

URBAN RESILIENCE IN THE POST-COVID CITY

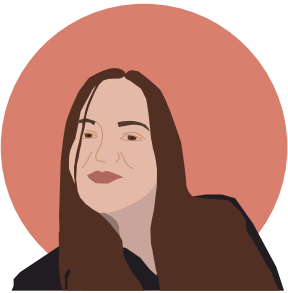
QUARTIERE SAN MARCO - MESTRE - VENEZIA - ITALIA

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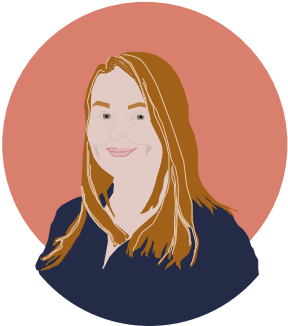
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PPCEL -Planning and Policies for Cities, Environmental and Landscape

Workshop 2020: Resiliencia urbana en la ciudad post-covid

INTRODUCTION

According to data of Inhabitat, 95% of positive cases of COVID-19 are located in the cities. This makes us understand that cities in their current state are not ready for such dangerous event. That maybe our traditions and standards of building and developing cities are not anymore valid and correct.

The covid health emergency has led to rethinking the spaces of the city and their planning in search of places where you can be outdoors, have social interactions in complete safety. This leads us to an attempt to update an approach to developing of the cities.

The need to rethink spaces, services and mobility in terms of contagion containment were our key point on which we carried out the following work.

Our attempt was made in neighborhood in Mestre, Veneto. The region of Veneto is characterized as one of the regions that suffered more from the virus in Italy.

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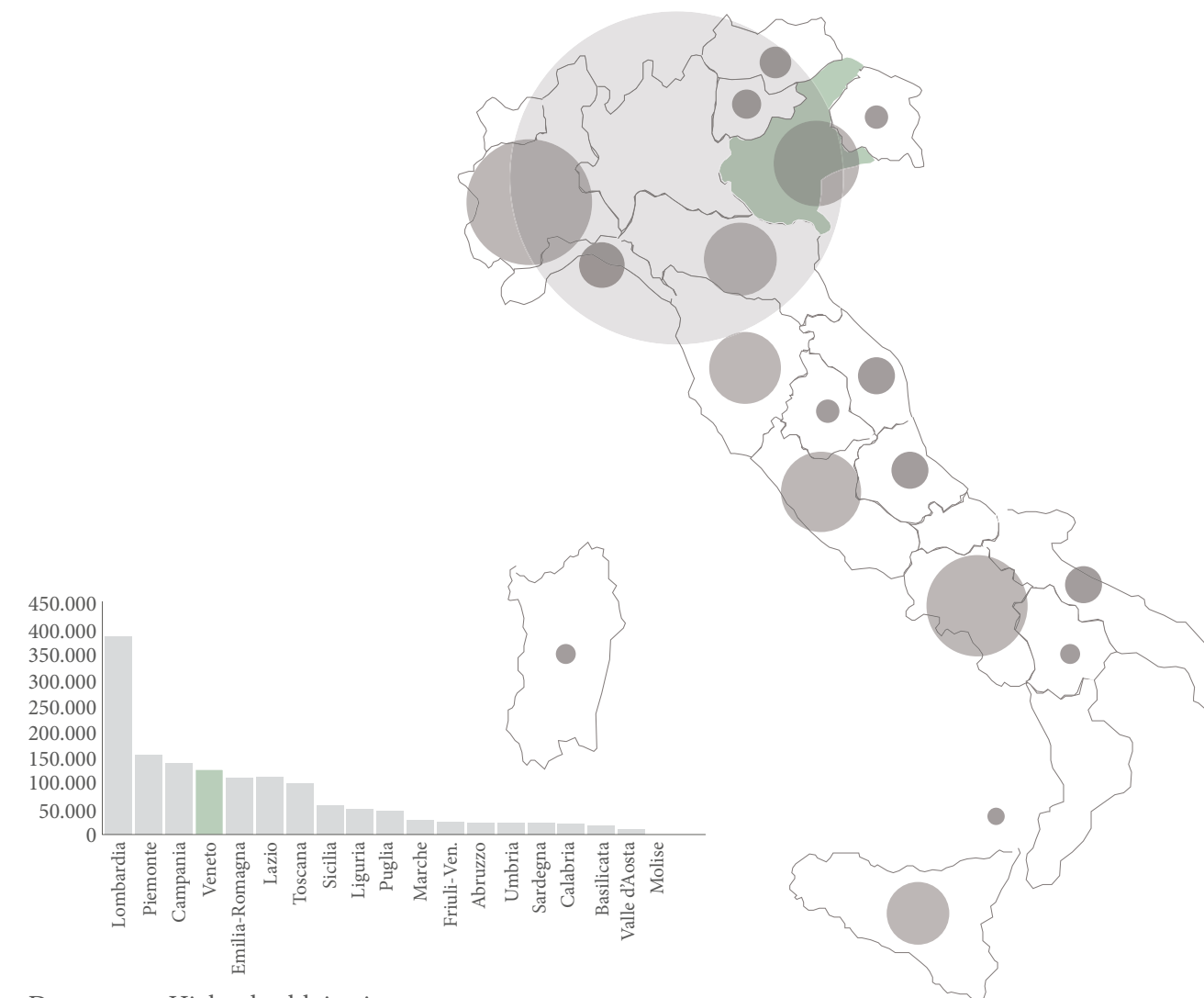
INTRODUCTION

Our research work deals with the pandemic situation of COVID-19 in the Italy, in particular in the Metropolitan City of Venice. Our job is concentrated on more deep analysis in a neighborhood of Mestre located to the northeast.

As you can see, the Veneto region, which is in the north-east, is one of those regions that are the most affected by the virus.

In the following pages, we deal with the analysis of the social and health situation which are influenced by the number of infections in continuous variation.

Our research focuses on capturing the situation in the city before pandemic, understanding the effects of pandemic on the city and its lifestyle. Then we try to propose a vision of future life, after pandemics. We make an assumption of kind of life it will be and how city has to adapt for it, to make citizens safe.



Data source: Higher health institute
dated on 6 November 2020

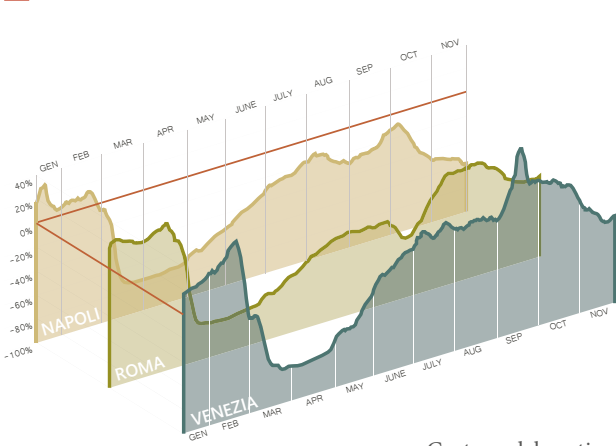
1.

CITY REACTION FROM THE COVID-19 PANDEMIC ANALYSIS OF THE TERRITORY

ITALY

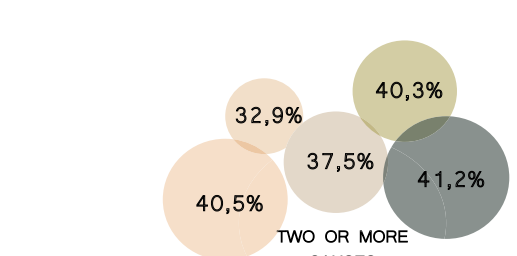
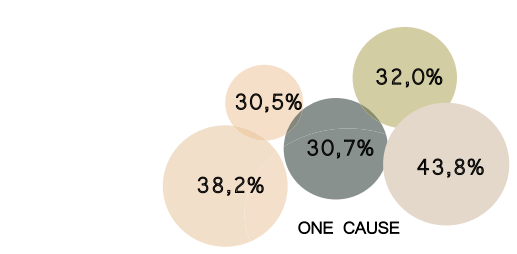
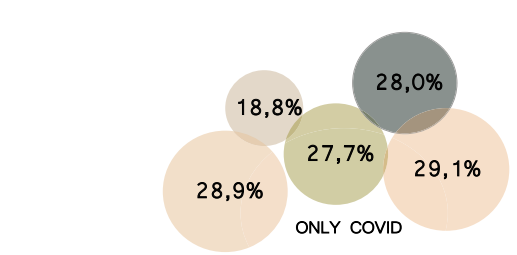
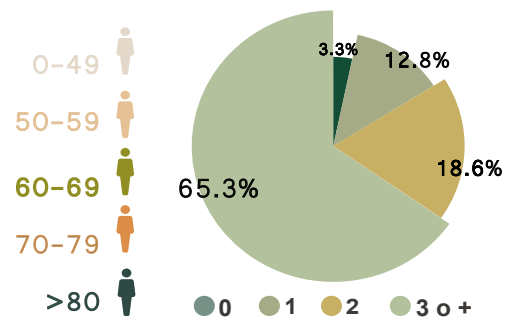


PUBLIC TRANSPORT



Custom elaboration
Data source: Open data of Moovit

AGES AND NUMBER OF DISEASES



Custom elaboration
Data source: Municipality of Health

Italy is one of the countries that are most affected by the COVID-19. For a long time it was on top of European countries judges by amount of new positive cases for day.

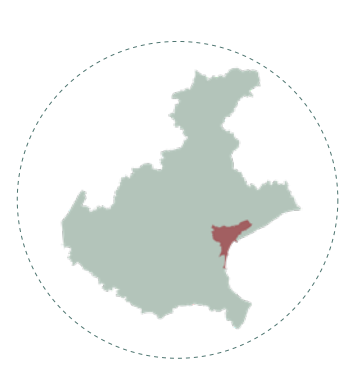
In the page it's presented the analysis of affection on disease of the population and public transportation.

The following graph represents age of people and what number of diseases they have besides Coronavirus Disease.

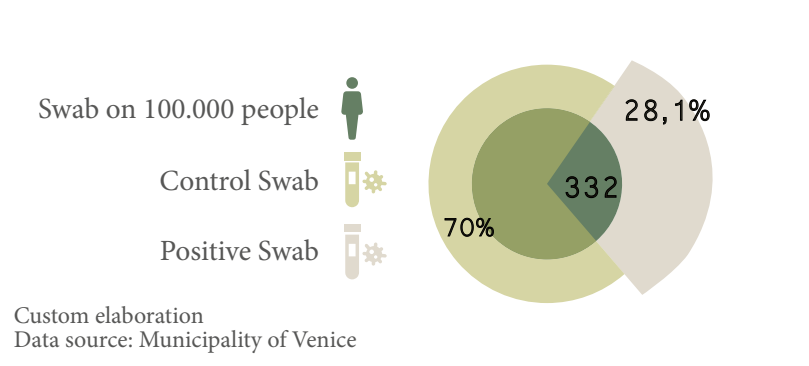
Then it is presented a percentage of people and their variety of diseases.

The graph of public transport use illustrates a big difference of number of users before lock-down and after. We can see a high decrease of the users on example of following cities: Napoli, Rome, Venice. Also it shows a tendency of decreasing of usage of public transportation with second wave of infection.

VENETO

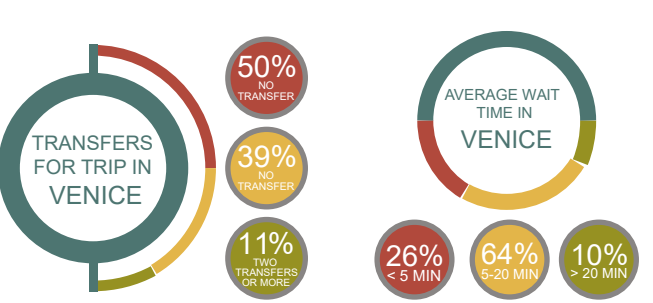
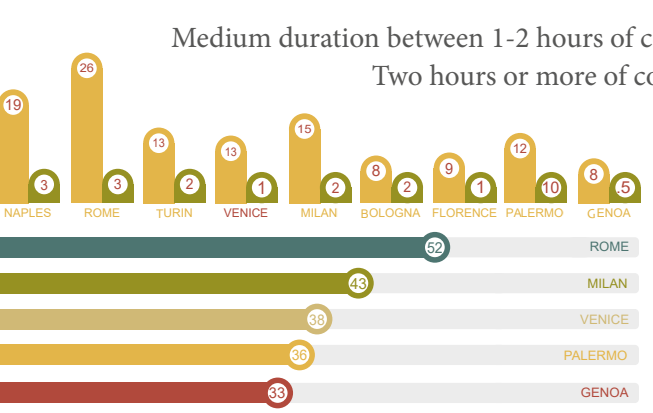


POSITIVE AND NEGATIVE SWAB



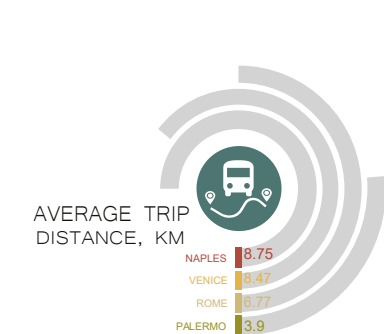
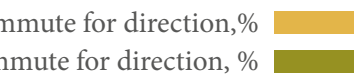
Custom elaboration
Data source: Municipality of Venice

PUBLIC TRANSPORT IN VENICE



Publis transport use monitoring
Data source: Open data of Moovit

LONG TRAVELS



This page illustrates a situation of Veneto region. This region is on second place of level of effection by virus, after Lombardy.

Positive and negative SWAB graph shows amount of positive tests on 100 000 people. Also it presents percentage of control and positive tests.

The info graphic of public transportation allows us to understand how public transport used to work in region and in Venice in particular. This information provides us an understanding of causes of such tremendous spread of the virus.

For example, the information of amount of transfers for a trip makes us understand if there will be more contacts between passengers. Information of average waiting time makes us see how much time people would spend together on the bus stop or in bus.

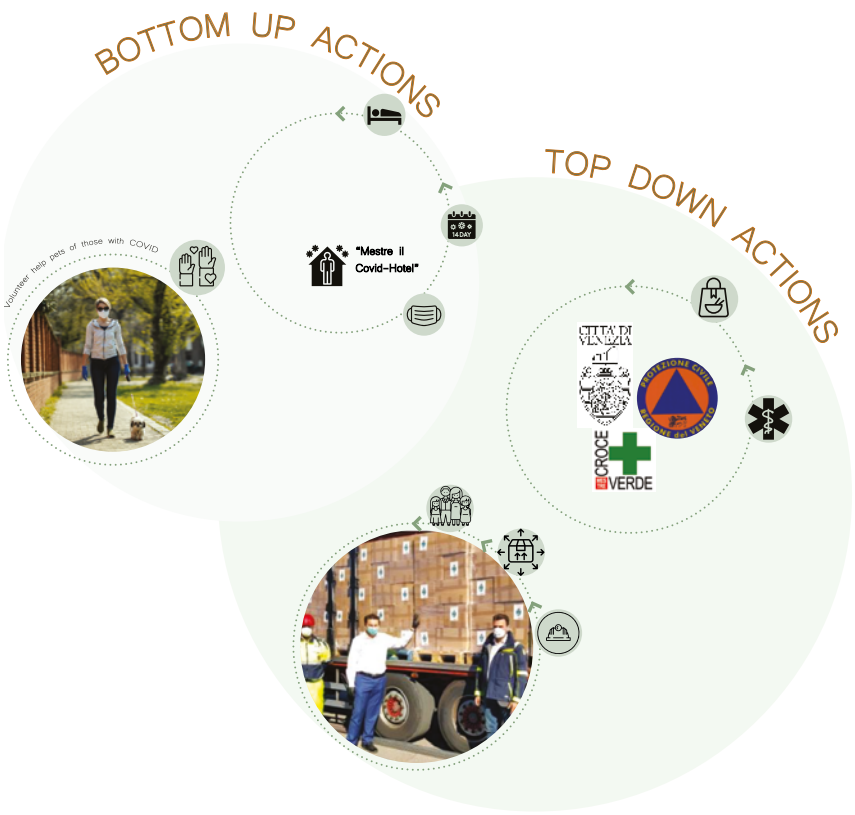
EMERGENCY MEASURES

The graph presents the growth of number of positive cases of COVID-19 for day and measures of the state and region applied on territory.

There are two main ways used by municipality to prevent the spread of the disease: measures and regulation of activities. Main measures used are: using of a mask, keeping social distance and fill a self-certification for all movements. Regulations of activities touched all aspects of peoples daily life: from cultural and sportive activities to transportation and education.

On this graph we can see that even though in second wave of infection there are a lot more new cases of disease, measures of the state and region are a lot softer than before.

However, even though the first wave was rather strict, the essential services, such as provision shops, chemistry, public transport were never completely forbidden.

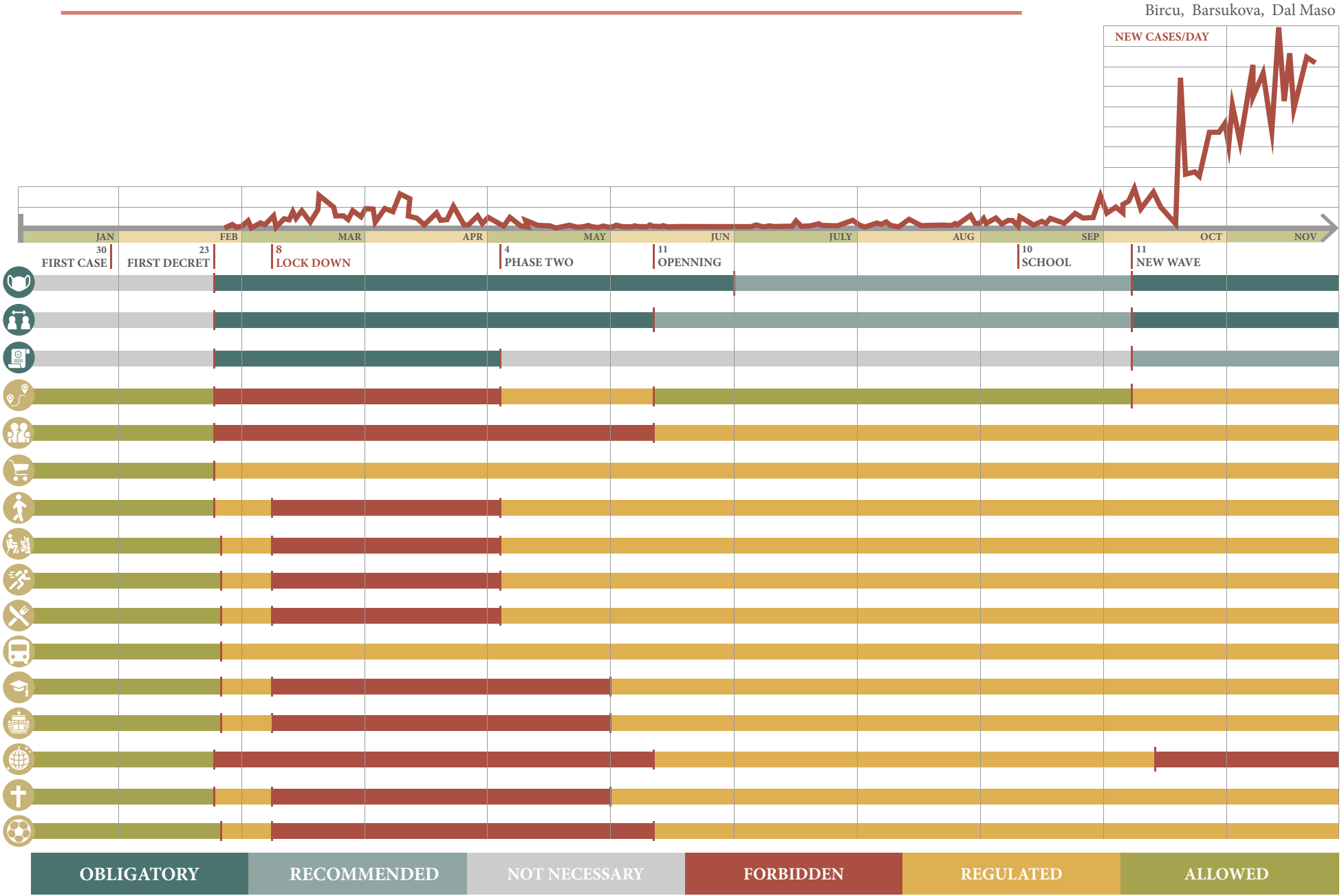


MEASURES

- Wearing a mask
- Keeping the distance
- Self-certification

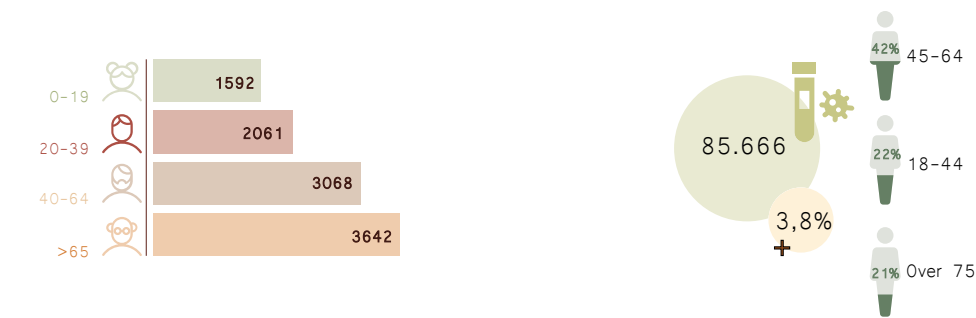
ACTIVITIES

- Travel between regions
- Gatherings of people
- Physical activity outside
- Walking
- Pre-school education
- Malls and supermarkets
- Catering activities
- Public transportation
- Higher education and school
- Cruise liners
- Entertainment and culture
- Religious and social events
- Team sport

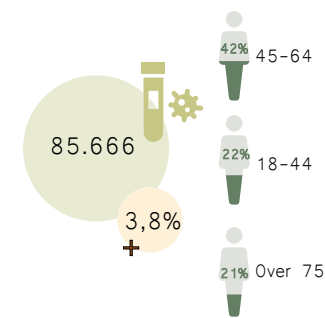


METROPOLITAN CITY OF VENICE - ULSS3

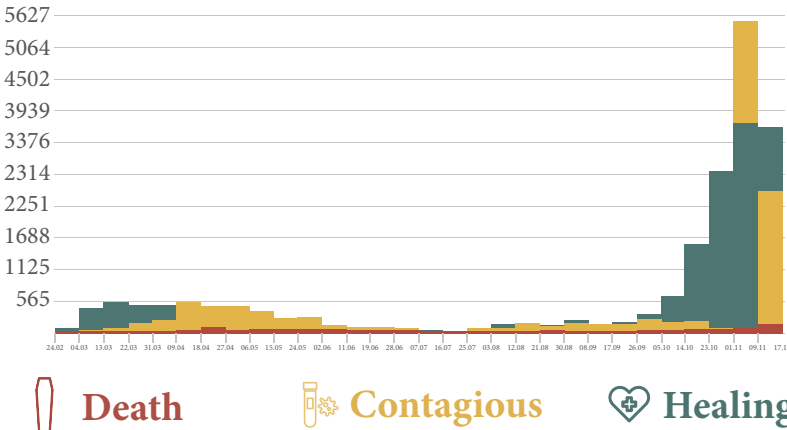
SWAB IN ULSS3



POSITIVE AND NEGATIVE SWAB



POSITIVE AND NEGATIVE SWAB



COVID monitoring
Data source: Higher health institute, Ministry of Health

Our study district is located within the ULSS 3 health district characterized by a strategic subdivision such as: Chioggia District, Venetian District (Islands) Venetian District (Mainland, Marcon and Quarto d'Altino) Mirano and Dolo District.

The neighborhood chosen for the study refers to the mainland district.

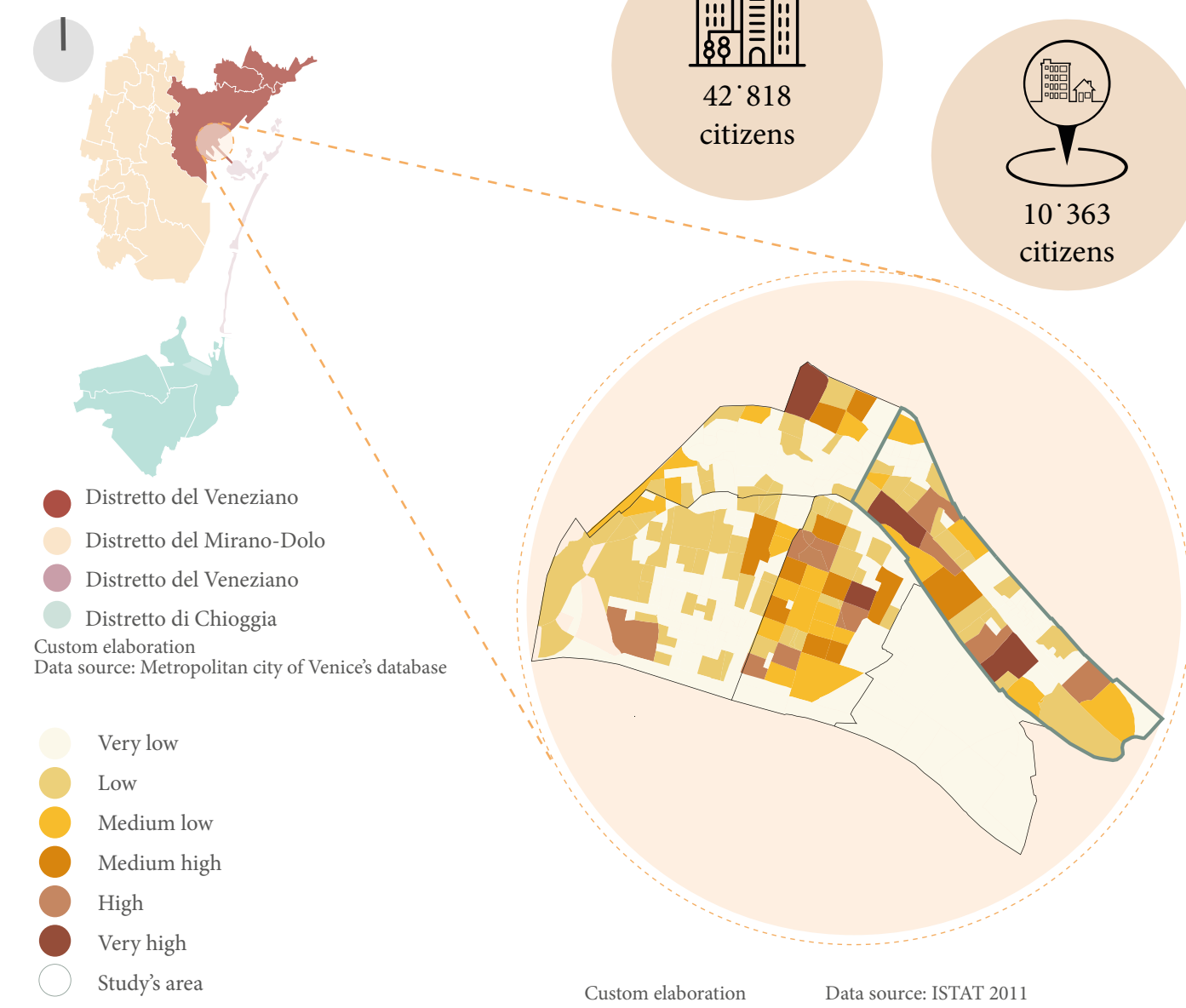
Graph presents the age of residents in the district. We can see that major part of them are senior, which makes us understand a higher danger for the district.

According to graph on the lower left, we can see that percentage of death cases is lower than healing one.

“Reasons for Choosing the neighborhood
-Overlooking the outside of the city;
-Presence of the tram as a fast means of travel and connection
-Neighborhood with high residential presence

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RESIDENT POPULATION DENSITY



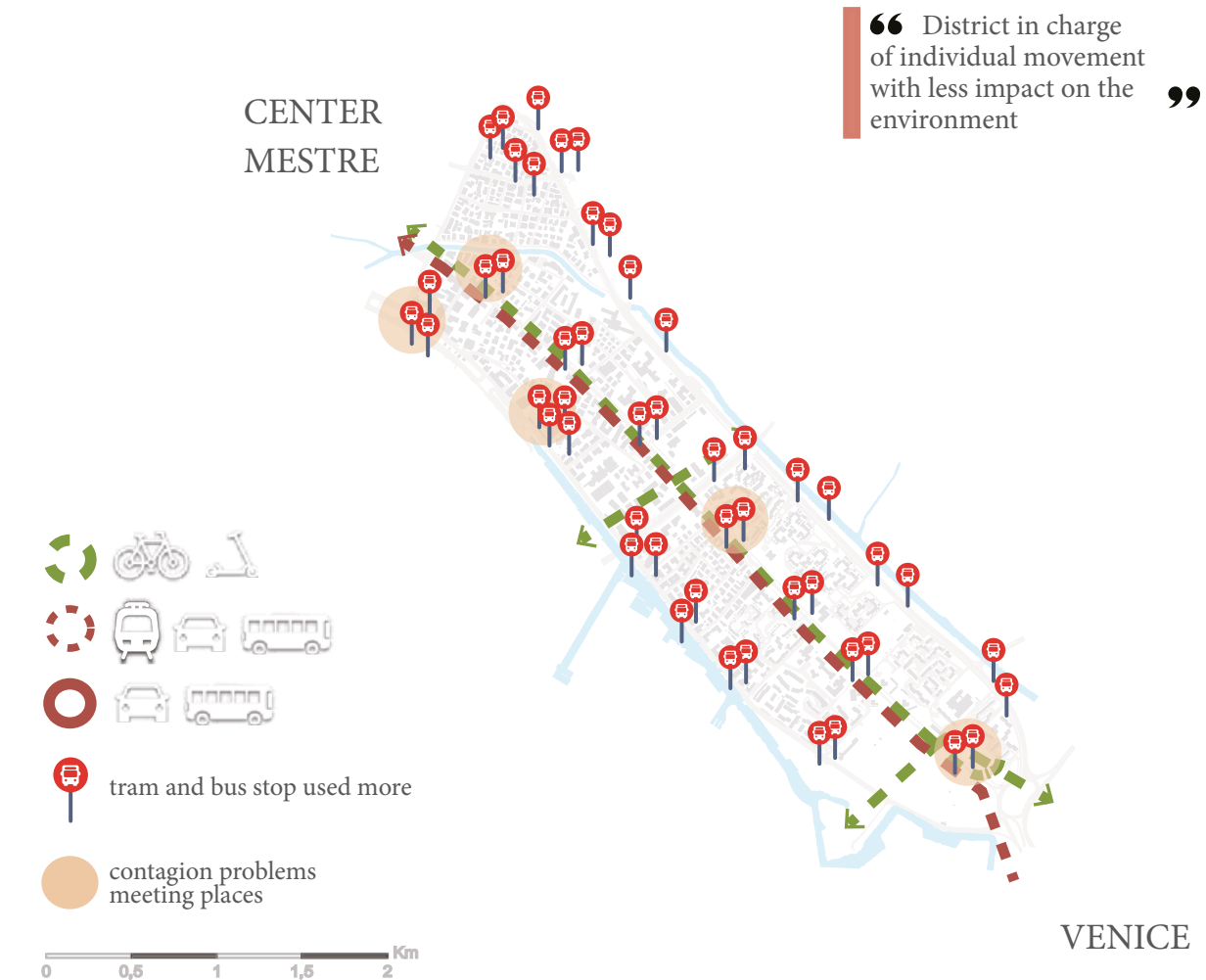
The data used for the analysis of study neighborhood belong to a larger scale than the entire Venetian district. It has to be cleared that the age group most affected is between the ages of 45 and 64. This category of age is the most spread in the city.

After the acquisition of health data it was carried out a comparison with the population density in the neighborhoods of Mestre concerned leading to the conclusion that the San Marco district, of our main interest, is one of the most populous.

It is provided information of density of population within Mestre. This analysis made a clear choice of choosing a study area: the chosen neighborhood has high density of population, which creates higher danger for the residents during pandemic times and requires deeper adaptation.

The area contains 10363 residents, which is 24% of residents of Mestre.

COLLECTIVE AND INDIVIDUAL MOVEMENTS



Custom elaboration
Data source: open data of Moovit

An analysis was carried out on the possible individual and collective movements of the population to try to understand what the means are and how the stops of the various public transport within the San Marco district are distributed. To decipher what are the possible gatherings in the public area.

The reason for choosing this specific analysis of population movements stems from the desire to understand where and how the greatest displacements develop to reach the workplaces that were granted towards the end of the lockdown.

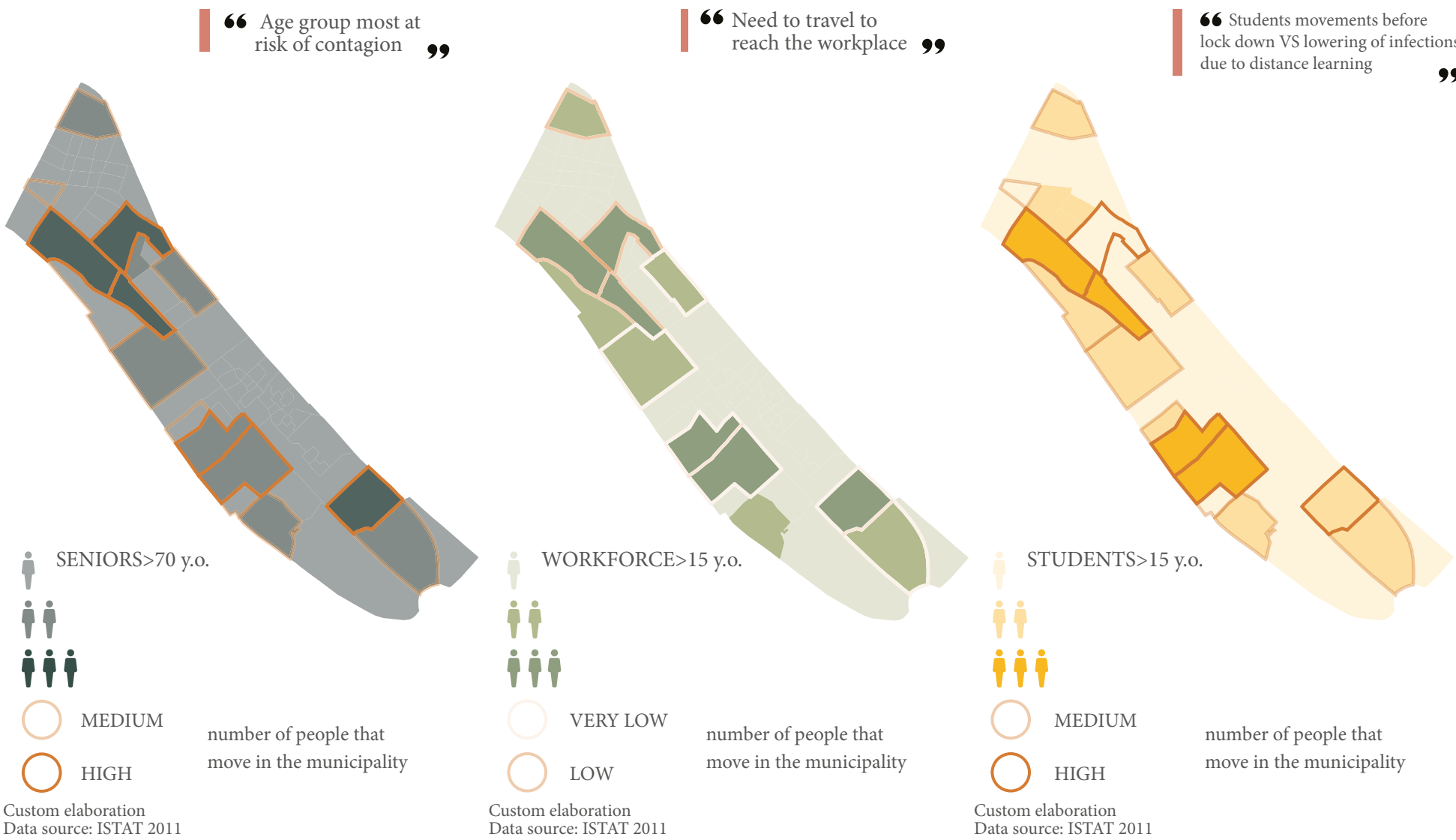
It is also provided an analysis of all available kinds of public transport which can be used in the city.

Then it's reported how travel has as its means public transport stops that create gatherings and a possible contagion in specific places. These places create a higher possibility of spreading of infection and endanger the residents. This highlights zones important for intervention.

2.

CITY REACTION FROM THE COVID-19 PANDEMIC ANALYSIS OF THE NEIGHBORHOOD

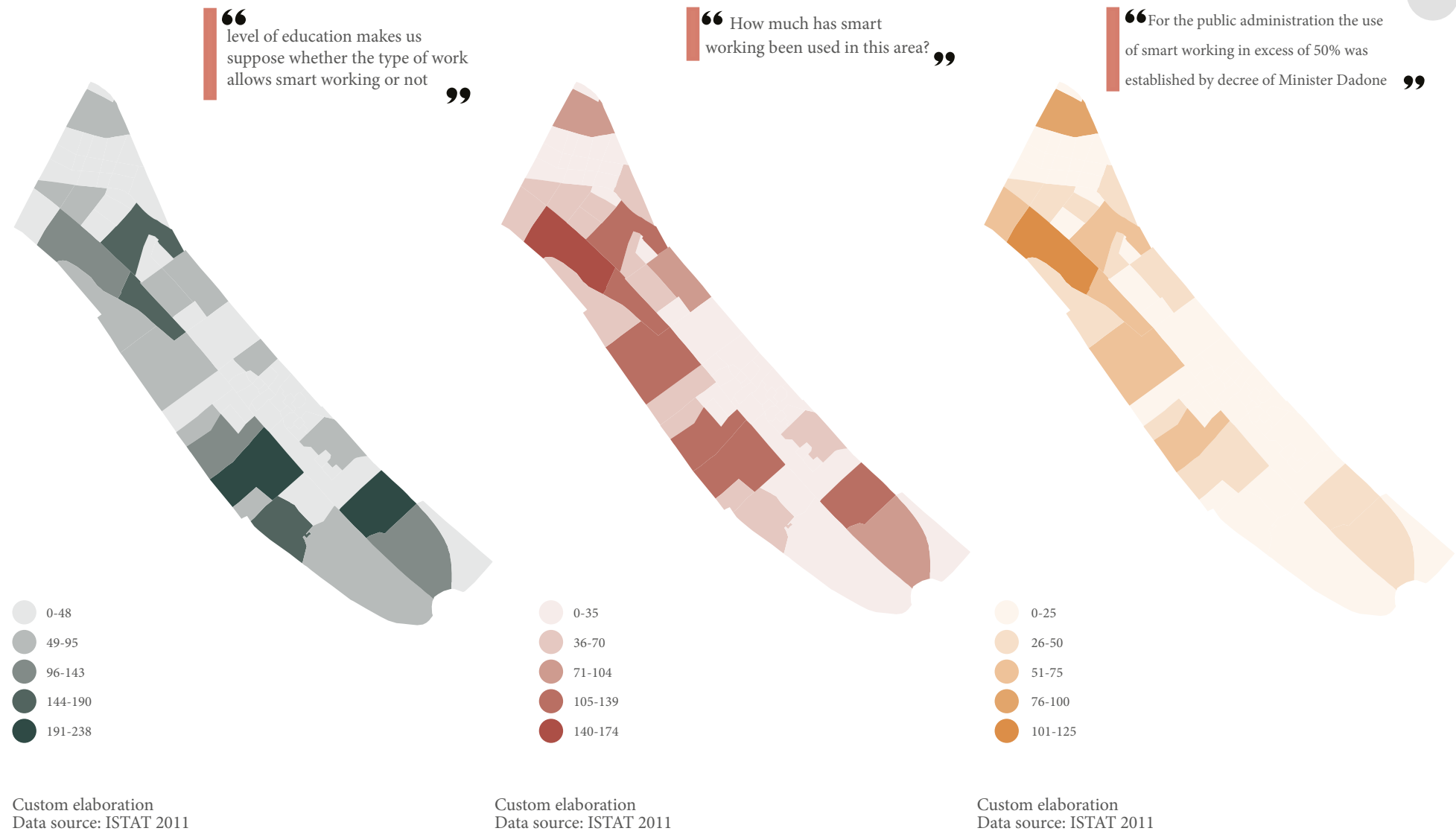
POPULATION MOVEMENTS



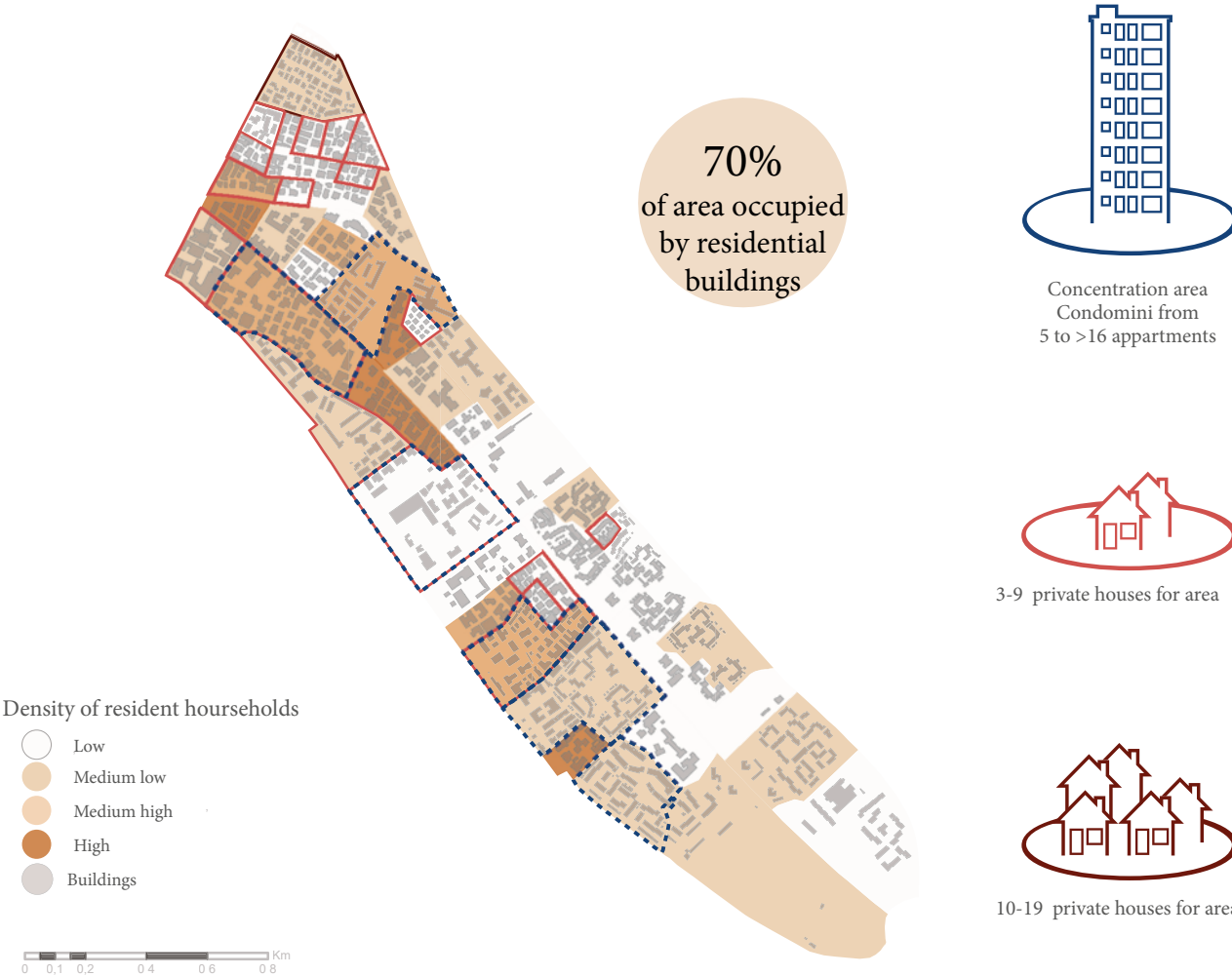
ELEMENTARY SCHOOL EDUC.

HIGH SCHOOL EDUCATED

NUMBER OF GRADUATED



DENSITY OF THE RESIDENTIAL BUILDINGS



Custom elaboration
Data source: ISTAT 2011

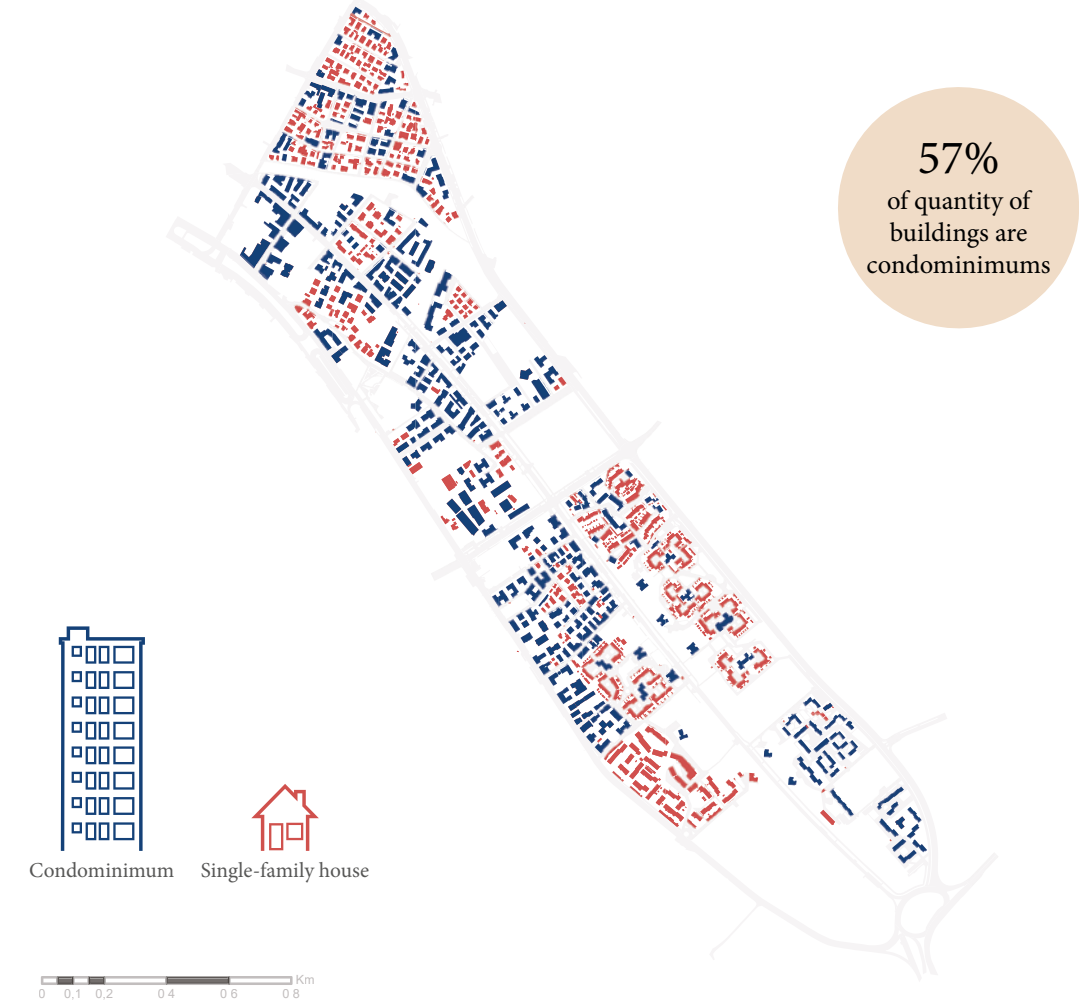
After analyzing the population density, it was useful to know the density of the land occupied by residential tissue.

As can be seen from the map here on the left, the soil most used is occupied with the residence, reflects the previously completed analysis. This shows that population density is not evenly distributed.

A further analysis that came to the aid of confirming this said that there was the location and number of interiors per building in the area of interest; this shows once again how the neighborhood is structured with condominiums for most of the surface and some single residences that despite their conformation do not guarantee a private green space.

The map aims to highlight the areas where the condominium with the largest amount of apartments are concentrated and therefore with a density of more inhabitants. On the other hand, the areas in shades of red demonstrate spaces where locations of single houses are greater or smaller. This analysis has brought to light those areas which are the most at risk of contagion due to the possibility of greater contact between people.

RESIDENCE TYPOLOGY



Custom elaboration
Data source: CTR 2012

Next step would be to understand the typology of residential buildings.

This issue is important due to understanding areas in higher danger: people living in condominium will more likely contact with their neighbors than people living in the single house.

Besides, owners of single houses have an opportunity to use their garden during lock-dow measures, while residents of condominium found it impossible to get fresh air and a walk when parks were closed.

This will lead us to determining the zones that need more public spaces adapted for the preventive measures of state.

Comparing this map with analysis of density we can see that higher dense zones are mostly busy with condominium buildings. This fact makes them more dangerous for the residents.

However, the possibility to contact easily the neighbors can be important for senior residents for who it might be more dangerous to fullfill their essential needs, such as going to supermarket, chemistry etc.

USE OF THE BUILDINGS



Custom elaboration
Data source: ISTAT 2011

The map of use of the buildings shows different types of functions present in the area. Function that is spread most is residential.

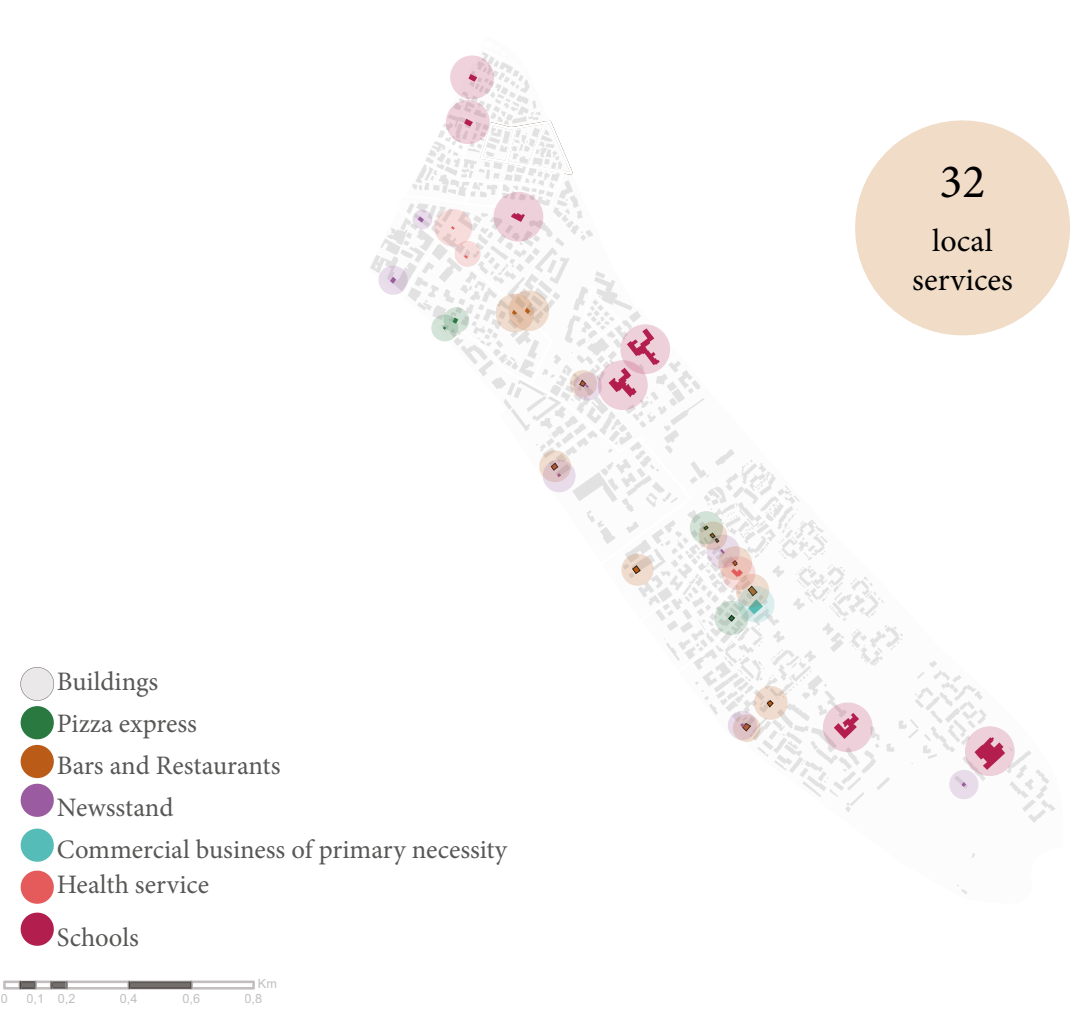
From this map we understand that variety of functions in the area is not too big, which likely will make residents go somewhere else for fulfilling the needs that can not be fulfilled in the area.

Also, high percentage of residential buildings show us that this territory «lives» during days and during night because there are always people on it.

We can see also areas that are not occupied with anything which gives us territories possible for future intervention.

This map also clarifies importance of this territory: it consists many administrative buildings. This public buildings are also highlighted like more dangerous areas since their main purpose is maintaining and serving population: people will come there from other areas as well.

SERVICES OF THE TERRITORY



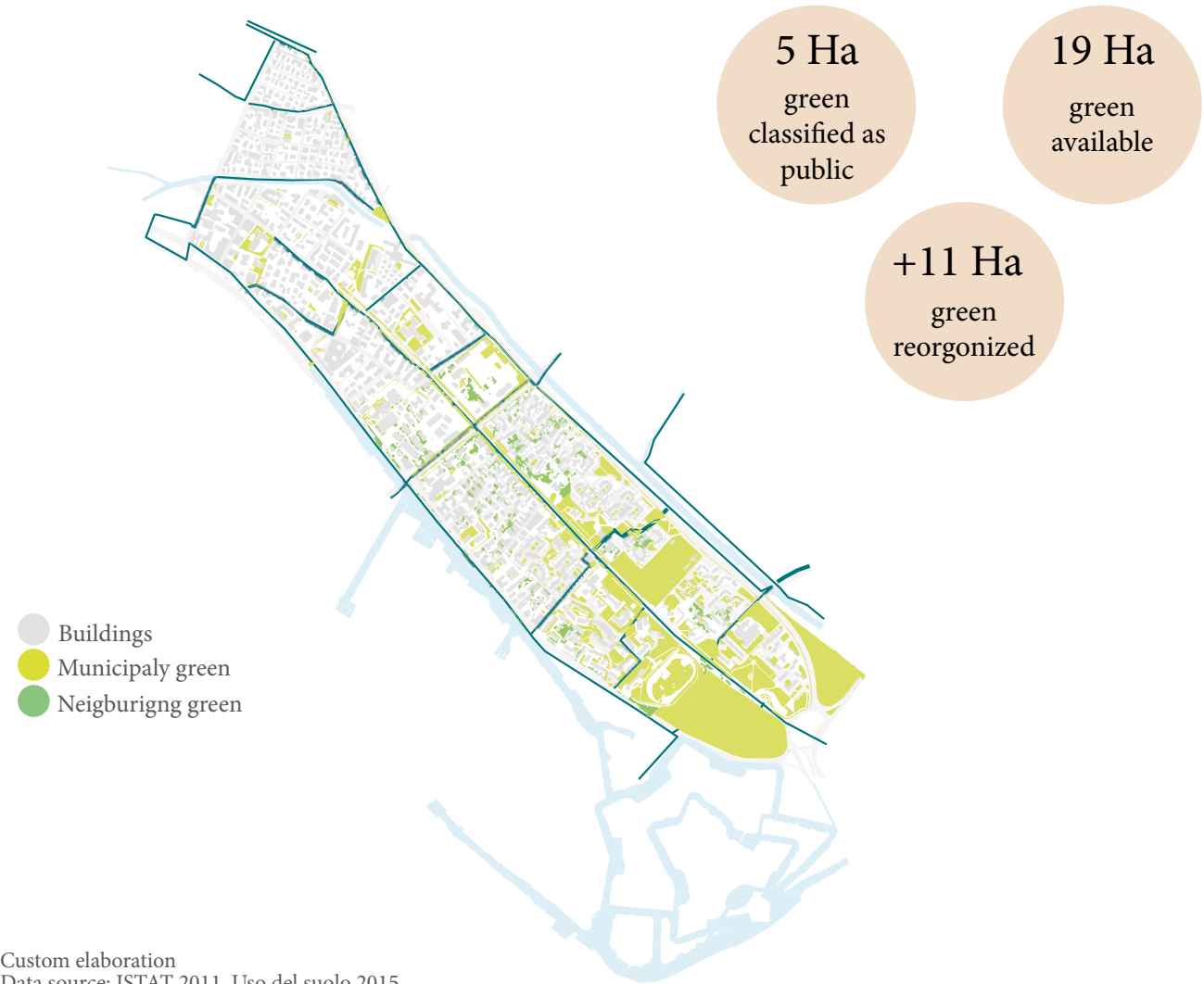
Custom elaboration
Data source: CRT 2012

The analysis of the existing services in the neighborhood was fundamental to locate the destination of the population's movements both in the lock down period and in the following period, as well as to locate all those activities that carried out a basic need and takeaway service, which had the opportunity to continue their activity and maintain a neighboring service to the community.

The area is well served with food services such as pizzerias, bakeries and catering that provides takeaway. However, there is only one supermarket for basic food services. This makes residents reflect on the need to move to recover what are their primary assets.

As far as education services are concerned, we note that there are first and second grade primary schools distributed throughout the neighbourhood. This, especially during the period of the beginning of schools (September), which was also a period of beginning of second wave, has allowed us to understand the movements of the population to these services.

GREEN AREAS OF THE TERRITORY



The neighborhood is served by green infrastructure and uncultivated green areas while green recreation areas, and urban parks are restricted by the number of inhabitants and the availability of greenery that would be possible for public use.

This allows us to understand how there could be areas of possible use during the pandemic, to give people the opportunity not to stay in the house but to take advantage of the space to stay outdoors while maintaining distancing rules.

Our aim would be to find a way to provide enough green areas nearby residential buildings. This would allow people to socialize safely, get physical activity and psychological support.

Some areas even though are green, but they are degrading, abandoned. It is hardly possible for people to get activities there, this places are potentionally dangerous, but also they're areas for development, growth, improving life of the citizens.

The overall analysis of the neighborhood allows us to have a framework of the social situation and the necessary needs to be implemented in this historical period.

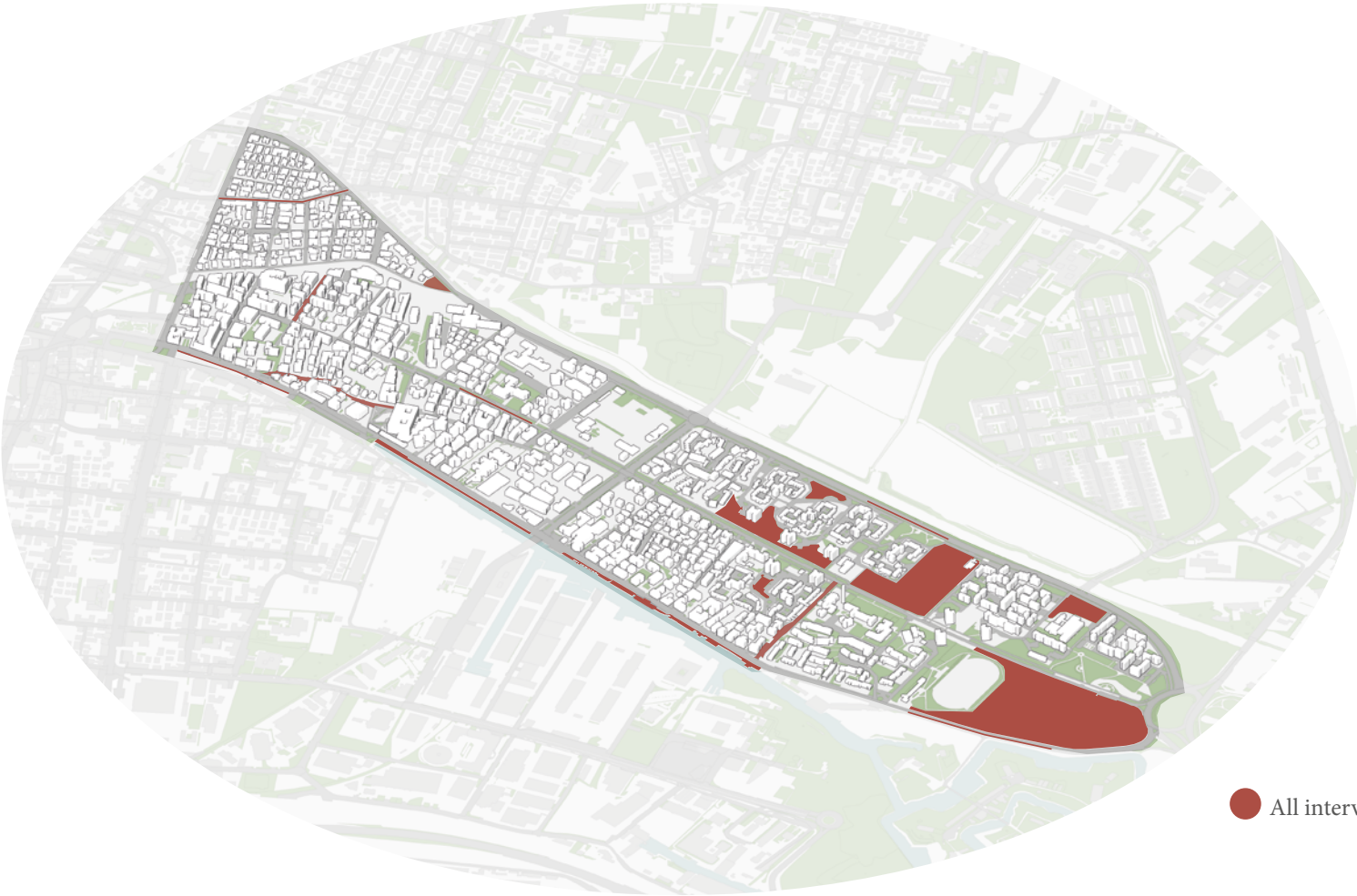
The lack of data and small-scale time updates did not prevent knowledge of the primary needs of the population.

We have seen how the population distributes unevenly and in strategic points which, unfortunately, if not readjusted, are places of gathering with the possibility of greater contagion. To conclude with a study on those areas of possible implementation to allow people to have a chance to stay outdoors without having close contact as there are no gardens for private use.

3.

CITY GOVERNANCE IN THE POST-COVID-19 NEW ERA
STRATEGY OF ADAPTATION

SCENARIO OF INTERVENTIONS IN SAN MARCO NEIGHBORHOOD, MESTRE, VENICE



“

Improvement of the area in terms of livability in times of pandemic aimed at socialization in safe space

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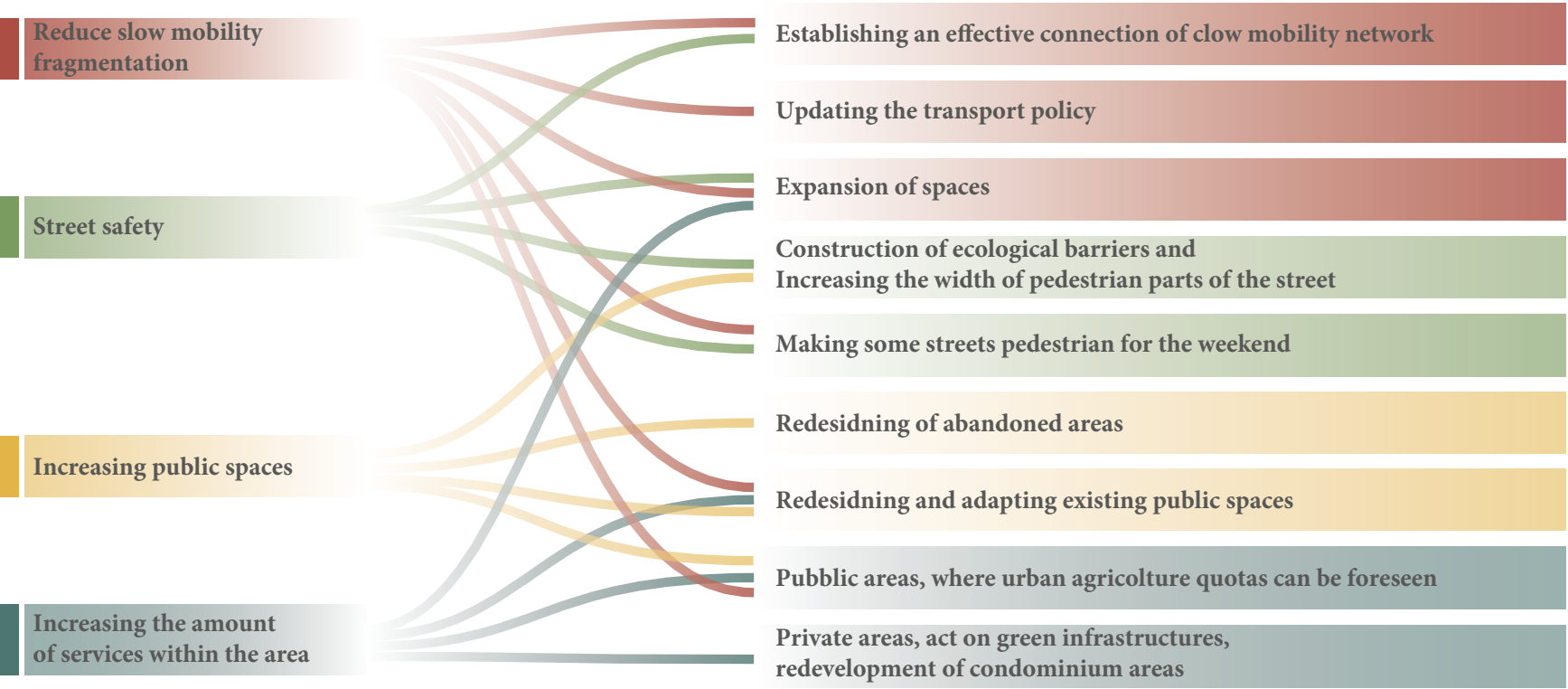
Our intention is the reorganization of the spaces more predisposed to the gathering of people to allow the citizen to use all the space in which they live. For this reason, from the analysis we have focused on identifying areas prepared to accommodate the community of citizens.

Importance is given to the development of actions towards maintaining social distance and the need for all citizens to be able to spend time outdoors given the absence of private gardens.

Our objectives are expressed in topics such as slow mobility in safety, and increase of public areas and urban gardens at the service of citizens.

OBJECTIVES

ACTIONS



REDUCE SLOW MOBILITY FRAGMENTATION

Analysis of the current bicycle lines showed us a fragmentation of infrastructure. This leads to danger for the bicyclists and forces more people to use public transport, which in pandemic reality would endanger them as well.

Our proposal consists of three main actions: establishing an effective connection of slow mobility network, updating the transport policy and expansion of spaces.

First action will allow citizens to use alternative transport without being endangered by cars. This will make it possible for more people to make a choice for a bicycle, for example, and not a bus, which will allow them to contact less other citizens and not to put themselves in danger.

The second action is aimed on making other two happen. Global changes in the city are not possible without support of authorities and updating of regulations and documentation. It will require a complex approach shared by several structures.

We propose to make it official the priority of slow mobility over other kinds of transport in the city.

The third action is an expansion of spaces. Some streets need to be reorganized to give more spaces for people and not cars. This will allow also pedestrians to get less chance of being infected.

Creating suitable infrastructure in the city will help soften the preventive measures without increasing risks for health of people. Priority of people over cars should become absolute in the study area and in the city as well.

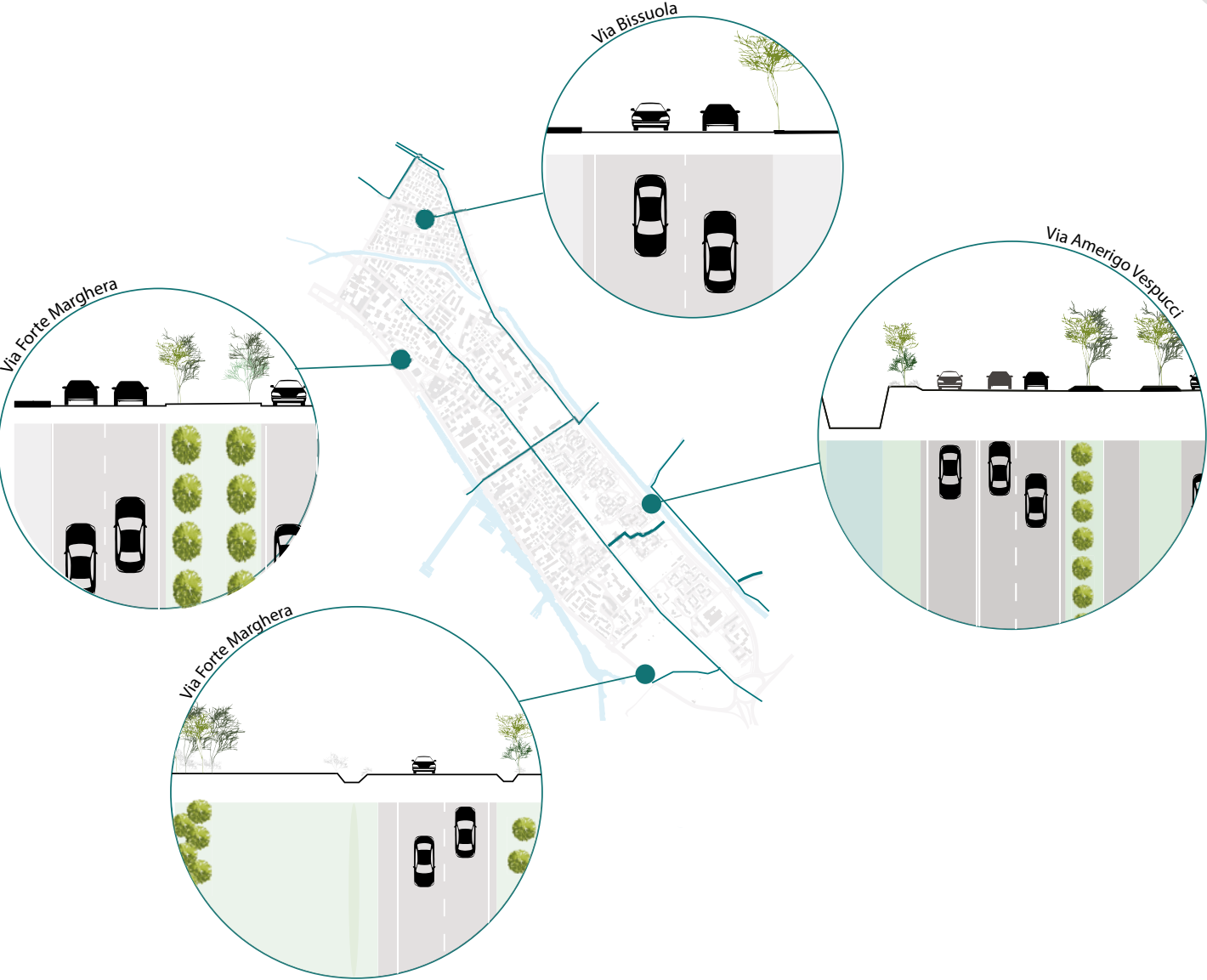
Our proposal will not only make less danger on the streets in the means of infection or daily accidents but also will create 11,6 km of new safe infrastructure.

This will make streets more accessible for people not only in pandemic times but also in daily life. The consequences of this actions will positively effect not only street safety and epidemiological state, but also economics and ecology.

CURRENT STATE OF BICYCLE LINE

6,38 Km

- Existing bicycle line
- Canal
- Buildings

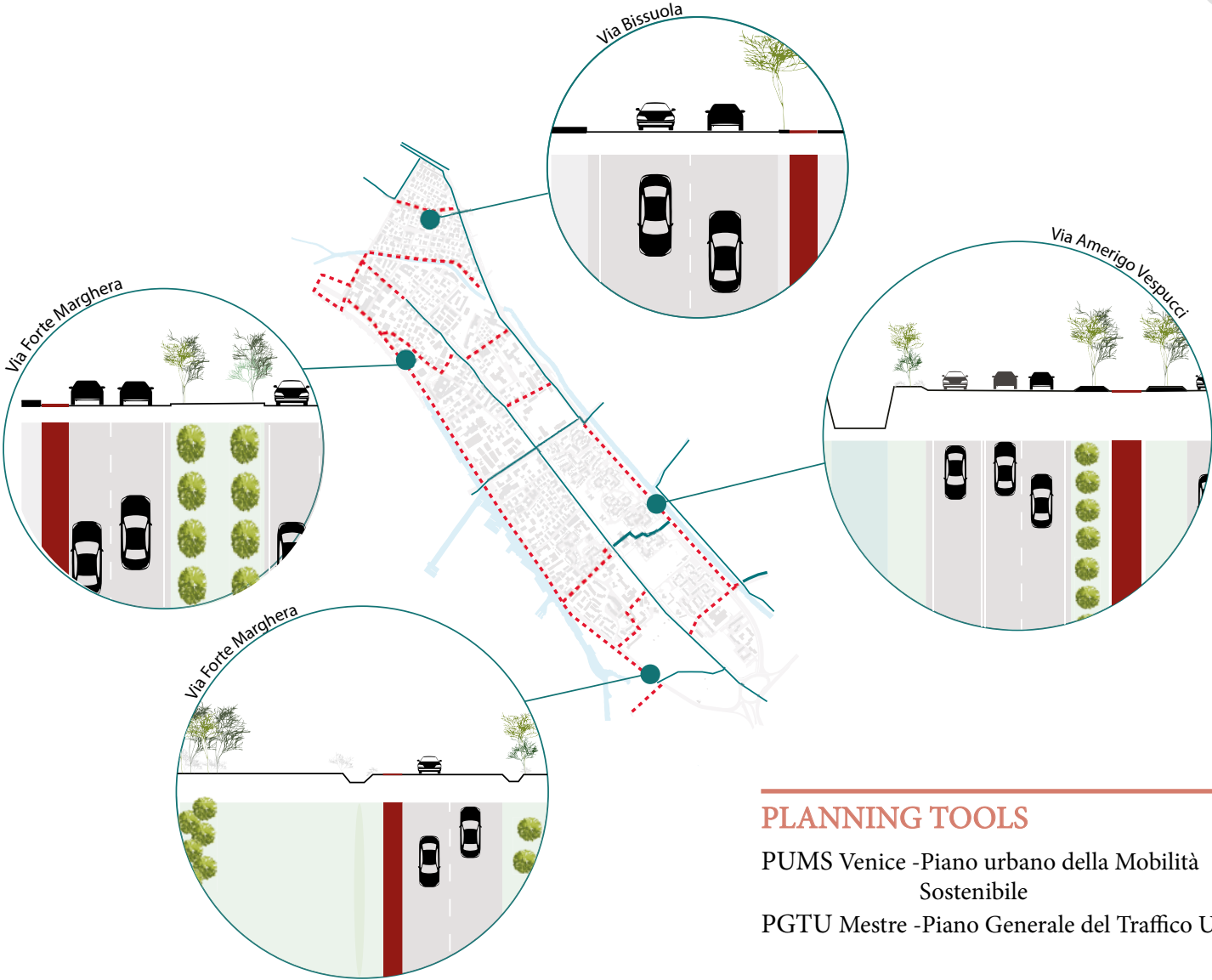


ACTION	Establishing an effective connection of slow mobility network	Updating the transport policy	Expansion of spaces
CRITERIA	Environmental	Priority over means of transport	Less chance of infection
INDICATORS	Km of new cycle path (dedicated linear meters section)	Number of stop street	Squared meters walkable

PROJECT OF BICYCLE LINE

+11,6 Km

- New bicycle line
- Existing bicycle line
- Canal
- Buildings



PLANNING TOOLS

PUMS Venice - Piano urbano della Mobilità Sostenibile
PGTU Mestre - Piano Generale del Traffico Urbano

STREET SAFETY

Another focus of our work is providing safety on the streets. Speaking of safety we mean not only epidemiological safety from possibly contagious citizens, but also physical safety from the cars.

Our proposal is to reorganize the streets and take extra spaces from carriageway and let people use it.

There are three main actions that would allow our suggestion to be implemented: construction of ecological barriers, increasing the width of pedestrian part of the street, making some streets pedestrian for the weekend or feast.

The first action is aimed on constructing ecological barriers which would make people more protected from the traffic physically and regarding to their mental health and breathing problems. It's proposed to use more conifers which contain phytoncides (antimicrobial allelochemic volatile organic compounds derived from plants). It will help increasing immunity level of the people.

The second action is to change the physical properties of the streets, giving more space for the pedestrian parts of it. Our research showed that some of the streets have extra space that is not used by the cars and can be transformed into sidewalks.

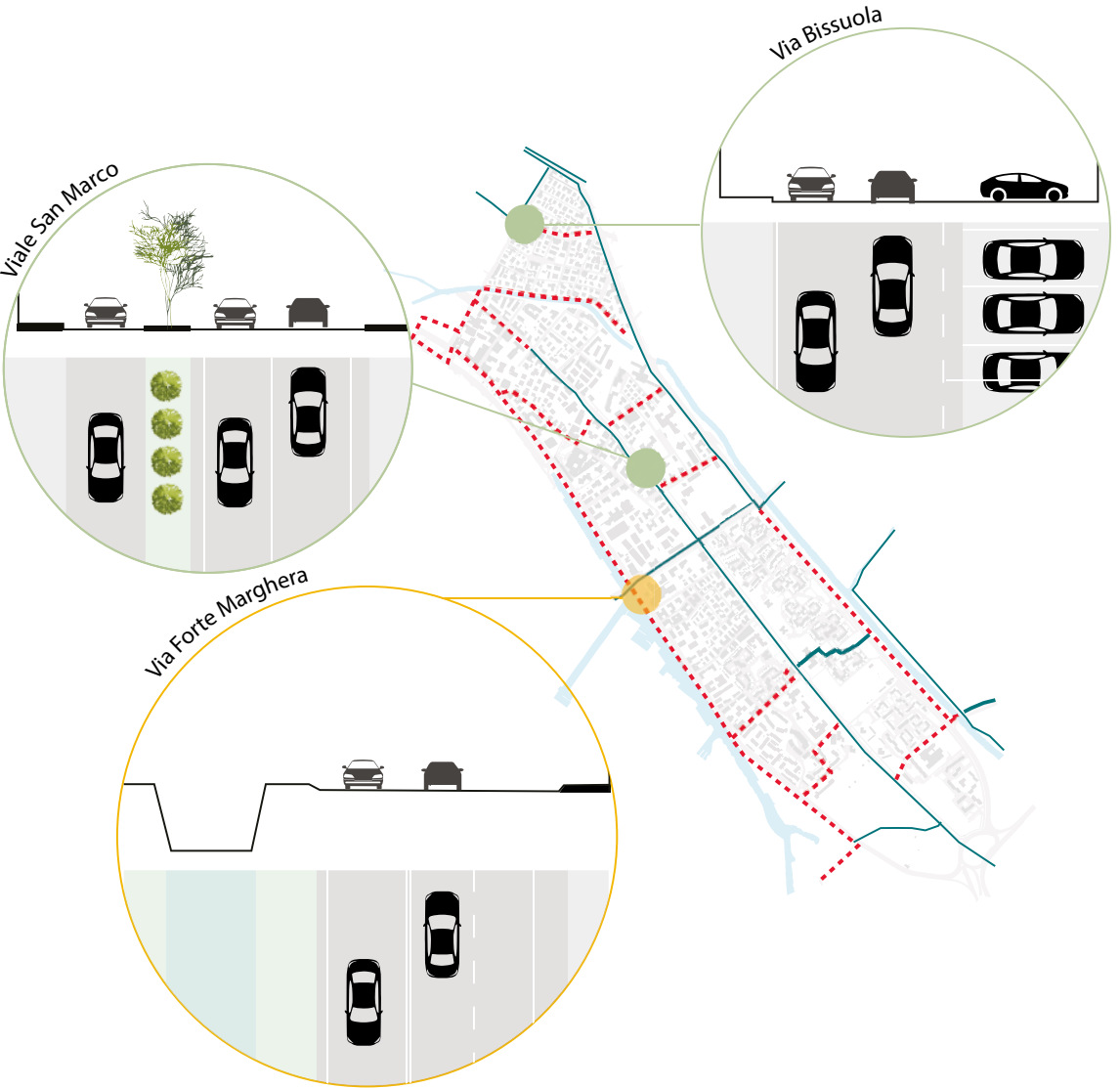
The third action is to make some streets pedestrian for the weekend and feast. This action would effect many spheres of our daily life.

In the study areas there are churches that are not able to host their usual believers. Giving them streets of the city would increase moral state of people and would allow them get essential for them need without putting themselves in danger.

Another important sphere that profits from this action is business. Sport clubs can use streets for weekend lessons and restaurants can be opened with more tables outside and keep going also during pandemic times, keeping working spaces for people and helping those who need their service.

CURRENT STATE OF ZONES AND SIDEWALK

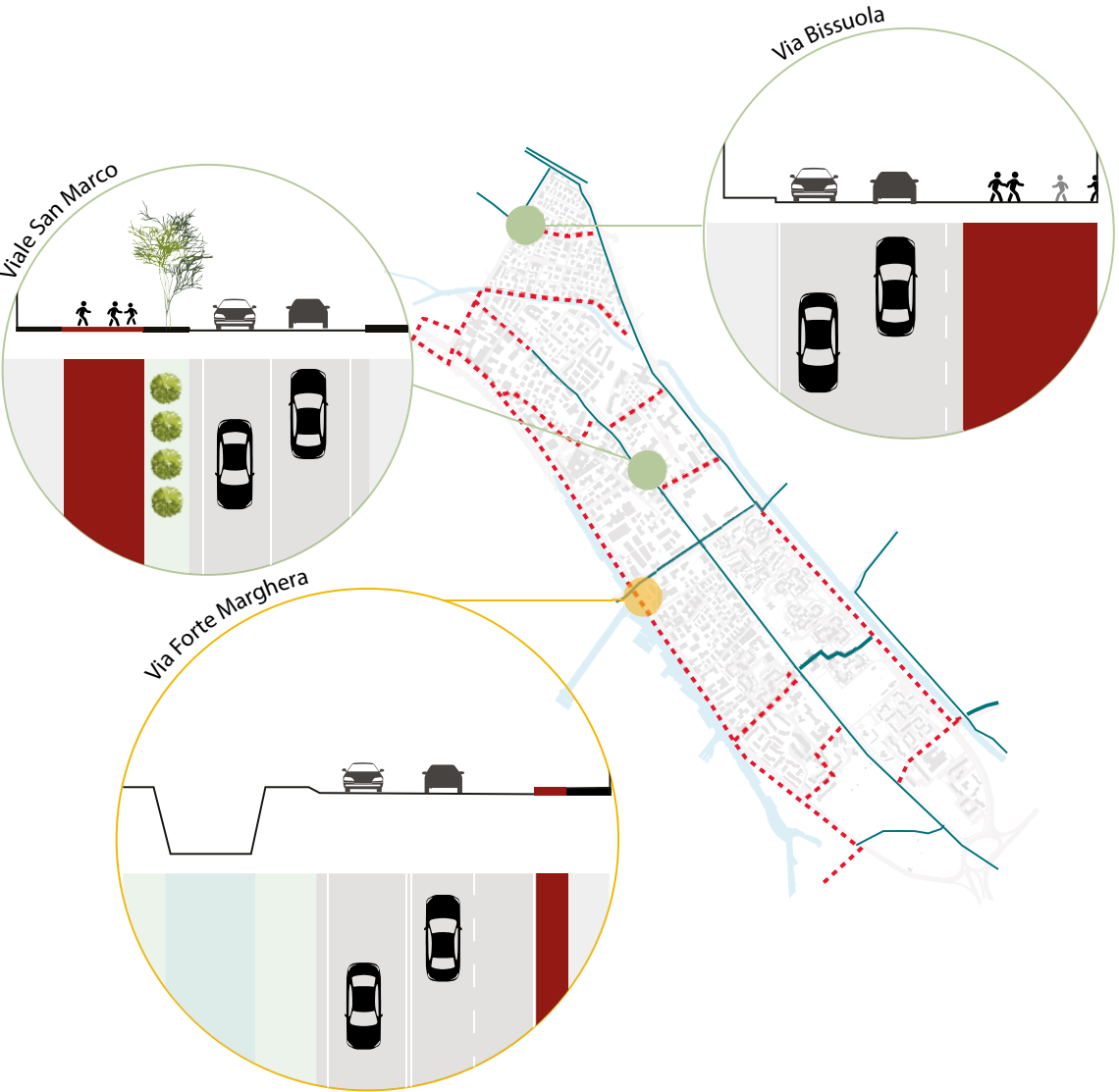
- New pedestrian zone
- New sidewalks
- New bicycle line
- Existing bicycle line
- Canal
- Buildings



ACTION	Construction of ecological barriers	Increasing the width of pedestrian parts of the street	Making some streets pedestrian for the weekends and feasts
CRITERIA	Social	Environmental	Social
INDICATORS	Nº of people who demonstrate reduction of the Nº of accidents	M² of safe bicycle line	Nº of people involved Nº of used stalls

PROJECT OF ZONES AND SIDEWALK

- New pedestian zone
- New sidewalks
- New bicycle line
- Existing bicycle line
- Canal
- Buildings



INCREASING PUBLIC SPACES

The next step of our proposal is providing people enough public spaces nearby so they can get physical activity, study and socialize without being in danger.

There are two main actions for implementing our proposal: redevelopment of abandoned or degrading areas and redesigning and adapting existing public spaces.

The first action is aimed on redeveloping areas that are not busy with anything today or abandoned. This areas are already close to the residential buildings and their reconstruction would increase not only epidemiological safety of citizens but also their quality of life.

The second action proposes adaptation of already existing public spaces so there wouldn't be a necessity of closing them due to personal safety.

Residents would be able to use this spaces for their needs without being afraid of contagion.

Increasing amount of public spaces would not only bring people more safety but also would stimulate development of business. Catering establishments and any other service facilities would profit from being close to the public space.

Public spaces are magnets for people and their activities. Also they can be used for purposes that are considered dangerous in pandemic times.

People could study in the parks, get physical activity, pray or just play with kids and walk. Adaptation of building standarts of public spaces is inevitable and it will allow people to be safe in all cases.

Adaptation could be implemented with different kind of street furniture, zoning of the spaces, dividing transit pedestrian paths from quiet relaxing zones.

Another important issue for public spaces is to provide for people opportunity to decide themselves what they need in the space.

CURRENT STATE OF PUBLIC SPACES

- Existing public spaces
- Bicycle line
- Canal
- Buildings



ACTION	Redevelopment of abandoned or degrading sreas	Redesigning and adapting existing publis spaces (furniture, zoning)
CRITERIA	Support of continuous and balanced use of territories	Public spaces that are adapted and can be opened for people
INDICATORS	Nº of areas used	% of square meters

PROJECT OF PUBLIC SPACES

- Public spaces
- Suggested public spaces
- Bicycle line
- Canal
- Buildings



INCREASING AMOUNT OF SERVICES WITHIN THE AREA

As a last goal we wanted to focus on the importance of looking in the open air. As mentioned above, in the description of the third objective concerning public spaces, it is essential to be able to take advantage of the open space without the possibility of contagion.

In this case, we thought about how different the already existing green space, often in disuse, to dare the citizens to carry out urban horticulture activities in order to spend time outdoors and be able to have fruits and vegetables at zero km.

We have seen in the analysis of residences that both the population living in private homes and those who live in condominiums, have little chance of looking outdoors as they do not have private gardens and the terrace alone is not enough.

This situation, especially at a historical moment such as the one we are in now, will also greatly influence the choice of future buying and selling of houses,

so having the opportunity to look outdoors influences the market.

This aspect of urban agriculture benefits in many respects, having a service at hand, gives greater opportunities both to the local market and to the people who live there, no longer forced to buy raw materials in the supermarket but can grow themselves despite the lack of space for them private greenery.

Some strategic areas for the insertion of these urban gardens have been chosen, we see on the right a small green space, near a green area that has been allocated according to the previous objective to public space; this is to see the multifunctionality of the place where the population can both stay outdoors and grow their own vegetables.

A second area, on the other hand, is inserted in a concentrated urban space of dwellings.

CURRENT STATE OF GREEN SPACES



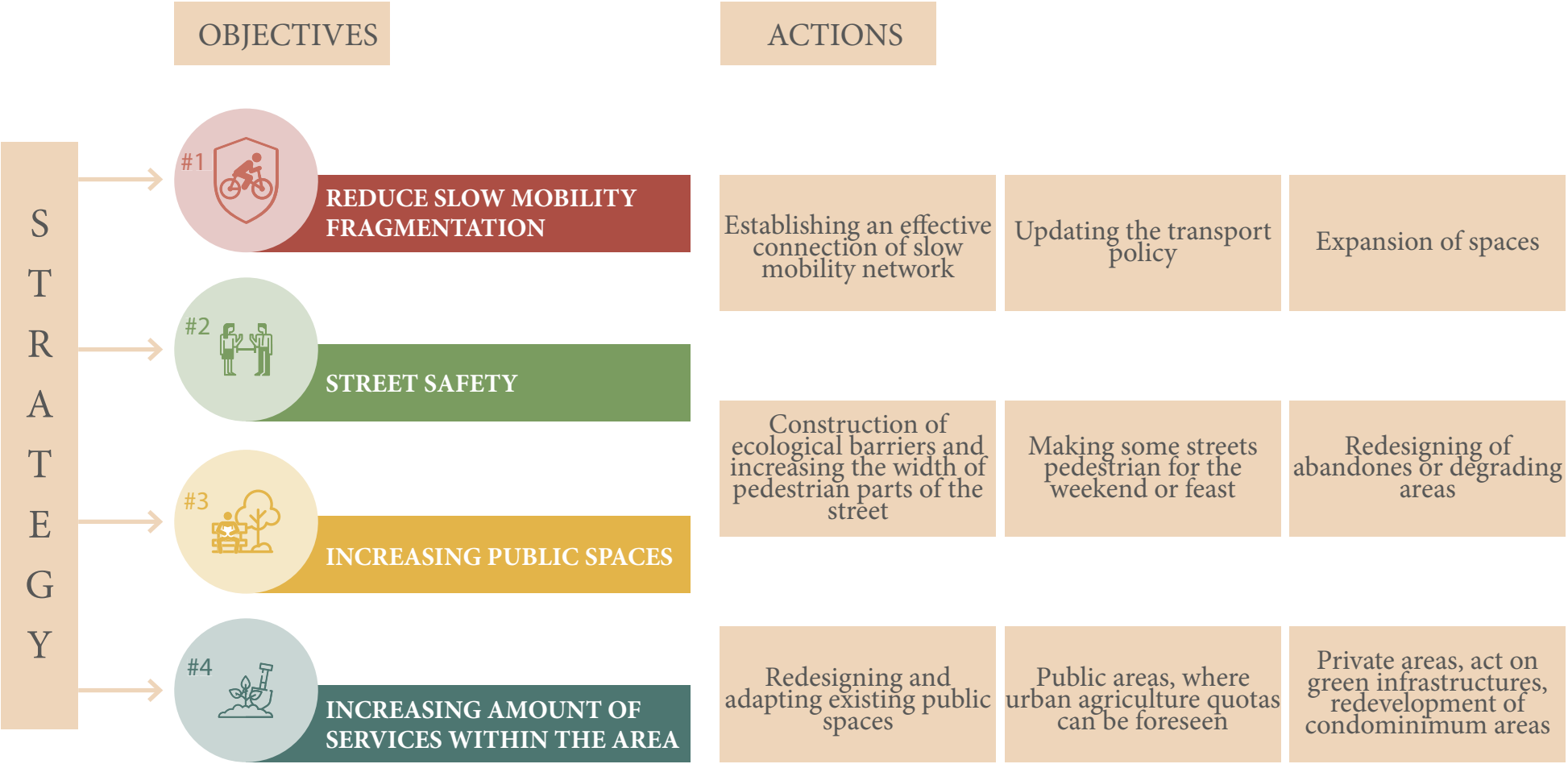
- Buildings
- Public green area
- Private gardens

ACTION	Public areas where urban agriculture quotas can be foreseen	Private areas, act on green infrastructures, redevelopment of condominium areas
CRITERIA	Social	Social Environmental
INDICATORS	km of proximity	km of proximity

PROJECT OF GREEN SPACES



PLANNING TOOLS
Piano Gestione Aree verdi



MULTIFUNCTIONALITY OF ACTION

Within our timely interventions in the neighborhood, chosen through an initial analysis that demonstrates the need for action on them in order to implement our strategy: ... and bring the goals we set ourselves to fruition. In fact, as we have previously illustrated, our actions can belong to several objectives of the strategy, intersecting each other and increasing the potential of the result.

So we can affirm that our actions belong to a principle of multifunctionality that want to show the city of Mestre and the neighborhood of our interest belonging to a smart city where even our actions intersect with these 5 scopes that we present to you.

Unfortunately we deal with a city that has no tourism of its own, but in this area it lives in the shadow of the historic city of Venice that we do not deal with. For this reason, the tourism sector is not present in our actions.

On the next page we illustrate which areas intersect with three areas of the city where various actions belonging to different objectives are developed.

On the left of the page below, the first area represents agricultural land where a cycle path has recently been created to connect two green areas and points of important interest for the city. Today there is an uncultivated area around it and we plan to redesign the area to make it a place to spend time outdoors and given the availability of space it becomes public areas

where it is possible to maintain the physical distance imposed by the regulations. of COVID contrast. Furthermore, the action envisages the creation, along the road axis, of a new cycle path to connect the existing ones to the city center, making movement safe on a busy road.

In the center, the second area is located in via Bissuola north of the district. Via currently without cycle path and with a very narrow pedestrian area. The presence of commercial establishments on the ground floor requires that our action wants to implement an enlargement of the pedestrian area, the creation of the cycle path and the redevelopment of the now degraded flower beds with the aim of promoting sociability and food sovereignty managed by the citizens themselves. Create opportunities for existing services and increase soft mobility.

On the right of the page below, the third area provides for different specific interventions that integrate two objectives. The larger area is destined to become an outdoor sports area, which we convert into a public green area, a sign of inclusion, necessary for leisure time and coexistence after and during the pandemic

On the right of the framed area, the action we implement involves the creation of an urban garden that keeps in the promotion of food sovereignty and the promotion of inclusiveness. Thus giving new opportunities for the creation of a smart city.

SCOPE

a)



Public space as an engine for the reconstruction of the community and coexistence after the pandemic.

b)



Promotion of food sovereignty in the urban environment

c)



The promotion of an inclusive city

d)

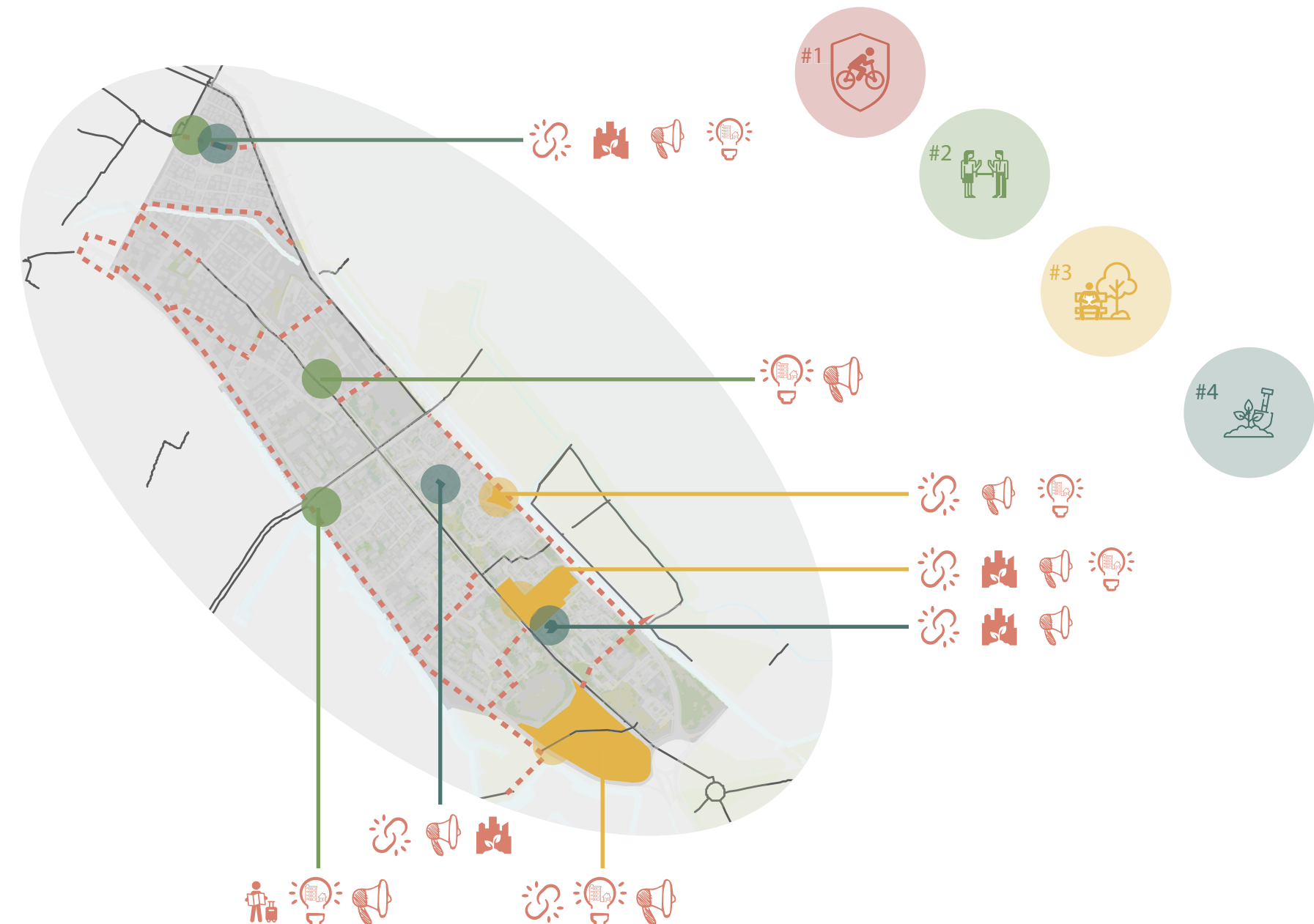


New urban opportunities for the development of digital environments for consumption, leisure, public services, mobility.

e)

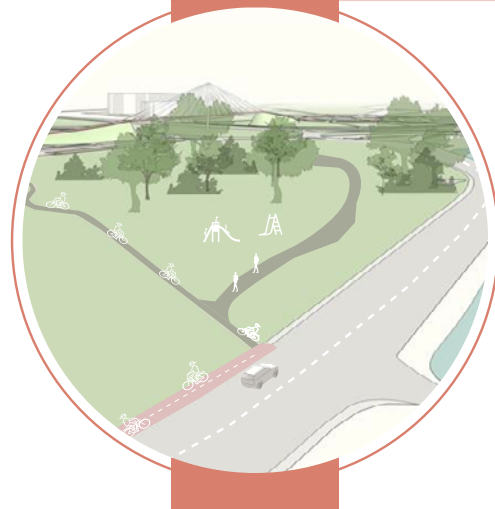
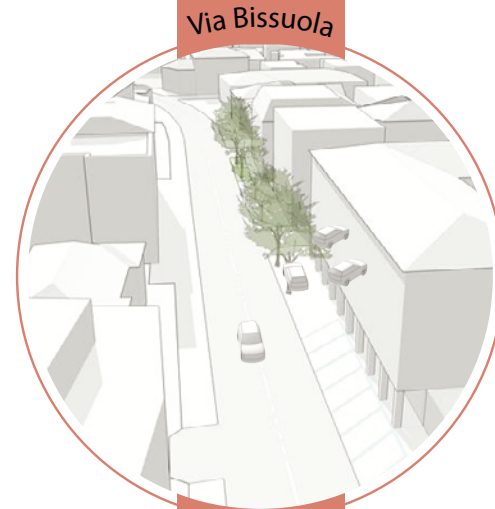
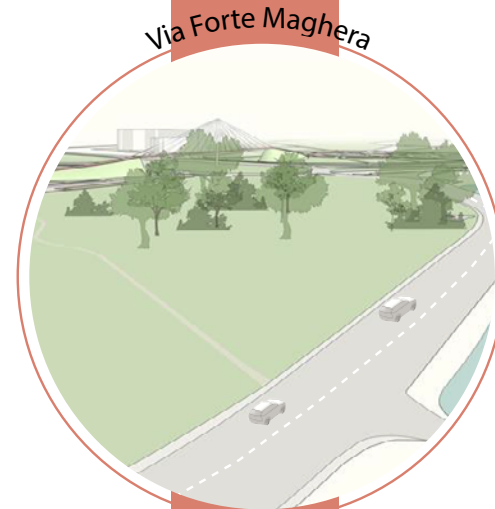


Challenges of the new urban tourism in the post-covid era.



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IMPLEMENTATION OF ACTIONS



Redesidning of abandoned areras

Increasing the width of pedestrian parts of the street

Care of urban green

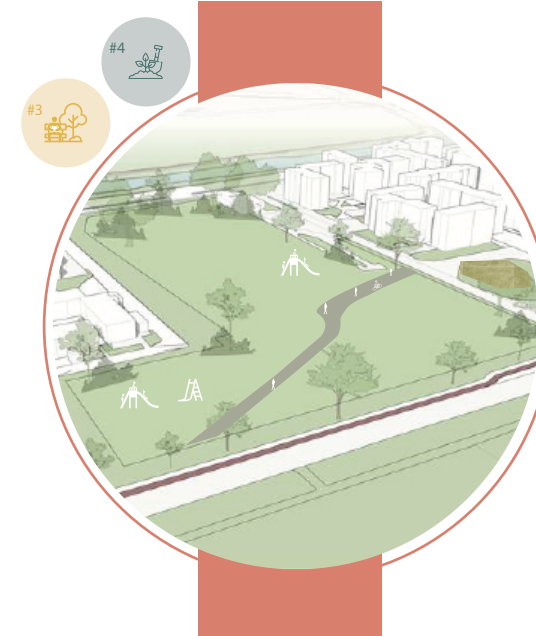
Expansion of cycle paths



Increasing the width of pedestrian parts of the street

Urban agriculture quotas can be foreseen

Care of urban green



Redesidning of abandoned areras

Increasing the width of pedestrian parts of the street

Urban agriculture quotas can be foreseen

