roads.

The reason is, in my opinion, that on narrower streets a customer can be safer from traffic. Also for the street restauranter slow streets means he can offer to go service, so people will drive through once and order, then circle around the block and pick up the food ten minutes later. It is so interesting to be aware of such urban systems.



EXPANSION OVER GARAGE



SCHOOL ACCESORIES SHOP



TORTILLA MICRO FACTORY

THE GARAGE

Another important factor in the life of the people of Culiacán is the house parties which are not limited by the heat of the city. In order to fit all of the family and friends, house parties tend to be in the garages, most of the time with the garage door open for the smoke of the grill to go out and the party to expand to the street. Because it is part of Mexican culture, neighbors are very tolerant of street parties as well as cops. When passing by as long as the people remain within the limits of their sidewalk it is not a problem.

ADAPTING HOMES FOR BUSINESSES

In planned housing communities, where there is no mix used by design, but only hundreds sometimes thousands of houses, residents make use of their garage for commercial use. From grocerie stores, to small scale manufacturing or to provide food services, either eat in or drive thru. People take advantage of their property and is good for the neighborhood because more activity is created and the blocks become safer and more attractive.

Also is worth mentioning that because on the past decades most of housing was build under these typology of independent horizontal homes of approximately 60 meters of build area. The government now has a strategy to improve the lives of the residents of these areas by offering low interest loans to expand their homes.



GUADALAJARA, JALISCO, MEXICO

DEVELOPMENT IN MEXICO



HORIZONTAL HOUSE



SMALL APARTMENT BUILDING



LARGE BLOCKS OF HOUSING

SOCIAL HOUSING

There are 126 million inhabitants in Mexico, 70 % of people live in cities, 75% of land use in cities corresponds to home use and 5 million houses are abandoned.

In Mexico, half of the population lives in poverty and is not eligible to get credits to buy a finished home in a housing development, therefore most of them build their own houses.

The social housing developments available are only houses, hundreds sometimes thousands of homes one next to another. Many of the inhabitants end up leaving their homes because of bad quality, a far distance from work, etc. This downward spiral makes this development dangerous and boring places to live. Because of this, in Mexico there are endless housing areas, but not cities.

The existing social housing developments in Mexico is an example of how not to do housing in Natura, segregating people limits their ability to evolve.

People don't walk in these places, because there is nowhere to walk to.

Housing must be integrated with the rest of the city, where the residents should be able to sustain their daily lives within their district.



SMALL GATED COMMUNITY



MID-SIZE GATED COMMUNITY



LARGE GATED COMMUNITY

GATED COMMUNITIES

Because of the insecurity and crime that is abundant in Mexico a lot of people who are able to afford a house tend to buy within a gated community where they feel safe and it is understandable when there is no other alternative.

But gated communities only reinforce the crime because walls divide people and grow inequality.

It is not common in the most peaceful and developed countries to live in gated communities. Rather, houses are integrated into the city.

THE CAR AND THE CITY

Mexico inherited the American Dream of owning a car and a backyard, a valid dream in the 1960s, but 60 years later it has proven obsolete. The issue is that Mexicans built cities with this dream in mind, but now depend on the car in many places. Fortunately, there is an opportunity of change with the aid of technology and shared economy.

CITIES ARE NOT THE SUM OF HOUSES

Sustainable Urban Environments cannot be formed as agglomerations of housing projects, single use developments of large scale widens the distance between the rest of the urban fabric, dividing the city making it hard and unattractive for people to walk or bike as a way of transport.

When cities are built with poor public infrastructure, in gated communities people find the quality they wish to live in, which is absolutely fair and respected. But the problem is that when every developer takes care of its own space within their project, then municipal governments lose interest in common public space in the city, taking as an excuse that people will eventually spend their time within their gated communities, reinforcing the downward spiral of urban decay.

Cities must be interconnected in order to function, walled clusters do not make an urban environment and city life..



SMALL: 1000 M2 BUILT AREA



MID SIZE: 100,000 M2 BUILT AREA



LARGE SIZE: 250,000 M2 BUILT AREA

SHOPPING MALLS

I grew up in the 90s, and remember my first experiences in the shopping malls in the USA. It was exciting, I was fascinated by the scale, options and air conditioning, it felt like everything you needed was available there. At that time there were few shopping malls in Mexico like the Americans, so it was special. As I grew older, and witnessed the cities all over the world having the same type of shopping mall and in many cases the same shops, it stopped being special and became dull. Before I began the urbanism master program at ARCHIP, I didn't have an opinion on shopping malls, besides losing interest in them. As I began to understand cities and its evolution I realize how damaging are shopping malls to urban fabric and society. Think about it, they are huge, and in most cases are surrounded by a parking lot twice its built area. Thousands of cars under the sun, with maybe a few palm trees. Not a friendly way to build our cities right?

Shopping malls, sometimes over 200,000 m2 plus their parking lots create voids in the city, black holes dividing one extreme to another, so big, is not walkable.

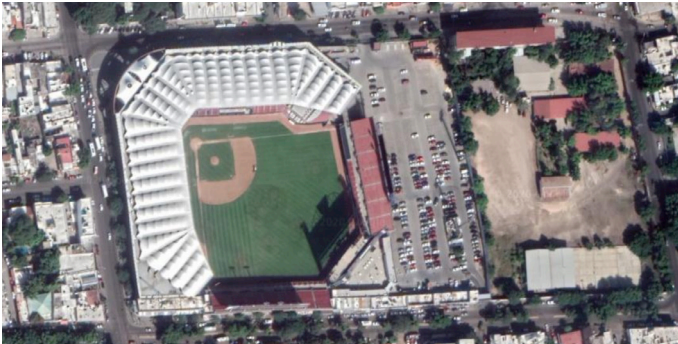
MARKET AND PEOPLE

Trade is necessary and is as old as the human race, and the activity around it is a form of social interaction and it should as well be integrated within the city, fragmented every now and then, with a direct connection to the street and accessible by foot and public transport, not depending on the car.

The way we shop has changes now, many shopping malls in America are empty and in search of a purpose. And why is this happening? Both e-commerce, people ordering goods via the internet and being delivered at home are more common now. People rather spend their free time walking in parks, swimming, biking or skating, and rewarding activity, physically, mentally, or socially. It is a bit of a shame if in some cities you meet people only inside a windowless warehouse.



SMALL: AREA 1000 M2



MID SIZE: AREA 10,000 M2



LARGE SIZE: 100,000 M2 BUILT AREA

PARKING LOTS

In Mexico there is a starting tendency to build vertical parking purpose only buildings. Because the land is relatively cheap and we have a lot of it, parking lots are horizontal, taking too much space. Yes when public transport is not efficient, cars are the option to move around build-for-cars cities, but it is time to fix these cities to be less car dependent.

Often I hear: "we build parking lots horizontally, because it is cheaper" and it might sound true for the short term and the individual, but for a society, in the long term I believe it is actually less cost-effective.

My reasoning is following: it is not the amount of capital invested in the true cost of developing something, but rather the unreached potential return of the property.

For example, in the second picture, we can see a baseball stadium in Culiacán, with a 10,000 m2 parking lot. In this case, it looks like it was only the concrete invested in the property maybe if generous there might be the lighting. And let's imagine an investment of 1 million dollars, well the return made is limited to the number of cars parked per day. It is probably empty on a daily basis with the exemption of game days. If the developer would have invested in vertical parking space, it could have cost him three times the invested capital, but it might have used only a third of the space in the property, and the rest would be free for something else to be built and enrich the area, plus adding value to its parking building. The argument here is that when developing, there must be a holistic approach with the well being of the city and its society in mind, and like that, building by building, the urban space is created, coherent and continuous.



INTEGRAL, CULIACÁN CITY CENTER



SEGREGATED, AIRPORT AREA MONTERREY



REMOTE, DESERT OF SAN LUIS POTOSI

LOGISTIC CENTERS

In the past, during the industrial revolution manufacture, storage, and processing were built together with housing for employees creating a kind of industrial villages. Then as cities grew the warehouses became valuable for their purpose. Plus globalization and technological innovation allowed more efficient ways of production, or in some cases moving the production elsewhere, so these industrial villages, which are now part of the city, were and still are being developed into something else.

In the past decade, there has been an increase in logistics centers being built near airport areas or in the remote countryside, because every time these warehouses become bigger and more sophisticated, such as in the case of data storage and processing or robotic manufacturing for cars, airplanes or another robot.

IN THE CITY AND IN THE COUNTRYSIDE

It is out of my reach to say if it's good or bad that such huge constructions with few or none workers are being built far from the city. But when I look at city centers such as Culiacán, because of no strict planning or regulated land use, warehouses are built within the city center, so it is common to see a storage facility next to a school, some apartments and perhaps restaurants. One might think that is strange or even wrong but it works. Why? Because of its totality, a warehouse here and there helps to mix functions and creates a diversity of people and aesthetics, making each block more interesting and real. With the increasing demand for last-mile delivery products by e-commerce, we are witnessing some warehouses being built in dense urban areas. I wouldn't be surprised to see more industries coming back to the city, maybe underground or inside residential blocks like it happens organically. It is something to consider, how can urban mix-use developments include industry within the program.



CINDER / CONCRETE BLOCKS



BURNED CLAY BRICK



CONCRETE SIDEWALKS AND STREETS

MATERIALS

Most of Mexican cities are made of social housing projects and private gated communities, side by side but walled. Most houses are built from concrete hollow blocks because it is a cheaper and faster way to do so. Also, there is no skilled human capital needed or special machinery other than simple tools.

Burned clay brick is the second most used material and it is more sustainable and thermally efficient than concrete blocks. It is also better for local economies since clay bricks are usually produced by small manufacturers run by families in rural areas.

Bricks are normally smaller than blocks therefore, it takes more time to erect a wall. Blocks, since are hollow, can be filled with reinforced concrete to work as columns and beams. While bricks are solids, there is a need to make a wood form and build a self-standing column or beam for structural purposes.

Cemex, one of the biggest cement companies in the world is Mexican, so it is not surprising concrete is everywhere, from streets, sidewalks, and buildings.

SUITABLE FOR THE WEATHER

Culiacán is very hot, and concrete streets retain the heat increasing the temperature in the city and making it a walking hell in the summertime. A good alternative could be to shift to more earthen materials such as bricks that will make it cooler and nicer while allowing the rain to penetrate the soil avoiding flooding.



BUDAPEST, HUNGARY

WORLD REFERENCES



LONDON, UK.



OSLO, NORWAY.



PRAGUE, CZECH REPUBLIC.

STRUCTURE

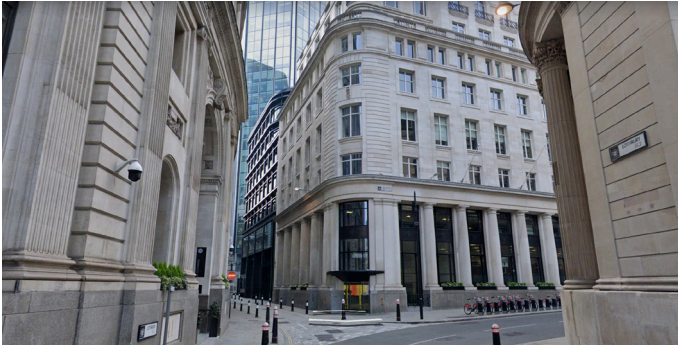
There exist plenty of urban structures but to simplify it, we can say they are organic and square. In Medieval ages, cities were usually built on organic structures such as in the center of London. It is a more complex system, where it's hard to navigate although as we can see in this picture all roads lead to a center-points and there are several centers within the grid. The density we see in the grade of London is one of its kind because it's compact, organized and carefully crafted through time.

WALKABLE BLOCK SIZE

In the center of Oslo the grid orthogonal but with different sizes of blocks, smaller on the edges and larger blocks at its core. With the smallest size 0 45 m and the largest 120 m wide blocks. Smaller blocks are more friendly for pedestrians to walk since they can access other streets easily. The inner courtyard in the blocks in the center of Oslo is small with sizes of 15, 20, and 35 meters wide. In the seventh district of Prague, the blocks are much bigger, the longest one has 300 m in one side and they range from 45 and more on the other. When blocks are too long it is dividing one side of the district to the other since people have to walk all around to get to the next street. But specifically, in this case, it works well because to the north of the longest block it's a park so the block guides the people from the core of the district to the park creating density on the street.

COURTYARDS

The courtyard on the inside of the blocks range in size but on average have a 65 meters width on one side, while the other can be between 35 up to 250 meters long. There are some successful courtyards where people from the apartments were able to organize and maintain a shared green area.



LONDON, UK.



OSLO, NORWAY.



PRAGUE, CZECH REPUBLIC.

STREETSCAPE

As previously mentioned the organic grid at the center of London, allows for interesting views and passages. In this picture, we can appreciate both the variety of architectural styles that have been a witness to the evolution of the city. Different heights create more place insights and higher density.

In Oslo, a well-organized street design with white sidewalks and public transportation. Both the city center of London and Oslo there are a few or none trees. It keeps a clean aesthetic and clear view while allowing the sunlight in the streets and facades.

The bottom picture is the district of Vinohrady, a well-demanded district of Central Prague. It's mixed-use makes it attractive as well as the density of people but it is clear from the picture that there is a parking space issue. There are too many cars parked on the streets and prioritizing their use makes sense side works for pedestrians. The street contains some trees which makes it pleasant while not so many trees to darken the facades.

MOBILITY

Ideally, there should be efficient public transportation with a sustainable mix-use program on each block for pedestrians to thrive. But still, we cannot ignore the current need that we have created for cars, therefore the optimum would be to find a way that works for both cars and pedestrians.

Perhaps if the inner courtyard of the blocks is empty there could be space for parking. With the aim to free the streets from parked cars and widen sidewalks.



OSLO, NORWAY. PEDESTRIAN BRIDGE.



A MULTI MODAL DESIGN FOR PUBLIC AND PRIVATE TRANSPORTATION.



CAR FREE CITY CENTER MASTERPLAN

CONNECTIVITY IN OSLO, NORWAY

Moving around in the capital of Norway is easy and comfortable. Since density is low and public transportation efficient, there are usually no congested trams and buses.

Also, the city center is quite flat making it attractive to bike and walk. There is a municipal plan to make Oslo city center car-free. Providing the necessary infrastructure such as pedestrian bridges, biking roads, and parking lots for bikes, wide streets, and frequent bus and tram stations, located strategically for buses or trams every 250 - 300 meters.

Parking spaces have been removed from the city center, as well as cars being banned from certain streets, easing the way for pedestrian use.

The public transportation network in Oslo is not limited to the land. Since it is a coastal city there is a ferry system moving people from the center to the main islands.

As well the city is connected to the airport via a high-speed train. The airport is located 45 kilometers from the city center but the trip takes 20 minutes and it runs every 10 minutes.

There is a major development to be built in the airport area of Oslo. I can imagine it will work as an extension of the city rather than a satellite district due to its quick connection to the center.

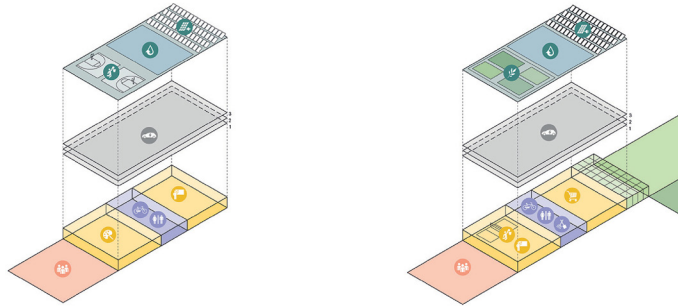
CAR FREE CENTERS

By looking at the trend of freeing city centers from cars in the capitals, such as the case of Oslo, Madrid, New York, and Mexico City. I found that new development is starting to be promoting a car-free living, supported by efficient transportation and pedestrian priority.

On the top image is the city of Hamburg in Germany and we can see a green loop circling around the city. This is an ongoing project to increase sustainable mobility in the city through a network of parks and public spaces.



OBERBILLWERDER MASTERPLAN VISUALIZATION



MOBILITY SYSTEM INSIDE OBERBILLWERDER



VISUALIZATION OF CAR FREE LIFE INSIDE THE DEVELOPMENT

OBERBILLWERDER, HAMBURG, GERMANY

Planned to break ground in 2020, the plan will include 6000 households and 5000 workplaces in a 124ha area, making it Germany's largest one-off development since Hafen City. The visionary plan by Adept and Karres en Brands goes beyond spatial solutions and aims to set a new standard for the future of European cities of the 21st century. The entire plan will be energy self-sufficient and integrate new forms of living, working, recreation, urban farming. Andy Grote, sports senator: "The master plan for Oberbillwerder is a quantum leap in urban development through sport and an absolute novelty: For the first time, movement and health are integrated in the planning from the first minute and throughout the entire planning phase. As a model "Active City", sport is a groundbreaking identity feature that will decisively shape the character of this neighborhood and thus contribute to the quality of life.

* <https://www.karresenbrands.com/news/from-vision-to-reality>

INTEGRATIVE ECOSYSTEM

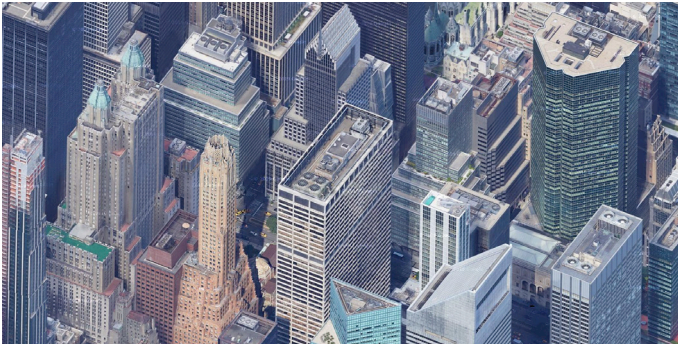
The plan approaches urban development as an integrative ecosystem with healthy urban living and resilience at its heart. It combines sports and recreation with water management and ecology in an innovative landscape structure (the Green Loop) that brings the whole plan together. The overall development strategy embraces social, financial, and environmental sustainability as well as climate adaptation through a nuanced distribution of functions, typologies and resources. Smart mobility and infrastructure ensures rapid connections to Hamburg's city center but prioritize pedestrians, cyclists, and public transport. The broad green artery that weaves into the plan provides access to all neighborhoods, public functions, and social activities. (www.adept.dk)



MELBOURNE, AUSTRALIA 453 PEOPLE PER KM2



OSLO, NORWAY 2,166 PEOPLE PER KM2



MANHATTAN, NEW YORK. 25,846 PEOPLE PER KM2

POPULATION DENSITY

Density is key to the success of a city, if there are too few people then it is not sustainable to have a restaurant or shop, plus it gets boring when streets are empty. Too much density can be negative if not organized such as in cases like Mexico City or another metropolis of the developing world.

But in general, people like to see other people while being on the street. It creates a sense of community and helps cities to be more secure because there is, as Jane Jacobs said: "Eyes on the street" (Eyes on the Street: The Life of Jane Jacobs. Robert Kanigel.2016).

LOW DENSITY

In Melbourne Australia besides the city core, the density is extremely low. There is no more than 500 people in square kilometer. Unfortunately I have never been to Australia so my opinion is limited but I can imagine streets being quite empty and people driving from the suburbs to the core just to see other people.

In Oslo, Norway where the density is between 2,000 to 3,000 people per km², it is enough to witness an urban life, while not so much to be congested.

HIGH DENSITY

The extreme case can be Manhattan in New York, one of the densest cities in the world, with more than 25,000 people per km². It is a fascinating city where every day you'll meet millions of people in the street. This allows for the exchange of ideas, cultures and vibrant economic activity to exist. It is hard to imagine that every city would be as dense as Manhattan. I think there is a reason why some cities are more dense than others and there are people that enjoy less dense places too.

Natura has an area of roughly 1 km², and I believe in order to create an urban environment at least 10,000 people should be able to live there. This will allow businesses to thrive and social life to exist.



MELBOURNE, AUSTRALIA 453 PEOPLE PER KM2



OSLO, NORWAY 2,166 PEOPLE PER KM2



MANHATTAN, NEW YORK. 25,846 PEOPLE PER KM2

MIGRATION TO URBAN AREAS

People usually move from smaller cities to larger ones in search of opportunities for work and social life. Dense cities offer better services, public infrastructure, and diversity. Therefore richer experiences.

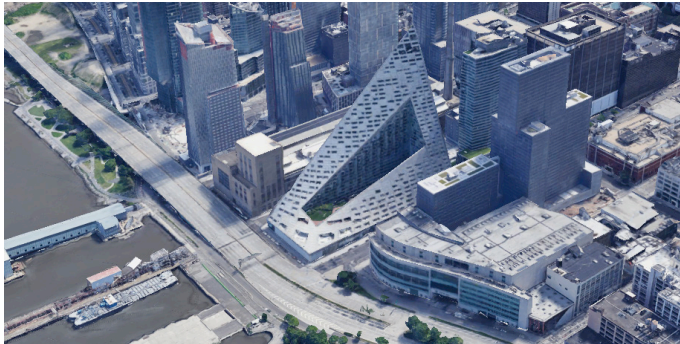
Today, 55% of the world's population lives in urban areas, a proportion that is expected to increase to 68% by 2050. Projections show that urbanization, the gradual shift in the residence of the human population from rural to urban areas, combined with the overall growth of the world's population could add another 2.5 billion people to urban areas by 2050, with close to 90% of this increase taking place in Asia and Africa, according to a new United Nations data.

It is critical how the future will be planned for cities to adapt to the upcoming migration. So far I have witnessed that in Mexico the evolution of cities has been a collection of housing projects rather than urban development.

This migration represents an opportunity to create new centers on existing cities and even near cities from scratch.



SOFT EDGE OF THE CITY



VIA WEST 57



SOUTH RIVERSIDE PARK

WATERFRONT IN MANHATTAN

Manhattan island has approximately 47 kilometers of waterfront. Surrounded by three rivers Hudson, East, and Harlem.

Along the riverside, there is a network of parks such as Highbridge Park, Inwood Hill, Riverside, J.V.L East River Park, Rockefeller, and Battery Park.

Riverside Park is the longest one, with 6 kilometers of coastline, starting at the Piers in Manhattan Cruise Terminal in the south. It extends to the north ending at the General Grant National Memorial in West Harlem, but the green belt seems to connect all parks along the Hudson River, so one could say that the true length of the green infrastructure on the west side of Manhattan is 20 kilometers long. Starting at Rockefeller Park all the way up to Inwood Hill Park.

This is important, because it is not a continuous single park but a connected network of parks and public spaces, with different qualities serving diverse purposes. Piers, stadiums, museums, churches.

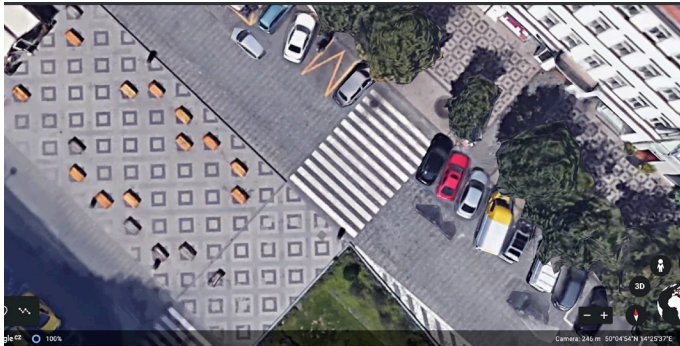
In some areas, the connection between the city and the park is soft and effortless. But in other areas, for example when the famous building VIA West 57 building meets the river, there is no direct park since 12th avenue dominated the space.

In my opinion is good to have areas with parks with some exemptions to enhance the diversity in the waterfront and skyline.

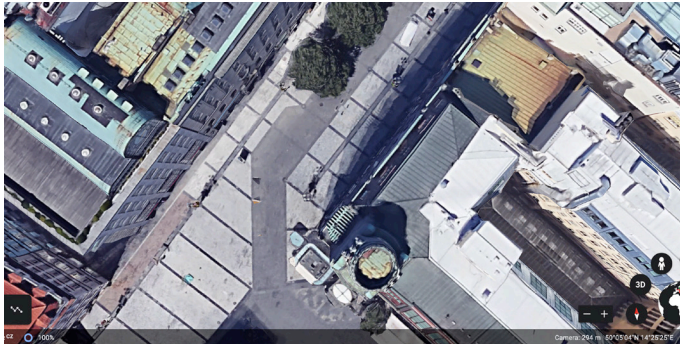
In Riverside Park, the width of the green space varies from 100 to 200 meters before it reaches the water or the highway next to it.

RIVERSIDE IN NATURA

Natura has two kilometers of water canal front but its connection is interrupted by three bridges, two existing and a future one in the central area which is planned by the city to connect to the highway. So in order to keep a continuous park along the canal, then a pedestrian ramp-bridge could be proposed over the Boulevard Air Force, since it's 40 meters wide.



WIDE CROSSING STREET AND URBAN FURNITURE



DEFINING EDGES TO DIVIDE CARS AND PEDESTRIAN USE



SIDEWALKS MATERIAL AND DESIGN

STREETSCAPE

Sidewalks in the center of Prague are made out of small stone blocks of granite, black and white, and with them, they form special patterns that provide identity to the spaces on them.

Just like a building sometimes has different flooring materials or textures, the city can be enriched with ground covers such as in Prague. Stone grounds are effective for rainwater to penetrate the soil and avoid flooding. Also, they are easily replaceable when in need of service. The design of sidewalk flooring is an important element to give character to the street, and it should be embraced in Natura. Simple patterns that won't be out of fashion in the future, such as several streets in Prague. They are hundreds of years old and remain attractive. Urban furniture is another element to be integrated within the streetscape. It provides the opportunity for people to sit and enjoy the city, sometimes for a quick call or a snack. Textured streets cause vibration for cars when driving by, and this communicates the drivers to slow down giving priority for pedestrians.

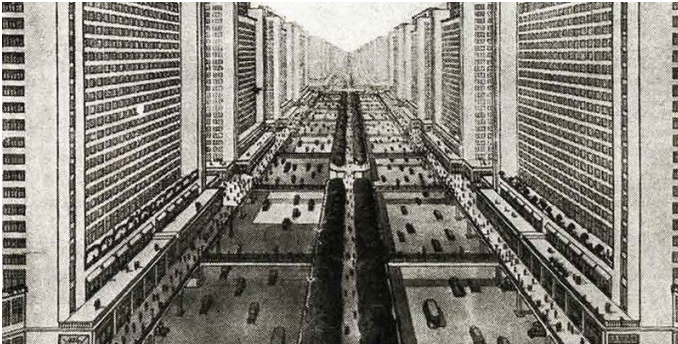
PEOPLE WALK

People drive cars, but walk to them and out of them, all destinations are reached by foot, so the pedestrian comfort and accessibility must be the top priority in our cities. Every other form of transportation is temporary, eventually, technology evolves just like we don't use horses anymore, in the future we won't depend on cars to move around, so cities should not be built for cars anymore. It is interesting to see how the top destinations in the world for tourism are walkable cities, on every continent. What people enjoy is to walk and meet other people on the go.

Streetscape for people invites restaurants to serve the food on the sidewalk, residents to sit by the door and contemplate life without the hazard and pollution of excessive motorized vehicle use. It is important to use a material or texture depending on the purpose, for example, to skate or bike stone blocks are not convenient, polished surfaces might be a better option in this case. It all depends.



THE IDEAL CITY BY FRA CARBEVALE 1420-1484



VILLE RADIEUSE 1930 BY LE CORBUSIER



TOYOTA CITY 2020 BY BJARKE INGELS

IDEALS

Through the ages, man has tried to design the perfect human settlement. Their proposals are inspired by the wants of the society contemporary to their projects, an ideal place to live and inspire in what their cities did not provide. For example, back in 1420 the ideal city was an ordered place of a human scale, five to six stories high. It was not the highest it could be, because by that time there were already cathedrals more than 80 meters high. What I find interesting is the absence of trees in Far Carnevale's vision. Probably most people living in rural areas were dealing with natural threats as part of the day. Living in a treeless city kind of symbolizes the domination of man over nature.

After the third industrial revolution in 1930 Le Corbusier visualize Villa Radieuse, a standardized and infinite city of repetitive buildings that lacked ornament or anything rather than mere functional elements. It seems to me that Ville Radieuse is so monotonous, it becomes a clean slate for its residents to focus only on their pursuit of individual progress. Ironically it was this type of urbanism that was adopted by communism expressing the opposite. There is no individual but masses to be allocated.

Nowadays we are experiencing a shift back to nature, cities have become so crowded and in many cases polluted, that what we miss is tranquility and harmonious living in wood buildings filled with trees and greenery.

Technology is allowing us to be less dependent on moving in order to satisfy many of our needs. Life is delivered at your door.



(Y)OUR CITY CENTRE. GLASLOW, SCOTLAND



ROHANSKY ISLAND PRAGUE, CZECH REPUBLIC



TOYOTA CITY 2020 BY BJARKE INGELS

FUTURE DEVELOPMENTS

(Y)our City Centre, a collaborative framework initiated by Glasgow City Council will transform the center into a lively, green, livable, attractive, and competitive area.

Taking on a holistic and integrated approach, the idea here is to fill up unused plots and utilize existing infrastructure i.e. making them more versatile, mixed, and smart in their functions. (www.mvrdv.nl/)

Rohansky Island in Prague: The proposal divides the area by the structure of street spaces into regular building and non-building blocks. Using the street line and construction line, limited gross floor area, and other rules, binding requirements for construction in the area are defined, including height regulation. Proposals for the material solution of buildings in blocks within the given rules are left to individual builders in more detailed projects. The presented design of the material solution ("masterplan") shows one of the many solutions for the location of buildings within the building blocks. The border between the buildings and the nature park is determined by a new promenade for pedestrians, cyclists, and skaters. Its edge and importance are supported by an alley with beautiful views of the river. The slope slightly towards the water offers a seat. A small square is designed at the intersection of the inner street and the access route from the metro station. (www.hnilicka.cz)

TOYOTA CITY

Toyota City. Danish architecture studio BIG is designing a "prototype city of the future" with wooden buildings and autonomous vehicles for Japanese car company Toyota near Mount Fuji in Japan. Named Woven City, the first phase of development on the site of a former car-factory will be home to 2,000 people who will test the vehicles, robotics, and smart homes in a "real-world environment". (www.dezeen.com/)



JARDIN BOTANICO, CULIACÁN

PARKS AND GREENERY



AERIAL PERSPECTIVE TIDE PARK, LONDON



MASTERPLAN TIDE PARK, LONDON



HUMAN PERSPECTIVE TIDE PARK, LONDON

LINEAR PARK

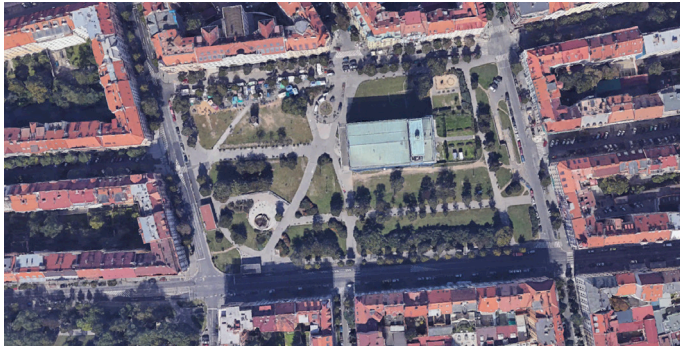
Even though it is not entirely linear, Tide Park in London is cataloged as such. I selected this example as a reference to use in Natura because it works well how the park brings the city into the waterfront. It opens up the views for the people on the inside of the city as well as the residents on the buildings.

Parks are becoming increasingly complex in comparison as before, for example in here we can appreciate the several levels which the park offers, and escalating ground down to the sea. The fact the green areas and walkways are not orthogonal it mimics the organic structure of the city of London, as a park is efficient since people normally walk in diagonals and wave-like ways, not entirely linear.

TIDE PARK CRITICISM

The Tide Park has received a lot of criticism as trying hard to copy the High Line of New York, which is a very successful project. No doubt it has been copied in many places around the world. The argument of critics is that it is an elitist place, focused on the corporate workers and residents of the luxurious residential buildings of the project.

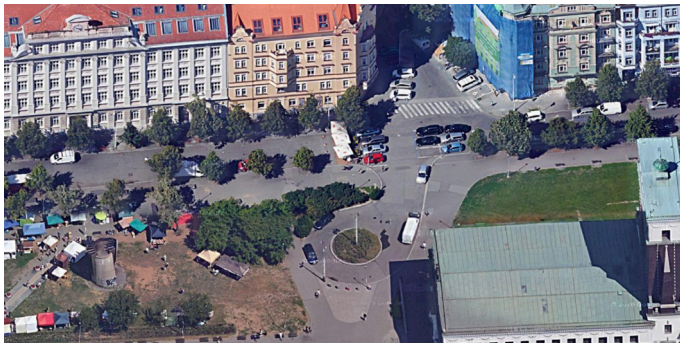
As well as pretentious artwork being for display rather than a playground for kids to play. Adding to this is the fact that as a park is too monitored, and there is no permission for people to eat or drink? Strange, but its spacious principle of bringing the city into the sea then expanding through the coast is something I liked. I do agree that the sculpture-like lookout bridge to nowhere is pointless. High Line in New York works because like on the streets, there is the place to start and a place to go. Usually, people don't enjoy walking to a dead-end place where they have to come back in the same way.



AERIAL PERSPECTIVE JIŘÍHO Z PODĚBRAD, PRAGUE, CZ



HUMAN PERSPECTIVE JIŘÍHO Z PODĚBRAD



AERIAL PERSPECTIVE OF ROUNDABOUT ON PARK

CENTRAL PARK

Jiřího z Poděbrad Square is located in the Vinohrady district in Prague. The size of the park is 220 x 130 meters, with a total area of 28,600 m².

In the center of the park is a church that works perfectly as the landmark of the district.

The structure design of the park is organic as it tries to connect the obvious access points at the centers and southwest corners leading to another park in the opposite direction.

The scale of the park is big enough to enrich the views of eight blocks of mix-use buildings surrounding the park. The benefit of it impacts thousands of people who live in nearby areas and other visitors that attend festivals and food markets, which happens regularly.

The park is easily accessible from the rest of the city since it contains a metro station underground and a tram stop on its southern sidewalk.

There is an art installation in the form of a water fountain, plus plenty of urban furniture for people to stay.

DRIVE IN FOR SERVICE

On the bottom picture is visible how a roundabout is embedded in the park. It is not a common element and I do not know the history behind it, but what I have experienced when visiting the park is the food trucks parking here during busy sunny days provide service to the people, without blocking the street or damaging the grass, so it is a practical strategy.



AERIAL VIEW, GREENACRE PARK, NEW YORK



INSIDE GREENACRE PARK



STREET VIEW, ACCESS TO GREENACRE PARK

POCKET PARK

As they say, the best things come in small packages, parks don't have to be huge to have an impact. What people seek when visiting parks is an opportunity to relax and give themselves a break from the busy city life.

Pocket parks range in size but are no bigger than 1000 m² and are usually small in size but big in character.

Pocket parks don't use a lot of space and are not offering parking lot, because is not needed. Its main users are meant to be within walking distance, so pocket parks are integrated into the blocks but accessible from the sidewalk. They can be used by anyone, but psychologically they belong to its immediate community.

GREENACRE PARK, NEW YORK

Greenacre Park is a privately owned, publicly accessible vest-pocket park located in the Turtle Bay neighborhood of Manhattan, New York City, designed by Hideo Sasaki, former chairman of Harvard's Dept. of Landscape Architecture, in consultation with architect Harmon Goldstone. The park, which is owned by Greenacre Foundation, was a 1971 gift from Abby Rockefeller Mauzé, the philanthropist, the daughter of John D. Rockefeller Jr., and the granddaughter of John D Rockefeller.

The 6,360-square-foot (591 m²) park was assembled from three lots, which had previously been occupied by a store, a garage, and part of a synagogue. It features a 25-foot (7.6 m) waterfall, a trellis with heat lamps for chilly days, chairs and tables, as well as honey locust trees, azaleas, and pansies, which together attract an average of 600 visitors a day. (en.wikipedia.org/wiki/Greenacre_Park)



URBAN FARM IN HOTEL ROOFTOP. BOULOGNE, FRANCE



URBAN FARM IN PARIS ROOFTOP



INDOOR URBAN FARM BY AEROFARMS IN USA

URBAN FARM AND GARDENS

As the world is seeking innovative ways to be more sustainable, urban farms are becoming increasingly popular in major cities around the globe. Its advantages are that with the technology available to grow food indoors and under the sun but with special irrigation systems and much less soil, we can cut the expenses and carbon footprint of some of the food we consume.

Another benefit of urban farming is that it can add greenery to cities, reducing harmful runoff, increasing shading, and countering the unpleasant heat island effect. "Garden plots can help people reconnect with the Earth, and gain a greater appreciation for where our food comes from..." (National Geographic, in <https://asiatimes.com/2016/03/rooftop-revolution-begins-the-green-knight-rises/>)

Although planners have a long way to go, boosters envision soaring vertical farms that will eventually produce most of what we need within a short walk from home.

URBAN FARMING IN FRANCE

The middle photo is the largest urban farm under construction, located in the southwest of Paris the total area of the farm is 14,000 m². More than 30 different plant species will produce around 1,000 kg of fruit and vegetables every day and provide a job for 20 gardeners.

"The farm will also offer a range of services related to urban agriculture, including educational tours, team-building workshops, and special events. Last but not least, there will be an opportunity for local residents to lease small vegetable plots of their own – in specially-devised wooden crates – helping to reconnect city-dwellers with their food source." (<https://www.theguardian.com/cities/2019/aug/13/worlds-largest-urban-farm-to-open-on-a-paris-rooftop>)



CHICAGO CITY HALL, USA



ROCKEFELLER CENTER, NEW YORK



CSOB HQ, PRAGUE, CZ

ROOF GARDEN

CHICAGO CITY HALL

"It was after the terrible heatwave in July 1995, when there were more than 600 heat-related deaths. It was decided to find ways of making the city cooler in spite of rising temperatures. Chicago's rich gardening history combined with Mayor Daley's mission to make it the 'greenest city in America' and a settlement from ComEd, created the ideal setting to build a huge, show-stopping green roof on the top of City Hall." (land8.com/how-the-chicago-city-hall-green-roof-is-greening-the-concrete-jungle/)

ROCKEFELLER CENTER IN NEW YORK

"The gardens on the building rooftops were part of architect Raymond Hood's original 1930 scheme. There were the plans to have gardens on the roofs of all buildings and also the plans for connecting bridges between the rooftops. But it was a difficult time and rooftop gardens only were included only in four buildings." (www.bigapplesecrets.com/2015/07/rockefeller-center-roof-top-gardens.html)

CSOB HQ PRAGUE

"CSOB's five-story headquarters is situated at the base of the Radice valley and does not dominate the landscape. Existing trees were preserved and 730 quick growing and local species of trees have been planted on the site and in the nearby forest park. Six landscaped roof gardens have been created, 18,000 m² of lawn laid and 7,100 small shrubs have been planted, including climbing plants that cover sections of the facades. Climbing plants have also been used within the indoor courtyards to visually connect the roof gardens with the indoor environment, where plants also feature heavily." (www.skanska.cz/en-us/Expertise/projects/57206/New-CSOB-headquarters-Radlicka)



BARCODE IN OSLO, NORWAY

MIX USE BLOCKS



80 X 70 METERS BLOCK



190 X 115 METERS BLOCK



230 X 160 METERS BLOCK

SCALE

There are two factors to take into account on the scale of blocks, one is the outside dimensions, how the block relates to the streets, the distances that are created by solid buildings on the ground, how long they are and the facade, how high.

BLOCKS IN LONDON

On the pictures to the left, there are three scales of blocks in the city center of London. I choose this particular location because it explains three scenarios of how the courtyards can be used. The top picture is a mix-use block, with housing and offices on the perimeter construction and industrial use inside the courtyard.

INDUSTRIAL MIX

The warehouse seems to have access to natural light through the roof, but I wonder how can this be achieved while making use of the roof for recreational purposes.

If the courtyard is taken away from the residents then the roof could be used as its apartment building common space.

On the west side of the block near the top corner is the entrance to the warehouses. Access for trucks and service.

The middle picture portrays a block with more open space inside itself, although it is not a single courtyard but a series of them allowing the distance between the group of buildings. The scale here gives room for sports facilities and playgrounds to take place, we can imagine a school is part of the block as well as apartments and small industrial buildings located in the southern facade. In the north facade, there is an inviting public space as an extension of the streetscape.

At the bottom, in the largest and most complex block is visible that the plots within are not regular. The proportion of built is to courtyard space is approximately 85% built, in this case, some buildings have blind facades and a few of them are located completely inside the block. The scale of the block allows it.



FACADE ON MIX USE BLOCK



COURTYARD OF MIX USE BLOCK



INTERIOR AT MIX USE BLOCK

QUALITIES

Even though from the air perspective the block seems saturated, on the pedestrian level, the distinction of the limits of the block is not clear, but the spaces in between seem fun and interesting. Imagine being inside the courtyard of a building that is already on the inside of the block, would it matter?

The picture on the left page is the same location as the previous pages, on the scale content. Organize in the same order.

On the top image is the facade of the apartment building with the warehouse in its courtyard. As you can see it makes no difference for the pedestrian walking aside the block since the industrial use is hidden from the street sight.

BUILT AND OPEN COURTYARDS

The middle image is a closer look from and an aerial perspective to the playground in the courtyard of the block, it is possible to appreciate that there are two accesses from the street to the playground. Both are wide enough for cars to enter in case of service or emergency but in daily life it's mostly pedestrians who make use of this space. Quality will be the privacy and safety for the kids and residents to have sports courts and playgrounds away from cars. I can also imagine space must be much more quiet and calm as if it would be next to traffic.

DIVERSITY OF USE AND PEOPLE

On the bottom picture, is an interior portraying an old church which is located on the inside of one of the buildings that are hidden in the courtyard of the larger block I showed on the previous images. It is fascinating to think that it is possible to mix all these uses in a block while keeping them authentic and seamless, most definitely this was not planned but it evolved naturally and probably the church was there before other buildings were constructed next to it. But it works, and as for the streetscape, one can imagine the diversity of people sharing the sidewalk, each one of them happy to make use of the block for their favorite purpose.



ZURICH, SWITZERLAND



MEXICO CITY, MEXICO



TOKYO, JAPAN

PROGRAM

Mix-use makes attractive cities, and as designers, we want to enhance diversity but it is out of our reach to decide whether a taco shop will take place or a gym. Normally when a program of a mixed-use development is over designed or specified completely, its conception normally loses authenticity and becomes boring. The unexpected variety of functions is what makes it interesting, and it usually happens like that when unplanned but flexible land uses allows.

This can be achieved through a regulation plan which is open to changes as long as the individual owners and users are happy.

PUBLIC PARTICIPATION

In many highly developed countries, such as Switzerland, every neighborhood has the right of opinion to approve or not a future development or even smaller changes in its neighborhood. On one hand, it makes the process for obtaining permits and begins construction slower, but when it is approved almost everyone is happy, therefore the future project is adapted to the common well being. In Mexico, it can happen that suddenly after living peacefully for years in your house a bridge is built blocking the view and increasing traffic in the area, and there is not much a neighbor can do to stop it.

On the bottom picture, we can appreciate a mix-use area in the suburbs of Tokyo, where there are houses, farms, warehouses, and schools.

CONCLUSION

In conclusion, diversity of program enriches cities, but there must be a plan regulating future development. As is said, rules are made to be broken, but still, rules make good guidelines for sustainable growth, considering all parties, social, economic, and environmental.



AERIAL PERSPECTIVE LOOKING INTO THE COURTYARD



MASTER PLAN OF DEVELOPMENT



PEDESTRIAN VIEW FROM SECOND STORY

FUTURE DEVELOPMENTS

The future does not unfold evenly across the world. It is some countries and societies taking the first leap into an alternative development by experimentation, and afterward, sometimes decades later, other countries follow.

As we saw in the ideals pages, visionaries often stick to a theme and manifest their concepts of what should be according to their interests.

NEW DEVELOPMENTS IN CHINA

Zendai Himalayas Center by Mad Architect in China.

The mixed-use development, totaling over 560,000 m² of building area, will host commercial, hotel, office, and residential functions. The development “seeks to restore the spiritual harmony between humanity and nature” through integrating contemplative spaces that merge nature with the demands of modern living.

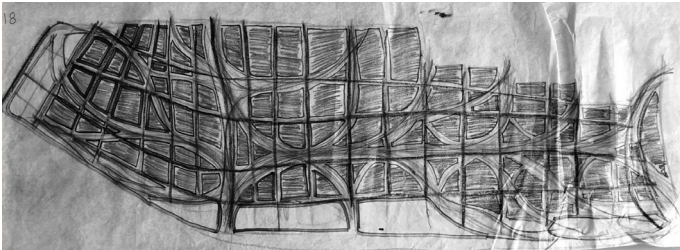
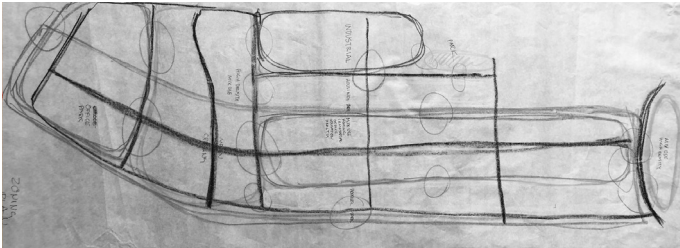
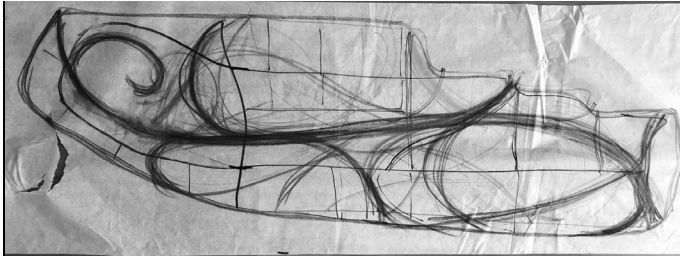
(www.archdaily.com/908039/mad-architects-nanjing-zendai-himalayas-center-nears-completion-in-china)

Zendai Himalayas Center is offering the best of both worlds, a complex of highly technological skyscrapers surrounding what feels like a low rise village with small density filled with greenery as carefully placed as a zen garden.

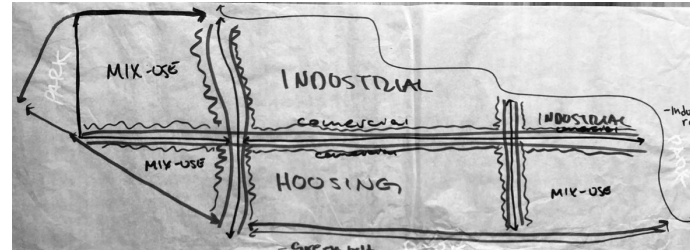
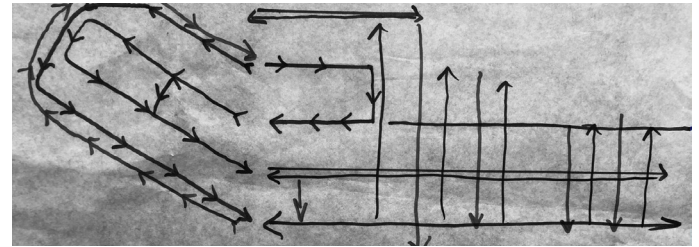
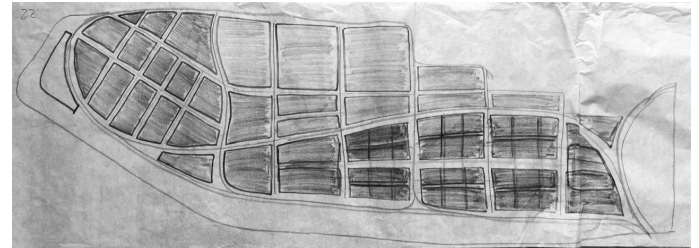
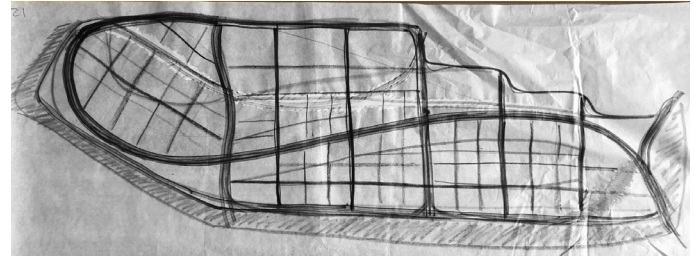
It is an exemplary project, it opens the possibility to accept both realities, honoring the origins of our civilization but embracing the future.

NATURA 2035
PLACES TO LIVE, WORK AND PLAY

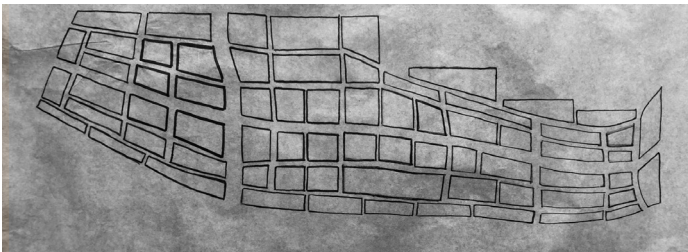
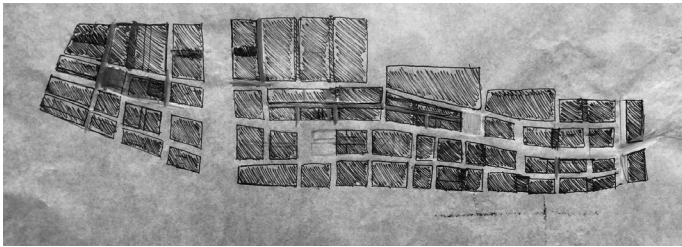
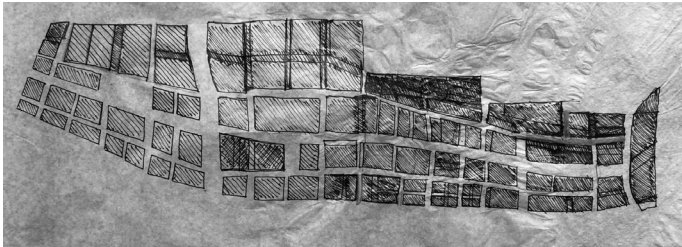
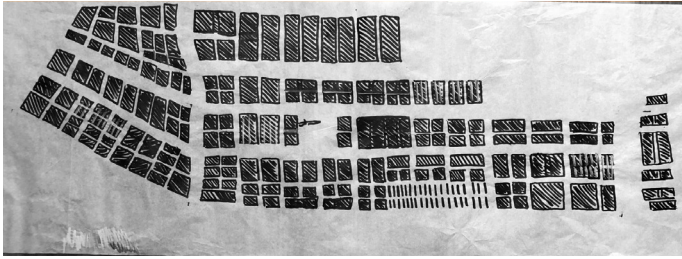
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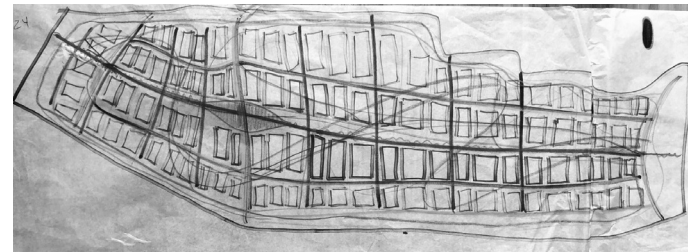
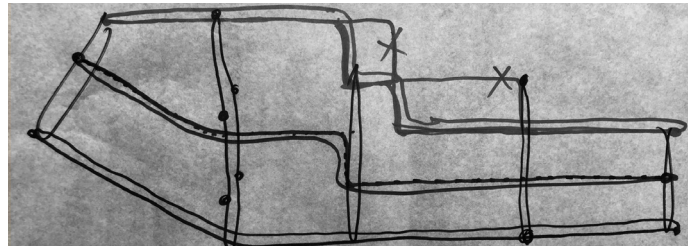
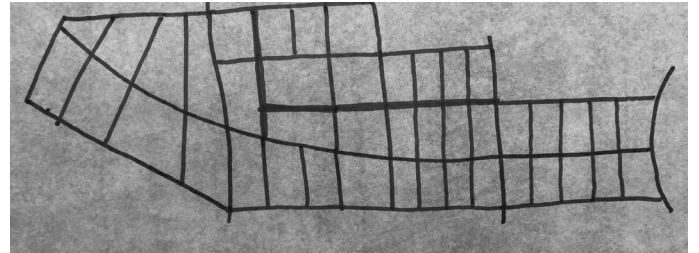
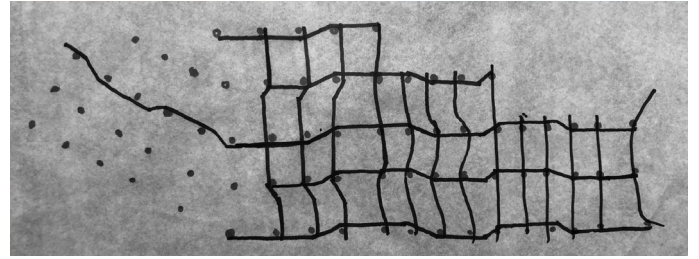
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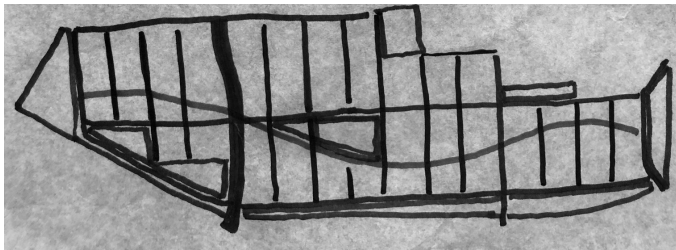
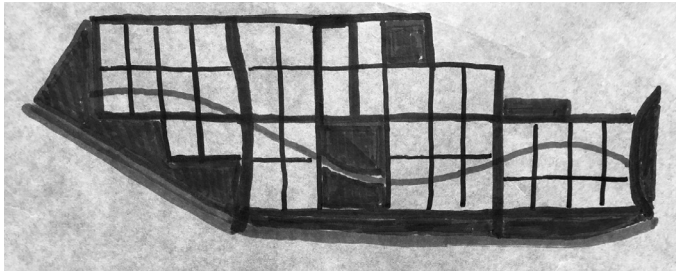
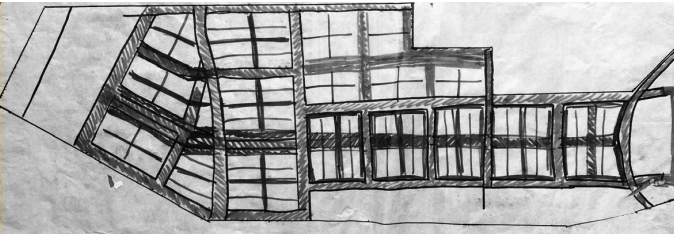
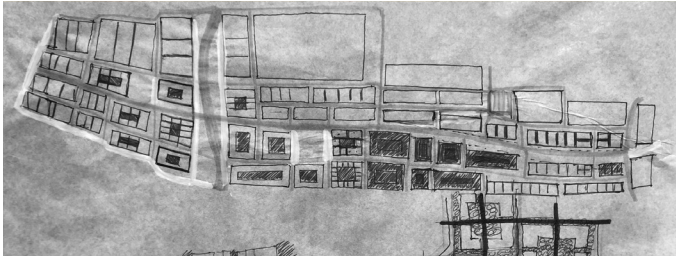
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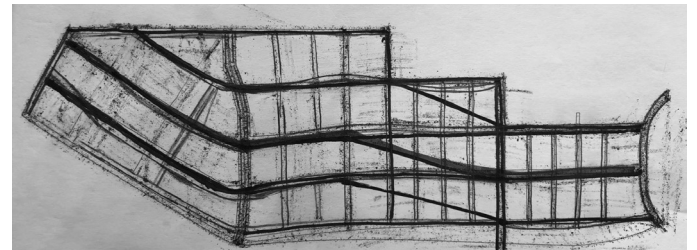
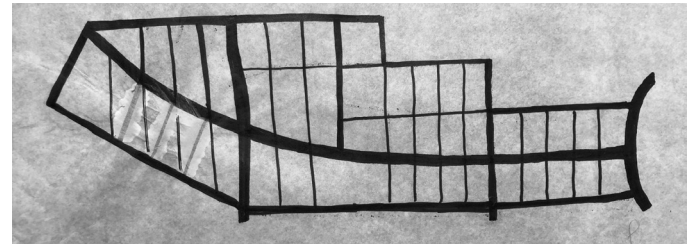
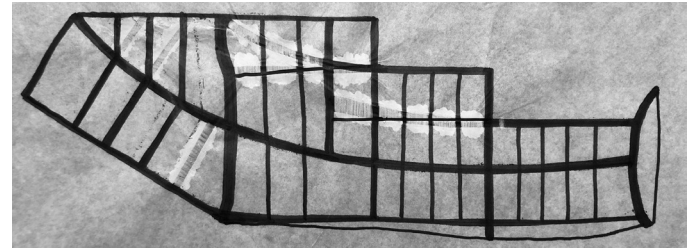
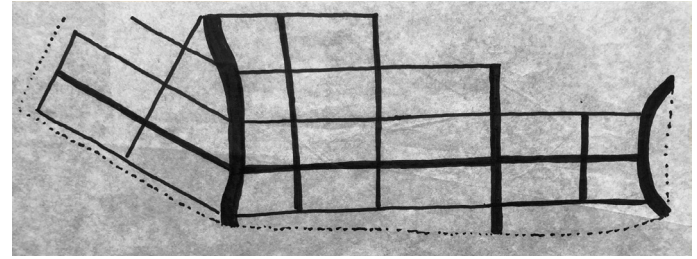
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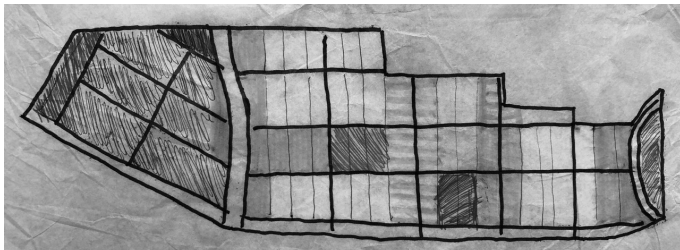
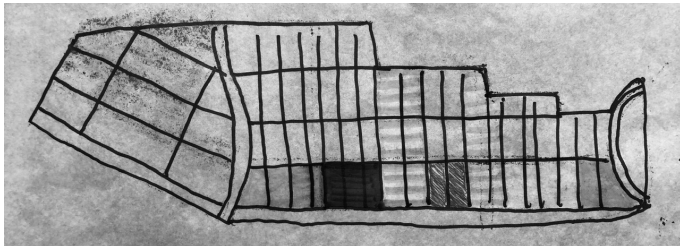
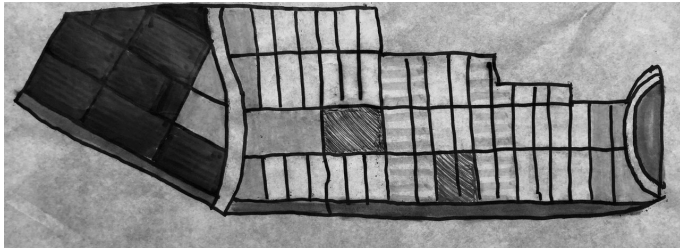
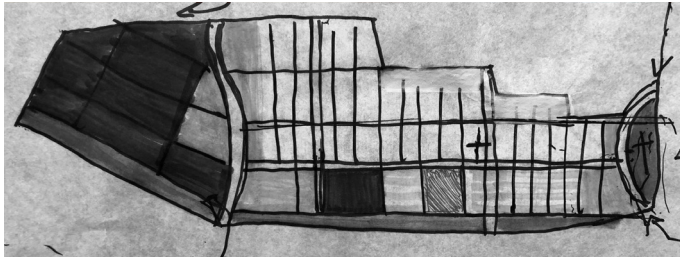
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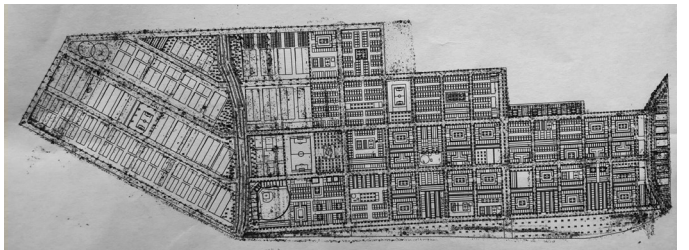
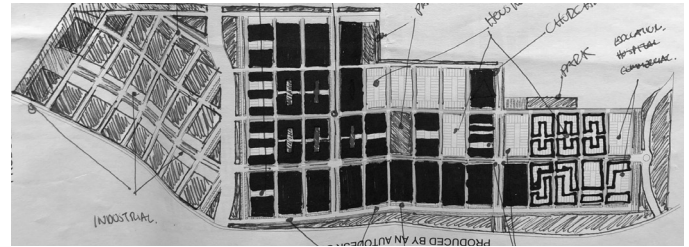
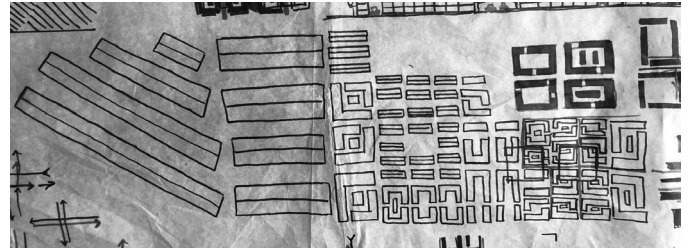
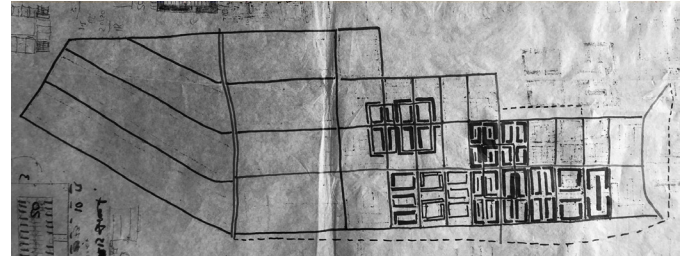
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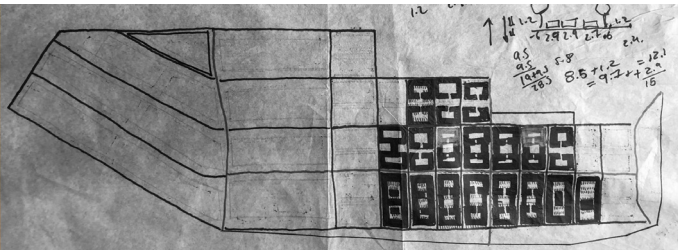
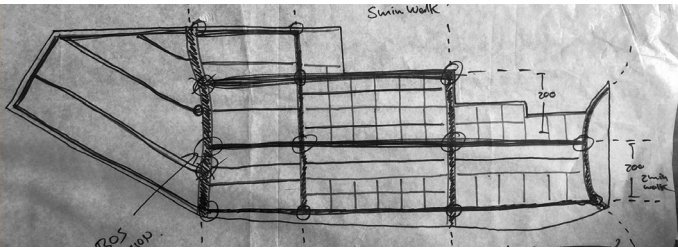
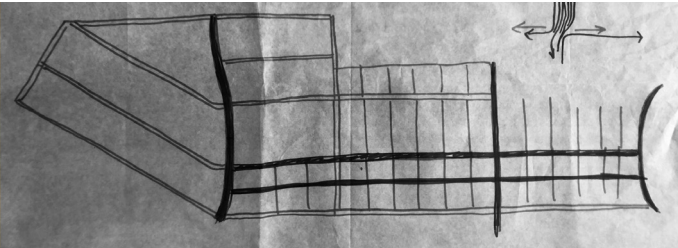
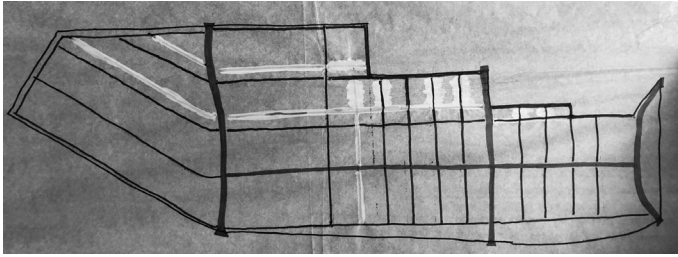
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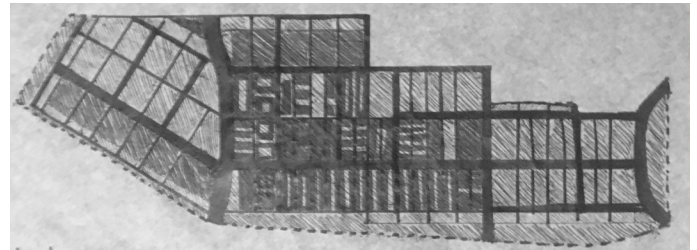
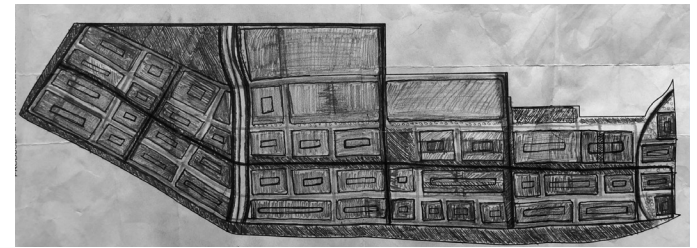
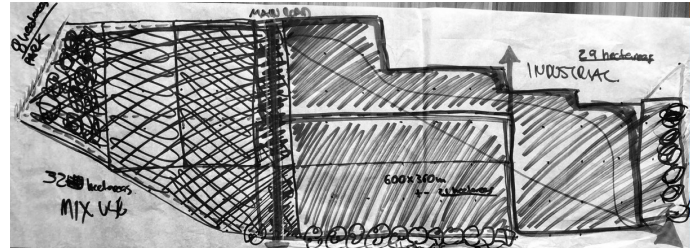
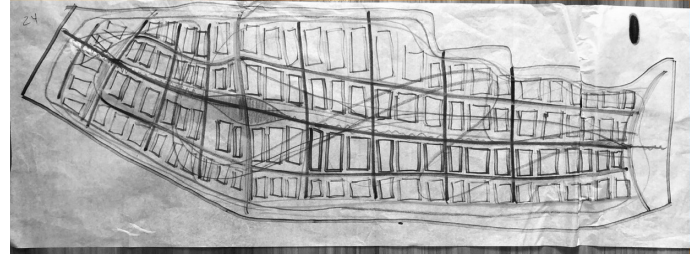
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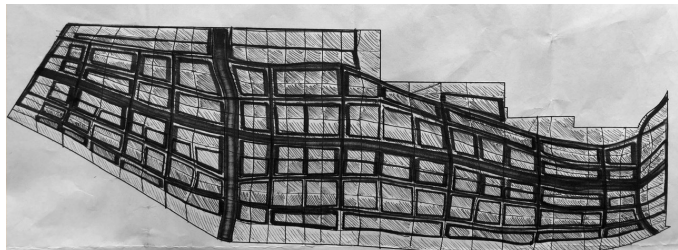
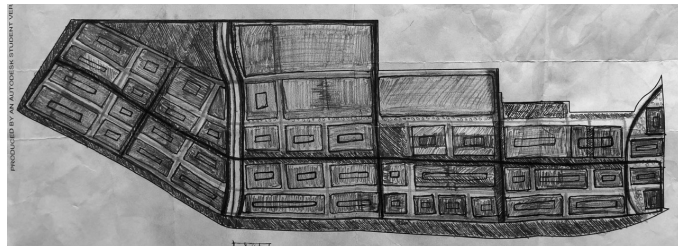
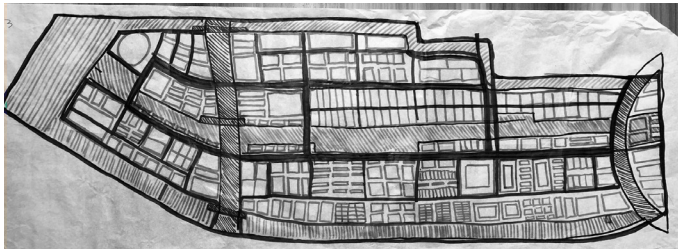
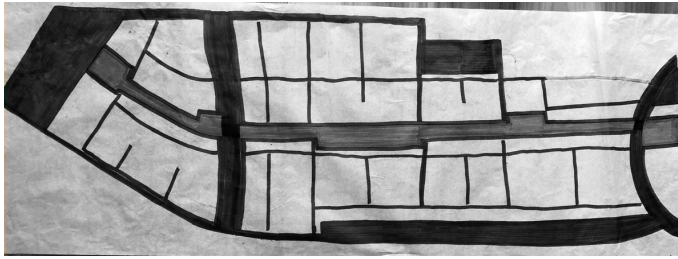
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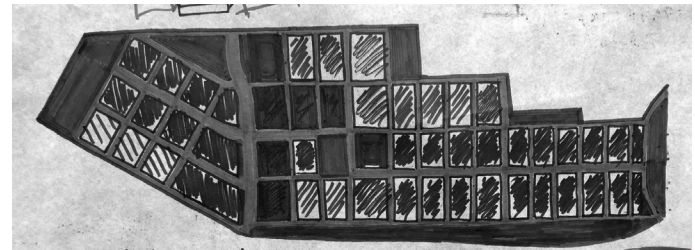
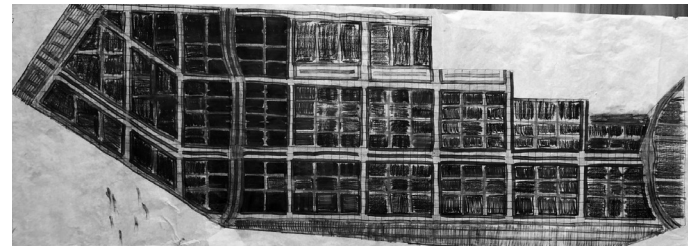
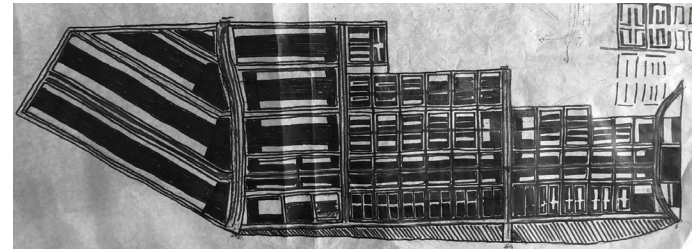
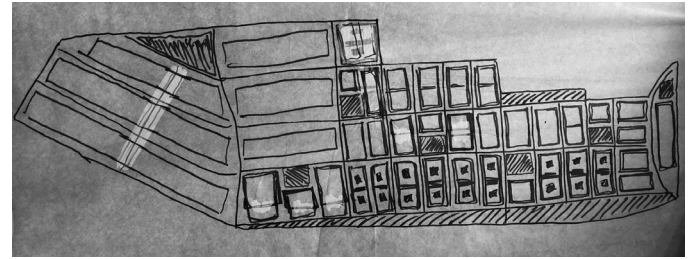
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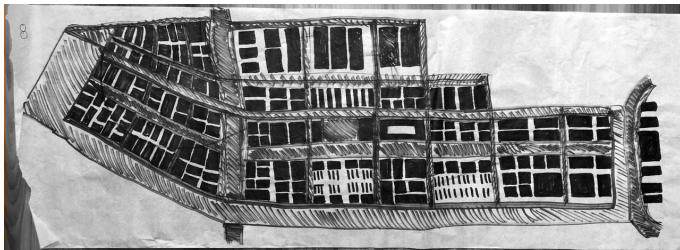
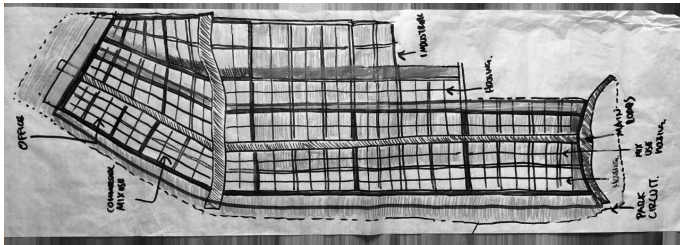
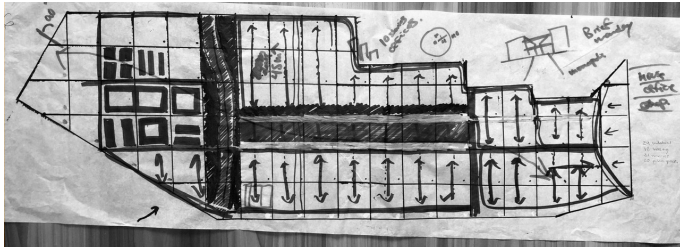
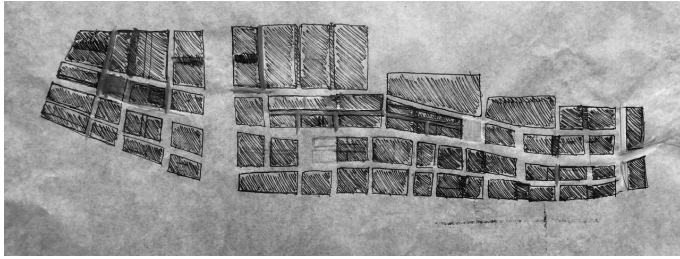
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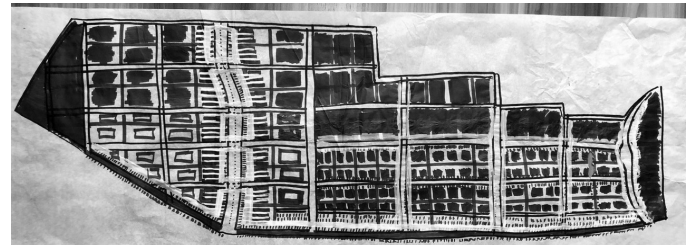
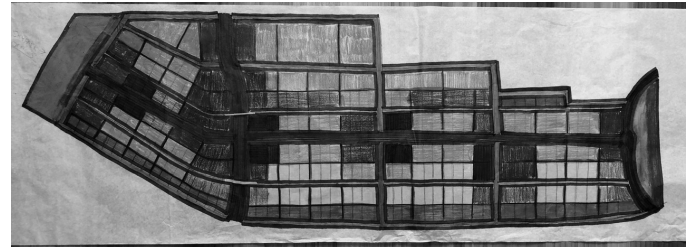
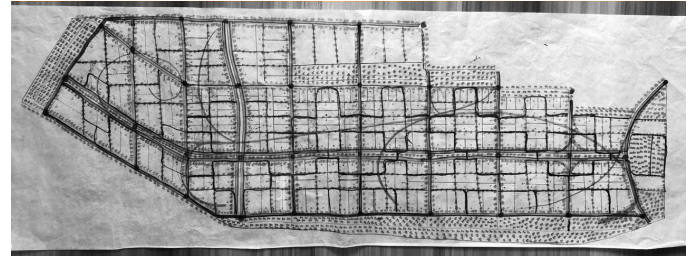
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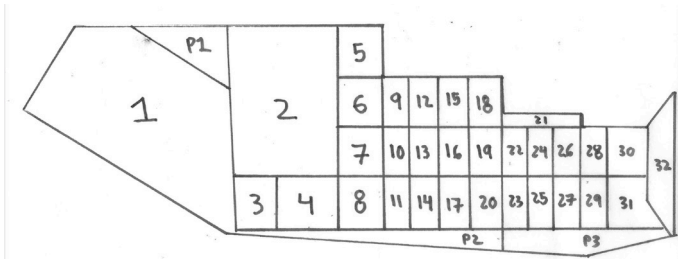
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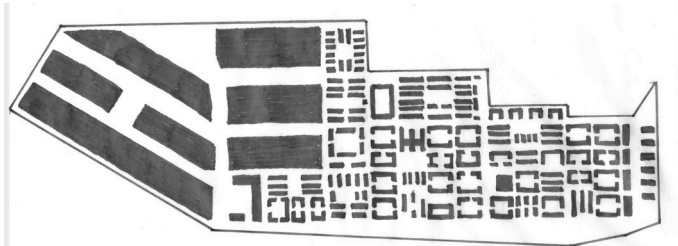
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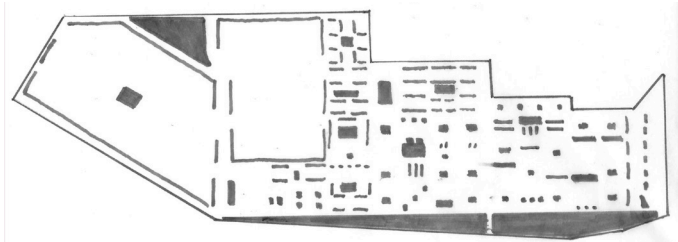
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BLOCK NUMBERS



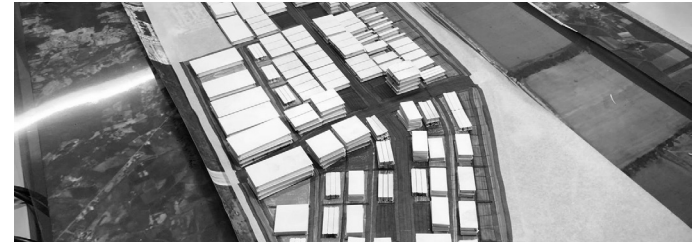
SITE SCHARZPLAN



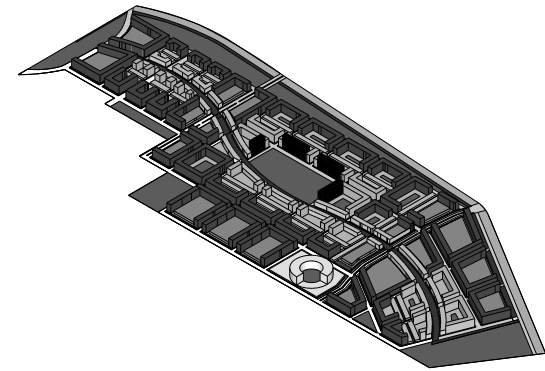
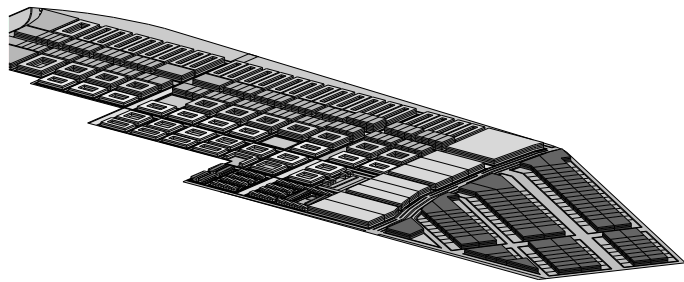
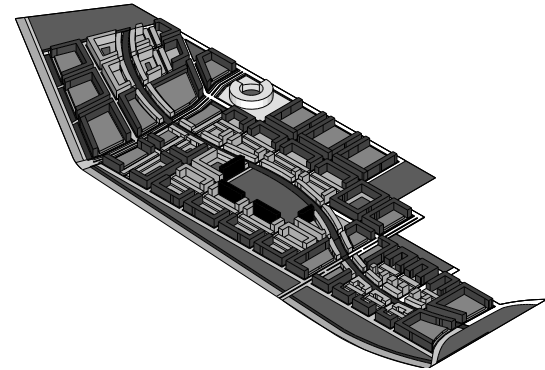
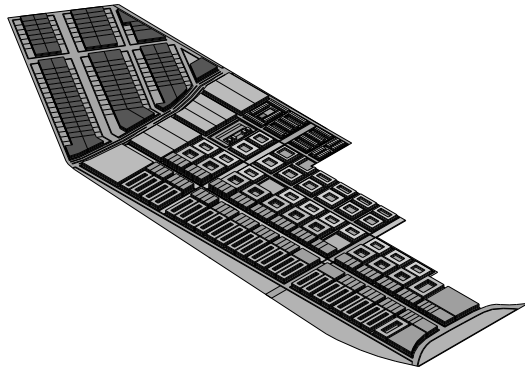
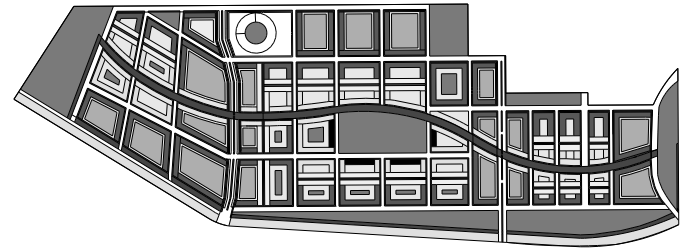
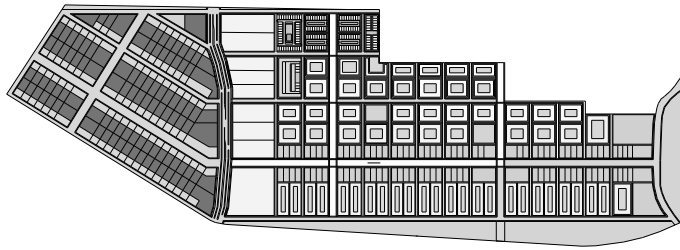
GREEN AREAS



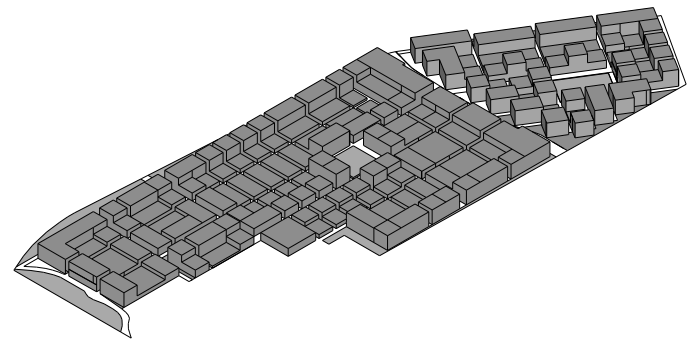
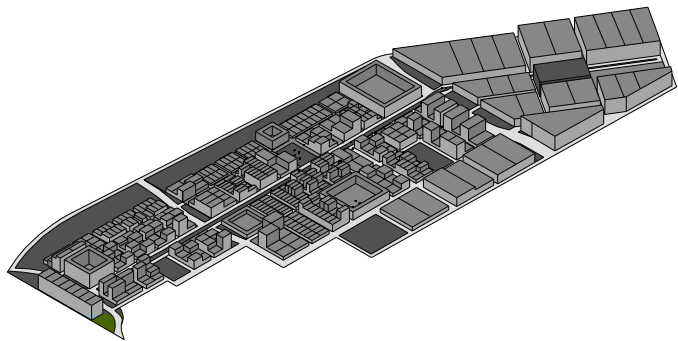
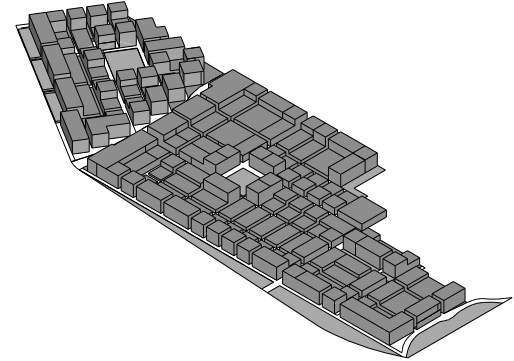
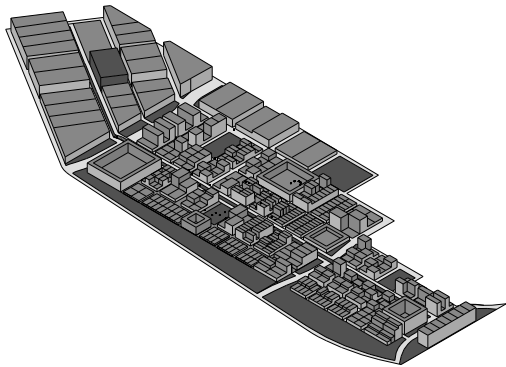
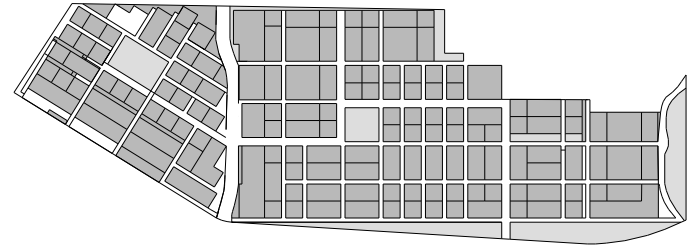
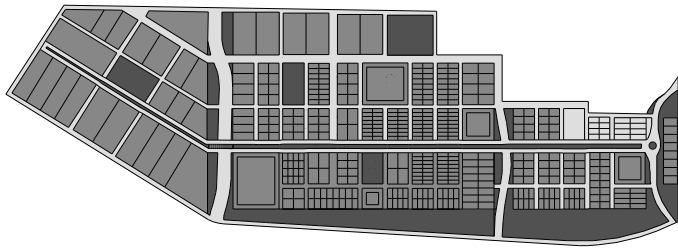
MASSING, PARKS AND MASTERPLAN PROCESS



WORKING PHYSICAL MODEL



DIGITAL MODELS. TESTING OPTIONS



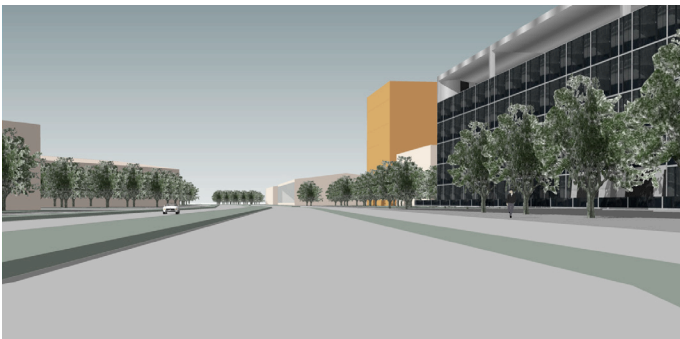
DIGITAL MODEL. TESTING OPTIONS



STREET VIEW 10 METERS

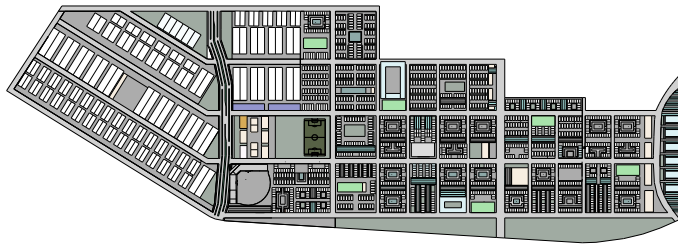


MAIN SQUARE



AIR FORCE BOULEVARD

FIRST PROPOSAL



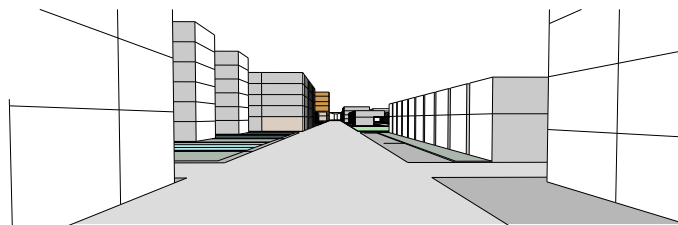
MASTER PLAN FIRST PROPOSAL



SECTION CUT ACROSS STREET



SECTION CUT AIR FORCE BOULEVARD



AVENUE PERSPECTIVE

INTRODUCTION

After the semester work of sketching, consulting and reading about urban planning, I came up with the first formal proposal.

The approach for the first proposal was a conservative rational design, which followed the recommendations of the landowner and the real estate consultant. This suggestion presented after the market research consisted of segregated functions.

The big picture is there is a site which is divided by a highway that connects to the airport. To the west of this highway there is Air Force Boulevard, where all the warehouses for industrial purposes are located. This logistics center would have a size of approximately 30 hectares, which is roughly the area of the west side of the site. It enhanced the industrial by having warehouses on both sides and leaving the boulevard as only a transitory piece of infrastructure that has no real connection to the rest of the neighborhood.

HOUSING

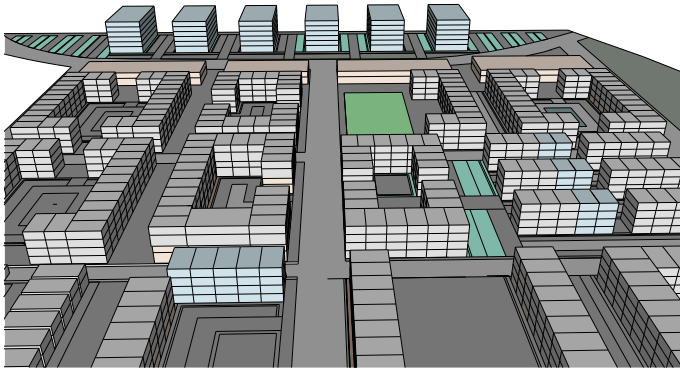
On the northeast part of Natura, I placed the gated communities to continue the typology of the neighborhoods nearby. Following the recommendations of the market research where it stated that housing should be distributed among gated communities of 100 houses each, so we would need an agglomeration of 30 private communities to have the 3000 houses.

In this proposal I tried to dedicate a bigger area for horizontal housing but apartment buildings where needed as well in order to achieve a density for 10,000 people on the 70% left of the site.

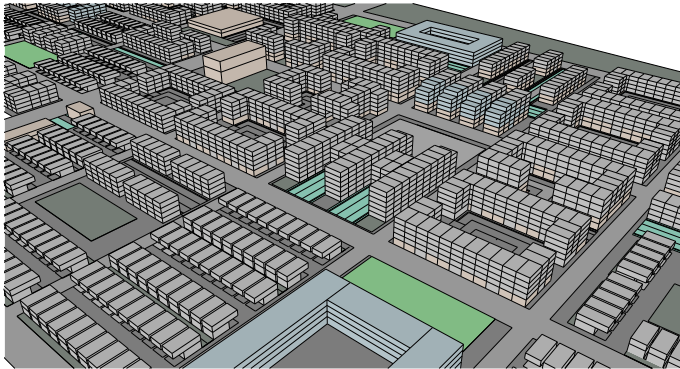
An advantage of block housing was to place all the parking lots inside the block courtyards to relieve more space free of cars in the city. This would make a more pleasant sight and comfortable space to walk when strolling by the sidewalk. The disadvantage of this proposal is that all the interior views of the apartments would have a parking lot reflecting the heat and glare.

SPORTS AND RECREATION

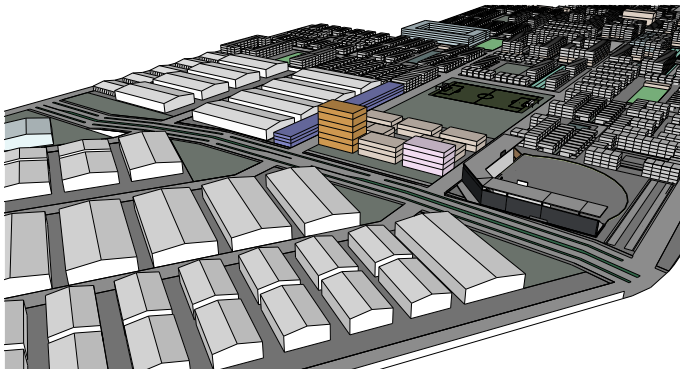
On this proposal, the recreational areas for sports and enjoyment were limited to semi-public space within the gated community. After asking people in Culiacán on the preference of a smaller community swimming pool or a larger public swimming complex, their preference was for small and private pools. People in Mexico choose private over poor public infrastructure. But the boundary between what is public and private is blurring thanks to smart applications, so rather than include sports facilities as part of the masterplan, people and businesses will cover the demand through commercial gyms and private but rented sport areas.



AIRPORT OFFICE PARK



SCHOOLS AND HORIZONTAL HOUSING AREA



LOGISTIC CENTER ON LEFT, HOTEL AND SHOPPING ACROSS BOULEVARD

OFFICE PARK

In the first proposal, I placed all the offices on the east end of the site. This office park would be a landmark to see from across the site through the main avenue.

LOGISTIC CENTER

In a development of an area of 1 km² locating all warehouses on one end is mix, but to create a sustainable urban environment every block matters and to designate 30 hectares to a single function limits its growth. Before I understood the disadvantage of segregating a third of the total area to a single function, I decided to extend the industrial area across the boulevard on the east side.

The industrial corridor enhanced the industrial by having warehouses on both sides and excepting the fact that the boulevard is only a transitory piece of infrastructure that has no real connection to the rest of the neighborhood.

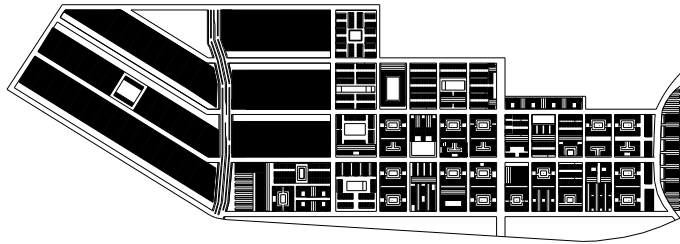
SHOPPING

In the first proposal, shopping was planned to be concentrated in a large complex and at the entrance to Natura from the highway. It would be a large windowless building with an endless parking lot.

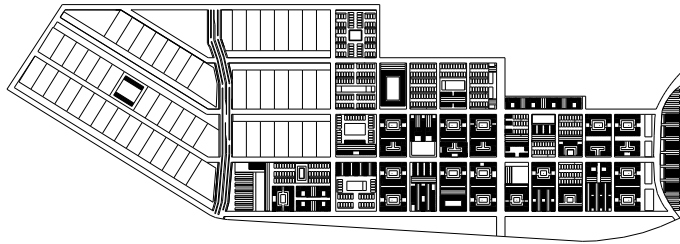
In this shopping complex, there would be an entire floor designated to shops, restaurants, and perhaps a cinema. In order to buy goods and groceries or have lunch, a person would have to be closed inside the shopping mall. This would limit the public life to be confined inside a building rather than distributed in the neighborhood.

HOTEL

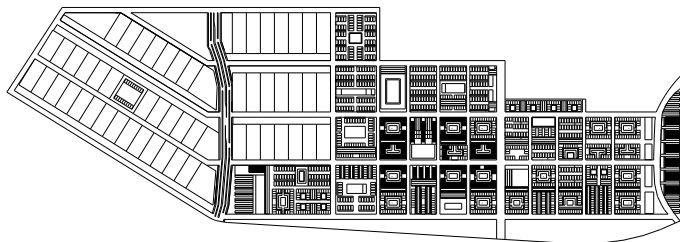
Along the boulevard close to the shopping mall the hotel would take place. It is the fastest and easiest access from the airport and in the way to the city. But accommodation has evolved through platforms such as Airbnb and more and more people are choosing to stay at a renter apartment or house rather than a hotel. Not only because sometimes it's cheaper and better located but because when staying in a hotel there is no real experience of the home culture of the visited place. On the other hand there is a specific clientele for hotels near airports which are for executive people on a one-day business trip, but the way we work has changed and we depend less and less on meetings in person. The work environment has expanded to our bedrooms through your phone. So even on business trips, the length of office work is more flexible allowing people to enjoy other activities. With this in mind, visitors for both business and pleasure would prefer to be within an urban environment rather than a boulevard that feels at the edge of the city.



SECTION LEVEL 10 M



SECTION LEVEL 30 M



SECTION LEVEL 45 M

RESEARCH CONCLUSION

From the first proposal I learned that there are many factors that influence the well being of a city. It is the sum of them that make urban environments be successful. When creating a city I place the people at the center of the design and the rest tasks to solve, present themselves naturally.

The main aim is to serve correctly the people. Always taking into account the sustainability of the environment, society, and the economy.

Keeping in mind that people move from one place to another. Destinations are as important as the time it takes to reach them. Besides all other things that make walking comfortable, fun, and safe.

The boulevard which is 40 m wide and has eight lanes for traffic would most definitely be unfriendly for pedestrians to cross and if we would have only industry one side then for most residents there would be no reason to cross the boulevard. Therefore a third of the total area of Natura would not be used by most people most of the time. Meaning that after work hours this area will become a ghost town. And gated communities will reinforce the social segregation, jeopardizing public life.

The constructive criticism of my studio leaders was that replicating an obsolete model could not be a success and I should find a better way of developing sustainable urban environments.

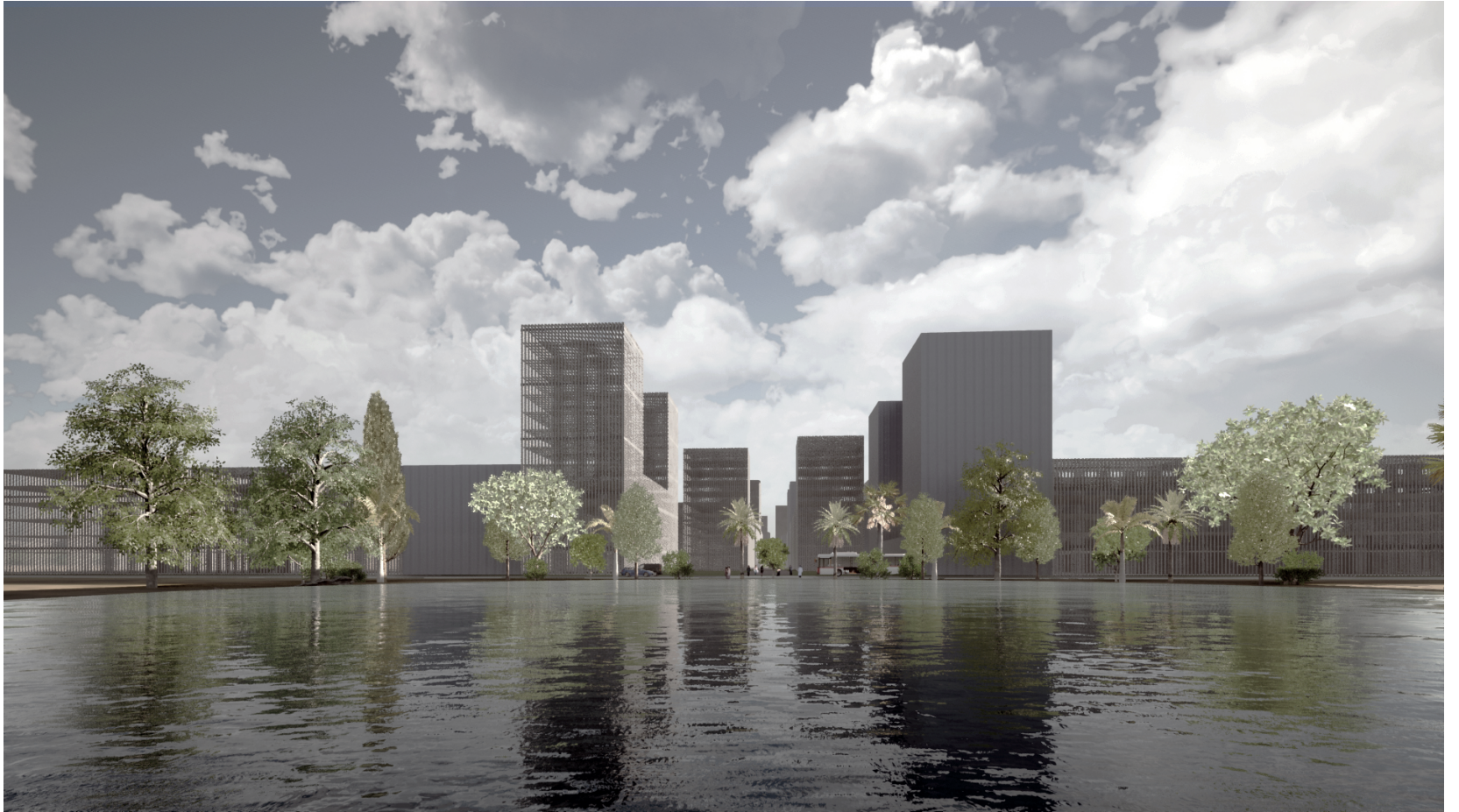
Cities are NOT the agglomeration of housing projects.

Urban environments are interconnected activities of endless forms and functions in a physical space.

Made for people by people. Places to Live, Work, and Play.

NATURA 2035
PLACES TO LIVE, WORK AND PLAY

PART III: PROPOSAL



LAKE AT AIRPORT PARK, WEST END

80 METERS DIAMETER POND

SUSTAINABLE URBAN ENVIRONMENT

Urban renewal consisting on 90 hectares of farmland developed into a mixed use sustainable district next to the airport of the City of Culiacán. A city is a thriving organism of complex functions altogether, not the agglomeration of gated communities or any single use development but a mixture within walking distance. Natura aims to create a cityscape, as part of Culiacán and within itself. A place for people to live, work and play. Located at the south edge of the city, the site is easily accessible due to its proximity to peripheric transportation ring, providing an excellent connection to the city and the state of Sinaloa, Mexico.

VISION

A Sustainable Urban Environment for People, to Live, Work, and Play. Being next to an international airport, Natura is a gateway to Sinaloa, its people, culture, business and industries where the latests tendencies on urban planning and design will shape a sustainable community for inhabitants and visitors to thrive in a modern cityscape. Walking as a means for transportation, through friendly commercial plinths and public spaces shaded by greenery and cooled by water, such are the values of its development which aims to support a healthy, secure and happy lifestyle. Mix use blocks for housing, commercial, offices and industrial use create the diversity needed for a city environment to thrive. With a building regulation of up to 14 stories high will provide the necessary density to optimize local economic activity and profitability while nurturing a livable neighborhood at a human scale.

GOALS

Efficiency:

To achieve an efficient, safe and pleasant system of transportation without relying on car use, a network of inner public transport must be introduced.

Safety: Learning from tested methods of urban planning in Europe, the design of streets and sidewalks will include lanes for parking spaces that will protect the cyclist and pedestrian from traffic.

Pleasant: Culiacán in a city with high temperatures throughout the year, during the summer the weather can be intolerable therefore for people to walk or cycle as a means of transportation plenty of trees must be planted to ensure shade.

SOCIAL

Natura should be a place which supports equality, respect and progress. By avoiding walls in gated communities it provides a chance for residents to coexist together as one with Natura and the city of Culiacán. The benefits of having the possibility to built different types of housing, allows for people from diverse levels of income to share life outside in their neighborhood, supporting the opportunity for interactions between them, sparking new social ties and nurturing social mobility.

ENVIRONMENTAL

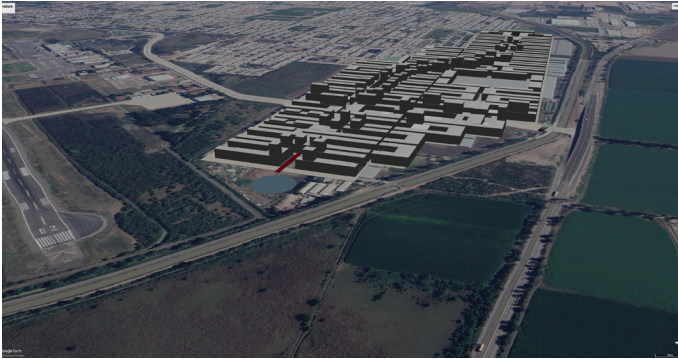
By promoting vertical development not only do we achieve a higher density but we make more space available for green infrastructure and public space. The strategic urban structure, creates a transportation network which is efficient to move fast between the neighborhood in private or public transport but also by foot, bicycle or any micro mobility device. This network design gives space for the main promenade and other streets to be car free areas, reducing the risk of accidents but also creating a more pleasant atmosphere and a healthier lifestyle.

ECONOMIC

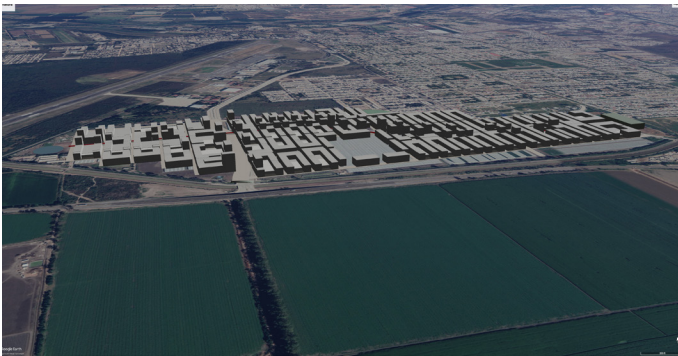
Before we think that this type of development with more parks and public spaces, plus higher and more complex buildings is expensive and not suitable for the market reality of Culiacán, to understand that the true cost of things is not meeting their potential. More parks and public spaces makes Natura more attractive to live in it. Higher buildings has greater capacity of residences therefore more people in the street, meaning more potential customers to the local businesses. Better and more complex buildings are assets which makes more valuable the overall development over time, attracting more people and business to live or spend some time in the neighborhood. Over time, only the best buildings remain, serving as the foundation for centuries of social and economic development. When built right you only build once.



LANDING ON AIRPLANE PERSPECTIVE. SITE AT TOP LEFT



DEPARTURING ON AIRPLANE PERSPECTIVE. REAR VIEW



POSSIBLE EXTENSION OF AIR FORCE BOULEVARD ON FARM LAND

CONNECTIVITY

In the globalized world we live, Natura is an attractive place to live with immediate connection to the airport, the residents can access a flight to the capital of Mexico City within 5 minutes of their homes.

GATE TO SINALOA

A gate to Sinaloa, its businesses and people, Natura is the perfect place for companies to build their offices and other facilities due to the proximity to the airport and ease of access to the city. Due to the size and typology, Natura is recognizable not only as an extension of the city but an urban environment on itself, with high buildings up to 45 meters and a desired density of 20,000 people.

VIBRANT ECONOMY

The amount of economic activity that will take place in Natura, will gentrify surrounding neighborhoods in the airport area, increasing the value of their land and inviting new developers to continue the growth at the edge of the city.

ARRIVAL

Natura is visible from the airplane. When landing the new neighborhood welcomes the travellers with sight of progress, as ordered urban planning and modern architecture stands out of the vast green parks and gardens.

A NEW CENTER

To the south of the site there are fields of agriculture, which according to the city plan will not be developed anytime soon, with the intention to keep the growth within the city limits.

Natura will be the first option in Culiacán for national or international business meeting, large conferences and other events due to the proximity to the airport. Visitors can stay, work and enjoy their time in the neighborhood or access the city easily via the highway to the south or the center on the north via the air force boulevard.

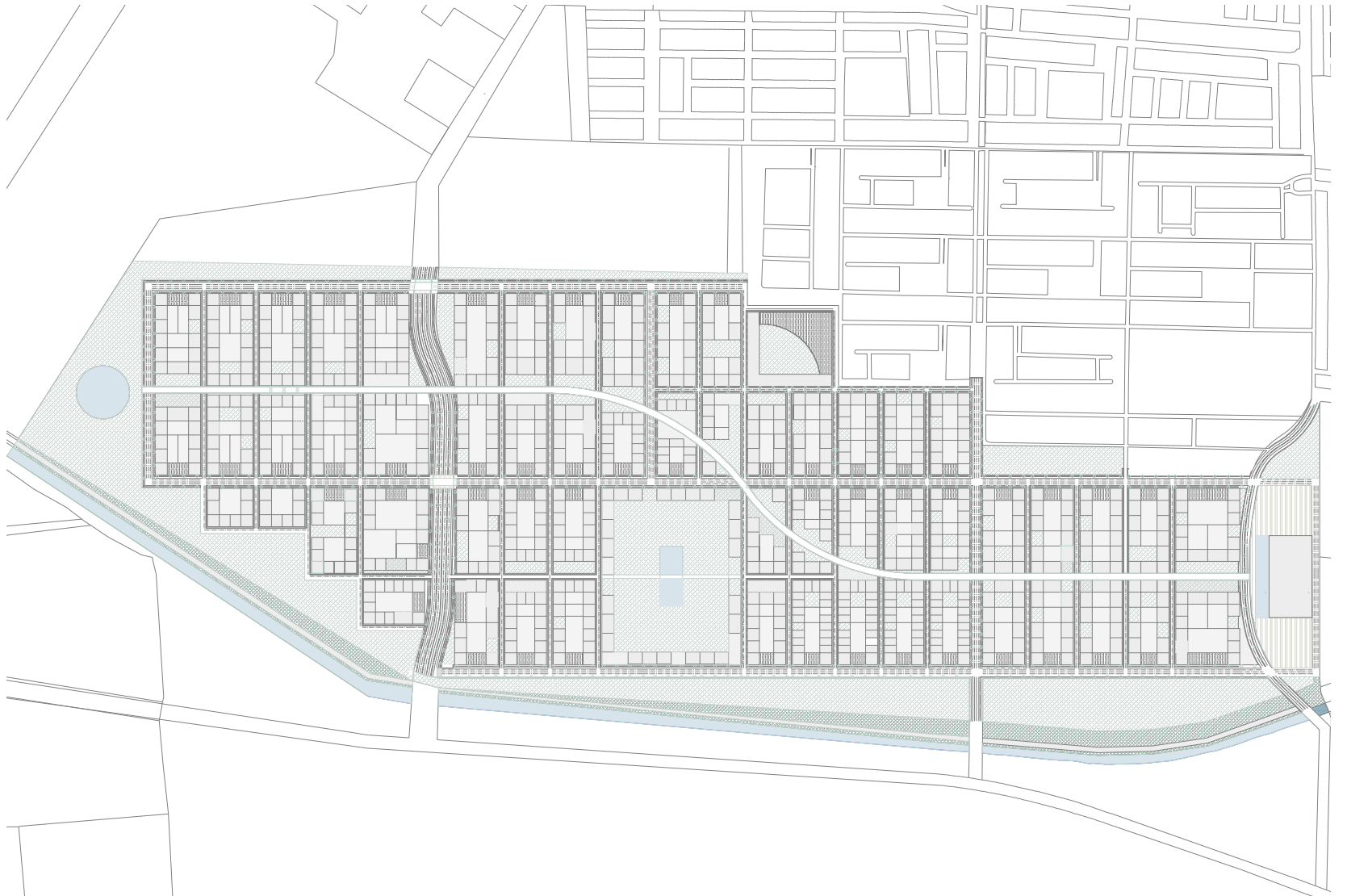
VIEW TO THE FIELDS

This guarantees a pleasant view for the dwellers of Natura and interrupted clean wind currents, which speed will be filtered by the trees along the canal.



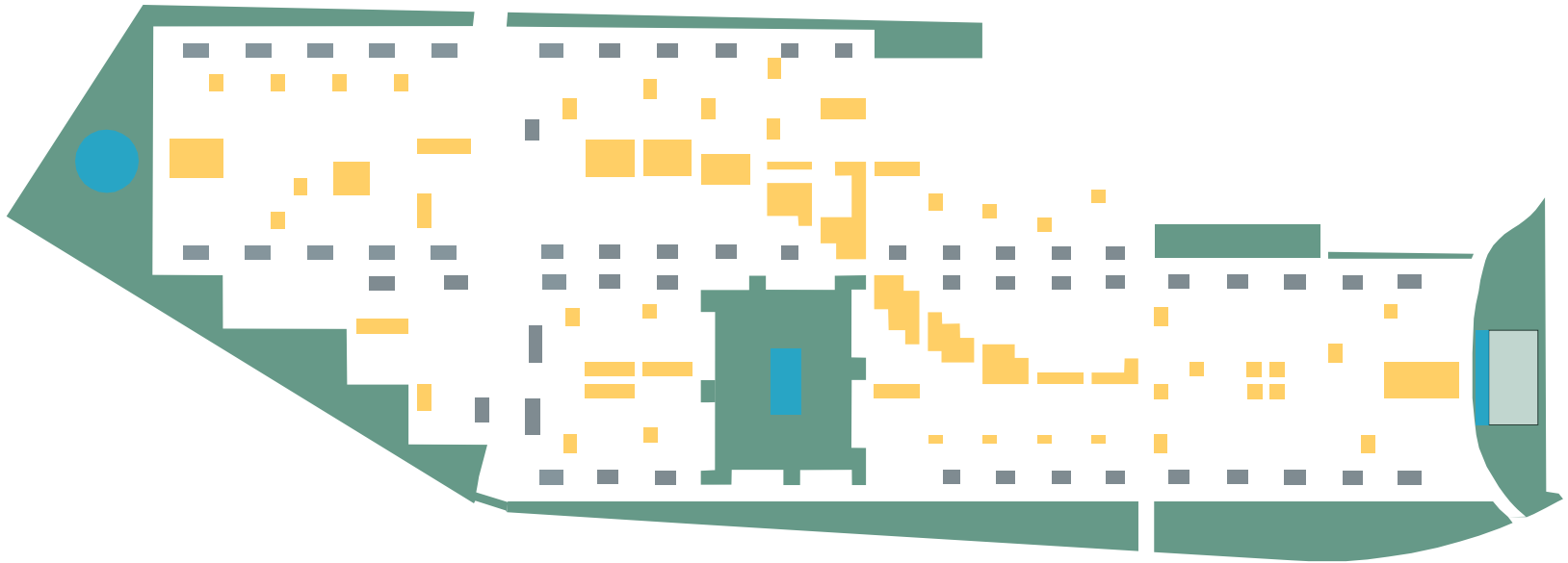
CULIACÁN, SINALOA, MEXICO 24°45'10"N 107°28'10"W

CURRENT USE IS FARMLAND AND GREENHOUSES



MASTER PLAN NATURA

A PLACE TO LIVE, WORK AND PLAY

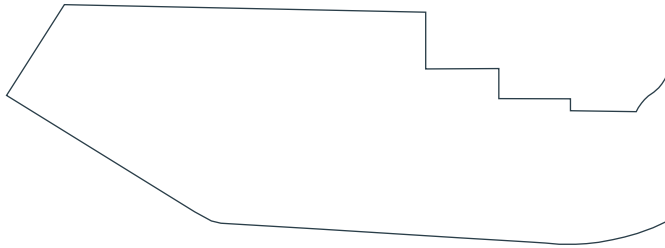


 PUBLIC SPACE  GREEN BELT  PARKING

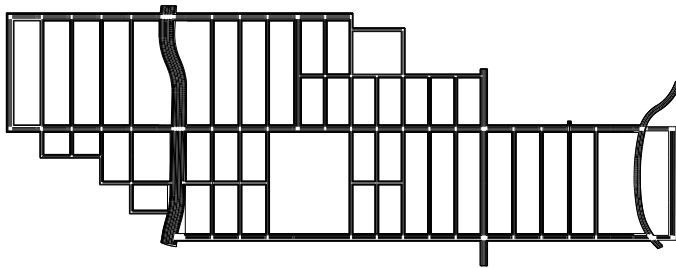


AERIAL PERSPECTIVE LOOKING WEST TO THE AIRSTRIP

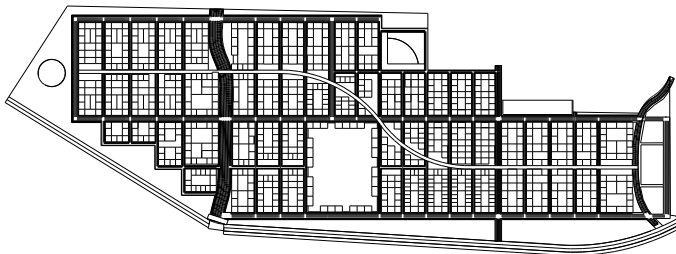
MAXIMUM VOLUME VISUALIZATION



SITE OUTLINE



URBAN STRUCTURE



BLOCKS AND PLOTS

STRUCTURE

The site outline is enhanced by a green belt surrounding the neighborhood, running along the water canal on the south side.

The Green Belt is a perimeter green infrastructure connecting to all alternatives pedestrian, bicycle, and electric personal transportation device.

Diversity within a regular framework. To make navigation easy within the site, the structure is a clear orthogonal grid that makes the superblocks surrounded by avenues for double direction car traffic.

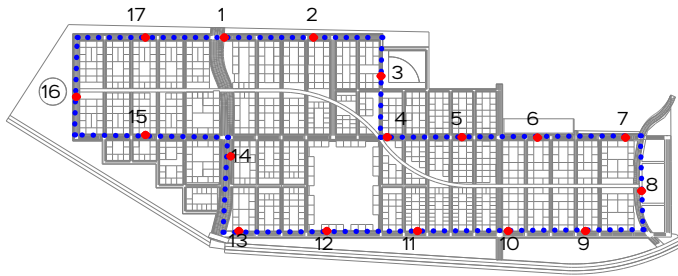
Within the superblocks are the blocks also rectangular, with one side on the avenue and the rest surrounded by either narrow streets or the promenade. Blocks are manipulated according to the path of the promenade to create exceptions, unexpected places of interest, plazas or parks where people are drawn out of curiosity or purpose.

The dimensions planned for plots, blocks and superblocks are diverse but constructed on variants of 20 meters, due to the common size of plots in city on developed countries.

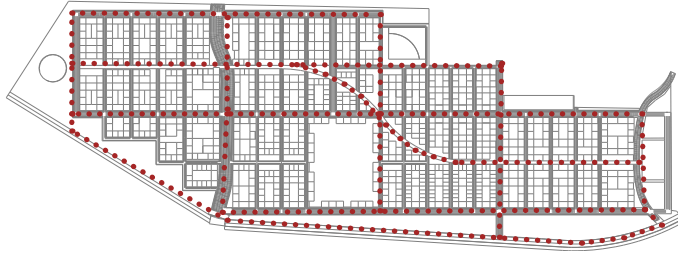
From researching and measuring city blocks through google earth, on places I have been around the world. The blocks are organized on the perimeter plots named front plots and the interior of the block plots named courtyard plots. Perimeter plots are meant to be used as business fronts such as restaurants, shops and so on, as well as lobbies of apartment buildings, accesses to cars for parking lots on the courtyard blocks or to be left as open public spaces.

Front plots have an average facade length of 20 meters, and all of them have a depth of 18 meters, which is enough space to have an efficient parking space circulation if desired to build vertical parking. 18 meters depth is also a rational dimension for office space or apartment buildings. For example either an entire apartment could enjoy the total depth of the plot by having balcony, two rooms in the interior divided by an internal corridor and a terrace in the courtyard side. Or two apartments divided by an external corridor to access them could provide a 7 meters depth apartment on each side with their respective balconies.

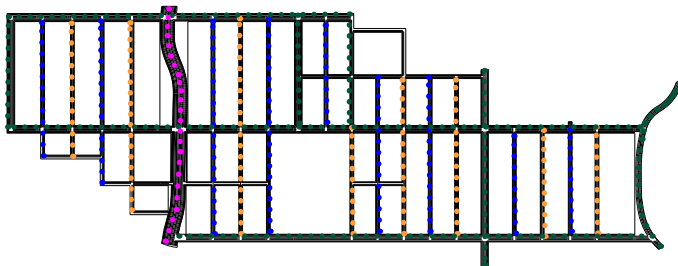
Courtyard plots varied on size and it is the intention not to define all the distribution design but to show the possibilities of arranging these plots to serve a variety of purposes, from recreation to infrastructure or commercial use.



BUS CIRCUIT AND STATIONS



BYCYCLE LANE SYSTEM



TRAFFIC NETWORK SYSTEM

The grid is organized on four types of transportation lanes, the biggest and busiest is the main Air Force Boulevard (40 meters wide), parallel to it, on the east end of the site, there is the extension of the Ramon Lopez Velarde Boulevard, (20 meters wide) coming from the northern neighborhood and connecting so the highway, both of them are existing on the site before my intervention.

The second type are avenues (20 meters wide) with 4 lanes running in both directions. This network is the circuit where the bus travel as well as the bicycle lanes. It is composed of two loops covering the whole area of the site.

Third type are narrow, single lane streets (10 meters wide) running north and south along the longer side of the blocks, connecting them to the avenues.

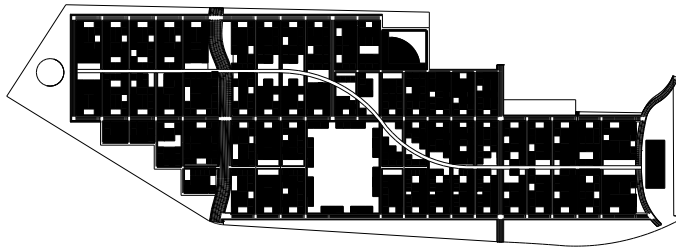
Fourth type of circulation are the car free roads, (10 meters wide) like the main promenade connecting from east to west ends and other roads along the smaller blocks on the area of the central park and the baseball stadium. Residents can choose to live aside conventional boulevards or avenues, or in a calmer car free streets nearby the park or promenade.

There are 17 bus stations in total, around the avenue loop. They are strategically located to connect points of interest in the site.

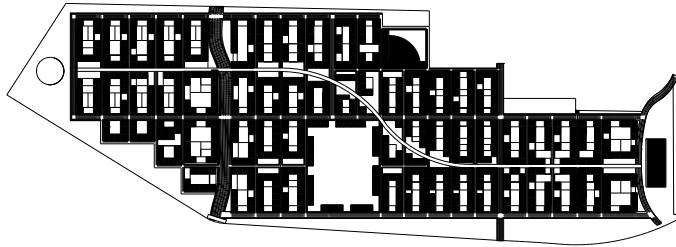
Starting at the top center, on the northern access from the Air Force Boulevard and counting clockwise direction, the bus stops are on the following sites:

BUS STOPS

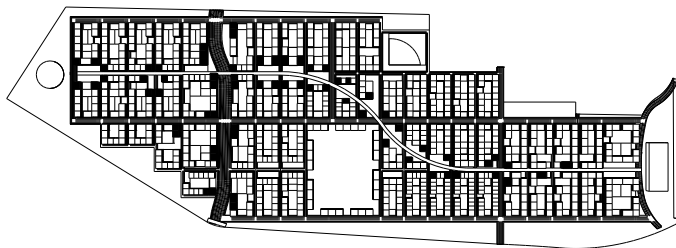
- | | |
|-------------------|-------------------|
| 1 - AIRPORT | 9- GREENBELT |
| 2 - INDUSTRY East | 10- HOSPITAL |
| 3 - STADIUM | 11- WATERFRONT |
| 4 - CENTER | 12- CENTRAL PARK |
| 5 - VILLAGE | 13- HIGHWAY |
| 6 - MARKET | 14- HOTEL |
| 7 - CHURCH | 15- TOWERS |
| 8 - GREENHOUSE | 16- POND |
| | 17- INDUSTRY West |



GROUND LEVEL BUILT AREA 0 -3 STORIES



MIDLEVEL BUILT AREA 3-6 STORIES



TOP LEVEL BUILT AREA 6-14 STORIES

MASSING

General height requirements concerning the airport
The regulation given by the airport says that in Natura buildings can be up to 45 meters heights, meaning around 14 stories, which gives us a lot of possibilities to play with the skyline of the site, even though at the end of the day, the private builders will decide the height of their individual projects within the framework we will establish through a regulation plan from Natura.

Building heights should be regulated to achieve the density needed for businesses and people to thrive in a social space, but also to create desirable views and provide shade where needed.

DENSITY AND VOLUMES REQUIRED TO ACHIEVE

The overall desired density of the project is 20,000 inhabitants per km², therefore 200 people per hectare. If the average block size is 60 x 90 meters: 5400 m², then on each block there will live 100 to 120 persons.

MASSING AND SUNLIGHT

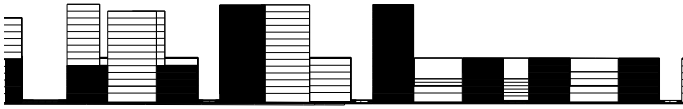
Blocks are rectangular with its longest sides facing east and west, the reason for this is to have the longest facades on the narrower streets, to provide shading on sidewalks and create density along the plinth.

LIVEABILITY

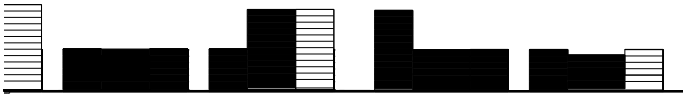
The density created by the massing proposal is highest on the ground floor and lessens as it reaches the highest levels at 45 meters from the street. The highest buildings are permitted along the main boulevards and the promenade, with the intention to increase density on the car free zones, achieving a friendly pedestrian social space, instead of congested traffic on avenues.

This solution makes the walk more interesting because is accompanied by higher buildings which are positioned to avoid interrupting the views in between them by alternating the plots where the highest buildings are permitted. Because the promenade is a network of public spaces, the clear area in between the highest buildings is usually bigger than on other areas on the interior of the neighborhood.

The typology of buildings will eventually depend on the independent developers but it is intended to be fully built as the volumetric studies shows in the renders of this proposal therefore on average buildings should be 6 stories high and 14 on the highest plots allowed.



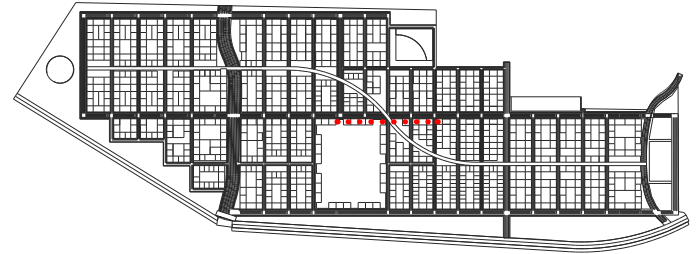
SECTION (A) ON AVENUE LOOKING NORTH



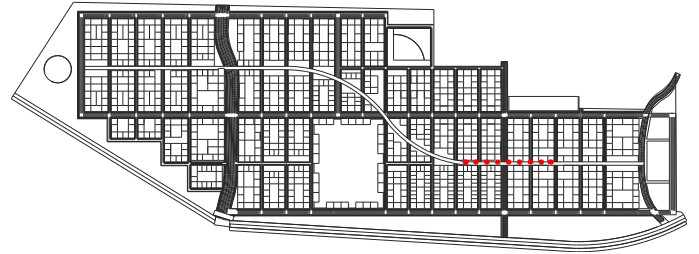
SECTION (B) ON PROMENADE LOOKING NORTH



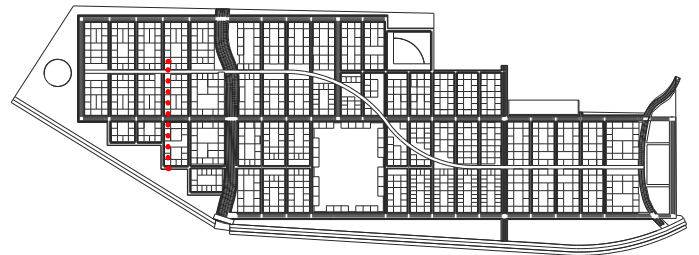
SECTION (C) ON STREET LOOKING WEST



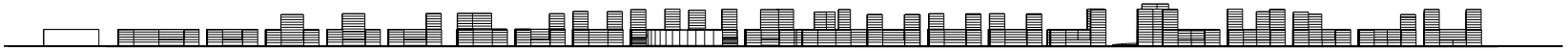
RED DOTTED LINE SECTION (A)



RED DOTTED LINE SECTION (B)



RED DOTTED LINE SECTION (C)



NORTH ELEVATION OF ENTIRE SITE
LENGTH: 1950 METERS



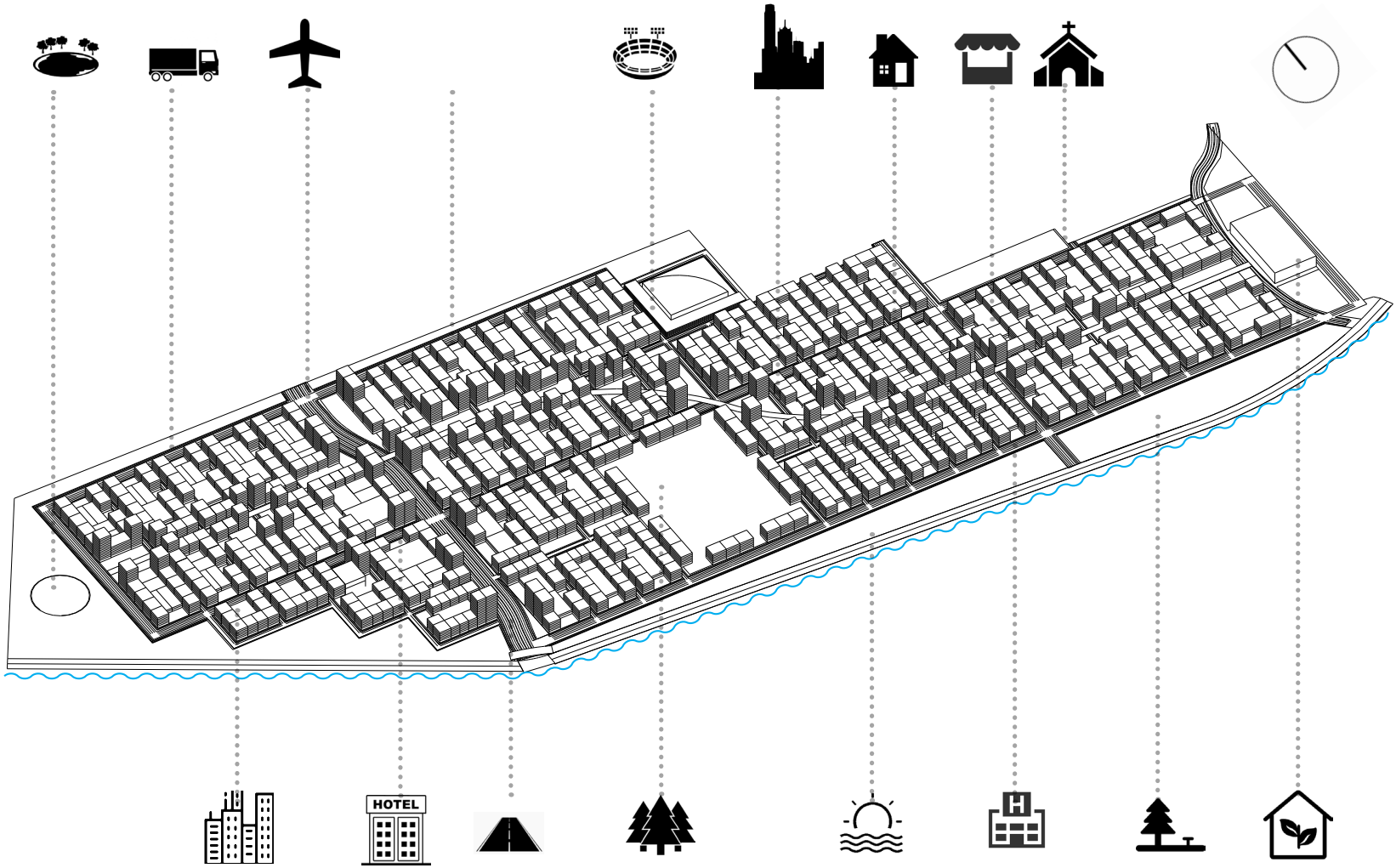
SOUTH ELEVATION OF ENTIRE SITE
LENGTH: 1950 METERS



EAST ELEVATION OF ENTIRE SITE
LENGTH: 600 METERS



WEST ELEVATION OF ENTIRE SITE
LENGTH: 600 METERS



ZONIFICATION

CANAL ALONG SOUTH EDGE



PEDESTRIAN STREET AT WATERFRONT



SOFT EDGE AT WATERFRONT

PROMENADE

Stretching from east to west the people's promenade is a 10 meter wide pedestrian only street that widens into plazas, parks and terraces at commercial or residential plinths as it passes through the neighborhood central area, disrupting the orthogonal grid by organic flow, shifting buildings and creating attractive spaces in between. More than a street is a network of public spaces for sustainable mobility along all types of building functions. Strategically planning for buffer zones as soft edges where gradually the public and private spaces meet. As the promenade passes by what could be residences, the house entrances become special meeting points, where people feel confident to sweep their sidewalks in pajamas as if it is an extension of their home. This integrity is possible because of the friendly flow of people in bicycles and skates. In places like these there are no strangers but neighbors and friends. Designed not just for fun, the promenade is promoted as the first option when traveling within Natura, because of its strategic centric location the promenade is reachable within 5 minutes walk from anywhere in the site. The length of the promenade is 1,750 meters, therefore at average walking speed of 5 kilometers per hour, a person could walk from end to end of the promenade within 21 minutes.

Along the promenade there are diverse experiences that make the walk fun and convenient. Starting at the east end by the greenhouse, there is a plaza of 92 by 46 meters which is open to the boulevard running north to south. Further west at the next blocks intersections, there are the four corner plots empty to be used as pocket parks and terraces for businesses, restaurant or front parking space. As the pedestrian approached the center there is the intersection with the extending boulevard, coming from the northern neighborhood running south to access the highway. At these crossings the urban environments get busier and denser as the flow of cars and people pass by, one can also imagine that more economic activity will take place within this area therefore top height of building is permitted, 14 stories.

PROMENADE CENTER

By a 4 minutes walk after this crossing through 5 blocks the person reaches central park straight by the adjacent street which splits from the promenade or if continues on the promenade it arrives at the core of Natura where two plazas, and the central park corner meet, on the intersection with the longest avenue running from east to west end where a bus stop is located.

One block to the north of this intersection is the baseball stadium which is situated on the northeast side of Natura as an inclusive sports and recreational area to bond the existing and new neighborhoods.

After strolling through the wavy promenade on the central area, two blocks after the intersection, there is a boulevard which starts at the middle of central park and is meant to be a connection for a future development on the north.

PROMENADE LINEAR PARK

There are 4 blocks in between the boulevard at the middle of central park and the Air Force Boulevard leading to the airport. 3 continuous blocks before reaching the main crossing are designed to have their front plots open to create a linear park along the promenade, 200 meters long by 45 meters wide. Because of its proximity with the Air Force Boulevard this is meant to be a dense and busy area with mixed use high buildings. The linear park serves as a buffer space to balance the density among towers and people. The last block before reaching the main crossing has its front plots fully built to create a compact street guiding the density either to the linear park or the boulevard, while keeping the noise of the highway out of the park.

BOULEVARD INTERSECTION

The main crossing of the neighborhood is located at the intersection between the airport boulevard and the people's promenade. After several ideas and proposals of complex ways of achievement a fluent crossing, such as pedestrian bridges or tunnels, together with the studio leaders at ARCHIP we decided the best way to cross is the old fashioned street traffic light. Cars stop and people walk. It is the cheapest and more convenient solution for pedestrians to get from one end to another. Anything else would be less inviting.

As cars drive over the promenade when green light is on, they would feel the vibration of the brick groundwork clarifying the priority of the space. First people, then cars.



URBAN FARM ACROSS THE BOULEVARD. EAST END

THE PROMENADE IS A NETWORK OF PUBLIC SPACES

PUBLIC SPACE AT INTERSECTION

When crossing the Air Force Boulevard the space around the promenade widens between the blocks inviting the people to continue their journey to the west. This aperture bring in the urban atmosphere of the boulevard and its busy life to the promenade giving space for commercial and social activity near the intersection but not completely exposed to the traffic. In order to achieve a succesful public space, the immediate space on the corner of the interesection is filled with greenery to serve as a buffer or soft edge to the blocks and sidewalks.

PLAZA IN BETWEEN BLOCKS

On the next two following blocks, the promenade tightens again before opening up on form of a plaza made of four plots on the north corners of the southern blocks. Surrounded by high buildings the area is a void into the dense environment to bring in light and public space.

Even tough along the promenade there is continuous play of open and dense spaces, on the streets running north and south which are 10 meters wide on blocks with a distance of average 120 meters, there are fewer pocket parks with the intention to create a calm but dense urban compact environment to be released on the promenade.

AIRPORT PARK

After 20 minutes strolling on the promenade, the people arrive to the west end plaza opening up the view to the airport park.

The west end plaza is divided on two functions. On the south side, there is a public space with solid flooring for people to perform their favorite activities such as skating, dinning out in the terrace or simply hanging out. This public space enjoys the shade projected by the buildings behind it, making it an attractive place to spend the time. The north side of the plaza is filled with trees and playground as an extension of the wider airport park.

The airport park across the avenue has an area of 36,500 square meters including aN pond of 5,000 square meters, in a circular shape with 80 meters diameters. The function of this park is to create a buffer zone between the buildings and the airstrip where planes departure which is located at a distance of 350 meter from the promenade crossing at the avenue.

It is a park with abundant vegetation, to create a forest like feeling, diverse and dense.

ZONING RECOMMENDATIONS

HOTEL

Naturally being the site next to the airport there is demand for a hotel, such building should be placed along Air Force Boulevard for ease of access and as a landmark of the project. Best is to be located on the west side of the boulevard where the large blocks are adaptable for office and industrial places. This way the hotel will serve as a magnet for the locals and visitors to cross the boulevard while having fast and fun access to the rest of the neighborhood via the promenade. The hotel could host a conference center that will invite people all over the world to attend business events related to agriculture which are hosted regularly in the city of Culiacán.

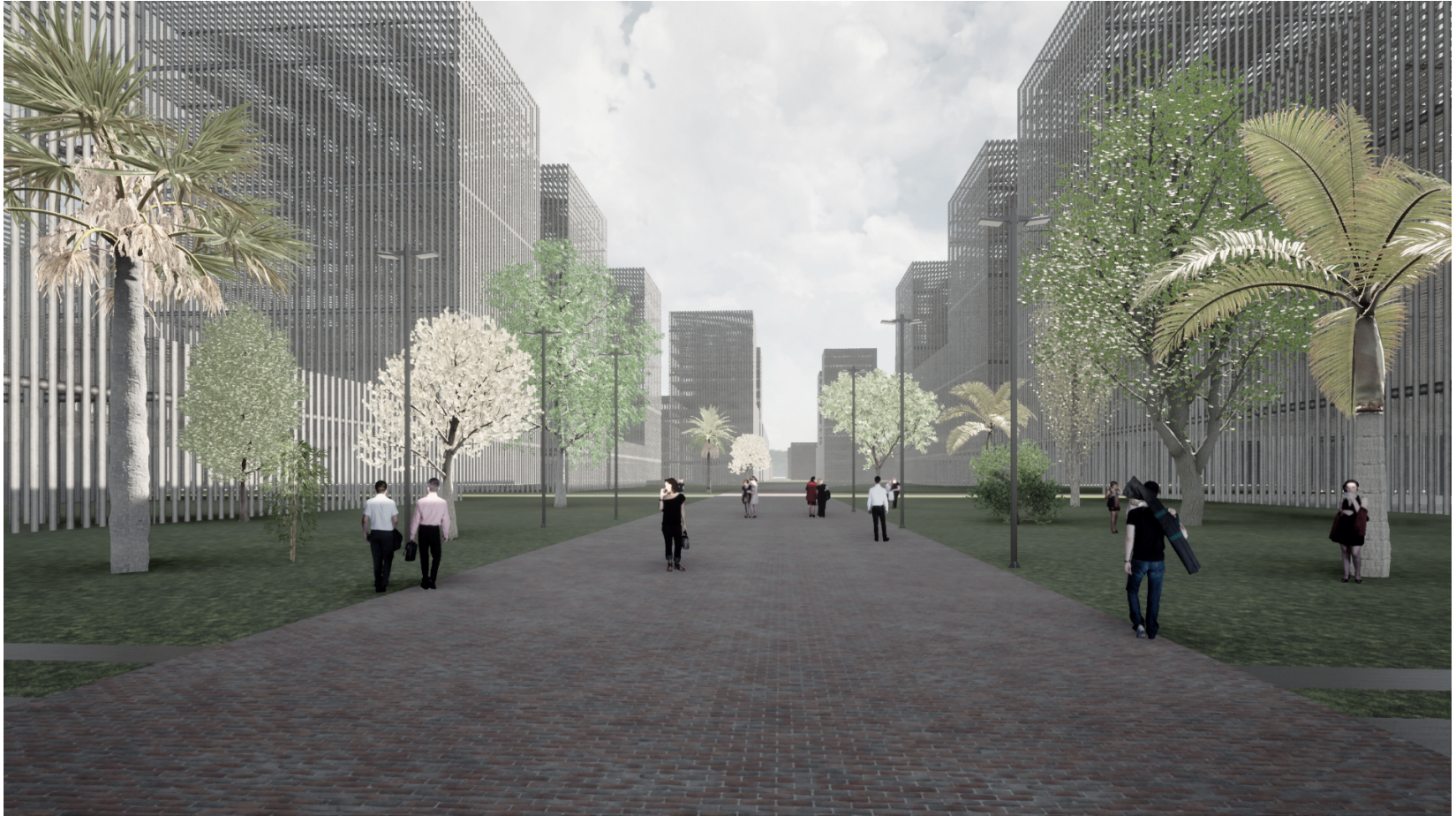
NORTHWEST OFFICE PARK

Facing the airport strip. At the core of the west side area with highest density is a perfect spot for student housing and cultural night life, young families and everyone who doesnt mind living on a vibrant quarter. The University is located on these area to support the rest of the economic activity and bring density and youth to the environment .

It is hard to imagine a park next to the airport strip, because the noise might seem unbearable but if designed properly the park filled with trees and enclosed with buildings it can be a successful end to the Central Park Avenue and a buffer to the rest of the west area. Plus the airport of Culiacán does not have flights during the night, so it is not a problem for residents to live there and enjoy comfortable sleep.

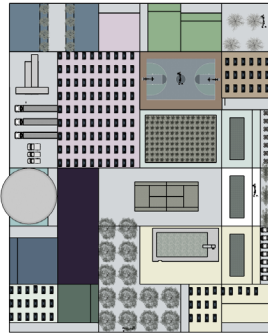
SOUTHEAST CANAL AREA

Lower density, walkability, schools neighborhoods, sport facilities , linear park, and waterfront public space. A wide park along the canal edge will serve as a buffer zone for the noise and visual pollution of the highway. In this area where some streets meet its end is the perfect place for families to thrive on a residential quarter because being in the edge gives them the privacy to feel at home away from the busy main avenues. The edge park might have a beach effect where the city meets the horizon of farm fields to contemplate. On the southern edge the wind will be strong, because of the vast emptiness of farm land in front of it, so the park filled with trees will not only slow down the wind but cool it too, so it enters the site streets more dispersed.

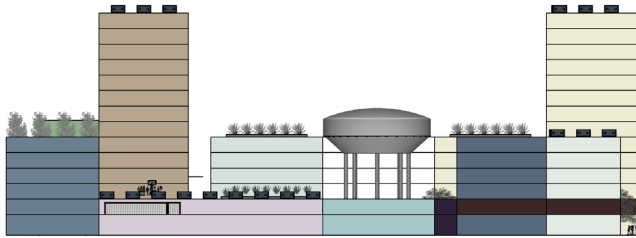


PROMENADE

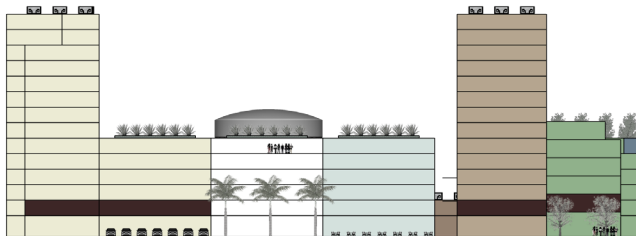
PUBLIC SPACE EXTENSION



BLOCK PROGRAM. DISTRIBUTION PLAN



BLOCK PROGRAM. WEST ELEVATION



BLOCK PROGRAM. EAST ELEVATION

MIX USE DIAGRAMS

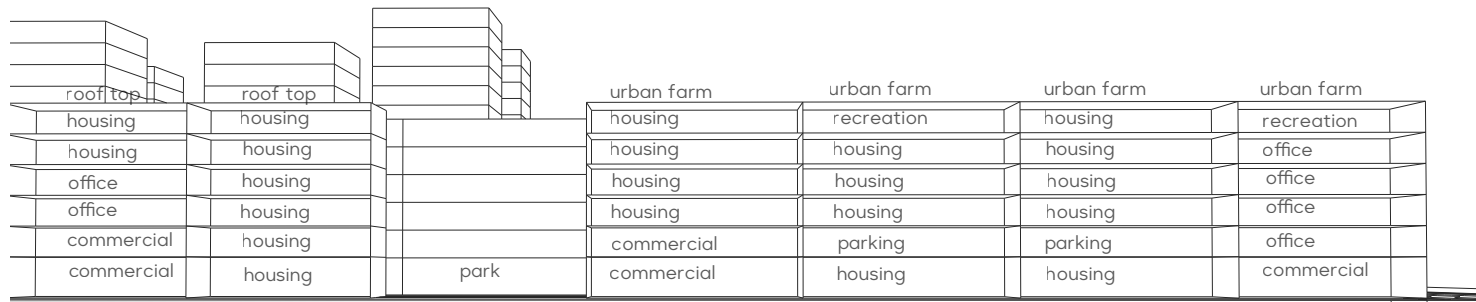
The key to an urban environment is diversity, of use and people, therefore in Natura the blocks are to be developed with mix functions, including housing, commerce, offices and industry. Providing space for public and greenery as well as making use of the roof and terraces. Taking the inspiration from the city centers of cities, where through time the blocks have build almost entirely with different functions, in Natura it is suggested by the regulation plan to embrace this idea and build diverse and vibrant cities.

COURTYARDS FOR SERVICE AND GREEN ROOF

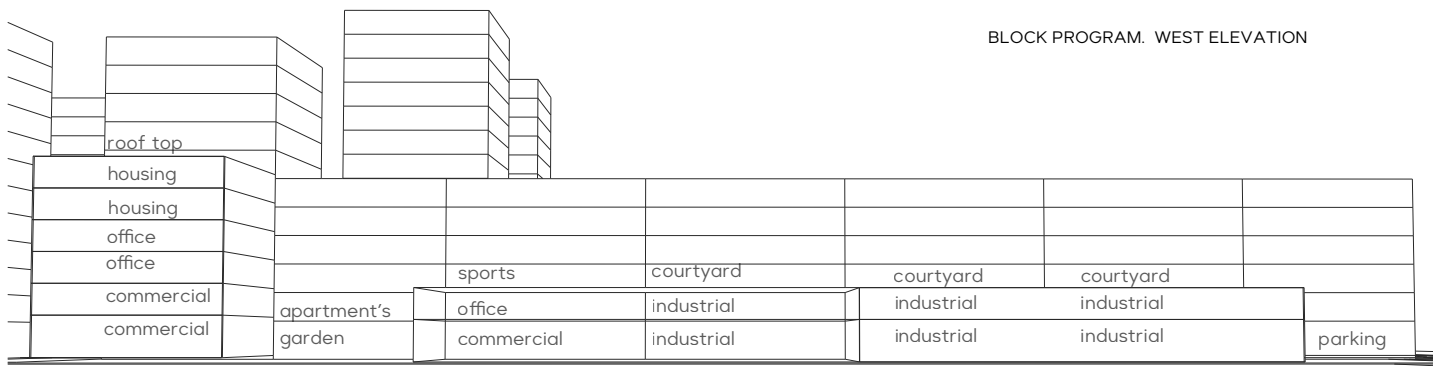
The logic of this puzzle is to make use of the interior courtyards until the third level to occupy with all functions that does not need to be on the street front but can operate comfortably and efficient in the back, such as supermarkets, cinemas, restaurant and hotel kitchens, sport facilities, parking spaces, etc. And make use of their rooftop as garden or renewal energy and resources infrastructure such as water capture and solar farms. The courtyard plots are fragmented and it is possible to develop the whole interior of the block into a single use, or might be purchased as an extension of a plot situated on the street front, to serve the front building as parking, storage, etc. It is not restricted to build entirely the courtyard plots. A developer could make use of it as the recreational area for an apartment building, or build the houses in the interior of the block while leaving its front plot empty for access and greenery. Every block is regulated so it leaves 20% of the front plots for public use, the form of pocket parks, plazas or extension of the promenade.

FLEXIBLE ZONING

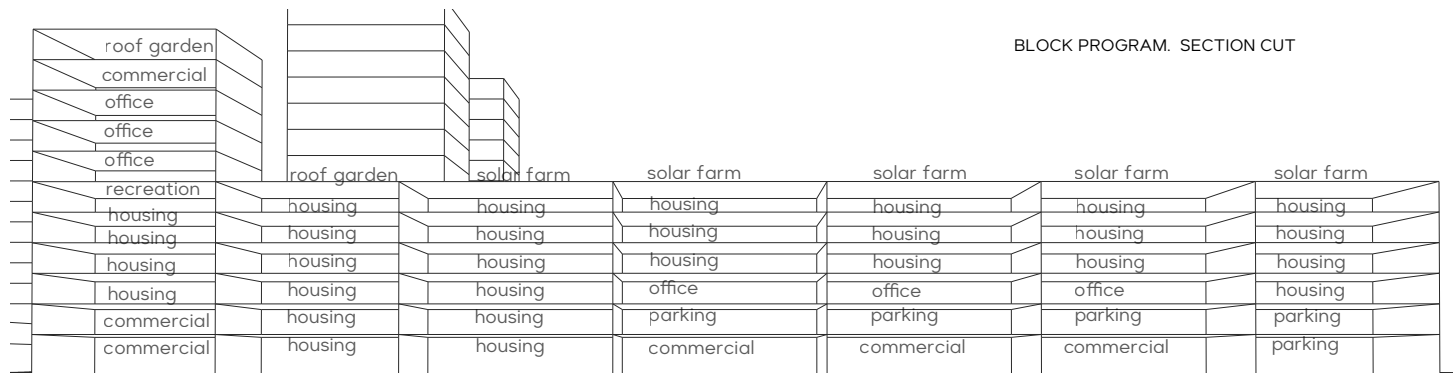
By having a flexible zoning plan, every plot can be developed in a desired way, therefore horizontal housing can be built, as a singles home in a plot or rown houses. There is a demand stated in the market research that around 30 % of the built area of Natura is dedicated to light industrial use, warehouses with areas from 1000 to 5000 m2. The placing of the industrial plots are strategically designed to avoid cargo trucks and other heavy vehicles from entering the downtown. In order to achieve light industrial use in the form of warehouses for manufacture, storage and distribution, the side of the blocks which have access to the avenues, consist of plots which are regulated to be unbuilt for the maneuver of trucks or parking lots. This allows warehouses in the courtyard on the blocks to operate comfortably without disturbing the street.



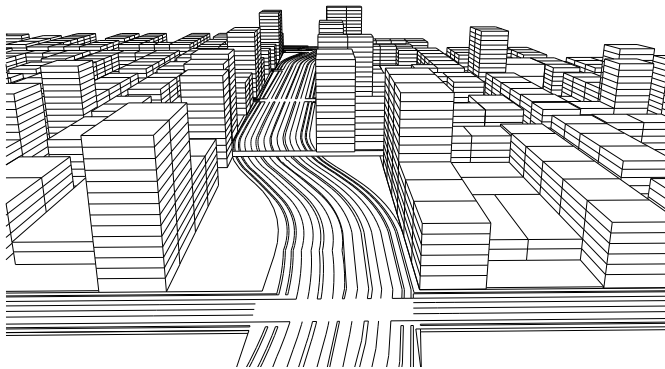
BLOCK PROGRAM. WEST ELEVATION



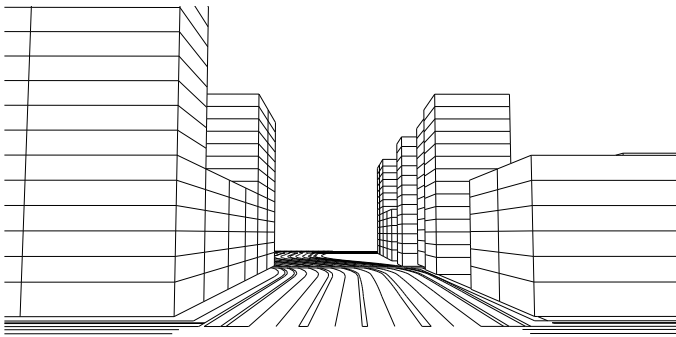
BLOCK PROGRAM. SECTION CUT



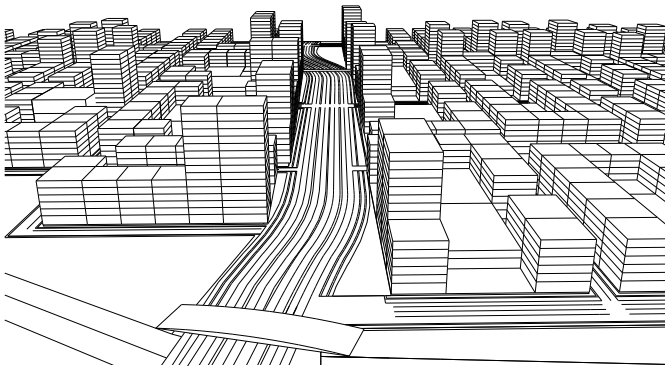
BLOCK PROGRAM. EAST ELEVATION



NORTH ACCESS OF AIR FORCE BOULEVARD



SECTION AT AVENUE INTERSECTION ON AIR FORCE BOULEVARD



SOUTH ACCESS OF AIR FORCE BOULEVARD

AIR FORCE BOULEVARD: 40 METERS WIDE

The fact that an 8 lane highway was built for fast access to the airport with no possibility of crossing it from east to west limits the connection between the two halves, therefore the previous proposal of the site was meant for the West side to be a fully logistics park and the East a mix use neighborhood that way the two halves did not had to interact, but as we develop this proposal we are trying to merge it into one and see how to connect it. The first though i have is a pedestrian bridge, because the length of Boulevard Fuerza aerea is 650 meters, so for cars to drive into the ends North of South in order to cross to the opposite side is not a big deal, but for people walking or cycling it can be an inconvenience.

My reason tells me that if anybody who wants to drive to the airport let say from 30 km away on the opposite side of the city of even 4 km from the adjacent neighborhood, that persons can organize to leave 2 minutes before for commuting in time to the airport and afford to have one traffic light stop, then at the center of BFA for people to pass by from east to west side hence incorporating the two halves into one. For this to happen the already built BFA will have to go through a modification to allow the cars and people to cross it from east to west. Which in a project of these size and cost such modification is not a problem and will determine the holistic functioning of the project.

ADAPTING THE BOULEVARD FOR PEOPLE

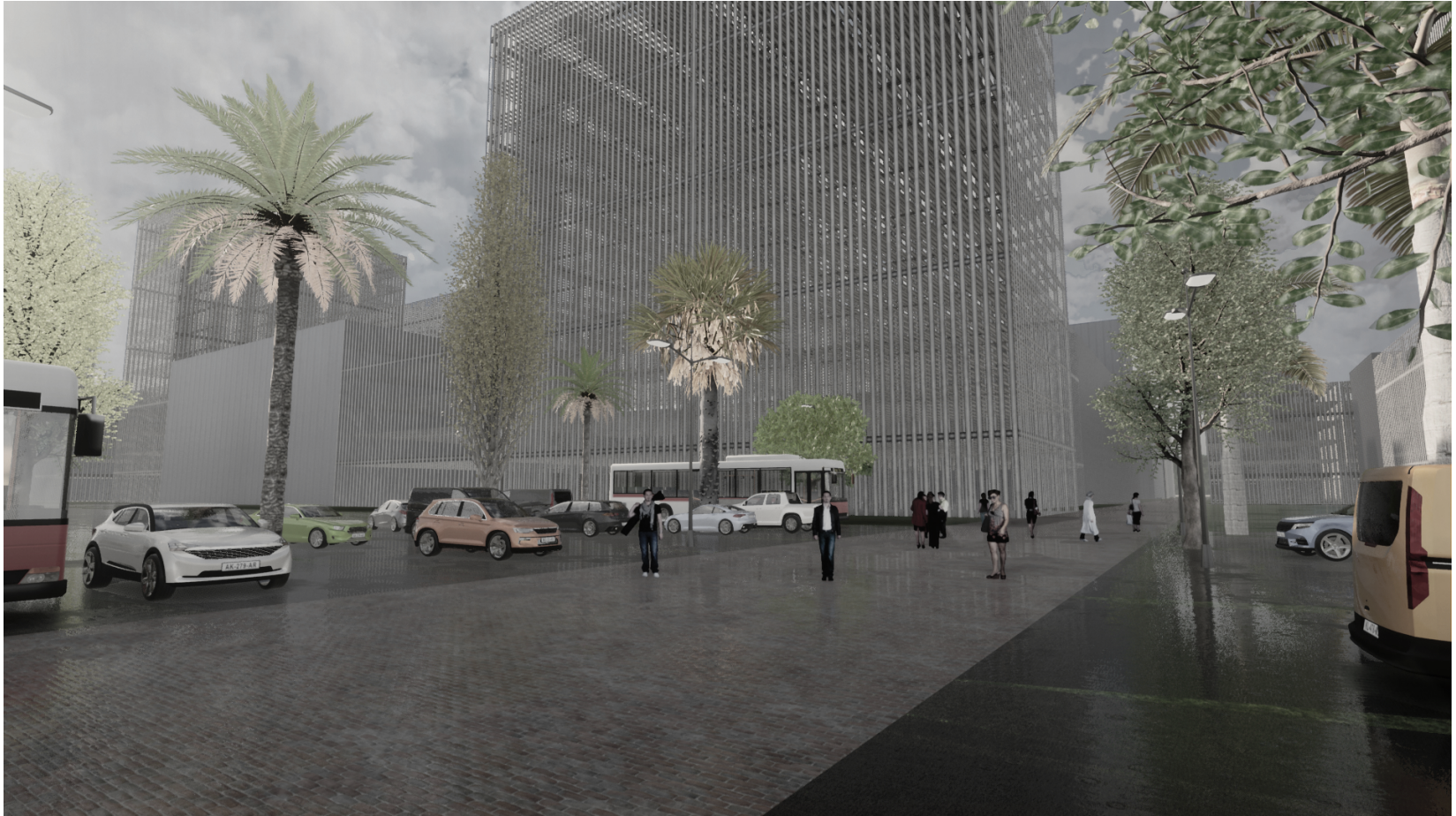
The modifications for the boulevard are primarily consisting in reducing the width of the median strip to make a more compact streetscape making cars slow down as they drive through and giving space for one bicycle lane on each side of the street.

By placing trees along the sidewalk and median strips we reduce the overall heat reflection of the boulevard area, to avoid 26,000 square meters of plain concrete overheat the neighborhood while reducing glare and creating a more pleasant streetscape.

The speed of traffic varies from the middle 4 lanes being the fastest at a recommended speed limit of 60 km/h and the side lanes which next to the sidewalk and serve the bus line, a limit of 30 km/h.

The sidewalk is divided by the bicycle lane, separating the area next to the facades of buildings and the sidewalk area where the bus stop is located next to the street. On this area bicycle parking racks will be located as well as free space for commercial use such as street food for example.

In the center of the boulevard where the 4 fast lanes running on opposite direction meet, there is no tree but only lighting on this median strip, to clear the view for cars and allow more light penetrate on the street.



PROMENADE AT AIR FORCE BOULEVARD

FRIENDLY CROSSING CONTROLLED BY TRAFFIC LIGHTS



SECTION OF PROMENADE

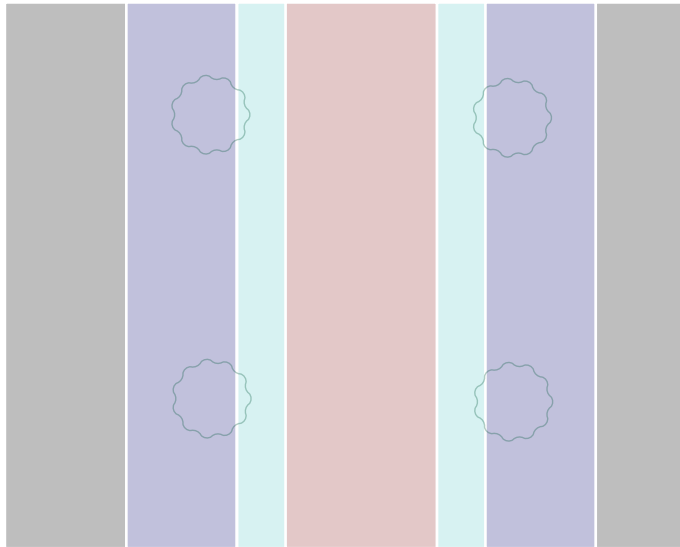


DIAGRAM OF STREET FUNCTIONS

PROMENADE: 10 METERS WIDE

The proposed layout of the promenade is meant to change when expands into plazas or parks but in general for efficiency the following design of circulation is planned.

Sidewalks are generous size, but all extra space needed for tables on restuarants and cafes are located on the extensions of public space along the promenade.

Two lanes of trees are proposed to provide shading to the pedestrians as well as to improve the view when strolling. Avoiding long and narrow sights. The material of the ground for the promenade is of great importance, and the size and texture of the components should be suitable for its purpose. To avoid heat reflection when walking along the buildings, the sidewalks are meant to be firebrick. The installation of the bricks should be compact enough to prevent vibration when skating or cycling but allow rainwater to penetrate the soil.

■ sidewalk:	240 cm
□ tree/lights:	60 cm
■ scooter / skate:	900 cm
■ bicycle:	100 cm
■ bicycle:	100 cm
■ scooter / skate:	900 cm
□ tree/lights:	60 cm
■ sidewalk:	240 cm



SECTION OF STREET

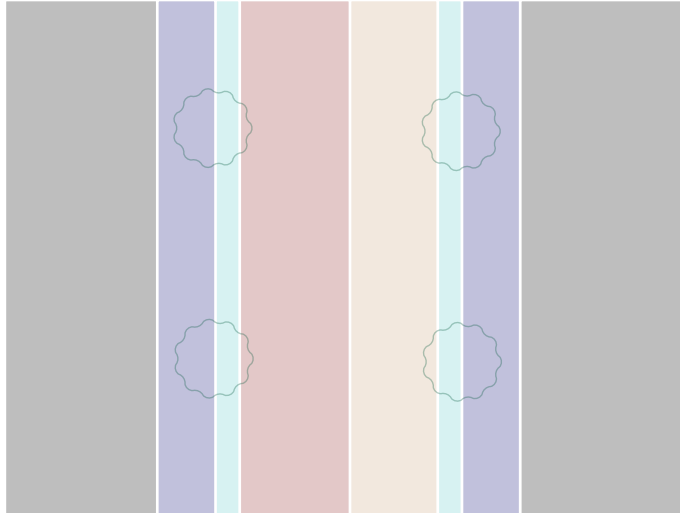


DIAGRAM OF STREET FUNCTIONS

STREETS: 10 METERS WIDE

Running parallel to the main boulevards, streets are meant to be one direction only alternating between north and south one street after another. This configuration allows people who live within the facade of the blocks facing the streets to ride on car easily from their property while minimizing the traffic along the streets.

On streets there is no assigned lane for bicycles but they share the space with the car traffic lane, while leaving the parking lane for its sole purpose. Due to the size between buildings, 10 meters, the sidewalks are usually shaded naturally by the building along them. This helps the place be more attractive to walk.

■ sidewalk:	170 cm
□ tree:	60 cm
■ car traffic:	300 cm
■ car parked:	240 cm
□ tree / light:	60 cm
■ sidewalk:	170 cm



STREETS RUNNING NORTH AND SOUTH 10 METERS WIDE

SHADED SIDEWALKS, GREENERY ON NICHES



SECTION OF STREET

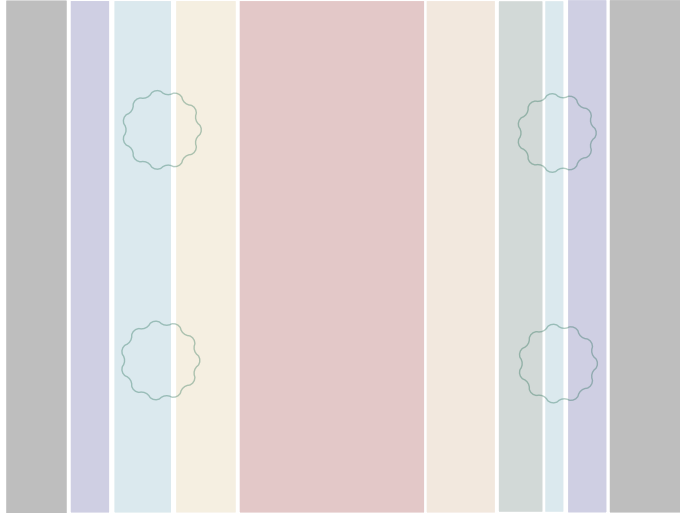


DIAGRAM OF STREET FUNCTIONS

AVENUES: 20 METERS WIDE

Car traffic, public transport and bicycle lanes, is organized on a circuit composed of two loops intersecting each other, and connecting with the crossing boulevards of the city .

The loops perimeters are located on the edges of the site and connecting in the middle, surrounding the blocks. Leaving the interior of the blocks mostly for pedestrian use.

■ sidewalk:	170 cm
■ bus stop /sw:	210 cm
□ tree / light:	60 cm
■ bus lane:	300 cm
■ car traffic:	300 cm
■ car traffic:	300 cm
■ car parked:	240 cm
■ bicycle lane:	180 cm
□ tree / light:	60 cm
■ sidewalk:	170 cm



SECTION OF STREET

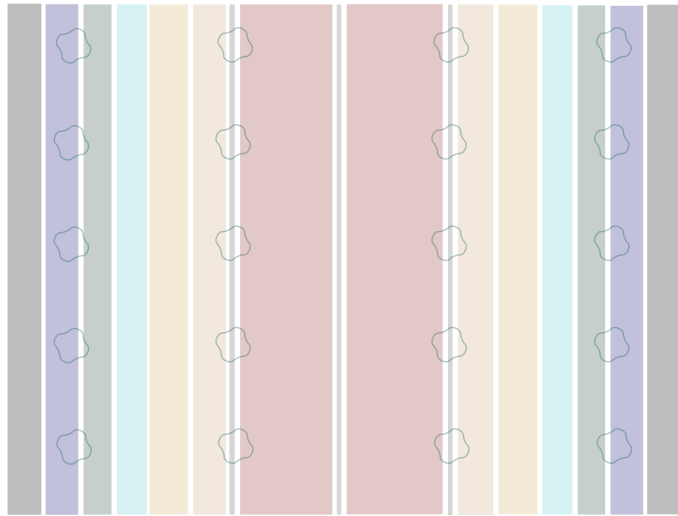
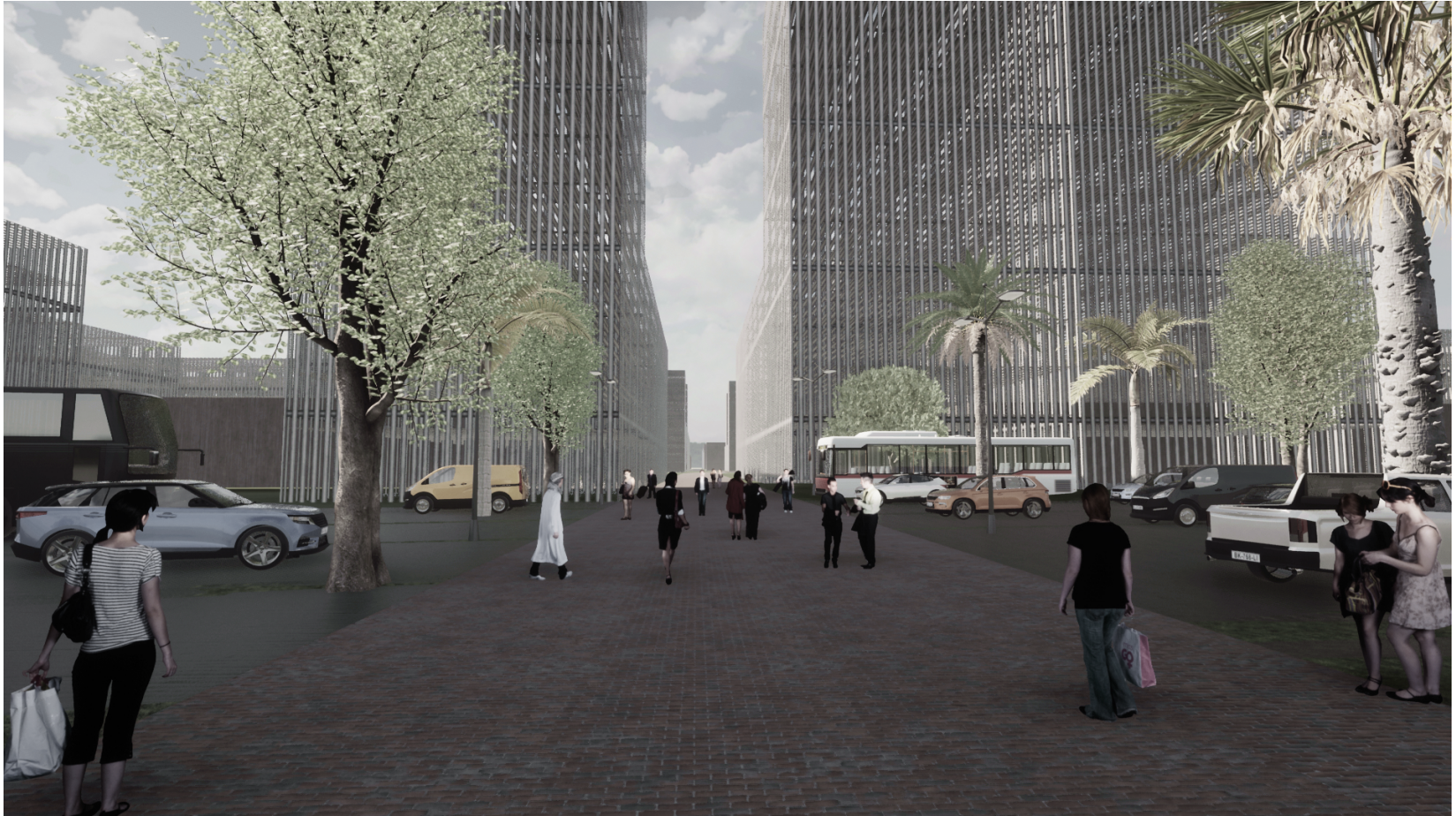


DIAGRAM OF STREET FUNCTIONS

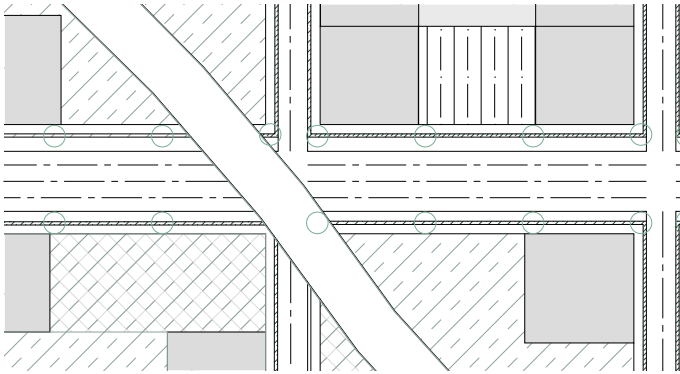
AIR FORCE BOULEVARD: 40 METERS WIDE

■ sidewalk:	260 cm
□ tree:	60 cm
■ bicycle lane:	180 cm
□ light:	30 cm
■ bus stop /sw:	240 cm
■ bus lane :	300 cm
■ car traffic:	300 cm
□ tree:	60 cm
■ car traffic:	300 cm
■ car traffic:	300 cm
□ light:	40 cm
■ car traffic:	300 cm
■ car traffic:	300 cm
□ tree:	60 cm
■ car traffic:	300 cm
■ bus lane :	300 cm
■ bus stop /sw:	240 cm
□ light:	30 cm
■ bicycle lane:	180 cm
□ tree:	60 cm
■ sidewalk:	260 cm

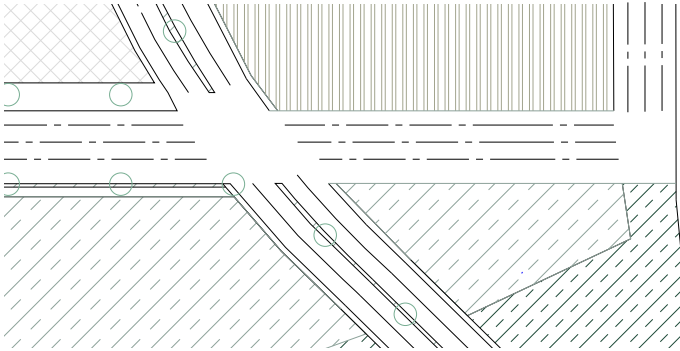


INTERSECTION AT AIR FORCE BOULEVARD AND PROMENADE

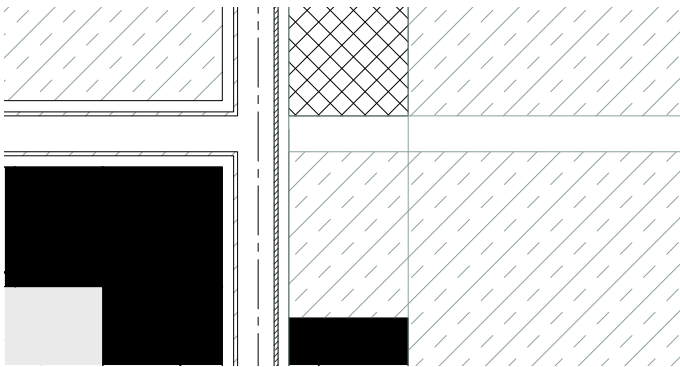
TRAFFIC LIGHT CONTROL FOR EASY AND SAFE CROSSING



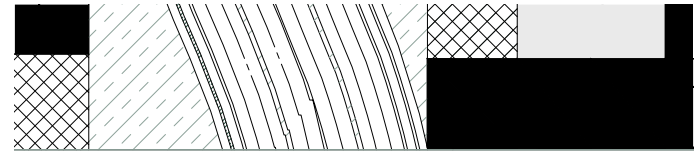
INTERSECTION OF PROMENADE AND AVENUE



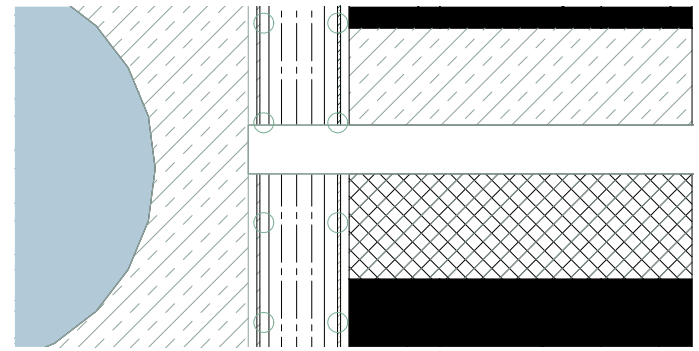
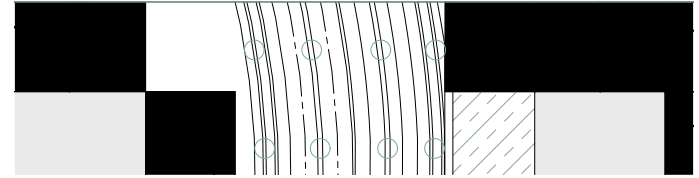
INTERSECTION OF AVENUE AND EXISTING BOULEVARD ON SOUTHEAST END



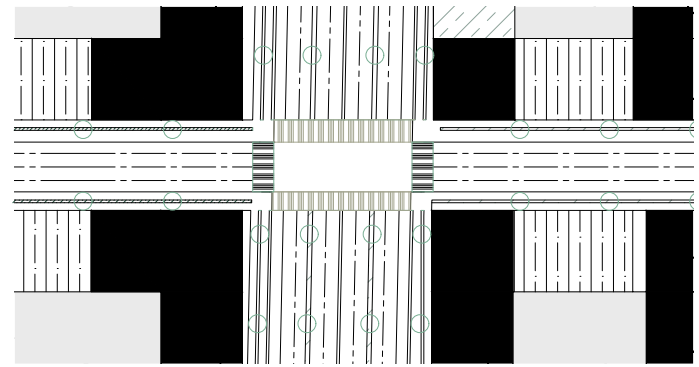
INTERSECTION OF STREETS AT CENTRAL PARK



MAIN INTERSECTION AT PROMENADE AND AIR FORCE BOULEVARD



INTERSECTION AT PROMENADE AND AVENUE AT WEST AIRPORT PARK

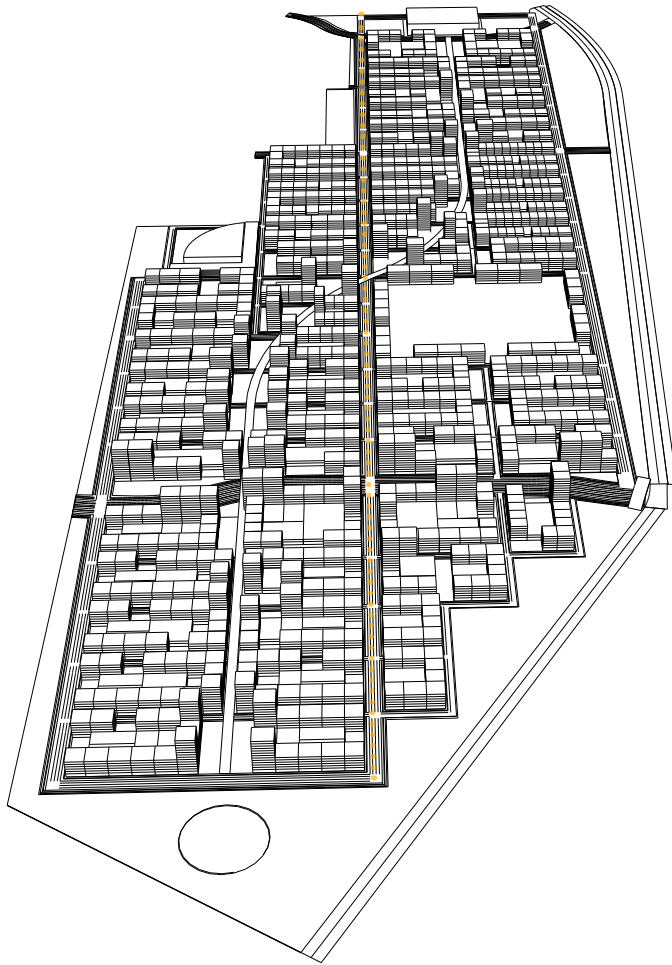


INTERSECTION AT AVENUE AND AIR FORCE BOULEVARD



CENTRAL INTERSECTION AT PROMENADE

DIVERSITY OF MATERIALS ON STREET



MAIN AVENUE FROM WEST TO EAST



20 M WIDE AND 1685 M LONG



BUS AND BYCYCLE LANES ON AVENUES

ACCESS TO COURTYARDS FOR INDUSTRIAL USE

BUILDING REGULATIONS

Buildable use and plot by areas. Plots should leave 20 % of area unbuilt on ground floor to provide greenery, public space or usable front for commercial purposes.

The maximum volume of the buildings allowed are specify on the massing sections, the total height varies from 3, 6 and 14 stories.

Plots on the perimeter of the block should leave minimum 1 meter setback for the overhangs such as balconies or shades. Which should not extend out of their property boundaries. This is to avoid objects falling or water dripping from the balconies into the sidewalks.

ROOF AREAS

30% of the roof should be usable for any activity desired, such as recreational, terrace, sports, etc. Buildings should make use of 40% of their roof to generate electricity via solar panels. 20% of the roof is meant to be use for utilities, such as air conditioning, water retention, etc.

At least 10% of the roof area is to be use for greenery.

PARKING LOTS

Open air parking lot on ground floor cannot exceed 30% of the plot.

A plot can be entirely use as parking lot if built vertically, minimum 2 stories. Buildings should be design to provide at least one parking space per every 50 meters, meaning that an office of 75 meters needs 2 parking spaces or an apartment of 35 square meters needs 1.

Commercial buildings should have parking space accesible from the street but following the regulation that it cannot be more than 30% of its ground area, therefore it is encourage to design buildings with access from the street guiding the cars to either underground parking areas or assigned stories above ground level for parking purpose.

ADVERTISEMENT

Building facades can display the names and logos of their businesses or housing titles but the graphics cannot exceed a size of 1.5 meters of height and 3 meters wide. The design is subject of approval by the neighborhood commite. Buildings facades cannot display advertisement which is not directly in relation with the property owners or tenants. Therefore no commercial advertisement is allowed for third parties. Windows cannot be use to display advertisement neither from the inside or outside by using translucent materials.

PROGRAM OF BUILDINGS

In order to enhance the urban environment in Natura, properties cannot be assigned solely to specific use but must at least have two functions, for example an apartment building must dedicate at least 20% of its buildable ground area for a secondary function, either commercial, educational, institutional, cultural, recreational, etc.

PLOTS IN COURTYARDS

Plots in the courtyard with access to the streets are meant to be use for light industrial purposes, such as distribution centers, storage, manufacture of non pollutant activities, such as carpentry, welding, computer and electronics, vehicles and other mobility devices.

Services of massive scale can also be located within the courtyard plots such as supermarkets, cinemas, nightclubs, religious places or conference centers. Courtyards can also be purchased by the owners of perimeter plots in order to extend their property towards the inside. In this case, it is possible to build accomodations such as houses but every unit should count with natural light and the facades within themselves or with other buildings should not be closer than 6 meters. The privacy of the dwellers and neighbors is to be taken into account and every project is subject of approval by agreement of the block's properties owners.

Courtyard plots must have green roofs.

STRUCTURE AND MATERIALS

Buildings should be constructed with materials and techniques approved by the city codes. Temporary buildings are permitted only when justify and previously approved by the regulatory commite of the neighborhood.

It is posible to buy a plot and live on a mobile or prefabricated home, as long as it counts with all necessary infrastructure such as water, electricity, sewage, etc and it complies with the regulations previously stated.

GATED COMMUNITIES

It is not prohibited to build gated communities within the neighborhood as long as it does not extend 20 houses and the perimeter or their properties are not walled with solid materials. They can use fences but the height cannot extend 2 meters.

SUBDIVISION OF PLOTS

Plots can be subdivided to be sold separately but the facade lenght of the individual plot cannot be less than 7 meters.

Plots cannot be subdivided if they do not have access to the street.



STANDING OVER BUILT COURTYARD

SPECIFICATIONS

DENSITY: 15,000 - 20,000 PEOPLE

DIMENSIONS OF SITE: 1950X600 M

TOTAL SITE AREA: 950,000 M²

TOTAL GREEN AREA: 336,854 M²

GREEN BELT: 222,592 M²

TOTAL CIRCULATION AREA: 214,583 M²

TOTAL GROUND PLOT AREA: 398,563M²

GROSS FLOOR AREA PLOTS (ON ALL LEVELS): 1,970,625 M²

60 BLOCKS (AVERAGE SIZE 127X62M)

723 PERIMETER PLOTS (AVERAGE SIZE 20X18M)

150 COURTYARD PLOTS (AVERAGE SIZE 90X22M)

MEDIAN BUILDING HEIGHT: 5.08 FLOORS

8 AVENUES (20 METERS WIDE)

17 STREETS (10 METERS WIDE)

1 BOULEVARD (40 METERS WIDE)

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45 METERS SKYLINE REFERENCE:
MAISON HERMÈS IN TOKYO, JAPAN. DESIGNED BY RENZO PIANO.

NATURA 2035
PLACES TO LIVE, WORK AND PLAY

THE END.

