S P A C E,

P E O-

P L E,

& P A N D E M I C S

AN INVESTIGATION ON THE EFFECT OF PANDEMICS ON URBAN RESIDENTS, SOCIAL CONNECTION AND URBAN SPACE

KEEP SOCIAL CONNECTION
IN THE PANDEMIC

THE LIMITATION OF THE
URBAN SETTING IN THE
PANDEMIC

CITIES' ADAPTATION

CITIES IN THE PANDEMIC

OUR VISION AFTER
THE PANDEMIC

ABSTRACT

In 2020, the unprecedented COVID-19 pandemic has swept across the whole world and almost effected everyone's life. The government actively enforced lots of measures to cut the transmission of the virus and slow down the outbreak. Keeping social distancing is one of the most common and significant actions many countries have taken.

This thesis aims to investigate how social distancing breaks people's way of social interaction and effects on the cities. Maintaining social distancing forced people to not gather with others and stay at a certain distance in public. It not only changes the social space between people but also requires the adaptation of the urban area.

Since social connection plays a significant role in people's well-being, especially during the pandemic crisis, how do people adapt their way of social contact? How could people keep connected without physical connections?

In cities, lots of simple designs were built up temporarily in the public space to demonstrate social distancing, like the use of Dutch tape. However, sometimes maintain social distancing is painful in the cities because of the insufficient infrastructure. The pandemic in many big cities became extremely severe since they tend to be overpopulated and well-connected. How could public space adapt to social distancing? Furthermore, how could urban design prepare for the pandemic situation?

After three months of the pandemic, I surveyed people's feelings about the epidemic. What do they feel about the influence of the epidemic? If they believe this influence would keep effecting their life after the pandemic? In the end, based on the research findings, I created a pandemic-safe community - AT LANTIS. It is both a physical and digital community that is localized, self-sustained, healthy, and connected.

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A BRIEF

INTRODUCTION

TO THE PANDEMICS

Figure. 1

Epidemics have always been one of the worst infectious diseases that threaten human beings' health in human history. As the development of civilization, large numbers of people gathered to live in communities, the dense living space and developing sanitation provided fertile breeding grounds for disease. Plus, the development of trade routes and the outbreaks of wars boosted the connections between the settlements. However, that also facilitated the growth and spread of pandemics. More epidemics appeared after the shift to agrarian life 10,000 years ago, like Malaria, tuberculosis, leprosy, influenza, smallpox (History.com). The change in people's way of living to gathered settlements has increased the outbreak of pandemics.

Increasingly more epidemics broke out along the human development, including Plague from the 1st century, Black Death in 14 century, Cholera in 19 century, and Spanish flu in 20 century. Human beings have struggled to fight with pandemics, understand the cause of the epidemics, develop the healthcare system, improve the sanitation system, and adapt the living space while losing millions of people's lives. Over one thousand years, people invented public health infrastructure and upgrade living conditions. However, the fight with pandemics never stopped, and today's challenge was even more severe than ever.

The whole city with 11 million population was empty all a sudden.

A newfound virus named COVID-19 started to spread worldwide and forced all human beings to an unexpected challenge from the beginning of 2020. Starting from a medium-sized city, Wuhan, in the middle of China, quickly spread out all over the country during the most prominent travel season in China - the Chinese lunar new year holiday. On January 23th, one day before the Chinese new year eve, Wuhan was locked down. The whole city with 11 million population was empty all a sudden. Subways, bridges, highways, and the airport were all closed. People need permission to go out of the neighborhood and always need to wear masks. The lockdown policy quickly implements all over China. In the most important festival of 2020, people cannot reunite with their families but stay home.

Even though China took measures right away and put the whole country in quarantine, it still quickly spread to the nearby countries and then all over the world by the highly connected global network. In less than two months, it started to break out in Spain, Germany, France, the UK, and finally the US. By the end of March, more and more countries were put in lockdown, and COVID-19 indeed became a worldwide pandemic crisis that all human beings are facing together.

German Chancellor Angela Merkel held an extraordinarily rare nation-wide speech through TV to catch citizens' attention, "The situation is serious. Take it seriously. Since German unification, no, since the Second World War, there has been no challenge to our nation that has demanded such a degree of common and united action," she said (DW).

Like Germany, the countries worldwide responded immediately in according and took different measures to restrict contact from other countries to control the outbreak of the pandemic. On March 17, EU leaders agreed to a 30-day ban on nonessential travel of non-EU citizens into the bloc. However, the level of the national lockdown was different from country to country based on each country's infection curve and government strategy. Some severe countries like Italy, Spain, France, Netherlands, were in ultimately lockdown measures; people can only go outside for essential purpose (Weise, POLITICO). In most of the countries, people started to work at home; the schools were all closed, even outside activities were restricted. When going outside became a luxury event, people even attempted to make an excuse to go out, although there was a risk to be fined.

People's daily living space was utterly shaped due to the outbreak of the pandemic. The coun-

tries' lockdown, the closures of the public areas, and the quarantine at home restricted the use of urban space. The barrier of certain social distances was set up to prevent the spread of the virus and "flatten the epidemic curve." World Health Organization recommended that at least a meter or a little more than 3 feet is the safe distance from getting infected from the others. By keeping distance, the outbreak of the pandemic would become more slowly and reach its peak later. With fewer active cases at the peak, it would help ease the burden on the health care system (Lambert, Science News,).

One unique feature of Corona-19 is that the infected people without any symptoms can still spread the virus to others. One study posted March 5 at Med-Archive, estimated that roughly half of all virus transmissions in both Singapore and Tianjin, China, were from pre-symptomatic people. Plus, the virus is "highly contagious," says Clemens Wendtner, director of infectious disease and tropical medicine at the Munich Clinic Schwabing, a teaching hospital in Germany. Infected patients can shed tremendous amounts of the virus from their noses and throats and in coughed-up phlegm before they develop symptoms. "This would tell us that gatherings of people should be avoided," Wendtner says (Lambert, Science News,).
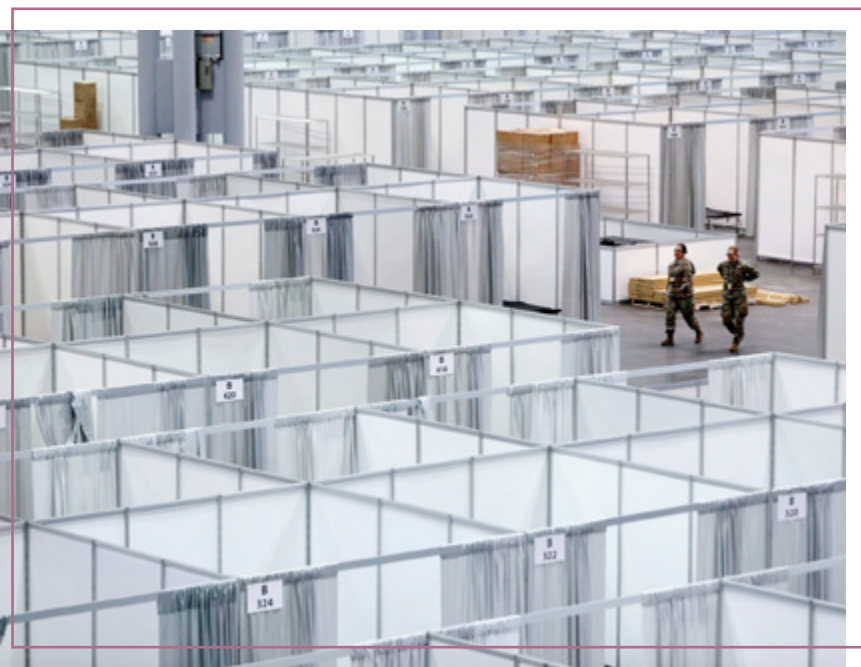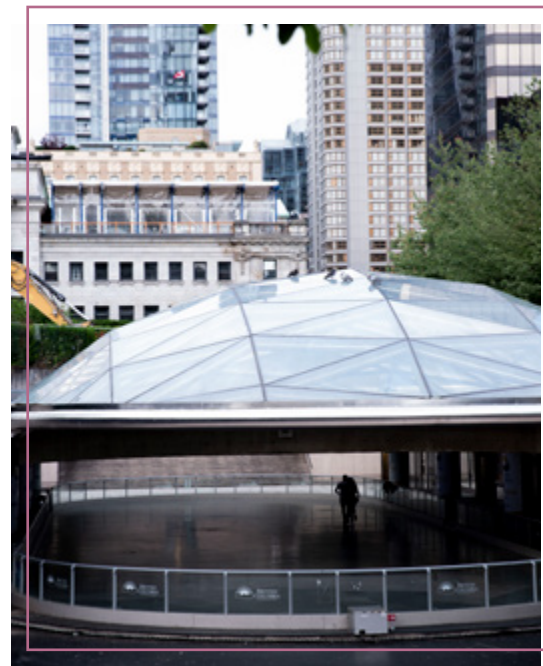
Figure. 2

Figure. 3

Military personnel walk among cubicles being prepared for the makeshift hospital at the Jacob K. Javits Convention Center.
Credit.Andrew Kelly/Reuters

In many countries like the US and Canada, the government required maintaining at least a six-foot distance between individuals since the middle of March 2020. Worldwide keeping at least six-foot or 1.5-meter apart from others and gathering in groups no more than two were put into force no matter in supermarkets or passing by others on the pavement.

How does the epidemic affect people's living space?

How urban residents adapt their spaces to respond to a pandemic?

How might spaces be prepared for the pandemic outbreaks?

As in a disaster, everything tends to be connected. The space between people and the space people live in is dramatically changed in the time of the pandemic. The intimate space in the interactions of people directly facilitates the breed of the virus. As a redult, the outbreak of epidemics restricts the social distance between people. By enforcing to stay distancing with others, the pandemic created both social space and physical space. The physical distance would influence people's social connections and further affect people's mental health. We can see that the relationship between spaces, people, and their health is tightly bonded. How do these three factors connect? How does the epidemic affect people's living space? How urban residents adapt their spaces to respond to a pandemic? Finally, how might spaces be prepared for the pandemic outbreaks?

CHAPTER 2

SOCIAL

& URBAN SPACE

2.1

HISTORY OF KEEPING
DISTANCE IN PANDEMICS

As the first chapter has mentioned, the social distance was enforced to avoid the spread of the virus. Staying enough distance from the unknown infectors could effectively stop the virus transmission by cutting the transmission routes. Even though today, the folks see this method from the scientific perspective, in the beginning, it was an instinct that makes human beings start using it.

The history of people responding to pandemics by keeping distance can be traced back over one thousand years ago. When the Plague of Justinian arrived in Constantinople, the capital of the Byzantine Empire, it spread like wildfire across Europe, Asia, North Africa, and Arabia. It killed an estimated 30 to 50 million people, perhaps half of the world's population. By the time, "people had no real understanding of how to fight it than trying to avoid sick people," says Thomas Mockaitis, a history professor at DePaul University (Roos). This example reflects that social distancing is an instinctive social behavior of human beings to

avoid getting infected and stay healthy. The psychological scientist Mark Schaller called this action "behavioral immune system."

Schaller explained that human beings' behavioral immune system is a set of unconscious psychological responses for survival by reducing contact with potential pathogens. It can be understood as an immune system of physical actions that can instinctively react according to the likely disease. The disgust response is one of the most noticeable components of the behavioral immune system. For example, people would instinctively vomit, expelling the food that smells bad, or they believe to be unclean. Since human is a social species that is used to connecting with a big group, the behavioral immune system also modified our interactions with people to minimize the spread of disease, leading to a kind of instinctive social distancing (Robson, BBC Future).

2.2

SIGNIFICANCE OF
SOCIAL CONNECTION

This pandemic-safe space created a distance between people and then influenced the social connection between human beings. "For some people, a lack of social connectedness feels as impactful as not eating," says Joshua Morganstein, a psychiatrist and disaster mental health expert at the Uniformed Services University in Bethesda (Gupta, Science News). Because human beings are innately social, social distancing and self-isolation are a big challenge for them. As a social species, our brains and bodies have evolved to count on the closeness of others, said Naomi Eisenberger, a neuroscientist at the University of California at Los Angeles. Surrounded by family and friends, we feel safe from predators and secure that we will be cared for if we're hurt (Kaplan, The Washington Post).

The desire for intimate connection does not fade out as society develops. Instead, it presents in people's daily behavior when interacting with

others. It includes naturally staying close when talking with others, shaking hands when meeting others, even hugging or kissing with close friends. Although different cultural backgrounds lead to varying levels of physical interaction, in some cultures, the interaction tends to be more intimate while the others are less closed. All in all, the social connection that usually has body touch involved is an essential component in people's lives as it builds trust and eliminates the sense of distance.

However, in the time of pandemic, the distance between human beings was taken apart, and the normal body touch was banned. Since even the most essential body touch - handshaking is a convenient way for viruses to transmit. While hands connect people, they also spread the virus. Stop shaking hands was one of the first measures many countries took in place to prevent the spread of the Corona-virus. It can effectively cut the trans-

mission route but also reduced the connection between people and extended the distance between them. Not having anybody touch with others could lead to a certain amount of uncomfortable feelings and build a barrier to social connection. Nothing can become a substitute for human touches, such as holding hands, hugging, or massage, which studies suggest can affect individuals' health, like possibly lowering blood pressure and reducing the severity of symptoms from the common cold (Gupta, Science News).

Compared to physical health, reducing or stopping social connections can affect people's mental health more directly. Whether in pandemics or general situations, social relationships play a significant role in people's life satisfaction. The social distance would pose a threat to people's quality of life and affect their sense of social wellbeing.

The economist John Halliwell has found that social relation is a significant factor in life satisfaction, even exceed the income. Through social interaction, people communicate with each other and build social trust. Trust is the foundation on which society grows and thrives. Also, social trust strongly connects with individuals' mental health. A study of Swiss cities found that psychotic disorders, including schizophrenia, are most common in neighborhoods with the thinnest social networks. Social isolation may be the

most significant environmental hazard of city living worse than noise, pollution, or even crowding. The more connected we are with family and community, the less likely we are to experience depression (Montgomery 54). According to the author of "Happy City," Charles Montgomery, more social bonds would lead the residents to feel more secure, more sense of belonging, and more satisfied with their life.

In the full pandemic, the social connection between individuals became even more significant than the average time, and the lack of social interaction is more likely to affect people's mental health. A research report by King's College London evaluated 24 studies looking at the psychological outcomes of people who were quarantined, an extreme form of social distancing, during outbreaks of SARS, H1N1 flu, Ebola and other infectious diseases since the early 2000s (Gupta). The quantitative studies surveyed those who had been quarantined and generally reported a high prevalence of psychological distress and disorder symptoms. Studies reported on general psychological symptoms, emotional disturbance, depression, stress, low mood, irritability, insomnia, post-traumatic stress symptoms, anger, and emotional exhaustion. Depressed mood (660 [73%] of 903) and irritability (512 [57%] of 903) stand out as having a high prevalence (Brooks, The New York Times).

"Increased social isolation, loneliness, health anxiety, stress, and an economic downturn are a perfect storm to harm people's mental health and wellbeing."

- Prof Rory O'Connor from the University of Glasgow

People's mental health bonds jointly with physical health, as psychological issues like low mood, may affect people's immune systems to threaten people's health conditions. The World Health Organization, which has been on the official authority against COVID-19, has identified social inclusion and integration as important protective factors for mental health. Besides, it indicated that loneliness not only poses a negative influence on people's mental health but could also possibly affect people's immune systems. Research has found that loneliness can heighten risks to physical health, such as heart attacks, Alzheimer's, and the spread of cancer (Eaton, The Globe and Mail).

Furthermore, the influence of mental health could lead to severe consequences. Prof Rory O'Connor believes doing nothing would risk a rise in conditions such as anxiety and depression, and more people would turn to suicide, self-harm, alcohol, substance misuse, gambling, domestic and child abuse, and psychosocial risks. CBC re-

ported a total of 113 people in B.C. Canada, died of suspected illicit drug toxicity in March, the deadliest month in a year, according to the B.C. Coroners Service. The number increased 61% from February. It is hard to say its connection with the COVID-19 pandemic, however, it does raise another public health crisis (CBC News).

The data of mental effect in SARS confirms the consequence of severe psychological damage in pandemics. There was a 30% increase in suicide in those ages 65 ages and older during outbreaks of SARS in 2003; round 50% of recovered patients remained anxious, and 29% of health-care workers experience probable emotional distress. It reflects that the mental damage of pandemic is likely to run across the lifespan. The studies showed that the people who were in quarantine during the epidemic became particularly worried about any physical symptoms. And more likely to fear the symptoms could continue to be related to psychological outcomes several months later (Brooks, The New York Times).

In conclusion, the restricted social distance caused by pandemics threatens the regular social connection between individuals. The lack of social bonds could affect people's mental health and social wellbeing. Furthermore, the psychological problem would lead to physical issues due to the effect of the immune system. It may even cause more severe consequences to social behaviors and pose a long-term influence through the lifespan. Therefore, to stay mentally healthy, how could human beings find an alternative way to maintain social connections? How could digital technology help people to stay connected?

How could human beings find an alternative way to maintain social connections in the pandemic?

How could digital technology help people to stay connected?

2.3

SIGNIFICANCE OF URBAN
SPACE TO PANDEMIC

Figure. 4

It is the development of cities breed epidemics, and it is epidemics form today's urban setting.

The pandemic brought social distancing that changed the social space between individual people. It also connects closely to people's living space. It is the development of cities breed epidemics, and it is epidemics form today's urban setting. The city has a long history of both causing pandemics and preventing the transmission of pandemics. Through years of fight with all kinds of infectious diseases that affect people's health, the city has developed into an increasingly livable inhabitant.

Public health started to be connected with urban space back to the Middle Ages when people realized the infectious diseases were primarily caused by noxious vapors known as "miasma" emitted from rotting organic matter. During the period of the Industrial Revolution over two hundred years ago, rapid city development led cities to increasingly crowded and streets more polluted. That provided a perfect breeding ground for diseases and infections such as cholera.

Miasma theory proponents advocated for better ventilation, drainage, and sanitary practices to rid cities of foul-smelling, malevolent air. The urban sanitation system of sewers was built right after the outbreaks of cholera in the nineteenth century. "To store the filth of a city within the city is simply to invite disease and death," wrote by the authors of "The Separate System of Sewerage, its Theory and Construction". The book called for sewers to be built in New York, and "by sewering certain towns in England, the death rate from pulmonary diseases alone was reduced by 50% (Constable, BBC Future)".

While the sewer system of urban settings plays a significant role in public health, the urban space was also rebuilt to eliminate pandemics' transmission. Start from many main cities, streets were opened, and public spaces were set up to provide more open air. The foundation form of urban planning was developed to provide a clean and healthy living environment.

The landscape architect Frederick Law Olmsted who was also a miasma theory devotee advocated the healing powers of parks. He believed parks could act like urban lungs as "outlets for foul air and inlets for pure air." Sara Jensen Carr, a professor of architecture, urbanism, and landscape at Northeastern University, summarizes Olmsted's opinions, "his writing often references the importance of large open spaces to allow people to access fresh air and sunlight, and discusses how air could be 'disinfected' by sun and foliage." Olmsted built more than one hundred parks right after the cholera outbreak in some big cities in American, like Boston, Buffalo, Chicago, and Detroit, including Central Park in New York City (Klein).

At the same time, in Pairs, more open spaces were built to form the foundation look of the modern city. The nephew of Napoleon Bonaparte, as an admirer of the parks and garden squares of London, was committed to remaking Paris in the wake of the pandemic. "Let us open new streets, make the working-class quarters, which lack air and light, more healthy, and let the beneficial sunlight reach everywhere within our walls," he declared. Under the direction of Baron Georges-Eugène Haussmann French authorities tore down 12,000 buildings, built tree-lined boulevards and parks that transformed Paris into the modern-day "City of Light" (Klein).

More urban plans and imaginations from the first half of the 20th century have discussed and explored the relationship between people and the urban space. Urban planners have reflected from the urban diseases in the 19th-century city, one of the most important sources is Friedrich Engels's "The Condition of the Working Class in England." It described the airless, lightless, and sick industrial city Manchester (Williams).

"Such is the Old Town of Manchester, and on re-reading my description, I am forced to admit that instead of being exaggerated, it is far from black enough to convey a true impression of the filth, ruin, and uninhabitableness, the defiance of all considerations of cleanliness, ventilation, and health which characterize the construction of this single district, containing at least twenty to thirty thousand inhabitants. And such a district exists in the heart of the second city of England, the first manufacturing city of the world."

- Friedrich Engels

By learning the harm of the city's density, the urban planners realized cities must have enough light, space, and fresh air. The Swiss-French architect Le Corbusier proposed the imaginary utopian community "Ville Contemporaine" as an experiment on urban design spaces in 1922. The center of Corbusier's utopia was called "the city," which was made up of 24 cruciform skyscrapers and would hold 400,000 to 600,000 inhabitants. These skyscrapers were set within large, rectangular park-like green spaces, to make sure the residents can access the green through the window. Outside of the central towers are called "garden cities." There were smaller multi-story zigzag blocks set in green space and set far back from the street. Overall the city was full of light, space, and greenery (Le Corbusier).
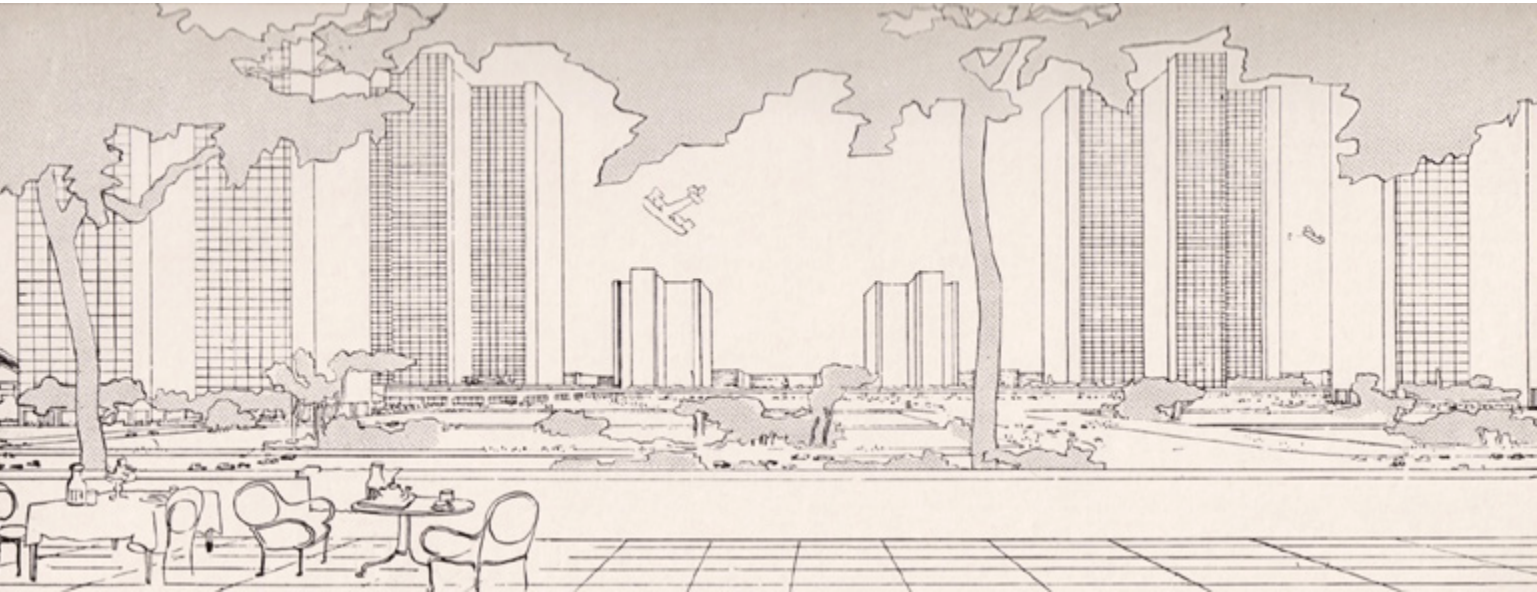

Figure. 5

Figure. 6

"We must increase the open spaces and diminish the distances to be covered. Therefore the center of the city must be constructed vertically.

The city's residential quarters must no longer be built along "corridor-streets," full of noise and dust and deprived of light.

It is a simple matter to build urban dwellings away from the streets, without small internal courtyards and with the windows looking on to large parks; and this whether our housing schemes are of the type with "setbacks" or built on the "cellular" principle."
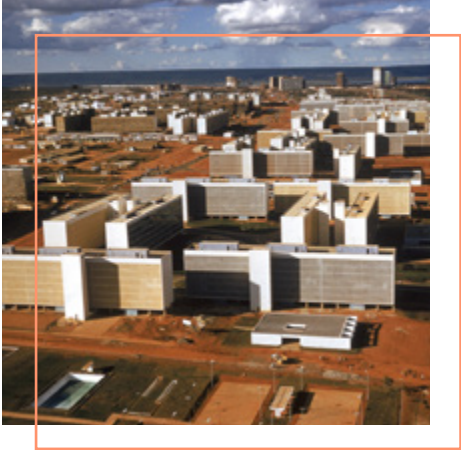
- Le Corbusier

Figure. 7

Even though Le Corbusier's theory may sound too unrealistic to practice at the beginning of 20 century, it started to look different in the post-pandemic context, when the Spanish flu pandemic broke out. Since then, some fundamental principles of modern town planning were set up based on Le Corbusier's revolutionary theory. Furthermore, his approach posed a profound influence on the post-war urban reconstruction and inspired lots of master city plan around the world (Williams). The modernist capital city of Brazil - Brasília build in 1960 is the closest implement of Le Corbusier's "Ville Contemporaine."

By tracking the connection between urban spaces and pandemics, it is found that people's progress in fighting with epidemics comes along the development of urban planning. Even though today we seem to live in a modern and hygienic urban space, we may also start to wonder if our cities will be affected by the Corvid-19 pandemic? As the urban design has changed after the Spanish flu, we may reflect on today's urban design. Eventually, how would the pandemic shift our urban setting? What would people's living environment be affected after the epidemic?

How would the pandemic shift our urban setting?

What would people's living environment be affected after the epidemic?

Figure. 8, 9

CHAPTER 3

SOCIAL SPACE'S

ADAPTATION

TO THE

PANDEMIC

After discussing the significant impact of social distances and urban spaces on pandemics, it leads to a further investigation on the adaptation of social connections and urban settings. How do people adapt their way of connecting in the current quarantine situation? In today's world, setting up social distances is not enough to cut the connections between people. From connecting by online meetings to virtual games, people found their ways to stay connected and entertained within the pandemic-safe distance.

"Social distancing' is a misnomer. We should be physically distancing but remain as social as ever," said Margaret Eaton, the national CEO of the Canadian mental Health Association (Eaton). Preventing virus transmission requires being distanced physically, not socially. On the contrary, it is even more critical for people who are self-isolated or quarantine to feel connected. When the physical space between people is extended, it is even more important to stay mentally closed. People should be socially active and participating in the community at large - as long as it does not require physical proximity.

3.1

USING NEIGHBORHOOD
SPACES

When the lockdown caused the closure of a lot of public spaces, cafes, shopping malls, the advantage of neighborhood connections stood out. The neighborhood community becomes the most accessible space to connect with others. As location-based communities, people of one neighborhood are physically closed to each other. The same location gives advantages for neighbors to meet, build connections, and help each other. Even though people stay at home, it is still possible to talk with the neighbors over a fence or across balconies. Urban residents were particularly creative on connecting with neighbors and supporting each other in the pandemic, and various ways came up and practiced.

The UK photographer Zoe Savitz went out to meet the neighbors during quarantine and taking portrait series of her street in Dalston, east Lon-

don. Savitz spends about 20 minutes with each household, standing on the pavement and chatting at a distance before taking photos (BBC 20 April). "Hearing everyone's stories, where they came from, what they were doing in the world before it stopped and how long they lived here for was so interesting," Savitz says.

Savita's project started to bring a positive influence to the community. Since sharing the project amongst members of the street, people chatting outside each other's doors, recognizing one another from the photos. Savita's behavior motivates the whole community to go out and build connections with the neighbors. "Now, there are so many familiar faces I see on my daily walk. I feel a great community connection that will last a long time and is so rare for city living."

Figure 10-13 - By Zoe Savitz

VISUAL COMMUNICATION

Besides interacting by talking in distances, neighbors can communicate by visual support. Without physical meetings, the drawing on the windows could be an effective communication medium that eliminates social gaps. Pictures of rainbows have started springing up in windows after schools closed in response to the coronavirus outbreak. Hundreds of schools in the UK encouraged pupils to put the paintings of rainbows on the windows to "spread hope" (BBC 21 March). From the UK to the US, it brought families together at home to create a rainbow and use a visual way to bring hope to the community. Although technical wise painting or collaging a rainbow is straightforward, it makes people feel connected with humanity as all human beings fight the spread of coronavirus (Copper, WTOP News).
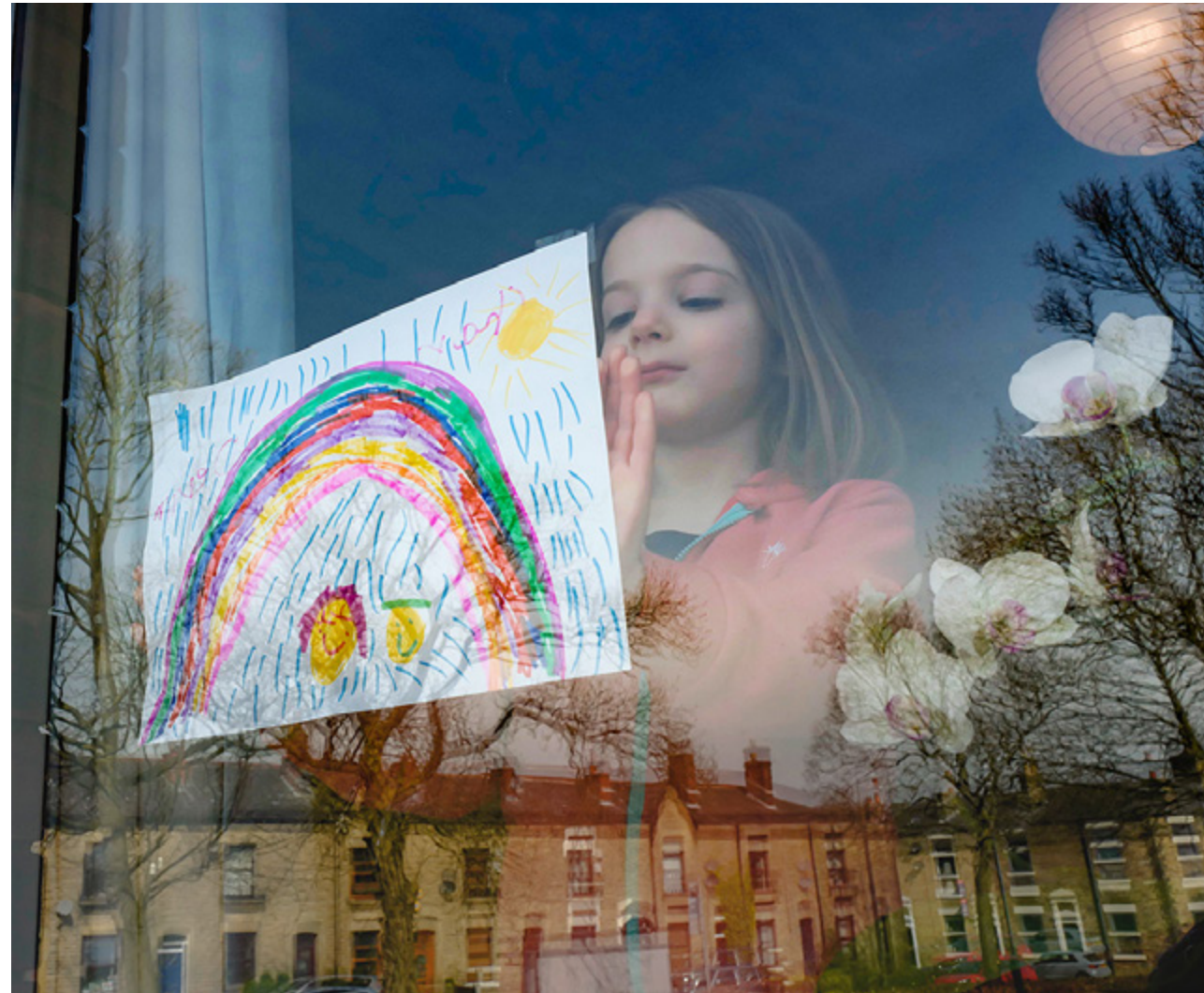

Figure. 14 - By Anthony Devlin/Getty

Figure. 15 - By Amanda Jane Jones

MUSIC COMMUNICATION

Besides visual communication, the sound is also a great medium to build connections in the neighborhood. Balcony concerts were invented to connect with neighbors in the local community during COVID-19. It started from Italy and soon became a popular event across the world. In the residential area where the buildings were close to each other, people went to balconies to sing or play instruments to share with the neighbors. It might be an impromptu song with instruments and multiple vocalists, a beloved anthem about their city (VanDerWerff), or a freestyle DJ performance. In Italy, from Bologna to Rome, the requirement for the participation was even more open, basically anything that could make a sound can join the concert. People called this nation-wide concert "Flash Mob Sonoro," or a sound flash mob, either a pot or a wooden spoon, was qualified to be a part of this spontaneous event (Taladrid).
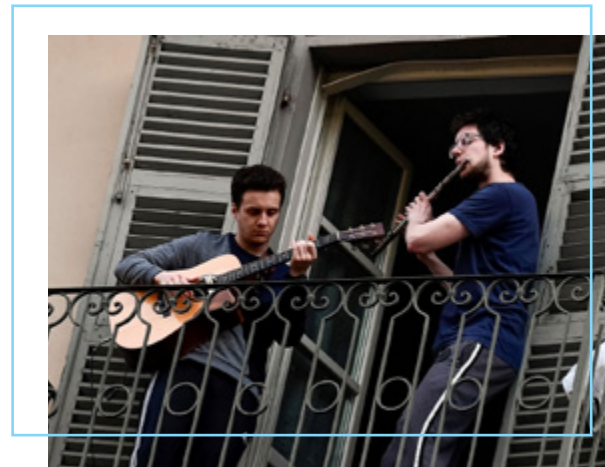
← Figure. 16 - By Nicolò Campo
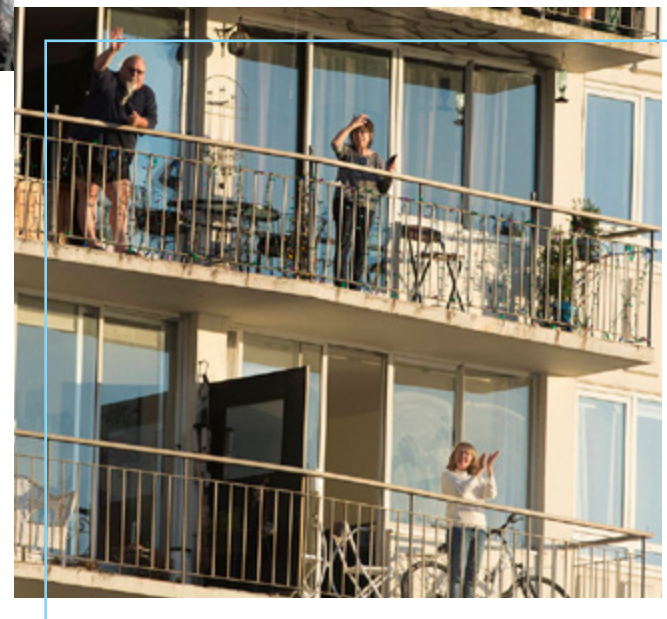
People are seen clapping on their balconies in Vancouver, B.C. Tuesday, March 24, 2020. Thousands of people in Vancouver's west end have been going out on their balconies to applaud the front line heath care workers each night at 7pm. →

Figure. 17 - By THE CANADIAN PRESS, Jonathan Hayward

In Germany, people were invited to the balcony concert to play or sing the famous tune by Beethoven, "Ode to Joy" on Sunday, March 22nd. A horn's notes broke the quietness of quarantine, then a flute, followed by a clarinet. People who did not play an instrument can sing along with the melody. "Nobody expects a perfect musical event! Being there is everything" was the motto of the "Musicians for Germany" campaign initiated by various German music associations (Boutsko).

From musicians, music lovers, to professional or not, people all gathered in the balconies to enjoy the music and supported each other. The language of music is common to all generations and nations," Gioachino Rossini, the virtuosic opera composer, once said. "It is understood by everybody since it is understood with the heart" (Taladrid). Music has provided unity in times of division throughout history; even if only for a moment, it can also help people transcend the anxiety brought by a pandemic (Taladrid). As music is an effective remedy against loneliness and dampened spirits, the balcony concert helps residents stay mentally healthy and create a sense of community in times of increasing isolation (Boutsko).

Although the streets were empty, the beautiful music from the balconies fills up the roads and decorated with the rainbows on the windows. These spontaneously visual, musical, and verbal connections help build an alive atmosphere in the local neighborhood when people maintain social distancing.

By connecting and getting support from neighbors, it would raise residents' social trust and the sense of social belongings. Therefore, people would be less likely to feel lonely and depressed.

Figure. 18 - From Instagram account kimprintsframing

3.2

USING DIGITAL SPACES

Compared with the balconies concerts that the local community performed, the online live show "One World: Together At home" was held on more than 60 global broadcast networks, nine digital platforms, and hundreds of affiliates across more than 175 countries. The concert was organized by Global Citizen and the World Health Organization to help fight boredom and simultaneously raise funds for the COVID-19 Solidarity Response Fund. For six hours on Saturday, April 18th, the featured top musicians from all over the globe performed from their home via Livestream. In the end, it helped raise $127.9 million in support of healthcare workers in the fight against the pandemic (Scott, Global News).

The online concert gathered famous worldwide celebrities virtually and utilized their influence to make a significant social impact. Online space plays an irreplaceable part in connecting people in the pandemic time. The sense of space is being shaped in today's digital world since there are various tools people can use to stay connected with others in online areas.

Staying in close touch with the support network online is practical and efficient, like FaceTime, Skype, House-party, or other video platforms. Digital technologies make online meetings timely and convenient for either study or work. Social media and online games help people stay connected and entertained.

Figure. 19 - YouTube Global Citizen

BY ONLINE COMMUNICATION PLATFORMS

According to the online platforms Netflix, Disney, YouTube, they have to reduce streaming quality to cope with and guarantee the regular use due to the high demand that grows all a sudden. While Microsoft has been grappling with the massive market on its servers, with a 775% increase in team calling and remote meeting monthly users in Italy in March, with over 900 million meeting and calling minutes a day and 44 million daily users over the space of a single week according to its website (Leather, Forbes).

The video conferences platform - Zoom achieves a user boom after the outbreak of coronavirus. More users in 2020 are added than it did in all of 2019, according to Berstein Research. The research firm said Zoom added 2.22 million monthly active users in 2020 so far, compared to 1.99 million in all of 2019. (Beauford) App tracking firm Apptopia said Zoom was downloaded 2.13m times around the world on March 23rd, the day the lockdown was announced in the UK , up from 56,000 a day two months earlier (Neate). Even though the privacy protection of Zoom is still being criticized, the increasingly growing users reflect that as long as there is no better substitute, more and more users will download and start using video conference.
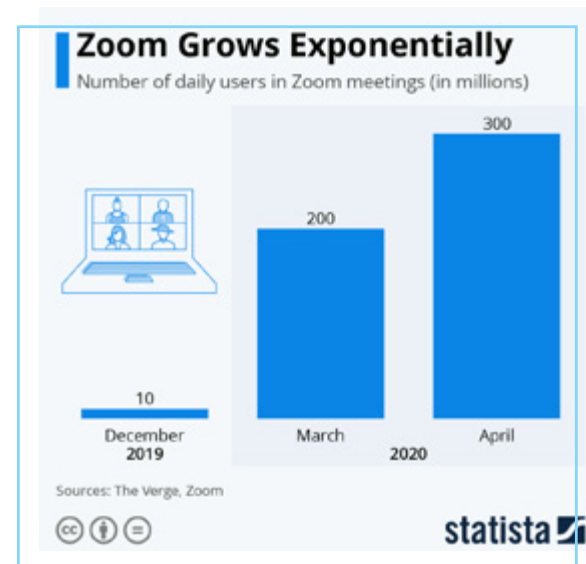
Figure. 20

BY SOCIAL MEDIA

While video conference became the leading way to meet for work, study, and communication during the coronavirus pandemic, social media also plays a vital role in keeping people interacted. Social media users spontaneously share feelings, emotions, or seek support from their friends and families by posting images, video, or a couple of words. Plus, social media campaign strategies are widely used to motivate people to share their status and connect with others.

Using hashtags to post similar information has been commonly used to raise awareness and connect the individuals. Instagram takes advantage of hashtags and launches the "Stay Home" sticker to encourage social distancing. Not only the label itself, Instagram also launches a new group Story which gathers together Stories frames in which users have applied the Stay Home sticker. In this case, the Stories with the Stay Home sticker show up in front of all the stories as one group and form one virtual community. It creates an atmosphere of staying at home and makes the isolated people at home connect virtually with the others.

Figure. 21 - By Eddie Garrison

Some other campaigns, like old photo share and tag, also quickly spread out on the internet. People who are tagged by a friend have to post an old photo and then keep tagging ten friends. This campaign provides an excuse for people to interact with friends by bringing up old memories. Sharing old photos can encourage people to get reconnected with their old friends, enhance their relationships, and finally eliminate the mental pressure from the pandemic (Lim, The Conversation).
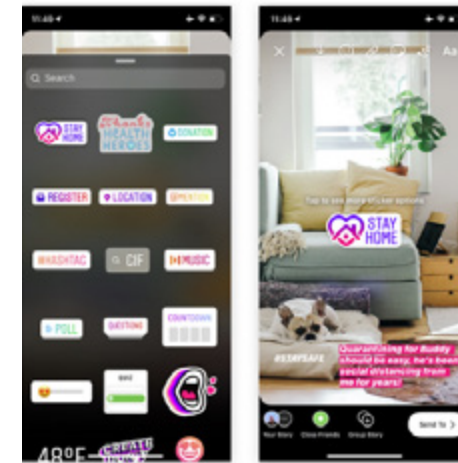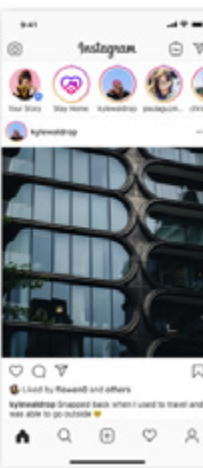
BY HOUSEPARTY

Houseparty is another mobile application that helps fulfill people's needs for group meet ups. It is like a casual version of video conferences, where users can hold online parties and play games with up to seven friends, such as Heads-ups. Houseparty has been rapidly growing among young people worldwide, as it is designed for social hangouts. According to data from App Annie, the average weekly downloads of the app have climbed to more than two million in March from 130,000 a week in February. In Italy, the week of late March saw Houseparty downloads surge 423 times higher than the average weekly number of downloads in Q4 2019. In Spain, Houseparty skyrocketed with 2,360 times the number of downloads in the week ending March 21st, compared with Q4. Notably, the Houseparty market of Spain never had wide-scale penetration before the COVID-19 outbreak (Perez, Techcrunch).

"I've been to three or four different parties in one night," said Andrew, a 30-year-old advertising executive, of the app, which allows users to congregate spontaneously with their friends via video hangout to carry out their usual social activities , just virtually. Houseparty has already prompted a new set of social rituals. The initial focus of Houseparty when it launched in September 2016 is "shared experiences," offering in-app games such as trivia or screen-sharing services that allow friends to go on dating apps or watch TV programs together (Murphy, the Irish Times). Social games are a significant part of Houseparty, as it reports that nearly half of users having conversations are playing games (Perez, Techcrunch), and the users spend an hour on average in the app (Murphy, the Irish Times).

When the pandemic is over, would Houseparty and the other video chat apps become a continuing way of connection rather than a pandemic-induced fad?

Growth in Downloads of Video Conferencing Apps
During Week of March 15-21, 2020 vs. Weekly Average for Q4 2019
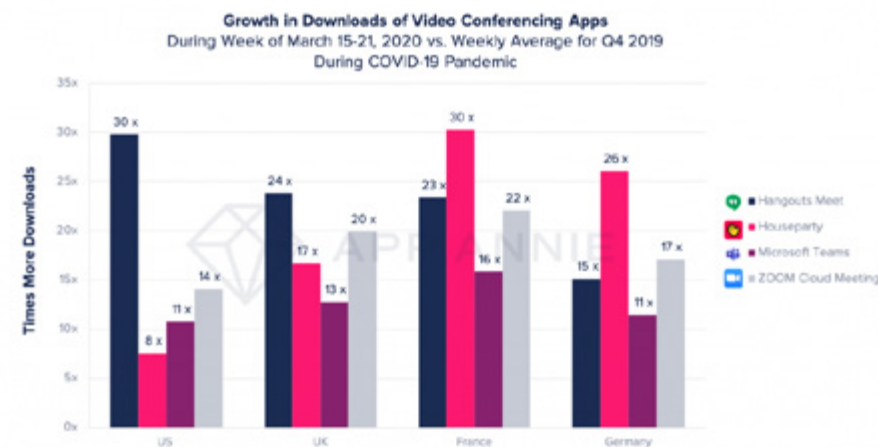During COVID-19 Pandemic

Figure. 22- From App Annie

"As people face uncertain timelines for the length of social isolation, video conferencing apps have the potential to influence our daily habits vastly. By breaking down geological barriers and fostering the ability to work and socialize relatively seamlessly," noted by the app data company App Annie. "It is an unprecedented time for the world and an incredibly dynamic time for mobile, we see shifts in consumer behavior surface daily across virtually every sector," App Annie concluded in its report (Perez, Techcrunch).

While the pandemic outbreak challenges the way human beings used to socialize, it may potentially influence future life. In the long run, when the pandemic is over, would Houseparty and the other video chat apps become a continuing way of connection rather than a pandemic-induced fad? Would it change people's social behavior in the long run? Would online social activities gradually replace physical, social events? It is difficult to see through the outcome of the crisis when we are in the middle of the pandemic. The world never stops changing, and people's behaviors are changing accordingly. By the end of the day, it would depend on these Apps to maintain their competitiveness to keep the users engaged.

BY VIRTUAL GAMES

While video conferences, social media, and online party applications make online work, study, and socialization possible, online games build up a completed virtual world for people to gather and have fun. The worldwide sold out of the game player Nintendo Switch exactly showed people's increasing need for online entertainment. The Switch player has already been a best-seller to date. However, global coronavirus quarantine lockdowns have caused them to fly off physical and digital storefronts, so it's nearly impossible to get one.

Switch sales increased 150% over many markets during March when the lockdowns began (Tassi, Forbes). The growing sale of Switch is not only because of people's increasing need for entertainment but also because the city's lockdown affects the regular working routine of millions of people. The people whose job got lost or reduced by the pandemic get much free time at home (Leather, Forbes). The tones of free time have lead people to purchase products they usually would not use to help pass the time while stay entertained.

The switch game Animals Crossing became the most frequently mentioned topic after the quarantine and social distancing. Animals Crossing provides a cozy and relaxing virtual world where people can socialize and escape from the real world (Khan, The New York Times). "It's now the No. 1 most talked-about game in the world, dethroning the likes of Fate/Grand Order, which held that title for nearly two years, and Fortnite," said Rishi Chadha, global head of gaming partnerships at Twitter. "The growth in the conversation has been astronomical. Conversation volume since launch has grown over 1,000 percent, and the number of people tweeting about it has grown over 400 percent."

What makes Animals Crossing stand out from all the other games in the pandemic? In general cases, people mostly play online games for excitement and adventure. However, at the moment, what individuals need is merely peaceful and relaxing socialization. In Animal Crossing, there are no high scores or final bosses. The game plays in relaxed pacing, in which the players can do as much or as little as they want at any time.

Figure. 23 - Screenshot from Animal Crossing

"There's no violence or nastiness that exists. The players get absorbed into the day-to-day things without the real-world consequences," said Romana Ramzan, a lecturer at Glasgow Caledonian University in Scotland who teaches game narrative. "It's like you've been transported to a parallel universe. It's the universe you've always wanted, but can't get." Unlike the traditional game, Animals Crossing is like a lifestyle simulator. The premise is simple: the player is tasked with transforming a small, cartoony island into a bustling village.

The cartoon-like visual style helps build up light and warm atmosphere. The characters in the game are styled upbeat and positive, like sweater-wearing chubby bears or cardio-obsessed squirrels. Animal Crossing follows a real-time clock and calendar, meaning a minute in the game is a minute in the real world. The game changes day-to-day, with new fish, bugs, and other surprises appearing only during certain seasons or months. By mimicking the physical world as realistically possible, it leads the players to get used to the life routine of the game.

Slowly, the island became a digital substitution for Buchanan's real life.

Joseph Gorordo, 35, is a vice president of outreach for Recovery Unplugged, a chain of music-based alcohol and drug treatment centers. He and his clients have been using Animal Crossing as a way to connect while practicing social distancing. Mr. Gorordo said. "With so much of us trapped in our houses right now, virtual meet-up has us support each other in this game in a way we haven't, being self-isolated and in quarantine (Khan, The New York Times)."

Kyle Buchanan is a reporter from The New York Times, and he downloaded Animal Crossing after the lockdown started and became one of the millions of Animal Crossing players. He named his island Akbar and would come to check it out whenever the crushing tonnage of real-world news was too much. On his island, he could simply collect shells on the beach, watch a meteor shower, or encourage a teal squirrel named Nibbles to pursue her dreams of pop superstardom. Slowly, the island became a digital substitution for Buchanan's real life. The photo album on his phone filled up with Animal Crossing screen captures instead of physical experiences. His friends could visit his island by merely connecting their Switches to the internet. He said that he started to worry less about the state of his real-world apartment.(Buchanan, The New York Times).
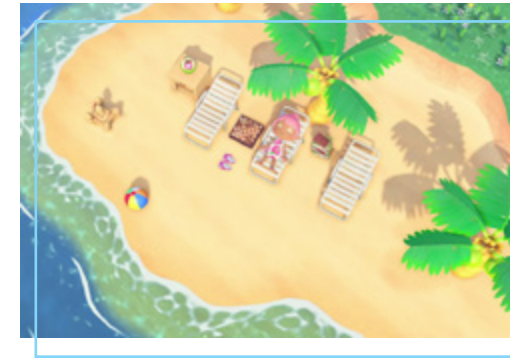
Figure. 24 - Screenshot from Animal Crossing

Overall, Animal Crossing, along with other visual games, build up a real-like and peaceful community for the players who suffer from the chaotic real life. Be in a substituted world where they can have fun and socialize like average time, like visiting friends and having parties. At least in the games, people with their cartoon masks can forget about social distancing and the pandemic crisis for a moment and stay together with their friends in the virtual world.

3.3

POST-PANDEMIC
INFLUENCE

The unprecedented pandemic has brought a significant transformation to people's way of social interaction. The social distancing in the real world brought human beings to the online space for work, communication, and entertainment. At the same time, the bonds in local neighborhoods stood out in the pandemic. When the epidemic ends someday, would people return to the way they used to live?

Perhaps they will become more familiar with their neighbors.

Perhaps they would, even more, appreciate the value of direct face-to-face contact.

Perhaps the people who have sung together from their balconies or applauded together for their medical workers will feel more sense of belongings.

Perhaps we will find a new respect for the workers who produce our food and be aware of how the world is connected.

Online platforms like video conference applications and virtual games became the leading way for people to communicate, work, and entertain. We may start to wonder if human beings would gradually get used to staying in the online space rather than the physical world. Would video conference, online grocery shopping, take-out food become the standard way of living that a lot of real-world activities would eventually be replaced?

By the end, the virus may not be wholly disappeared but gradually become a part of our life. People will get tired of the panic mode and learn to live with the disease. As same as the virus will not be suddenly gone, the new way of social interaction may also not be wholly forgotten. It may gradually become a part of people's rituals. As time goes by, the effect of the COVID-19 pandemic on people's mental health, to people's way of communication, will stay. Even though the pandemic outbreak will eventually pass one day, in a couple of months or one year, its influence would be carried in the society for years and years.

When a storm subsides, the air is washed clean of whatever particular matter has been obscuring it, and you can often see farther and more sharply than at any other time. When this pandemic passes, we may see where we were and where we should go in a new light. We may have a pro-

It may gradually become a part of people's rituals

foundly different sense of ourselves, our communities, our systems of production, and our future. Although changing social distance may be suffering, the quietness of the lockdown and social distancing might be precious for us to reflect on our way of social interaction. How can we connect better with our families and friends? How would a healthy and sustainable communication system look like for us?,

The limited social connection caused by the COVID-19 brought people much free time to appreciate life from a different perspective. When the outside world is in lockdown, people got the chance to spend more time at home and by themselves. To devote more time to baking, cooking, or learn some new skills. The pause from the busy daily routine could make people aware of their surroundings, which generally tend to be ignored. A new awareness of how each of us belongs to the whole and depends on may be strengthened, as we experience the unexpected and profound challenge of the crisis (Solnit). When society resumes back to normal, this temporary pandemic time might be a precious memory for some people. That sweetness plants a seed in people's minds and keeps growing when they feel exhausted with the busy world.

CHAPTER 4

CITIES'
ADAPTATION

TO THE PANDEMIC

People found new ways to keep social connections in the pandemic, and the cities also have their way of responding to the epidemic. A lot of informal interventions in the public spaces were set up to change the urban area temporarily. Different materials, tools, and methods are used in the essential public spaces, like grocery stores, parks, and sidewalks. However, in some places, only temporary changes were not sufficient to provide a pandemic-safe environment.

4.1

DISTANCING
SHOPPING

Stores are essential public places in cities that provide daily supplies. Since most stores are indoor and full of people for the most of the time. The informal marks are quickly set up to help maintain the distances between the shoppers. These rough guides are created right away to modify the space temporally, unlike formal signs that have been designed and tested for years. Public sign design plays a significant role in regulating people's behavior in open space by giving clear guides and visual instruction. Successful public designs facilitate people to follow instructions easily and naturally. It would be compelling to investigate how these temporary designs utilize simple signs to change the use of open space.

In the grocery stores in Vancouver, the notices of keeping social distance are posted at the entrance and around the stores to bring the attention of the public. To ensure enough space for customers to keep the two-meter distance, lots of stores restricted the number of customers in the store. Only one entrance is open to control the volume of customers. When there are too many people inside, the customers have to wait outside until the staff let them enter. When people wait in line, they have to stand on the guided mark to keep the two meters apart from the other people. Instead of entering the store directly and move freely, now, when people shop groceries, they have to find the line and stand at the last distancing mark to wait for entering.

FIELD OBSERVATION AT WALMART, VANCOUVER -
WALKING ALONG THE DISTANCING INSTRUCTION

ENTERING THE STORE

Following the distancing instruction to shopping is not easy. Sometimes you would easily find yourself in a wrong way or conflict with the people walking from the opposite direction. You often have to take a detour to find the things you need because it is one-way. Overall, shopping along the distancing instruction on the ground is nearly impossible because of the confusing instructions and the overly complicated system. The route of shopping is doubled, and it is a big waste of time.

Even though most shoppers followed the distancing rule when waiting in line, like entering the store or checking out, the distancing instruction during shopping in not well kept. The distancing lines at check out entrance are mostly used, but the instruction arrows on the ground are more like a pandemic decoration because most people are used to come to the market and grab the products right away. When the customers shopping, they would not consider much about the distancing either looking down to check the instruction.
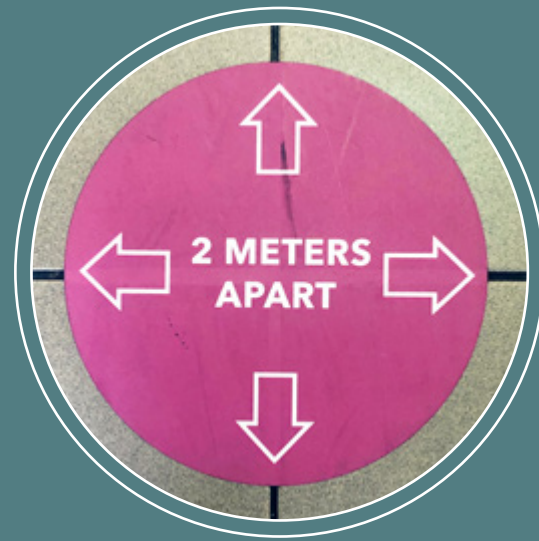
CHECK OUT

FIELD OBSERVATION AT METROTOWN, BURNABY -

SHOPPING INSTRUCTION

- In the stores, the colors of the instructions are usually based on the brand color.
- The graphic is usually circle, arrow, and square.
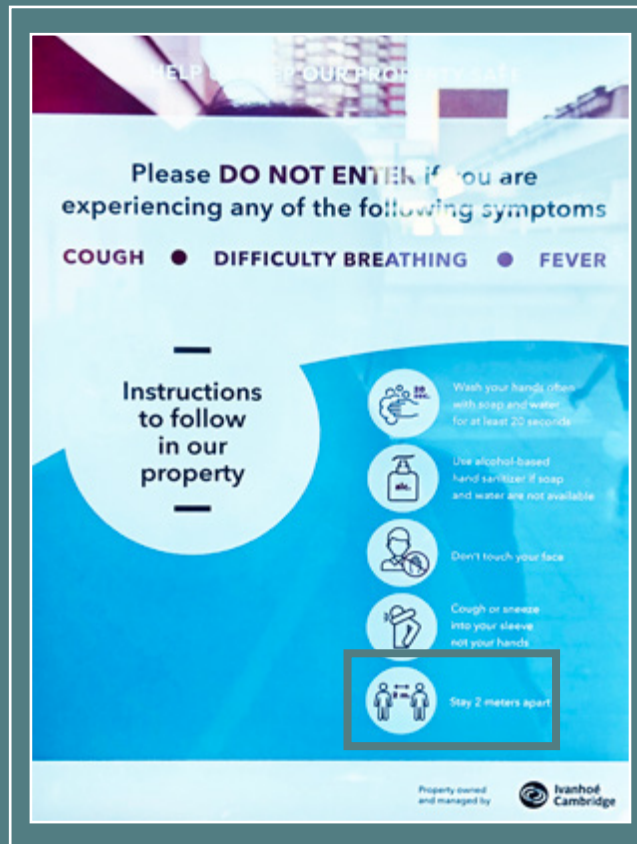
SIGNS ON THE GROUND

VISUAL ELEMENT ANALYSIS

FIELD OBSERVATION AT METROTOWN, BURNABY -

SHOPPING INSTRUCTION

STORES NOTICE

- All the stores require to keep social distancing in stores at all times.

When people wait to enter the grocery store, they still maintain social distancing when there is no distancing mark on the ground.

Although the distancing instruction system looks simple - only different colors of tape marks. From my observation in the biggest shopping mall in Metro Vancouver - Metrotown, all the customers spontaneously follow the new rule - waiting in line for entering the stores. The temporary marks on the ground usually are either short lines, circles, or cross marks. They are well followed by individuals. No one tries to enter the store directly like non-pandemic time, and even no one stands beyond the signs. These simple marks effectively changed the way people use public spaces. The pure knowledge of semiology is used in these visual signs to lead people to follow easily since people are used to the idea of standing behind lines or staying in circles, like in sports or games.

Bsides using visual guides, the Dutch supermarket chain Albert Heijn asks customers to shop with shopping carts or baskets to minimize their contact with other shoppers (Raviv). This method is smart to create distance by utilizing the existing objects. Shopping cart or basket naturally keeps other customers apart and creates gaps from others. Besides, using shopping carts when shopping takes less effort to transform, so it is easy to adapt and more acceptable to the public.

However, imagine if the marks were drawn in a non-coronavirus time, would it still work? It is the stressed pandemic situation makes people more aware of their action, and the crowd psychology urges people to follow others' behavior. The severe pandemic plus the social pressure of society leads people to get ready to change their routines. A new code of conduct in public space is not surprising at this moment; instead, it fits the public's expectation.

HYPERLOCAL MICRO MARKETS CONCEPT

Even though the grocery stores came up with ways to guide the shoppers to keep distance, it is still not ideal to be in the indoor space in the pandemic. Outdoor space is a safer place to shop, but unfortunately, there is a lack of open-air markets in the cities. The architecture studio Shift from Rotterdam proposed an outdoor market model called Hyperlocal Micro Markets to guarantee shoppers to maintain a safe distance. The concept of the model is a 16-square grid that can be easily set up in the public squares of any town or city, allowing people to shop locally without coming into contact with one another during the coronavirus pandemic.

Shift's proposal is based around the idea that existing food markets could be split up and dispersed throughout local neighborhoods. Therefore they call it "micro-markets that operate on a hyper-local scale." The micro market's standard spatial setup consists of a 16 square grid aligned with three market stalls, each selling a different kind of fresh produce such as fruits, vegetables,

dairy products, or meat. The grid is taped on the pavement and fenced off with standard crush barriers with one entrance and two exits. For maintaining social distancing, each cell can only hold one person, and only six people are allowed into the whole grid at one time. These rules are made clear at the entrance of the micro-market. As long as the shoppers flow the rules, the system guarantees a safe social distance.

The designers of Hyperlocal Micro Markets said, "this is done by breaking down the large markets into so-called micro markets that are spread over the city and opening them up for a longer time (Frearson, Dezeen)." The local micro-market model provides a comfortable and safe shopping experience for pandemics by redefining the space of markets. Even though it may not be implemented for the COVID-19 epidemic this time, it provides a vision of how urban grocery shopping system could be like in the future. After the stressful pandemic period, it might be worthwhile for urban planners to think about a more pandemics-safe, more sustainable, and more comfortable metropolitan grocery shopping method.
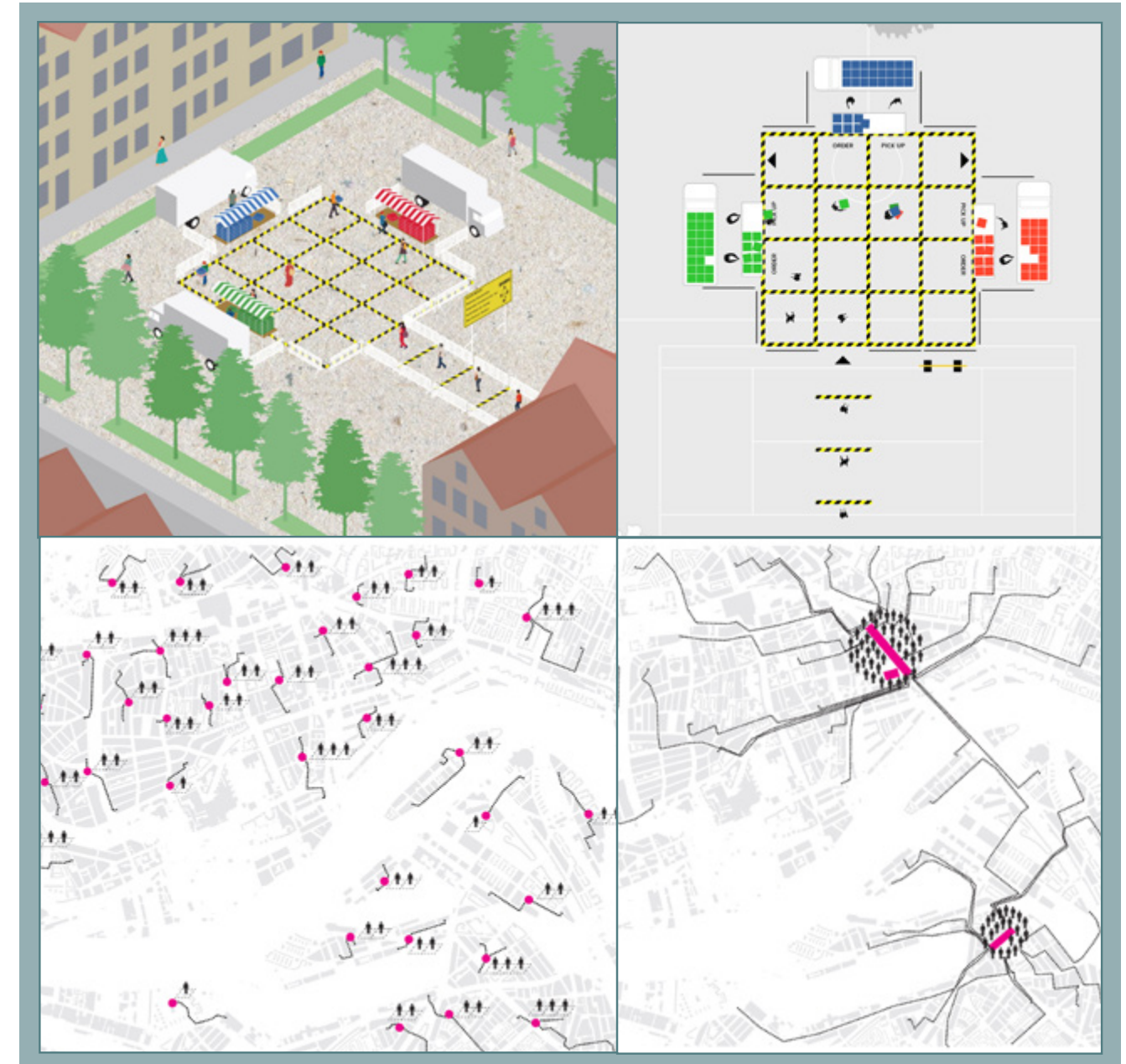

Figure. 25-26 - From Shift Architecture Studio

4.2

BLOCKED
PUBLIC SPACE

Besides the grocery markets, other urban areas like parks have to be adapted for the pandemic. According to the different severity of the epidemic, some countries have forbidden the use of the public open space during the lockdown, like playground, parks, beach, and trails. In some other countries, the public areas are still open with temporary restrictions. The temporary marks that restrict people using these public spaces are more spontaneous and informal.

Many public places have been covered with bright duct tape to prevent specific spaces from being used, to avoid the interaction between people. The project "tape measure" in Singapore documents different forms of public space intervention by tape. It collects photos of the use of tape in open space during social distancing on Instagram. From its collection, it is impressive to observe how a single tap is used differently and functions in different situations.
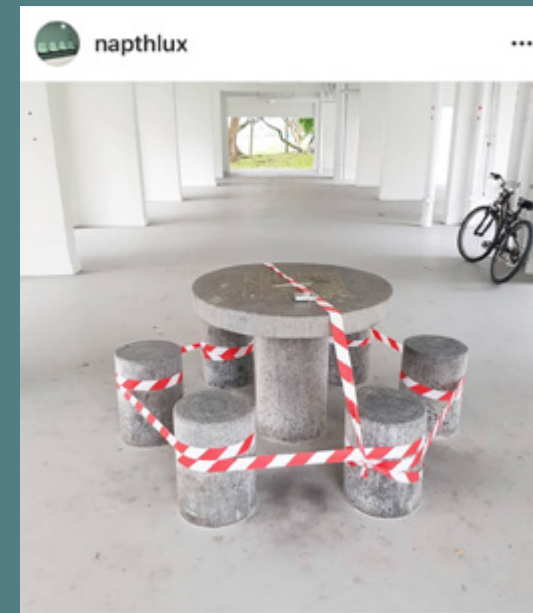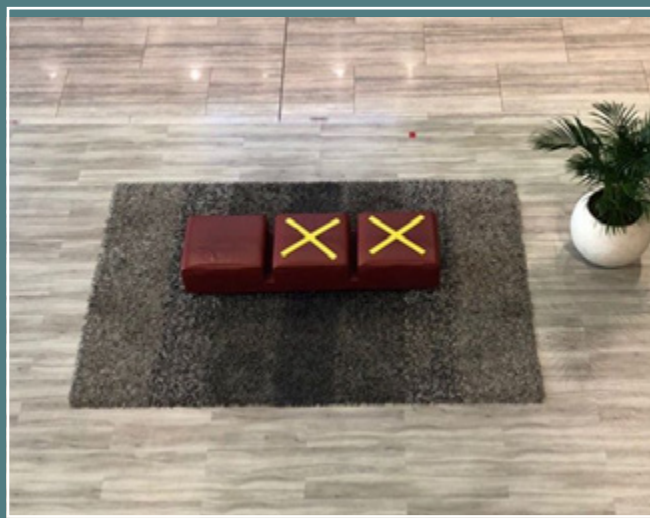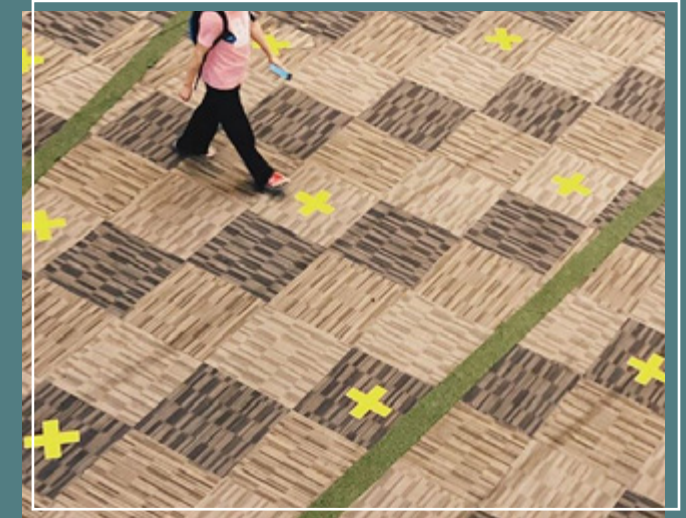

Figure. 27-31 - From Instagram

Like using duct tape to wrap the banned objects, people redefine the use of public spaces by some simple and accessible materials.

Figure. 44 , 45 - From Instagram

The tape is set up and wrapped in various ways to prevent people from sitting on the public bench or using the public picnic area. Basically, the idea is to cover the object around to ban the usage of it. Using tape as a sign of blocking is a universal language to ban entering somewhere or using something. When there is no place to tie the tape, people are creative enough to improvise diverse ways to wrap the tap around the banned objects.

By the end of the day, tapes and marks are every-where in the city. I created this graphic to present the overwhelming look of distancing marks and tape wrapping.

Besides the use of duct tape, some existing materials are also used for stoping people using the public area. For instance, there is one playground in Germany using branches to prevent people from using the swing. The incredible amount of branches almost piles a small hill around the swing. This dramatic intervention is undoubtedly going to function, but if such a large amount of brunches needed? Like using duct tape to wrap the banned objects, people redefine the use of public spaces by these simple materials. The duct tape became a safety sign in time of the pandem-ic. It seems like the more marks in the cities, the safer the cities would be.

The different styles of the tape wrapping redefine the usability of the spaces. It inspires me to refer to the visual style of Pop Art to document the look of this special time.

Through following the color palette and the visual style of the signature Pop Artists Andy Warhol, these illustrations intend to present the pop image of 2020 - COVID-19 pandemic. A time when cities are fully decorated by the duct tape, with all different types of marks on the ground.
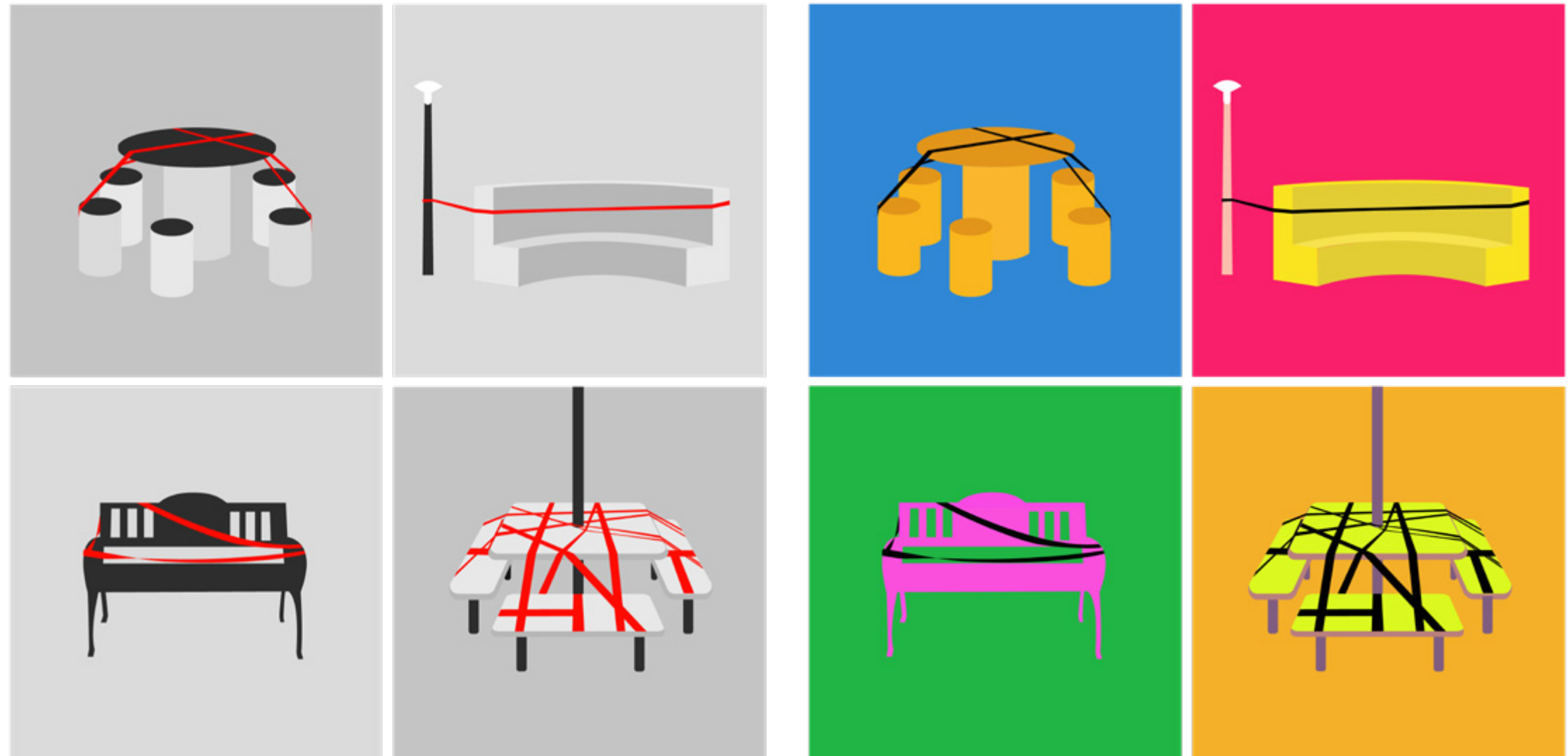
4.3

LIMITED URBAN
INFRASTRUCTURE

Besides playgrounds and parks, some other essential public infrastructure plays a significant part in the urban setting, like sidewalks. Since the city is not initially designed for people to keep such a wide distance, it needs immediate adaptions to redesign the spaces and set social orders. As a result, some public spaces were temporarily closed, partially blocked, or marked up. However, for some other permanent infrastructure that is initially built in limited space, keeping distance in pandemic can be difficult. Some narrow sidewalks that are not sufficient to keep 6-foot apart lead the pedestrian confused when interacting with the other pedestrians, especially when there is no extra space to stay away (Kostelec).

Urban planner Meli Harvey has created an interactive map to demonstrate the widths of all of New York's sidewalks, or pavements, to show whether it is possible to practice social distance effectively. The map aims to analyze how difficult social distancing might be on any given section of the city's nearly thirteen thousand miles of sidewalks. On the map, all the footpaths are indicated in different colors based on the level of easiness of keeping social distancing from blue to red. The sidewalks more than 15 ft wide are in green and represents somewhat easy. 14.9 ft to 12 ft are in yellow means somewhat tricky. Then from 11.9 ft - 9 ft is in orange and means difficult. Finally, below 6 ft is in red and means impossible. Overall, the whole sidewalk map of New York is mostly in orange and red. Only a few roads are in blue and green. That reveals it is impossible or difficult to maintain a sufficient distance when people walk on the street for most of the situations. Most of the sidewalks are not designed to meet the pandemic-safe range.
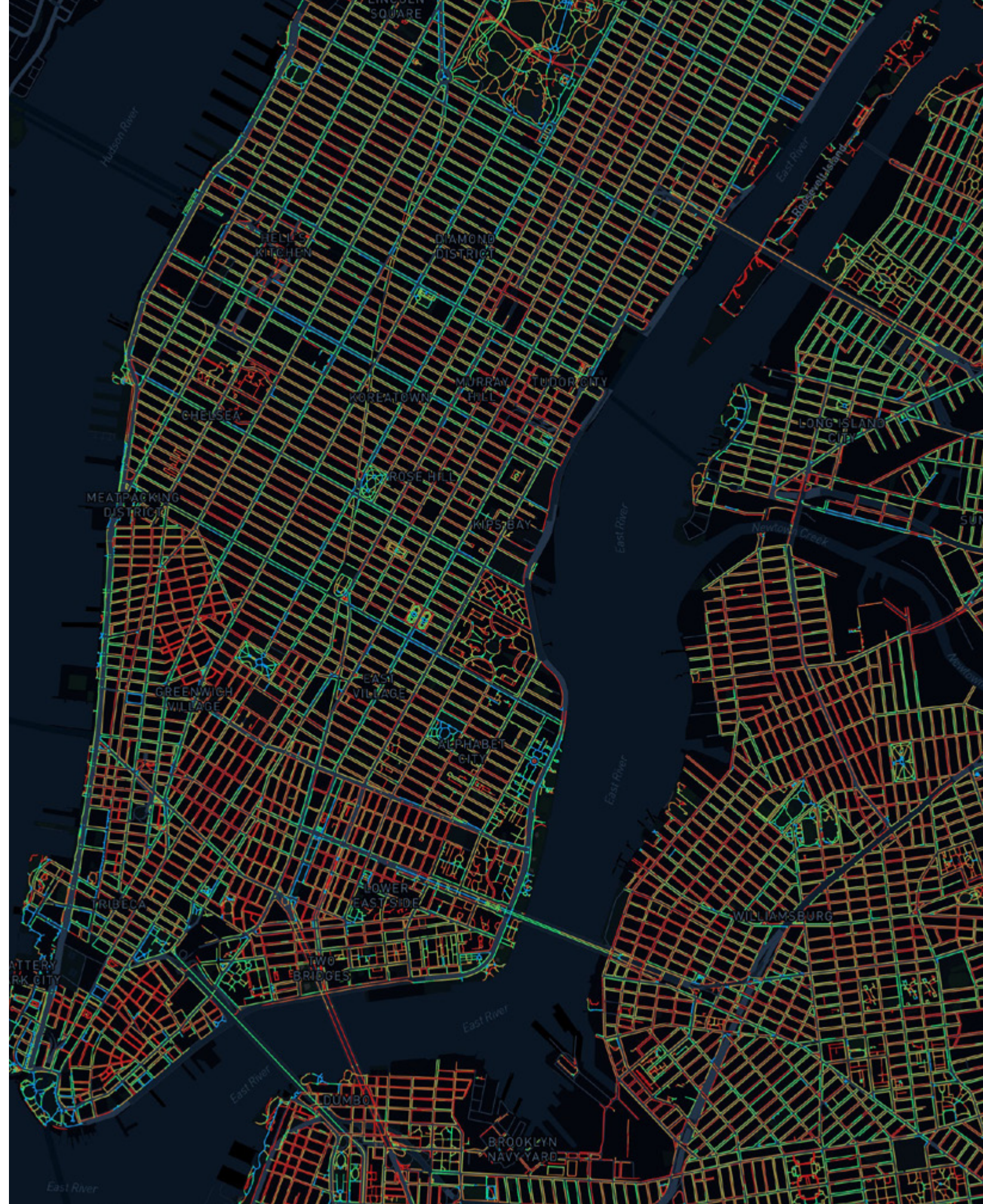
Figure. 46 - From sidewalkwidths.nyc

The over two centuries long term city planning leads the sidewalks in New York not unified. Besides, as the rapid growth of the city population and the city expansion, the city is getting increasingly crowded, and the public space is being condensed. According to the Street Design Manual by New York City Department of Transportation, the sidewalks have to be an unobstructed path of 8 feet or one half the sidewalk width (whichever is greater) in commercial, high-density residential, and transit-adjacent areas. Sidewalks in low-rise residential areas should be at least 5 feet wide. It is easy to find that even the official requirement for the width of sidewalks is less than 12 ft, which is difficult for social distancing. The minimum sidewalk width in low-residential areas, which is 5 feet, is even impossible for social distancing (New York City). The pandemic-safe distance has not to be considered in such a populous city where each inch of the land has to take full use by the official. However, the pandemic questions the urban design, is the original sidewalk guide sufficient?

Apparently, the answer is negative, especially in the pandemic context. The city's infrastructure fails to offer enough support in the epidemic. The pandemic brings a significant challenge to the design of urban space and leads people to rethink city functions. The narrow sidewalks indicate the lack of attention to pedestrians in city design. "I really hope it starts more of a discussion about this incredible infrastructure that is sidewalks," says Harvey, who has been walking and biking the city's streets for nearly a decade. "We walk down them every day, but we don't necessarily think about what makes a good sidewalk." The pandemic may be a beneficial opportunity for urban planners to rethink what cities can do in such an unexpected situation and how cities can help with healthy living in the long run. "We can no longer ignore the health implications of how we plan and design cities," says Eve Baron, the chair of the Pratt Institute's Graduate Center for Planning and the Environment. "It's so clear just from the impacts of the pandemic that there's not enough space to live active, healthy lives, and there's not enough room for people to be outside and feel safe. (Spivack)" How could the urban environment facilitate urban citizens to live active and healthy in pandemics? What role could urban design play for epidemics?

"It's so clear just from the impacts of the pandemic that there's not enough space to live active, healthy lives, and there's not enough room for people to be outside and feel safe. "

How could the urban environment facilitate urban citizens to live active and healthy in pandemics?

CHAPTER 5

REFLECTION
ON
OUR
LIVING SPACE

5.1

THE PROBLEMS

When we look around our city today, obviously, it did not design for distancing but gathering. Especially for crowded urban environments wherein non-corona times city planners and engineers try to come up with solutions to 'squeeze' as many people as possible into major hot spots (Raviv). Although the infrastructure and sanitation system of today's city is highly developed, they flourished to grow even more extensive and denser and got more strongly connected. It became the hotbed for pandemics again as it was throughout history. The past epidemics have transformed city life for hundreds of years. It is not difficult to predict that the COVID-19 pandemic will change the urban design this time.

The cities around the world share some common characteristics, **the dense living condition, well-connected transportation, and the crowded public space**. "Precisely because they are hubs for transnational commerce and mobility, densely populated and hyper-connected cities can amplify pandemic risk," wrote Rebecca Katz, co-director of the Centre for Global Health Science and Security (Constable, BBC Future).

Urban life has already changed from what it was a few months ago. Being urban was about freedom and mingling, but now we are prisoners in our homes.

-Roger Keil, a professor at York University (the harsh future of American cities)

With estimates that 68% of the world's population will live in cities by 2050, the need to build more livable cities will become more urgent and crucial. When increasingly more people squeeze into cities, the **large population density** will accelerate the spread of infectious diseases. Because that leads the space to be overcrowded, which can increase the frequency of transmission. New York, which has had the worst of the outbreak in the US, is the most densely populated city in the country. Residents have struggled to stay far enough from one another in public to prevent the spread of the disease with the limited public space (Constable, BBC Future).

In modern cities, the fully developed public transportation network and highway system lead each part of cities **well-connected**, and each town is also inter-connected with the other. Since the beginning of the COVID- 19, it first broke out in Wuhan where located in the middle of China. Wuhan is one of the largest railway centers and transportation hubs. Therefore the virus got quickly spread to all the provinces in China. Even though the city was shut down, five million people still escaped out of the town by car one night

before. Plus, the travelers who already got infected before the lockdown and the infectors without any symptom. The virus was carried and transmitted silently around the countries and quickly spread to many other countries.

Globalization helps connect the whole world and makes it an integrated community. COVID- 19 pandemic quickly got transmitted to some big cities around the globe from China by business travel, personal travel, even cruise, and started to break out in Korean, Italy, and Iran. From the outbreak in China to Italy it took one month, and from Italy to Germany then to the whole of Europe it only took one to two weeks. In contrast, South America, Africa, and other countries that are less connected with the other countries are affected later and more slowly.

The global supply chain strongly connects the economy and people's daily life in all countries. Communication between the cities of different countries is increasingly common and frequent than ever before. On June 12th, after almost two weeks of no new coronavirus infections, Beijing has recorded over 50 new cases. All cases are connected to a major food market Xinfadi. Accord-

"For the resilient, sustainable cities we all want and need, urban plans need to be designed, evaluated, and approved using a health lens."

- Layla McCay, director of the Centre for Urban Design and Mental Health

ing to an epidemiologist with the Beijing government, the virus might come from contaminated seafood or meat imported overseas. Even though the pandemic in Beijing seems eliminated, with the ongoing pandemic situation in other countries, the virus could still get spread by some unknown path. More than 1,500 tonnes of seafood, 18,000 tonnes of vegetables, and 20,000 tonnes of fruit are traded at the wholesale market every day, according to its website (Reuters). People have no idea how far this second wave of the pandemic has already gone, but only to start panic again and be more careful with interacting with others.

The 21st Century has so far seen Sars, Mers, Ebola, bird flu, swine flu, and now COVID-19. With all the past experiences and lessons of pandemics, how might the future city be prepared, so the outdoors doesn't become a banned zone, but remains a safe and habitable space? People can still meet friends outside without worrying about not having sufficient area to keep safe distances. People can still have safe foods without worrying about being infected by the other countries.

We can see hints of how some urban design approaches could benefit building a livable city. This chapter aims to discover a beneficial direction for pandemic-safe urban planning. Some methods and case studies will be interpreted, including creating more public spaces and green spaces, enhancing the development of local communities, and using the digital infrastructure.

5.2

BUILD MORE
PUBLIC SPACE

Some moves already started to initiate in some cities for the future pandemic, like in Milan. Two months after the outbreak of the COVID-19 virus in Milan, the city announced an ambitious project, "Strade Aperte (Open road)," to transform 35 kilometers of roads into cycle paths and pedestrian areas (Laker, The Guardian). However, initiating such a large-scale urban project can be difficult for some other populous cities. Reusing the existing spaces for the pandemic time might be an ideal alternative.

Plans for Corso Buenos Aires before and after the Strade Aperte project.
Figure. 47 - Composite: PR

MULTIFUNCTIONAL PUBLIC SPACE

New York City councilor Corey Johnson proposed to close off certain streets and open them up for exercise. "You may be able to deliver more social distancing if you pick certain streets that could be shut down," he said (Rubinstein, Politico PRO). It is true that with lots of people working from home and stores shut down, and the traffic is not as much as usual. Transforming less used streets to shared public space is an efficient way to respond to the temporary pandemic. The concept of shutting down the roads for general activities is not newly created. It has already been used in lots of cities for neighborhood activities or to discuss how the city should look like. Like the "Car Free Day" running in many neighborhoods in Vancouver in the summer or the carefree day for the "Strassenland" campaign on the North-South route in Cologne. These successful cases have proved that changing the function of streets is practical and welcomed by people.

Since there is not much traffic on the roads, parking lots are left empty during the pandemic. According to data from SpotHero, parking lot demand is down 90 percent since the epidemic began. "Parking lots are providing areas for pop-up gyms, distancing meetups, and staging areas for parades and drive-by celebrations for birthdays, graduations, and first-responder thank you," said Catherine Nagel, the executive director of the City Parks Alliance. "It provides a way to celebrate and connect (Surico, Bloomberg)."

The street shut-down leads the function of precious urban spaces to be flexible and multifunctional. The multifunctional land-use redefines the role of areas and provides more opportunities for urban planning. Atieh Ghafouri discusses the benefit of multifunctional land-use in the large scale of urban planning. Beyond changing the role of certain streets, he proposed to build the multifunctional and interconnected urban districts to live, work, shop, and play. By combining the different socio-economic functions in the same area, it intensifies the use of scarce space while maintaining a high level of spatial quality. Moreover, there are more disadvantages to the current zoning urban system, showing that single function residential complexes lack necessary dynamism, mobility, and diversity. The concept of multifunctional urban space would keep the advantage of zoning then adapt to a mixed plan to achieve a sustainable urban form (Ghafouri).

The successful street shut-down cases and the multifunctional land-use urban planning concept present the prospect of transforming certain streets into public spaces. It is both practical to implement and beneficial to urban development. More open spaces would provide opportunities for people to interact with each other and boost the social bonds in the neighborhood, especially during the pandemic crisis when the public support and social connection become even more needed.

Green space promotes exercise and socialization, reduces exposure to air and noise pollution, reduces stress, restores attention, and builds a sense of community and place attachment.

MORE GREEN SPACE

Besides building more public space to get more fresh air and connect with others, having more green space is helpful for mental and physical health, especially during pandemics. Marianthi Tatari, an architect at UNStudio Amsterdam, says, "20 minutes of 'green time' a day helps to give people a healthy and humane approach to our present situation (COVID-19 pandemic)". An investigation of the effect of greening vacant land on the mental health of community-dwelling adults proves the psychological benefits of green space. It finds that creating urban green areas can reduce feelings of depression and worthlessness. Through researching the randomly selected individuals, between individuals living in clusters which were greened versus those who were not, the researchers demonstrated significant reductions: depressive feelings were reduced by 41.5%

and feelings of worthlessness by 50.9% (South). John King further explains that green space promotes exercise and socialization, reduces exposure to air and noise pollution, reduces stress, restores attention, and builds a sense of community and place attachment (John King 2018).

There are some cities around the world already implementing this concept in their urban design. Therapeutic gardens in Singapore are outdoor gardens for boosting the mental and emotional well-being of citizens. Since 2016, they were designed by the National Parks Board of Singapore to meet the physical, psychological, and social needs of park users, incorporating design principles derived from scientific evidence. With therapeutic horticulture programs involving plants and nature, visitors can experience a range of

health benefits such as the relief of mental fatigue, reduced stress, and an overall improvement to emotional well-being (National Parks Singapore).

As one of the most urbanized megacities, Tokyo is facing many urban issues ahead of other cities, like over-population, aging population. For making their residents live in a happy and healthy neighborhood rather than feel isolated, the city empowers citizens to work with urban designers to add more green to improve their local communities (McCay, 2018). As the government believes that access to nature is essential for mental health and well-being, Tokyo's Comprehensive Policy for Preserving Greenery (2010) has led to the designation of special districts and zones in Tokyo. That includes the conservation districts for promoting urban green spaces and suburban

green zones for maintaining the mental health of suburban residents, and scenic areas for conserving the picturesque urban environment (McCay, 2017).

When cities fail to provide enough green open space during the epidemic, it will directly lead to the closure of green spaces. The towns would rather shut down the parks or force people to stay inside to control the transmission of the virus. In the UK, private green spaces were opened and subsequently closed amid fears of helping spread the disease. Therefore, setting up more green space is crucial to guarantee enough spaces for outside exercise and mental health in the circumstance of pandemics. Cities always have to prepare more green space ahead for the unpredictable epidemics.

5.3

LOCALIZED
COMMUNITY

Figure. 49

Building more public space, including more green space, is against the increasingly crowded population. The problem of tight connections in the cities and between cities also needs to be tackled. As globalization severely accelerates the outbreak of the pandemic, localization of essential services may be an alternative way for the future urbanization (Klaus, Bloomberg). The trend of local community development has been spread around the world in different disciplines. In contrast, the benefits of it have been discovered through the urban plan, social design, environmental and economic perspective.

Continuing with the future urban plan of Tokyo, Instead of focusing on city centers, it proposes to reconfigure the infrastructure of the outskirts. It pictures the future megacities to be a combination of hyper-local neighborhoods; villages within the city, ensuring that people can walk to their grocery store, library, post office, health clinic, social club, and other such local amenities. The approach represents a shift from facilities being

centralized to one where people can live well locally. The Tokyo Metropolitan Government supports efforts that encourage local identity and "enhance community charm" by "incorporating local color and characteristics." It believes decentralizing amenities and developing a neighborhood's character can foster both opportunity and belongingness (McCay, 2018).

Elvis Garcia, an expert in public health and a lecturer at the Harvard Graduate School of Design, agrees with Tokyo's urban plan that the city of the future needs to be more localized, not just in essential supply but in access to day-to-day amenities. "Maybe in the megacities, you have to create small nuclear entities," he says. "And each nuclear entity has all the resources inside." One example of this is the 20-minute city, which was being trialed in Melbourne, Australia, before the coronavirus outbreak. In a 20-minute city, almost everything a citizen needs, from shopping to healthcare to exercise, is within a 20-minute walk or bike ride (Constable, BBC Future).

The "SLOC "(Small, Local, Open and Connected) concept from Ezio Manzini also matches with this urban plan concept. Manzini, known for social innovation design, called this "hyper-local neighborhoods" cosmopolitan localism and further explains the culture of a society in which places and communities are not isolated entities but become nodes in a variety of networks (Manzini 2015). From this explanation, the relationship between local communities and the whole society becomes more apparent. To decentralize the urban system and focus on the smaller scale community do not mean to lose the connection between the urban residents. Indeed, small is not small; local is not local. Today the small can be influential at the large scale as a node in a global network. And the local communities can break their isolation by being open to the outside flow of people, ideas, and information (Manzini 2010).

The science journalist and author of The Fever and Pandemic Sonia Shah suggest that our cities may need to become more localized and self-suf-

ficient in the future to reduce the threat from outside. "If you had a city, for example, that could feed itself," Shah suggests. "It's not like each place has to be an island, but that there's some kind of sense of balance and sustainability that you can see within your own settlement (Constable, BBC Future)."

Especially under the context of the pandemic, when the frequent connections help the virus to spread, the profit of a self-sufficiency community would stand out. For instance, the Hyperlocal Micro Market project that sets up a local grocery shopping system. It minimizes the interaction in grocery shopping to a small group of neighboring residents. Therefore, it leads to fewer opportunities for viruses to spread. The concept of "15-minute city" proposed by the mayor of Paris Anne Hidalgo also shares the same vision. It aims to have residents to reach all their needs, work, shopping, health, or culture, within 15 minutes of their own doorstep.

Hidalgo's adviser Carlos Moreno, a professor at Paris-Sorbonne University, explains this concept from the six factors that make an urbanite happy. "Dwelling in dignity, working in proper conditions, gaining provisions, well-being, education, and leisure. To improve the quality of life, you need to reduce the access radius for these functions." That commitment to bringing all life's essentials to each neighborhood means creating a more thoroughly integrated urban fabric, where stores mix with homes, bars mix with health centers, and schools with office buildings (O'Sullivan).

The concept of walkable community is also initiated by climate action in many other areas, like the "20-minute neighborhoods" in Portland, Oregon. Portland's Climate Action Plan sets an objective for 2030, calling for vibrant neighborhoods in which 90% of Portland residents can easily walk or bicycle to meet all essential daily, non-work needs (City of Portland). By the time, more road space would be replaced by pedestrians and bike lanes. In the end, it will lead to more public space in the city, which provide more opportunity for residents to meet and interact.
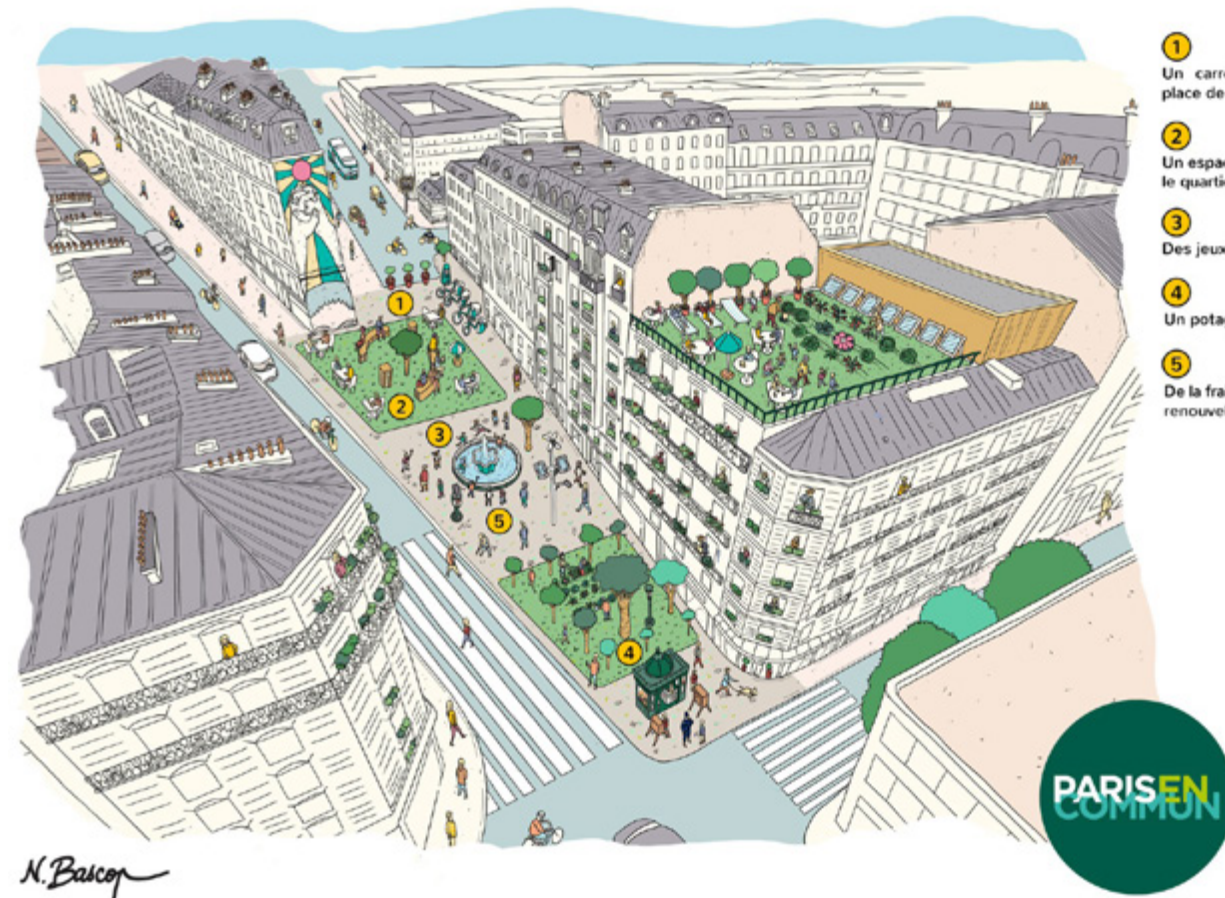
1 Un carrefour transformé en place de quartier

2 Un espace de convivialité pour le quartier

3 Des jeux pour les enfants

4 Un potager partagé

5 De la fraîcheur et des énergies renouvelables

Figure. 50

The ongoing pandemic of COVID-19 is a strong warning that urbanization has defined and limited the way people live, work, and interact. The adaptation of the urban system and local capacities to prevent the spread of infectious diseases is needed (Lee).

5.4

DIGITAL
INFRASTRUCTURE

During the COVID-19 pandemic crisis, the online system played a significant role in our society on communication, shopping, socialization, and entertainment. Through online shopping, people can get all the life essentials, order food without going out. It is the online platforms that help people stay home with all the living needs and reduce the transmission of the virus. In the urban setting, when people go out, online platforms can also help with keeping social distancing and avoiding crowds. Like the app Filaindiana from Italy, it tells users how many people are queuing at the supermarket so they can choose the right time to shop (filaindiana.it).

If we think about applying digital technology in urban systems to a bigger scale, how can digital technologies be utilized in cities to maintain health in pandemics? Keeping social distancing in China is nearly impossible with such a dense population. As cities reopened from the lockdown, besides forcing everyone to wear masks, a health code system has been established national-wise. Each resident has a coloured-QR code that shows their health status based on their footprint and health conditions. People need to show their QR code when traveling on their smartphone application, either WeChat or Alipay.

Figure. 52 - From Xinhua

A Chinese driver shows his health code as he goes through a health inspection at a toll plaza.

Figure. 51 - From Xinhua

The health code traces people's health conditions and where they have been recent. It needs to be checked whenever people enter their apartment, the workplace, public transportation, or grocery stores. Based on the data of travel history, the software can analyze the risk of getting infected and categorize the health status into three levels-green, yellow, and red. When traveling, either by car, train, or flight, the health code has to be green. People with a red health code are instructed to remain quarantined for 14 days and provide regular check-ins via DingTalk, a workplace chat app also run by Alibaba (Horwitz, Reuters). A red code means you either have or likely have the coronavirus, while a yellow code means you have had contact with another infected person (Ankel, Business Insider).

The health code was first established in Hangzhou in February by Alibaba, 2020, then quickly expand to Zhejiang province, and the whole country. This digital health system not only requires an advanced online platform to manage all the data on the backend but also needs a considerable data collection network at each corner of the city. Authorized by the local governments, more than 200 hundreds cities established the

health code system in two weeks, it was crucial to build up a unified health identity between cities and make sure the health codes can be identified cross cities. The complete information of people's footprints is collected as big data to trace the source of infections and control the virus transmission. In this way, once there is someone who gets infected, all his footprints will be published, and the code of the people who ever been to the same place will turn to yellow to help prevent the further spread of the virus.

Some experts see the health code system not only serve for the pandemic but also can be used for the future smart city. Prof. Jianxing Yu, the dean of Public Management, Zhejiang University, believes that the health code creates a technical possibility for future social management. There is more value of health code that can be further discovered and applied in different scenarios (Gu 2020). Modern planning and civil engineering were born out of the mid-19th century development of sanitation in response to the spread of malaria and cholera in cities. Digital infrastructure might become the sanitation of the future city, an infrastructure of big data that monitors and documents people's life.

The health code traces people's health conditions and where they have been recent. It needs to be checked whenever people enter their apartment, the workplace, public transportation, or malls.

While the residents in China feel safe about this digital infrastructure, many Western experts criticized this central surveillance system (Ankel, Business Insider). The full exposure of footprints may sound like a dystopia for personal privacy since you never know if your data will be misused once it got exposed. Maya Wang, the Human Rights Watch researcher in China, confirmed that the data tracing in Corona-19 would be one of the milestone events in big-scale surveillance in China (Mozur, The New York Times). The use of personal data is a long-lasting question that needs to be continually discussed. However, it is undeniable that the health code system provides the possibility of a future smart city.

The balance between personal privacy and public health benefits is challenging during the implementation of the health code system. Even though the whole data system could be very useful in controlling the pandemic outbreak, the law of privacy protection still needs to be further established. As technology keeps developing and the relationship between human beings and digital infrastructure getting shaped, a deep apply of health code can be expected in the future.

CHAPTER 6

OUR VISION

AFTER

THE PANDEMIC

After several months of pandemic life, adapting to the new ways of keep connections, working at home, not hanging out with friends as usual.

How do people feel about the whole experience? What can we learn from this pandemic experience for the future healthy living?

By the time I finish this thesis, the time will turn to the middle of June 2020. The peak of the COVID-19 pandemic outbreak was already past in most of the countries, and society has been returning to normal slowly. The stores, playgrounds, museums, and restaurants are reopening, but with the enhanced hygiene measures. People are allowed to go out as usual, but all have to wear facial masks. The answer to whether we have already been back to normal or not and when we can eventually return to normal still seems unknown. Like German Chancellor Merkel said on May 6th, the first phase of the pandemic is behind us, but we are still at the beginning, and it will be with us for a long time (Halasz , CNN).

CITY OBSERVATION - VANCOUVER, CANADA

—

Whether we have already been back to normal or not? When can we eventually return to normal?

—

Metrotown, Burnaby

When our society slowly returns to normal, do you think the pandemic would still influence our way of living?
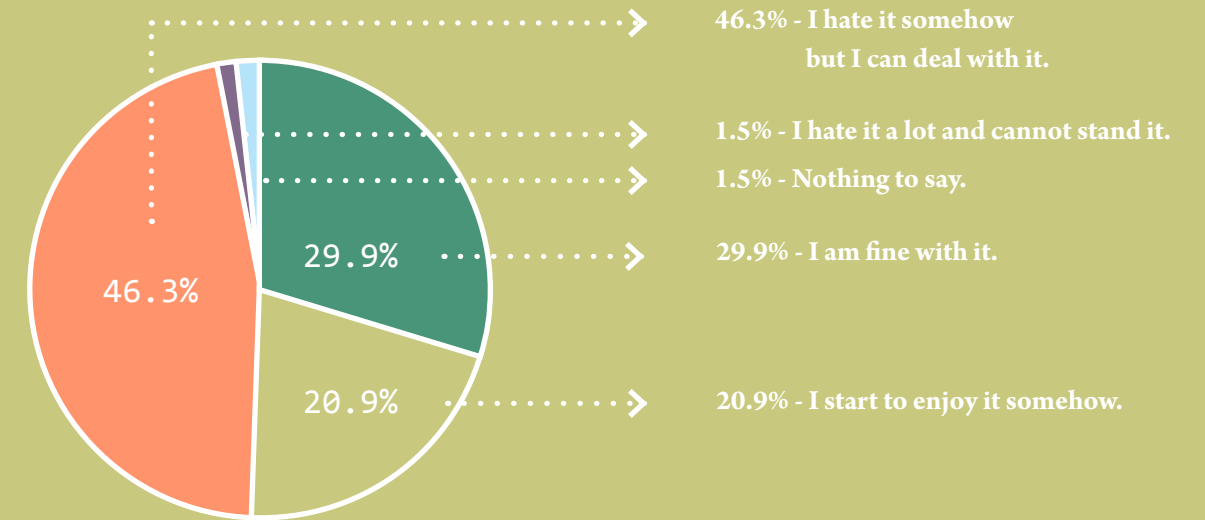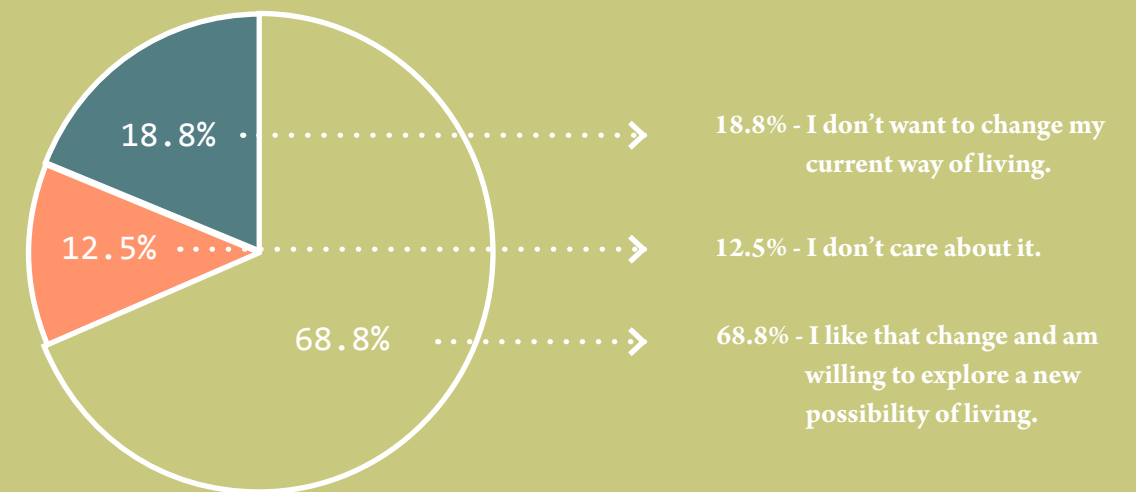
6.1

PEOPLE'S

FEELINGS

I surveyed on 70 participants in the middle of June, three months after the pandemic outbreak. The study includes five simple questions about people's thoughts and feelings after what they have been experienced during the pandemic. The survey has some limitations since the number of participants is not large enough to represent people of all ages and backgrounds. From the result of this survey, we can see some valuable findings. Like, 70% of the participants would like to explore a new way of living after the pandemic.

- **Over 80% of the participants' lives have influenced by the pandemic somehow or a lot.**

- **30% and 20.9% of the participants feel fine and start to enjoy the changes brought by the epidemic.**

- **52.2% of the participants believe that mostly like the pandemic would still influence our way of living when our society slowly returns to normal.**

- **70% of the participants like the potential influence that the epidemic might leave on their way of living, and they are willing to explore a new possibility.**

After several months of staying at home, staying social distancing in public, not able to meet friends as same as usual, how do you feel about this change?

46.3% - I hate it somehow but I can deal with it.

1.5% - I hate it a lot and cannot stand it.

1.5% - Nothing to say.

29.9% - I am fine with it.

20.9% - I start to enjoy it somehow.

How do you feel about this potential influence that the pandemic might leave on your way of living?

18.8% - I don't want to change my current way of living.

12.5% - I don't care about it.

68.8% - I like that change and am willing to explore a new possibility of living.

I learned a lot of new card games, I improved my cooking skills and I did some illustrations

I bought a new sewing machine and started to do Machine embroidery stuff and I read a lot of books

I started to enjoin playing video games with friends even more than before. Besides that I stayed really unmotivated and lazy all the time.

I learned to accept certain circumstances (better, I'm not there yet :D)

Did a Lot of Yoga and Meditation, Learned to play the piano, reflected on myself and my future

I learned how important physical activities are.

Meditation is a good thing if you are stuck in Milan in an eight square meter room.

Lots of things become online now.

To focus on myself

I finally have more time to enjoy the nature and draw again

No skill learned, but I have more time stay with family.

Learn new language.

Take your time, you can't change it

I got better spending time by myself

Playing Vertical Flute

On the weekends I spend time in the garden and learn more about plants. Also I realize that I can't handle 5 days of computer work and online meet-ings a week. Especially because the socializing in bigger online group meetings doesn't work.

Have learned all the theories of machine learning using about 6 weeks

New recipes I've tried out

Being more attentive to the environment.

learning a new 3D skills, playing new games, learning trivial things like which supplement I need to take daily, cleaning my room more frequently, move and set things differently in my room for a different atmosphere, wak-ing up early, making a grocery list, etc.

I did not know I could be so disciplined. I started developing a routine and do things I did not like to do before like cooking and working out.

What exactly has people's way of living been transformed? And what is the new possibility of living that people have in mind? For having a more comprehensive view of those questions, CityLab invited readers from all over the world to draw maps of their societies in the time of coronavirus. Nearly 400 maps are finally collected from daily work routines, and the routes of your, sanity walk, to the missing people and the fled places (Bliss, Bloomberg).
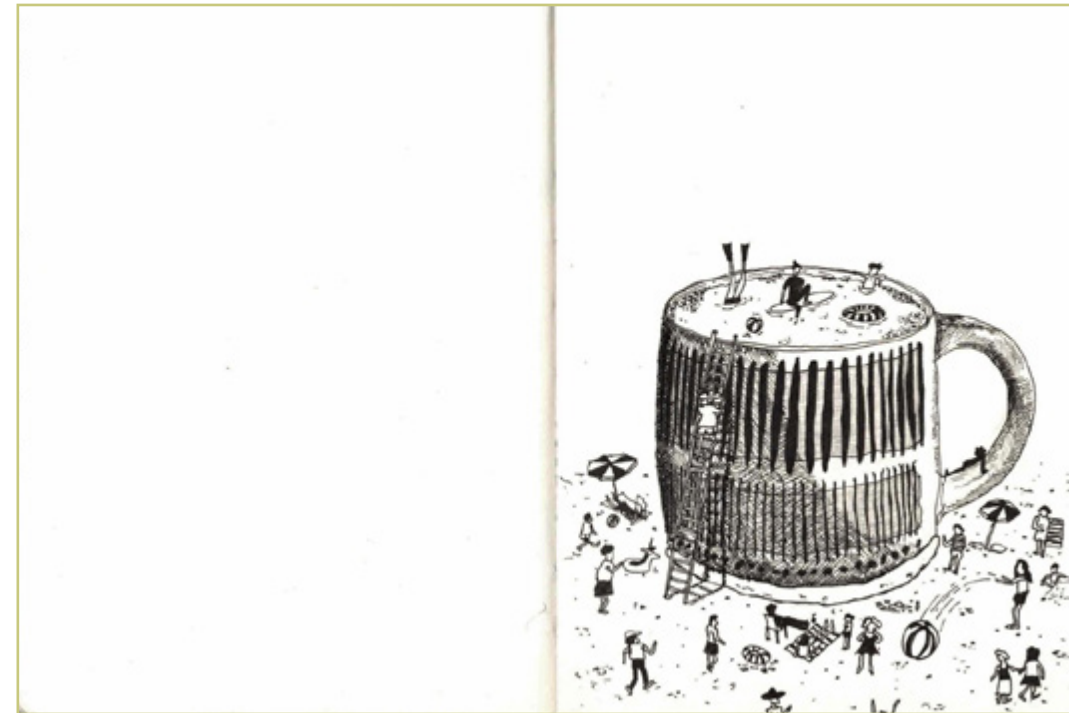

Figure. 53 - Rana G. Amer

Figure. 54 - Daniela Pardo

I lost track of time.

In our small little apartment, my husband works from home at his corner desk. I have gotten so used to the sight of him in that corner every day. At the other corner of our little apartment, I am usually just fooling around. I draw. I draw him working. I drink coffee. I daydream and I draw my coffee mug. I procrastinate, I study and I work. I watch TV. I draw my TV.
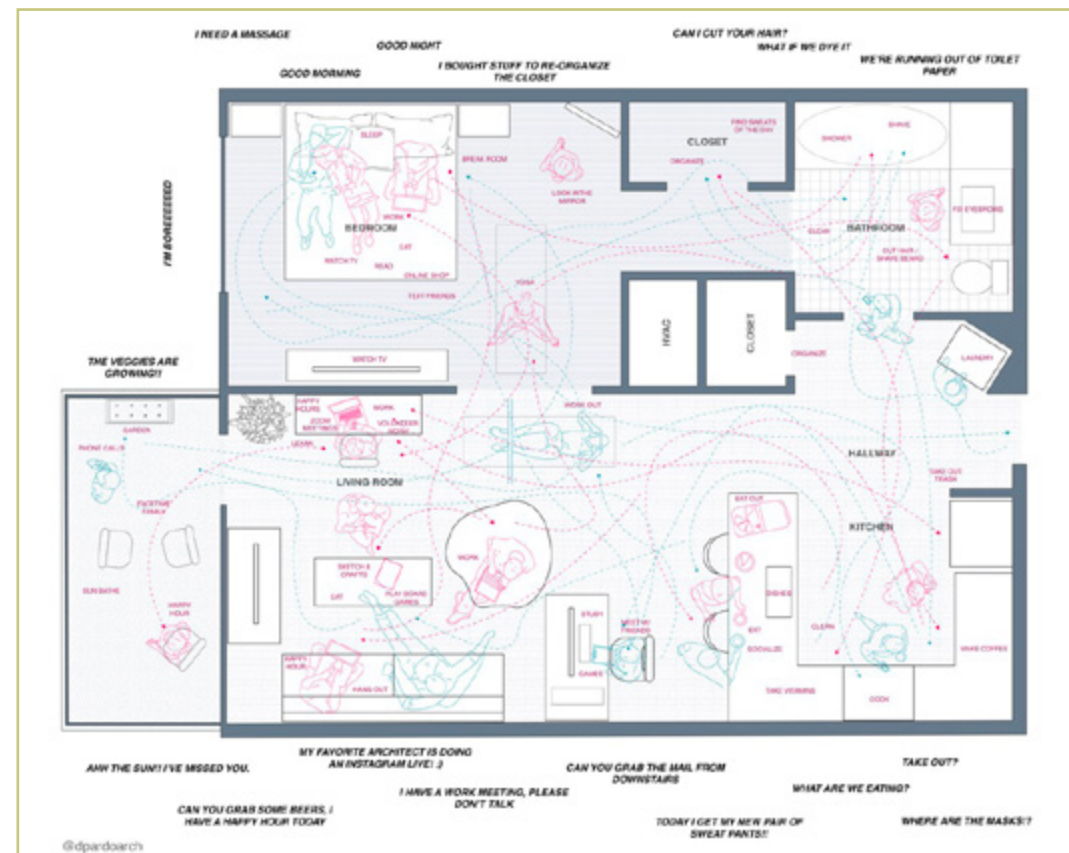
- Rana G. Amer, New York, New York

Life with my partner in a one-bedroom apartment in downtown Silver Spring is messy and tight, but it also comforting to have company during these times. During these times, I paid more attention to my surroundings and every sound I hear. It more quiet and peaceful, except when construction starts.

- Daniela Pardo, Maryland

I am staying completely alone in my flat and my only connection with the outside world most of the days is my little balcony. Being an outdoor enthusiast, it has been pretty difficult for me, but my balcony gives me hope and life.

This lockdown has made me appreciate the simplest of things. I appreciate sunrises and sunsets, blue skies, clouds, even more now. The sound of stray animals, the moving trees, the birds chirping makes everything so beautiful and alive.

- Shivani, New Delhi, India

Figure. 55 - Shivani

I've retreated into my world and drawn a map of the place I go to. My life has become more humane. More relaxed. It seems to me people tend to notice each other more, greet each other more. They seem more chilled out and interested in social contact, slowing down in the moment.

- Eva Spear, Amsterdam, The Netherlands

Figure. 56 - Eva Spear

Figure. 57 - Peter Gorman

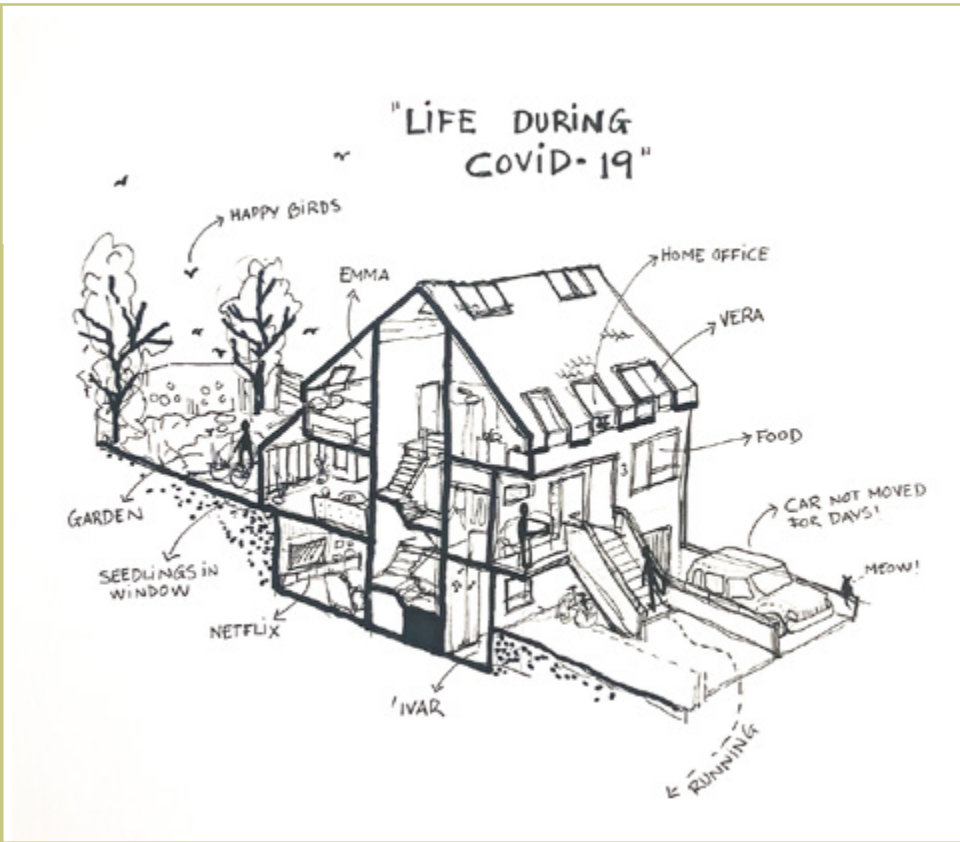Getting from "place" to "place" is now based around my laptop keyboard.

- Peter Gorman, Waikoloa, Hawaii

Figure. 58 - Edda Ívarsdóttir

We see people going out more for biking and running than before. It's overall a positive change. I hope we don't go back to the way it was before, at least not all the way.

- Edda Ívarsdóttir, Iceland

An interesting pattern is demonstrated from these maps - most people's map of their daily life is limited in a small space - the apartment, house, or neighborhood. However, they tend to imagine a green and open living space. At the end of this thesis, I would like to propose my vision of a pandemic-friendly living community - a healthy and safe community model that provides a comfortable living environment for pandemics situation. Instead of sticking in the center of cities, this community model invites people to live in a sustainable suburban.

6.2

REFERENCE CASES

The world's well-known architecture Bjarke Ingel brought the theory of, Worldcraft. After criticizing the blocky towers and buildings in today, urban design, he advocates the craft of making our world. Inspired by, Worldcraft, I propose, instead of squeezing in cities, people could open up new land in suburban. The decentralized community structure provides enough open space for residents to breathe fresh air and get close to nature. SFC Oceanix City is a glowing reference in the case which builds the floating city on the ocean.

Compared with my vision of creating a community model for the pandemic crisis, Oceanix City is an urban model designed for another future disaster - rising sea level. Influenced by climate change, by 2050, 90% of the world's largest cities will be exposed to rising seas. As part of UN-Habitat, New Urban Agenda, Oceanix and BIG propose a vision for the world, first resilient and sustainable floating community for 10,000 residents. Oceanix City is designed to grow, transform, and adapt organically over time, evolving from neighborhood to city with the possibility of scale.

Figure. 59 - BIG

In terms of the energy system, like the concept of the local community mentioned in the last chapter, Oceanix City also aims to create a self-sustaining community with mixed-use space for living, working and gathering during day and night time. Communal farming is the heart of every platform, allowing residents to embrace sharing culture and zero waste systems (BIG).

SUN
SMART VEHICLES
ALGAE BIOREACTOR
3D OCEAN FARM
COMPOST GARDEN
WIND
WIND TURBINE
SOLAR ENERGY
INDOOR/OUTDOOR FARM
ANAEROBIC DIGESTER
AEROPONICS + AQUAPONICS
WASTE
COOLING
ENERGY STORAGE
FOOD
FOOD WASTE COLLECTION
RECYCLABLES + REUSABLES DROP-OFF
HEAT EXCHANGE
POWER
EXCHANGE HUB
WASHING
SORTING
CURRENT GENERATOR
WAVE ENERGY CONVERTER
PEOPLE
SHELTER
BLACKWATER
COLLECTION SURFACE
BAMBOO
GRAYWATER TREATMENT
RAIN
OCEAN
POTABLE WATER STORAGE
RENEWABLE DESALINATION
BIOGAS STOVE
WASTEWATER TREATMENT
DEPLOYABLE WATER BLADDER
ATMOSPHERIC WATER COLLECTOR
ALGAE FILTRATION
TREATMENT SWALE
DEHUMIDIFIER
NON-POT WATER STORAGE
HUMIDITY

WASTE
MATERIALS
ENERGY
FOOD
WATER

COLLECTION SYSTEMS
EXCHANGE HUB
COMMUNITY COMPOST GARDENS
ALGAE FILTRATION
TREATMENT SWALE
WASHING CENTER
ANAEROBIC DIGESTER
WASTE KIT OF PARTS

OUTDOOR FARMING
3D OCEAN FARMING
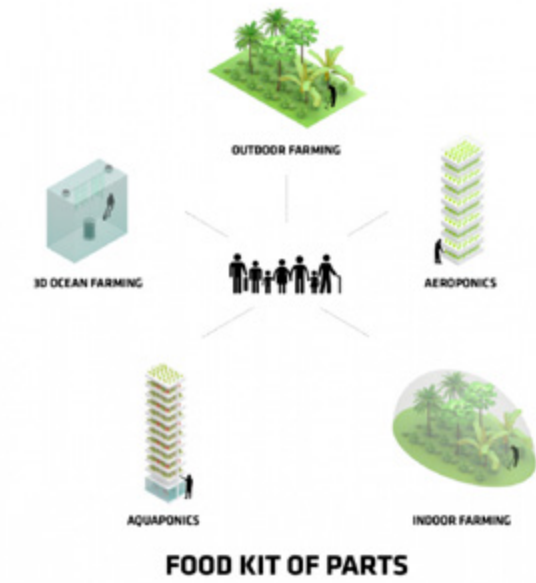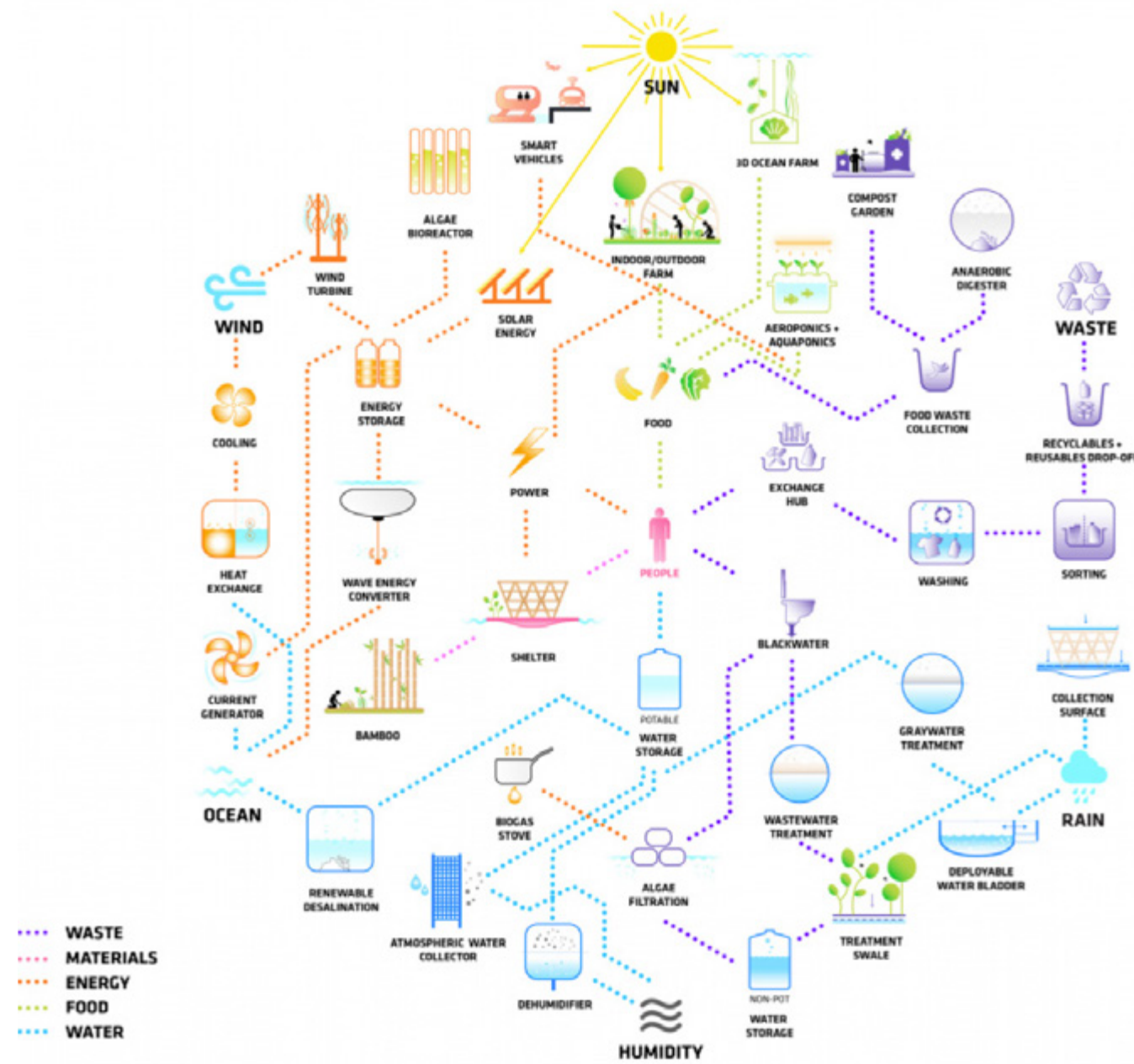AEROPONICS
AQUAPONICS
INDOOR FARMING
FOOD KIT OF PARTS

Figure. 60-62 - BIG

Oceanix City is a great reference to help set up all the essential parameters for building a new community. Besides considering the energy system and the natural look of the community, I also want to develop a sustainable society from the perspective of experience design. For a sustainable community, the concept like, zero waste,, or, haring, must be mentioned. Pumpipumpe is a sharing community that connects users through mailbox stickers. Putting stickers of the sharable objects on the mailbox drew the attention of neighbors and created a dialogue between them. The project aims to discuss the potentials of urban neighborhoods being real active networks and questions what do we have to own (Pumpipumpe).

Pumpipumpe was launched at the end of 2012 in Bern, Switzerland, as a studio project. So far, more than 20,000 households across Europe are already taking part (Pumpipumpe). The success of the sharing community project like Pumpipumpe is inspiring for bringing the concept to a bigger scale. Plus, combining with the on-line platform can create an off-line and on-line integrated sharing community to make the whole experience more instant and convenient.

Figure. 63 - Pumpipumpe
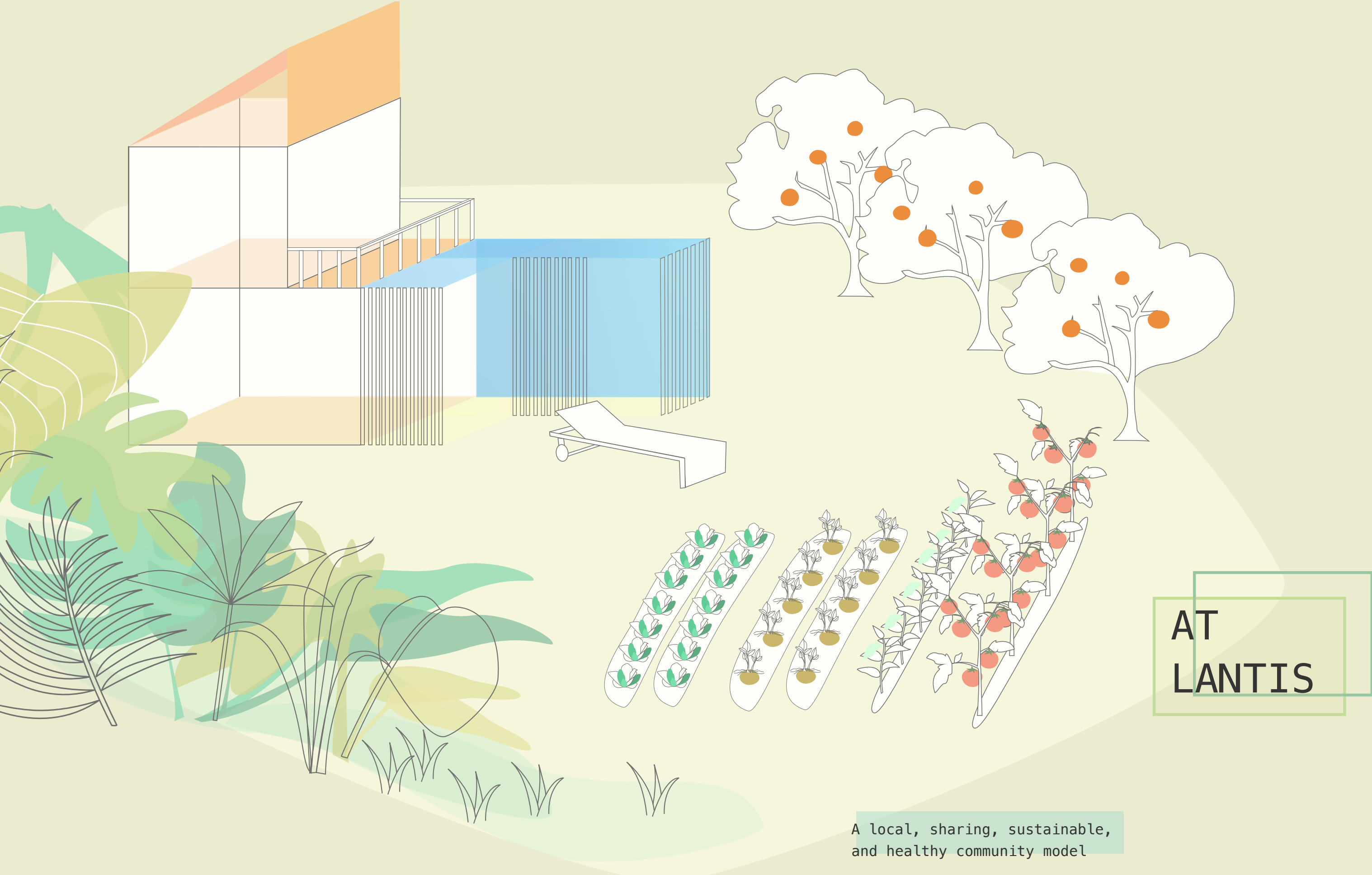
AT
LANTIS

A local, sharing, sustainable, and healthy community model

MISSION

Building a pandemic-safe community
model that provides a comfortable and
sustainable living environment for both
normal or pandemics situation.

CORE VALUE

AT LANTIS is a self-sustained, sharing
community that provides urban residents
a safe living space in pandemics.

MAIN PRINCIPLES

**sustainable
&
localized**

**active
&
connected**

**healthy
&
safe**
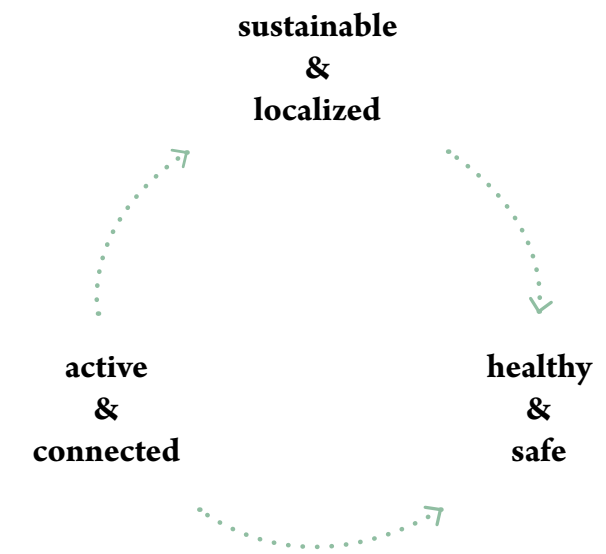
1

SUSTAINABLE & LOCALIZED

All the families grow their food in the yard and participate in community farming to get credits. By planting local food in both the family yard and community farm, AT LANTIS builds an independent food system. In the average time, people can mainly have local food and consider outside food as an optional choice. However, when a severe public crisis happens, like the pandemic, the self-sustained food system guarantees to provide healthy foods to all the residents. Through cutting the food connection from the outside world, the residents in AT LANTIS can stay safe and healthy from the virus outside.

AT LANTIS is also committed to building an energy-sustainable community. Solar panels are installed on the roof of each house and the community center. Plus wind power system, AT LANTIS insists to use clean energy.

AT LANTIS encourages residents to use biodegradable materials instead of plastic. Plus composting the wastes and recycling for fertilization, a zero-waste community will be built.

Altogether, a sustainable and localized community leads to a healthy and safe living environment, especially for the pandemic time.

2

HEALTHY & SAFE
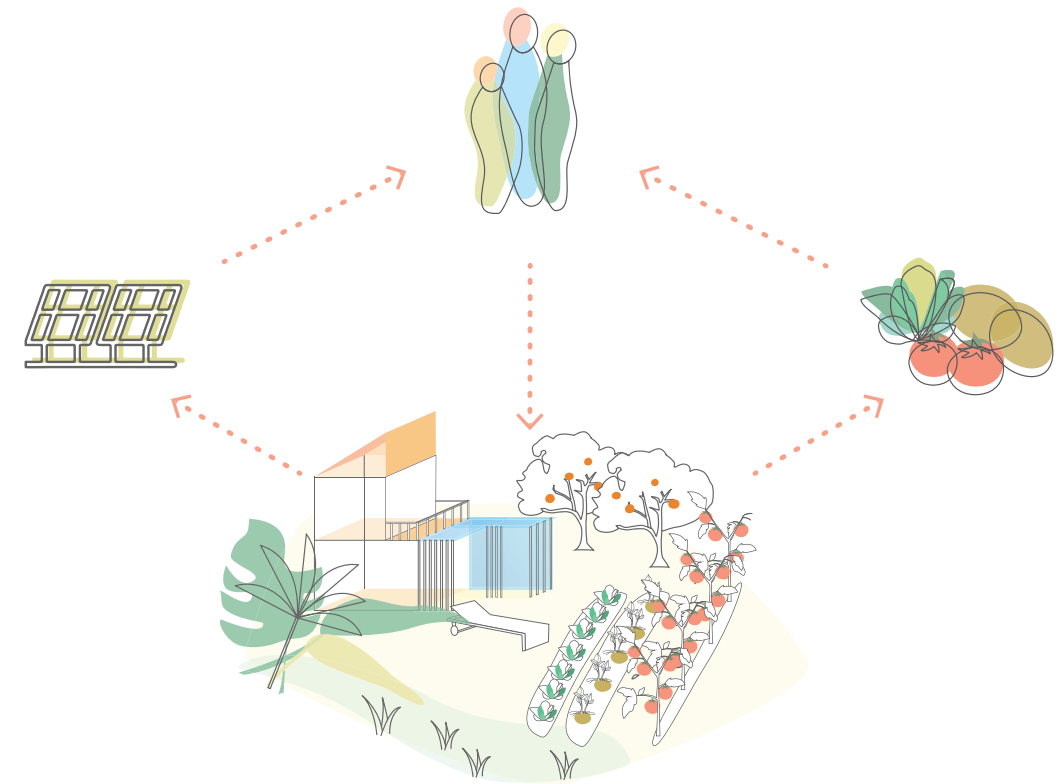
3

ACTIVE & CONNECTED

By working in the community farm and exchanging food from the family farm, people connect intimately with the other residents. At AT LANTIS, the residents could be pretty much rooted in the community. They not only exchange foods but also share tools and skills, helping each other with daily errands.
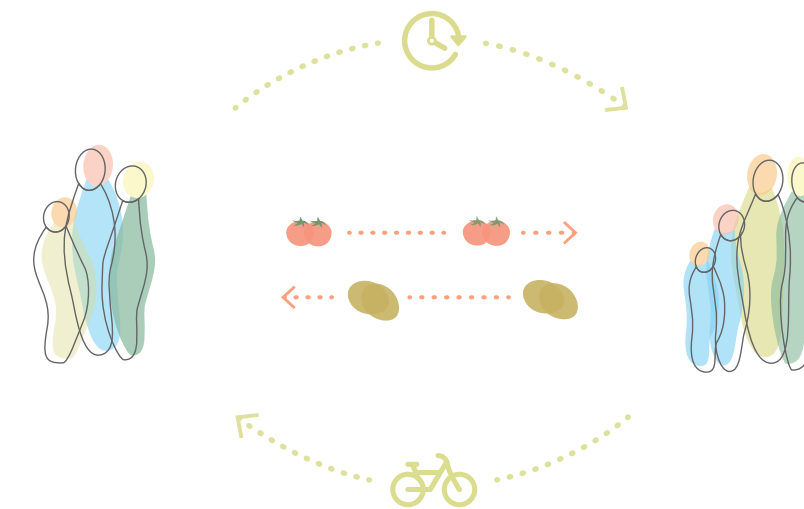
The residents are connected based on AT LANTIS physical community, including lots of social activities in the big public spaces. Besides, they are also linked by the community app. The digital platform allows residents to connect instantly and remotely. It is like a virtual community built beyond the real community. Even though people do not live in the community, they can interact with the community and access the sharing system.
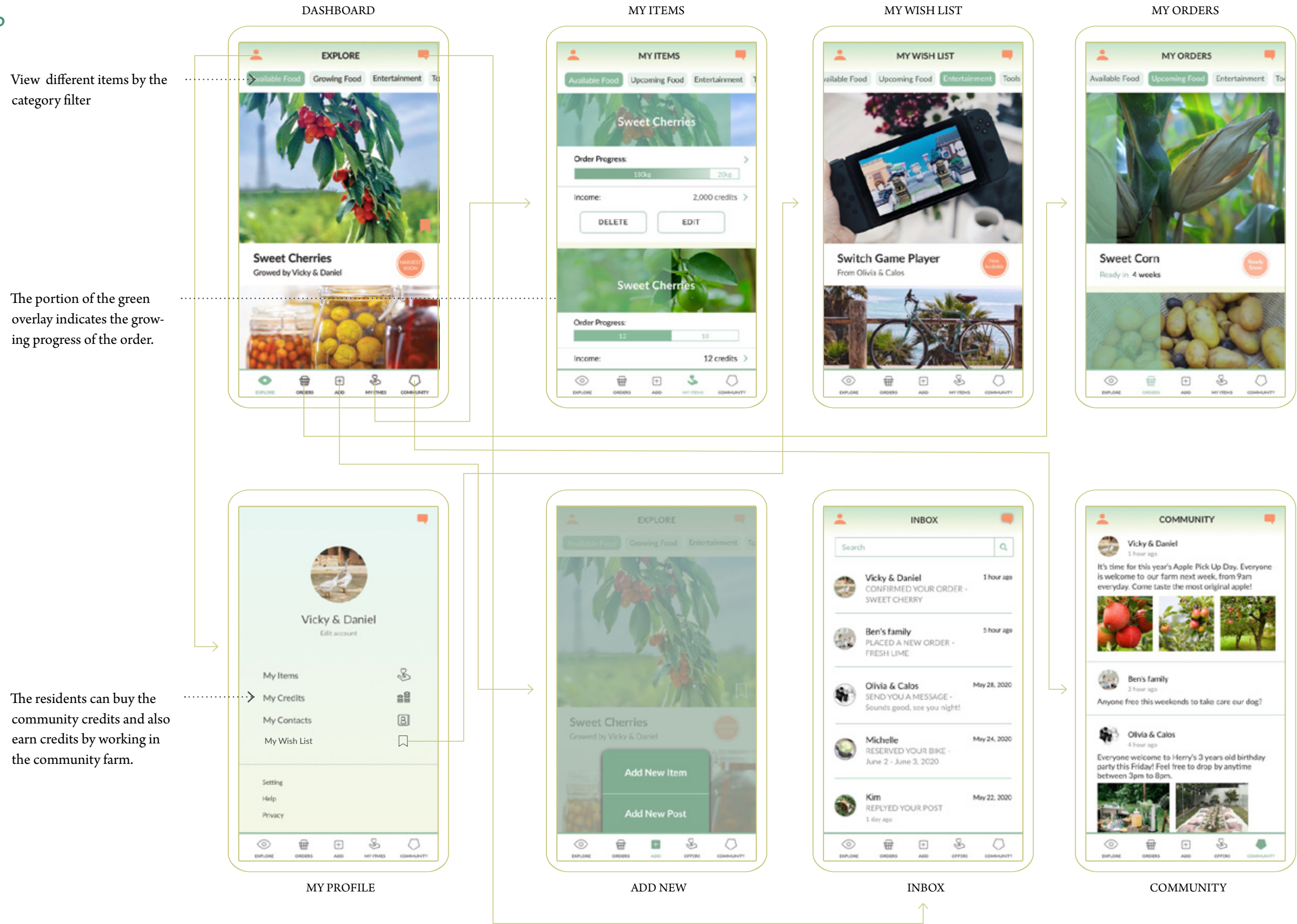
The community app serves as a showcase of the available foods and sharing items. In this way, people can place orders and manage their items, wish list easily. Also, it is an open platform for the residents to post urgent requests, activity information, and leave messages.

However, the app is still a supplement that goes along with the core community. The app's connection is based on real-world interaction; the app makes communication more convenient and not limited by the physical location.
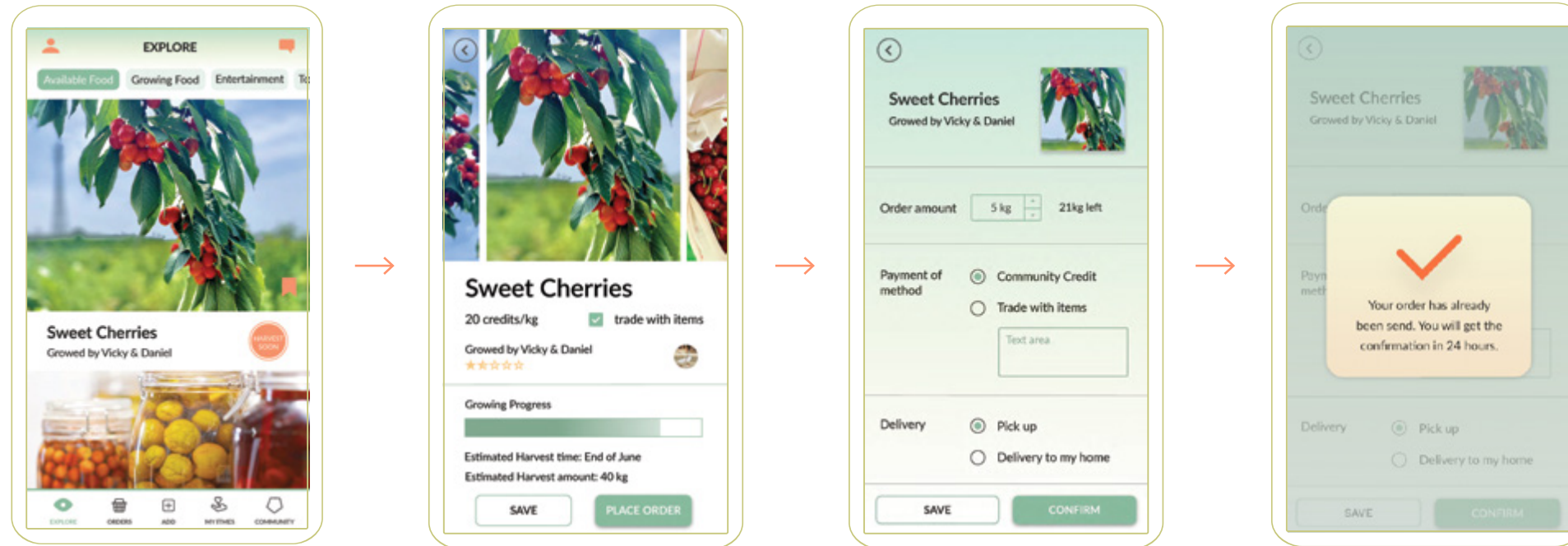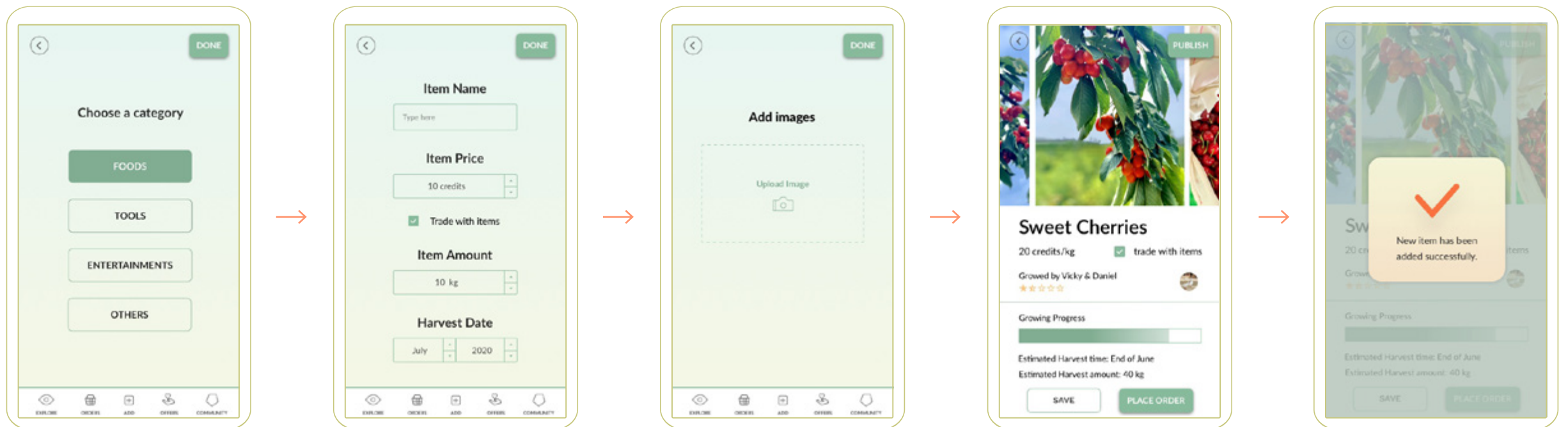
COMMUNITY SHARING SYSTEM

ONLINE SHARING APP

View different items by the category filter

The portion of the green overlay indicates the growing progress of the order.

The residents can buy the community credits and also earn credits by working in the community farm.

DASHBOARD

MY ITEMS

MY WISH LIST

MY ORDERS

MY PROFILE

ADD NEW

INBOX

COMMUNITY

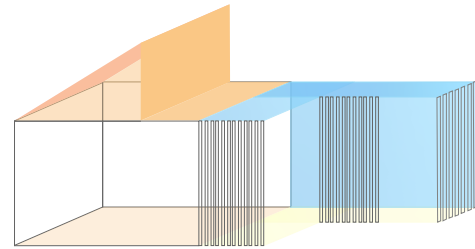## PLACE NEW ORDER

ADD NEW ITEMS

TWO HOUSE TYPES

House A:

1-2 people family

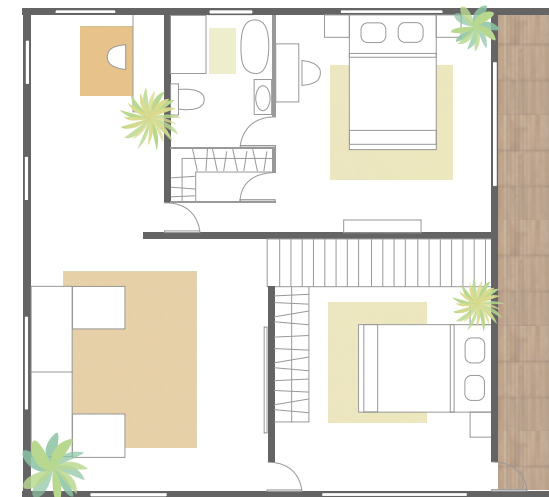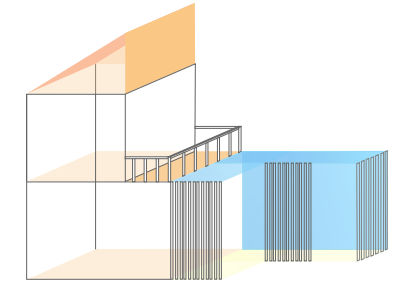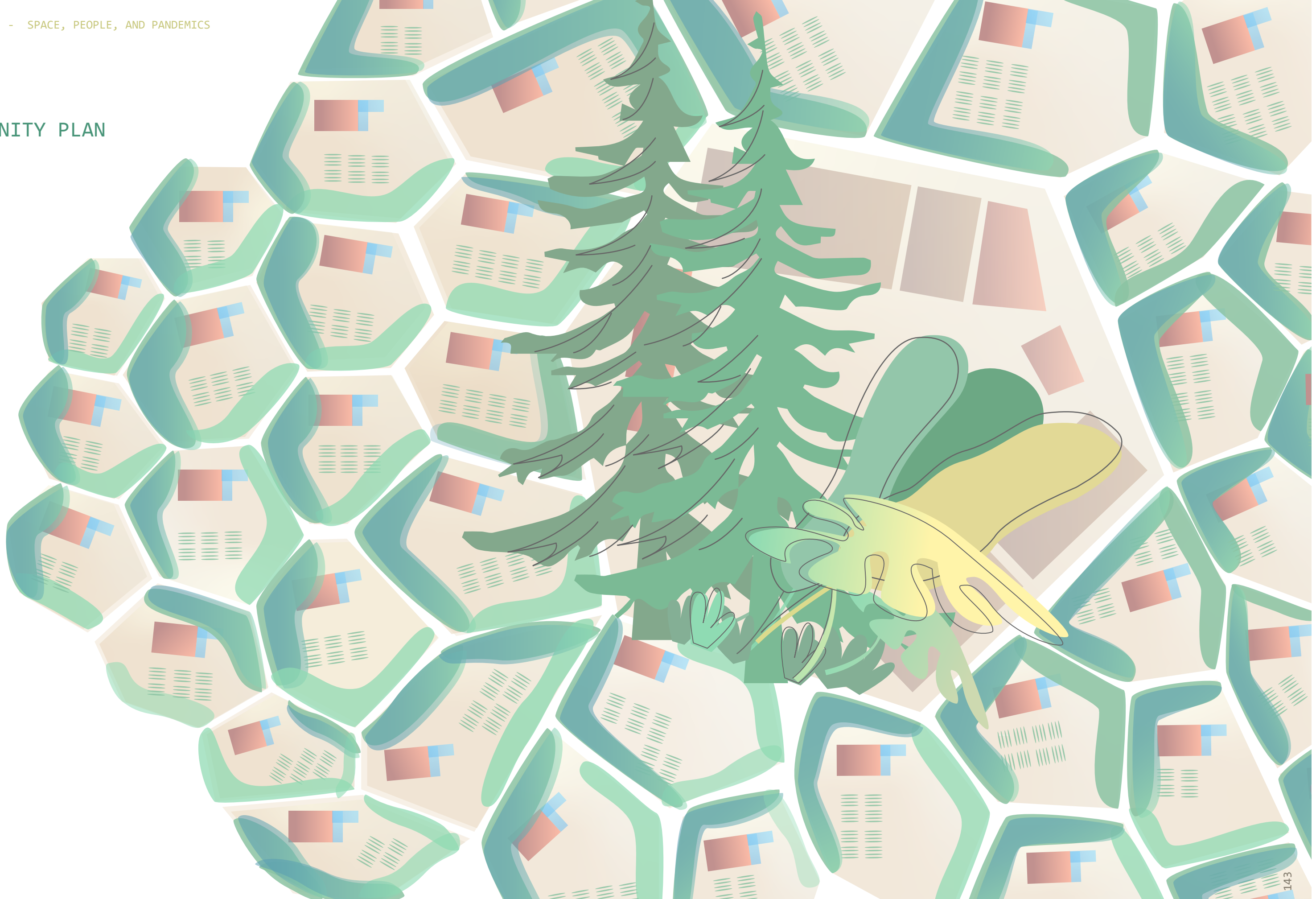Floor space: 100 m²

Land space: 300 m²

House B:

3-5 people family

Floor space: 185 m²

Land space: 600-700 m²

COMMUNITY PLAN

COMMUNITY PLAN

Small family units and center units make up the whole community. Around 300 family units plus two center units form one community unit. Each community unit is the smallest administrative unit. It is localized and self-sustained by itself but also could build connections with the other communities. More community units connecting can expend to a bigger community group.

For each family unit, the land shape is organic, and the edge is decided by the boundary of the family farm or garden.

Except for the houses and the narrow path for residents to walk through, the community is filled with greenness - farm and garden.

Without cars, wide roads, and parking lots, the community aims to utilize the entire space for farming, gardening, and social activities to a maximum level.
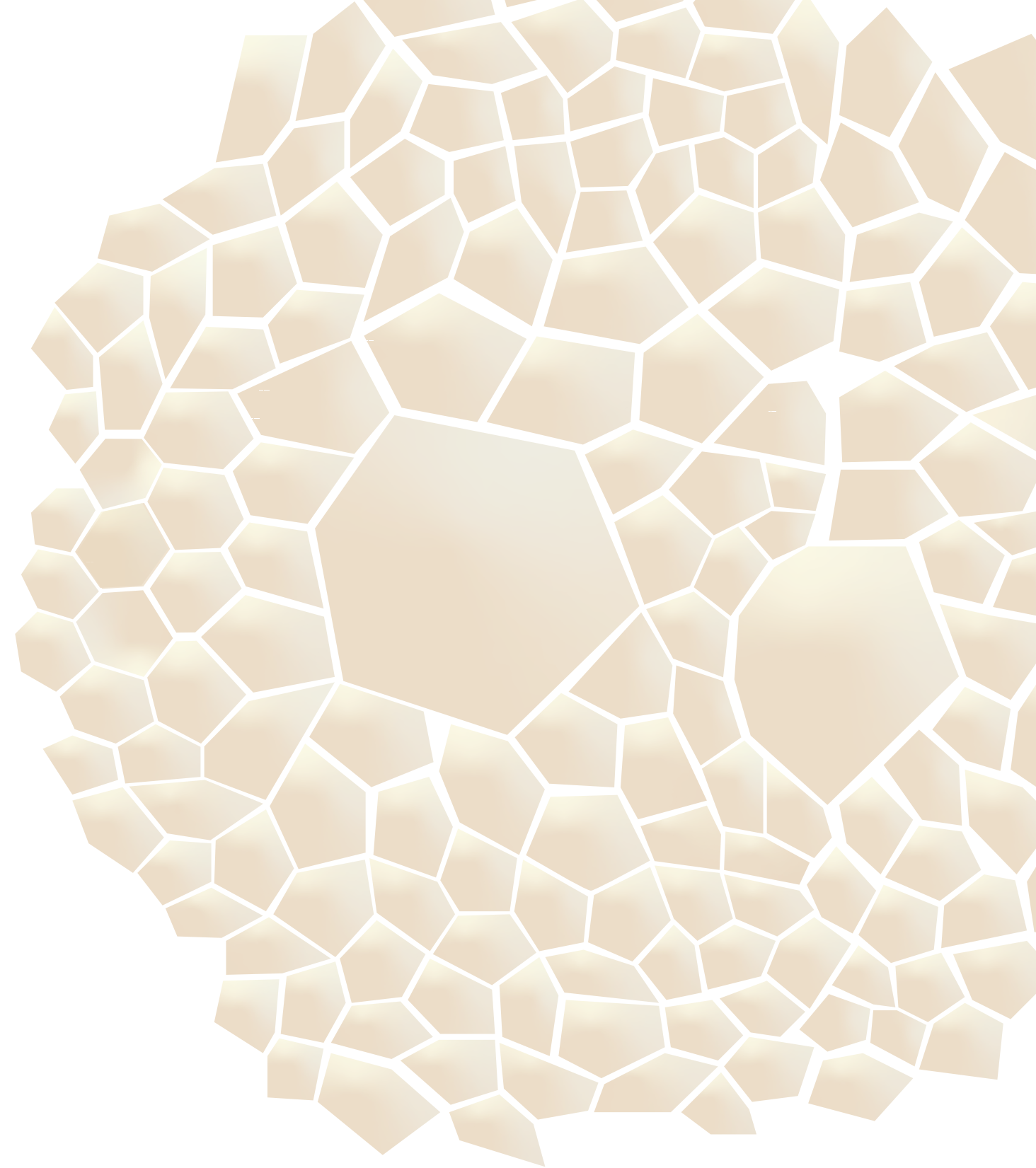
AT LANTIS

LOCATION

Instead of squeezing into the crowded cities, AT LANTIS provides another option of the decentralizing living.

By getting used to online communication, more and more people can work remotely instead of going to the offices. When the role of centralized cities fades out, it is unnecessary to live in the main cities.

AT LANTIS is located in the countryside with lots of empty spaces and connects to the bigger cities within 2-3 hours by driving.

Inside of the community is car-free. People can reach the closest parking lot or shuttle station in 10 minutes by bike from their home.
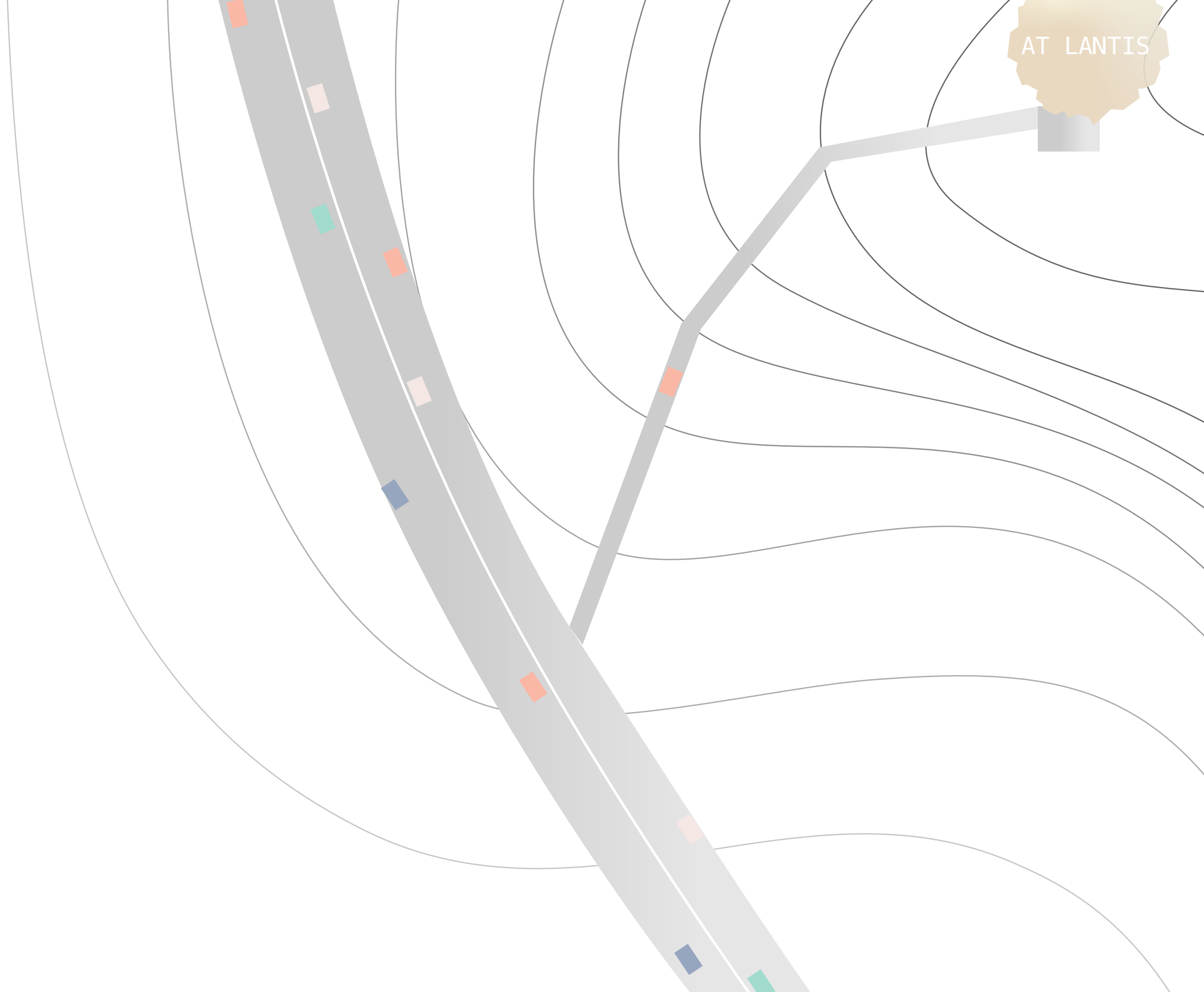
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- Figure 63: Pumpipumpe, https://www.pumpipumpe.ch/sticker-en/

The End.

June 26th, Morning, 2020. Vancouver

Thanks for this changeable world.
Thanks for all the efforts and struggles.
Thanks for all the learning and acceptance.

Wish our world get better soon, and we all enjoy the peacefulness in our heart no matter where we are.