



Temporary design and the Olympics:  
A research by design proposal for  
Paris 2024 Summer Olympic Games

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# Abstract

The mega event such as Olympics, has become one of the most important activities the modern life, which would involve multiple aspects. On the one hand, the city considers it as an opportunity to develop. In the name of the event, the local market would thrive, multiple urban infrastructures would build, and so on. It could benefit urban development. On the other hand, ordinary people enjoy the activity. It could directly increase public happiness. However, hosting an event is never easy. The host city faces diverse difficulties relating to its diverse historical background.

The Olympics as the most significant mega event in human history also faces the above problems. Relating to history, in different periods, hosting the Olympics has been associated with financial stress, political conflicts, wars, sustainability request, and so on. As time goes by, the list would be longer. With the development of the Olympics, the role of temporary facilities is becoming gradually important.

In this design research, the temporary application in the Olympics is the focal point to discuss. At first, similar events would be researched about their temporary proposal. It would inspire the further design part. Then, we would study the relationship between the Olympics and temporary application. It is valuable to dig into the potential of the Olympics by doing history research. Then, we focus on Paris, the target city of the project. Through researching the existing proposal for Paris 2024, we decide to design a temporary proposal from the perspective of visitors and citizens rather than governments and athletes. In this way, we believe it could promote the Olympic spirit to more people.

Eventually, through our design research, we discuss the potential of temporary applications in hosting mega-events. Moreover, we consider it would be the new trend for urban development.

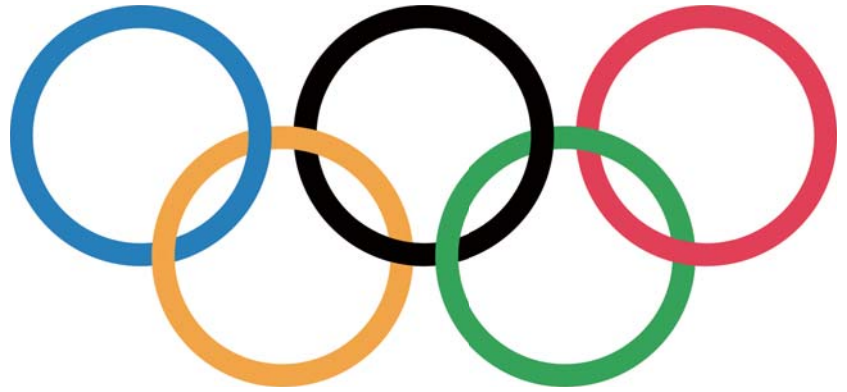


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# Chapter1: What does the temporary bring to Olympics



For an extended period, permanent constructions such as landmark stadiums or Olympics parks become the symbol of the Olympics. However, people consistently ignore the contributions credited by the temporary facilities, which have been part of the modern Olympics since 1896. With the temporary application, the modern Olympics have become more flexible. The hosting process turns more resilient. So, what is temporary? Temporary is “not lasting or needed for very long,” which describes some objects lasting a short time in human history. For the sake of simplicity, our definition is not based on the nature of the use, whether rent is paid, whether a service is formal or informal, or even on the scale, endurance, or longevity of temporary use, but rather on the intention of the user, developer or planner that the service should be temporary (Bishop & Williams, 2012).

Everything is temporary if we extend the period, including the Olympics. As the most expensive mega-event on the earth, the Olympics only lasts for about one month, however, the hosting city would work for it for years, and the associated influence would be the legacy of the hosting town for alone time. So, it is a dialectical relationship between the temporary and permanent mega-events and urban space. This research concentrates on the temporary structures in the Olympics and discusses the multiple benefits, including sustainability, economy, social profits, landscape value, etc.



Figure 1: The temporary Olympic Village in Tokyo. Source: [https://www.okushizuoka.jp/info/article/post\\_74.html?mode=pc](https://www.okushizuoka.jp/info/article/post_74.html?mode=pc)

## 1.1 The temporary facilities

In the past, temporary facilities were always overlooked compared to permanent constructions. It is never a focal point in hosting the Olympics. The temporary facilities receive little public attention. The local hosting committee wants to build a landmark stadium, and the spectators only remember the fabulous buildings and intense competitions. However, temporary facilities are essential to support them in the shadow. A similar situation happened in urban development. Although the temporary brings many profits to the city, citizens always forget their existence of them.

People realize that the temporary application could be multi-functional as time goes by. It could help achieve the sustainable goal, release budget stress, etc. Recently, it has been customary to find temporary applications in modern urban development, such as pop-up shops, guerrilla gardens, and interim uses, which bear witness to a shared imaginary and alternative temporary practice (DeSilvey & Edensor, 2013; Hou, 2010).

Moreover, temporary use has already become a magical term: on the one hand, for those many creative minds who, in a world ruled by the profit maxim, are trying nevertheless to create spaces that reflect and nurture their vision of the future; and on the other hand, for that urban planner to whom it represents a chance for urban development (Overmeyer, 2007). The

process is called temporary urbanism. Temporary urbanism has been recognized as one of the most significant global movements in urban renewal in recent years. It is about short-term, low-cost initiatives on underutilized, vacant, or public spaces that aims to revitalize local life for economic or social gain (Charlton & Poidevin, 2021).

The temporary facilities give every city the equal opportunity to host mega-events like the Olympics. As Olympic Games executive director Christophe Dubi said, in the future, "We don't have a requirement to build anymore, so virtually any city can host the games" (Ravenscroft, 2022). To be specific, the function of temporary facilities are the followings: 1, it decreases the cost of the hosting; 2, it enhances the capability of the city in a short time; 3, they can be recycled for sustainable development; 4, it could involve more ordinary people; 5, it could connect the local heritage spot...etc. The temporary application allows every city to host the mega event and a future trend to host it sustainably.

However, the relevant study of temporary is quite limited. It lacks the systemic research of the provisional application in the mega-event, although people have started to pay attention to the urban temporary. Through this research design, we begin to formulate the trend of temporary facilities for the Olympics and other mega-events. Based on the research, we would give a brief proposal about the 2024 Paris Olympics.



## 1.2 Temporary application to the Olympics

It is a long history of temporary Olympics. It is associated with the development of the Olympics. The Olympics originated in ancient Greece in 393BC (Gold & Gold, 2016). Modern Olympics development could be divided into several parts: surviving the fairground, Olympics design, austerity, catalyst, ideological games, shifting horizons, and sustainability and legacy. The modern Olympics started in 1896 in Athens. All competitions happened in the existing Zappeion buildings and the restored Panathenian stadium. Although it is not professional from the contemporary perspective, it is a good start for the relationship between hosting cities and the Olympics. The succeeding games in Paris and St Louis downgrade this connection between towns and the Olympics. Because, at that time, the Olympics lacked influence and attraction for the locals. Thus, local authorities didn't value the Olympics in contrast to today's situation, which caused a series of chaotic conditions in sports organizations and sports field coordination. The 1900 Paris Olympics is regarded as a game rather than an actual Olympics. The organizer didn't value it. There are even no stadiums or running tracks. All sports were held in some private clubs. And the owners refuse to remove trees for the sport's standard (Gold & Gold, 2016).

An analogous situation happened in the third Olympics in St Louis. The authorizer did not take Olympics seriously. They consider it a sports festival that could be modified as they want. It even threatens the continuance of the Olympics ((Findling & Pelle, 1996)). In such a situation, there were no stadiums; it was temporary for the Olympics to use those facilities.

Since 1908, the fourth Olympics in London, the development started to thrive. Olympics became the most crucial mega event on earth, which contains multiple meanings, to unite people in the name of sports. Therefore, all host cities consider it a great stage to show their counties to the world. 1924 Paris, 1928 Amsterdam, 1932 Los Angeles, and 1936 Berlin. It witnesses a series of construction for the Olympics happening in cities. It is not only influencing the building construction but also the urban development plan. However, two times world wars occurred in the 20th century. Olympics was suspended for it. And the trend of building for the Olympics suddenly ceased. 1948 the first post-war Olympics was held in London; under substantial financial pressure, the London organizer applied the "temporary strategy" named lend and return basis, which was the first time used temporary facilities in purpose (Gold & Gold, 2016). Those facilities were borrowed from local schools, military camps, or manufacturers; after Olympics,



Figure 2: The Temporary Archery stadium in London Olympics 2012. Source: Olympic official website

they were returned. It alleviates the stress of budgets sufficiently. With the global economic recovery, since the 1960 Roma Olympics, the modern Olympics construction appears, affecting the urban layout with a series of buildings including stadiums, media towers, Olympic villages, and transportation requirements. In the 1980 Moscow Olympics, the OCOG (Organizing Committee for the Olympics Games) rejected the recent trend towards gigantism sports facilities which had left behind expensively maintained and underused. They modify the existing venues in Moscow and employ temporary grandstands (Gold & Gold, 2016). It is the second time in history to take advantage of temporary facilities. It was evident that the application of temporary facilities so far is related to financial pressure. Since the 2000 Sydney Olympics, IOC has considered sustainability and legacy as a responsibility of the Olympics. Thus, in the bid for Olympics, there is a unique biological and heritage proposal plan. Temporary facilities are widely used for their feasible and eco-friendly characteristics.

Above all, as time goes by, the purpose of applying temporary facilities is changing and becoming more diverse. At first, the application of temporary use is because of a funding shortage caused by the little attention from local authorities. Then, the Olympics became a mega critical event, the key event for every country to promote themselves. However, the war breaks the trend. In the post-war period, people have to choose temporary facilities for the Olympics because of financial pressure. In 1972, the conference of the UN on the human environment first made the statement of sustainability, which is the ability to continuously maintain or support a process. It symbolizes that people are aware of the importance of protecting the environment. Therefore, since 2000 the green Olympics has become a big part of the Olympics plan. The Sydney Olympics built a temporary beach volleyball court on the famous Bondy Beach to avoid pollution caused by permanent infrastructure. In the 2012 London Olympics, the application of the temporary role played a diverse role. It is to reduce the cost, it is to connect heritage, and it is more eco-friendly.

The above chart illustrates that the temporary application almost coincides with Olympia's development.

### **1.3 Intangible temporary nature of Olympics**

When we discuss the concept of temporary Olympics, we can't ignore the intangible temporary. In this paper, the intangible temporary would focus on the organization of the Olympics and associated events. The Olympics is temporary; no matter the summer and winter Olympics, they always last for a month. It is typically temporary. When a city is preparing for the Olympics, an Olympic committee will last a couple of years if they succeed or several years if they don't. During the Olympics, it requires a series of temporary services to support the hosting, including the temporary food supply, entertainment, daily life services, etc. And there would be a temporary volunteer organization to serve the athletes and visitors. Besides, there are some associated activities with the Olympics. It is the cultural Olympics. As all know, the Olympics is not only a sports competition. There are different cultural events; for instance, the authorities of the 1896 Athens Olympics decorated the streets, illuminated the Acropolis, and arranged an entertainment program, including torchlight processions, parades, fireworks, and even a concert (Mallon&Widlund, 1998).

To be mentioned, the organization of the Olympics is a kind of intangible temporary. Still, the impact it left behind would last in the host city for a long time and contains some tangible legacy such as a stadium, new transport, etc.

### **1.4 Research questions**

Above all, temporary structure plays an irreplaceable role in current events. It is the foundation of the service during the Olympics, including the transport service, accommodations service, security service, ecological service, etc. However, it is still overlooked. There is still no systemically relevant research about it. And it still lacks people's attention. By comparison, More and more people are aware of the importance of

### The Olympic games and temporary applications

Time	Year Award	Host City	Type	Temporary Application	Reason
1896	1894	Athens	Summer	temporary facilities or temporary accommodation	decline the cost
1900	1894	Paris	Summer	temporary facilities or temporary accommodation	decline the cost
1908	1904	London	Summer	temporary facilities or temporary accommodation	decline the cost
1912		Stockholmon	Summer	temporary facilities or temporary accommodation	decline the cost
1920		Antwerp	Summer	temporary facilities or temporary accommodation	decline the cost
1924		Paris	Summer	temporary facilities or temporary accommodation	decline the cost
1928		Amsterdam	Summer	temporary facilities or temporary accommodation	decline the cost
1948	1946	London	Summer	temporary facilities	decline the cost
1952	1947	Helsinki	Summer	temporary facilities	decline the cost
1968		Grenoble		temporary facilities and buildings	decline the cost
1980		Lake Placid		temporary facilities and buildings	decline the cost
1980	1974	Moscow	Summer	temporary facilities and buildings	decline the cost
1992		Albertville		temporary facilities and buildings	decline the cost
2000	1993	Sydney	Summer	temporary facilities	decline the cost & protect the environment
2008	2001	Beijing	Summer	temporary facilities	increase the capability
2012	2005	London	Summer	temporary facilities and buildings	decline the cost & protect the environment

*Table 1: This table shows the temporary applications in the Olympics (Source: author draw).*





Figure 3: The temporary activities in 2018 Winter Olympics in PyeongChang. (Source: [https://news.cgtn.com/news/32596a4e7a677a6333566d54/share\\_p.html](https://news.cgtn.com/news/32596a4e7a677a6333566d54/share_p.html))

the events. Those events gradually become part of daily life. It is a necessary entertainment for modern citizens and an opportunity for cities to regenerate.

Detecting the relationship between temporary events is valuable and urgent in this condition. Specifically, on the one hand, it is often to see provisional applications recently, which is a crucial method to enable the flexibility of urban public space. On the other hand, events are regarded as a new economic engine to regenerate the city. However, hosting an event cause such a burden on the budgets of the host city.

The temporary application intervention could be the savior in dealing with those financial problems. Moreover, with the development, there is a significant need for temporary facilities, not only for the economic pressure but also for the commercial market, environmental

pressure, and requirements for contemporary art.

This research design, it might offer a future proposal about how to host an event with the assistance of a temporary application with multiple benefits.

## 1.5 The progression of this research design

This research and design aim to discuss the relationship between the temporary and the Olympics and apply the result to the 2024 Paris. The progression is in the following.

**The first chapter is about the general introduction of this research design, including the definition, the relationship, the meaning, the difficulty of study, the research question and the structure as showed above.**

## What is the difficulty of this study?

1, it is vital to make efforts to find related resources, such as historical materials, official documents, pictures, records, and videos. However, it would cost much time and is a research process without guaranteeing results.

2, setting up the research structure with well-organized logic is challenging. Identifying the dominant factor to connect temporary and Olympics-relevant elements is challenging.

3, the problem is applying our research results to the Paris 2024 Olympics. It requests adequate Paris research and links it to our study.

## What is the meaning?

The urbanization of the Western world during the 20th century cannot be understood fully without consideration of the contribution of major urban events. The Great Exhibition and the Olympics games are two clear examples of this type of urban mega-event (Muñoz, 2006).

1, mega-events have become an indispensable part of citizens' life in the contemporary world. Meanwhile, it usually would cost a lot of money, which needs assistance temporarily to decline the budget. It has become a trend to apply temporary facilities to current events.

2, another setpoint is how to use temporary facilities sustainably. The thinking of provisional application is developing from financial savings to sustainability which means the focus of sustainable temporary is not only on the eco-friendly material but also on the recycling chain of those facilities.

3, through our research, we might figure out a more efficient transient organization mode, which would be helpful to decrease waste, and indirectly be more sustainable.

## What are the research questions?

1, What is the origin of the temporary structures in the Olympics?

2, How does the temporary facilities influence the modern Olympic development?

3, Which benefits are brought by the temporary facilities to the Olympics?

4, What is the possible future trend of the temporary structures in the Olympics?

**The second chapter focuses on the research of the similar events which could inspire the Olympics hosting.** There are different types of the events which could be classified by the location. Different location determinate the limitation of those events, and the temporary application. For example, the Burning Man festival is an art festival, an autonomous community, and social experiment participation by all is enthusiastically encouraged to “truly understand this event (Balamir, 2022). It is located in the wild place, which means there is no limitation. Every year, in the summer, people from around the world come to a place in Nevada and build a city from ground (Gilmore, 2006). The FIFA world cup is another sample. It usually locates in the city. the host city would build new venue and modify the existing one. There are some inspirations of FIFA, about how to take advantage of temporary facilities to support the mega-sports events. This example is advisable. Moreover, Olympics is a event involved culture and sports, which means it could also be inspired from the culture events such as design week. This kind of events are good at connecting to the local heritage and occur in the historical places. most of the design week around the world happened in the historic streets. It is impossible to change the heritage for some annual events. Thus, this event is complex and contains all sorts of temporary facilities. However, there are some negative examples like EXPO. The event itself last for a short time, but it left behind a lot of unsustainable construction after a period, which costs a lot and is not eco-friendly. For some kinds of Carnaval, those facilities for procession are temporary, which might cause a lot of waste. The temporary concept is also applied to urban design and commercial activities. By researching these similar and relevant events, it could inspire the application of temporary in the Olympics, which could bring some fresh ideals to the existing structures.

**In the third chapter, the focal point would be the Olympic temporary application study.** At first, it is to formulate the development of Olympics, both summer and winter Olympics. Meanwhile, it must divide into tangible temporary, and intangible temporary to study. As for the actual part, some relevant games are

the 1948 London summer Olympics, the 1980 Moscow summer Olympics, the 2008 Beijing Olympics, and the 2012 London Olympics. As for the intangible part, most Olympics take advantage of the existing assets. The process is intangible and temporary in the Olympics. Through this part of research, we could understand the trend of the temporary facilities in the Olympics history. Based on those previous cases study, the principle of the temporary facilities could be summarized, which could become the foundation for the future development. By connecting the previous temporary structure in other events and their history in Olympics, the result could be more practicable for our proposal.

**In the fourth chapter, the research would concentrate on the Paris Olympics.** Paris has a long history with the Olympics and is the biggest metropolis in Europe with a rich heritage. Meanwhile, Paris has announced that there would be 95% of temporary application or existing venues in the 2024 Olympics. It would be the perfect simple to study the temporary application in Olympics. Precisely, this research would do a universal site analysis of Paris and identify the most possible location of the temporary facilities by referring documents and environment.

**The fifth chapter is our design proposal for the 2024 Paris Olympics.** Based on the foundation of the previous study, we would like to apply the temporary connection to Paris submission on different scales. Specifically, it would be divided into a temporary planning strategy, temporary buildings, temporary and temporary organizations. With those temporary intervention, the Paris 2024 might be more affordable and sustainable. And the citizens might be more involved and embrace the city.

**The last chapter is the conclusion of our research and design, which refers to the research by design methodology.** Through this research, we could summarize the principle of temporary structure in Olympics, and their pros and cons. In our design part, we would make an interesting proposal by taking Paris as an example, which would bring multiple profits for varies aspects. With the assistance of



temporary facilities, the modern Olympics would become more affordable, less-cost, sustainable, popular among ordinary people. This trend would involve more ordinary people in the Olympic movement, which benefits the harmonious development of humankind as the Olympic Charter declared (Olympic-Charter, 2021.).



Figure 4: The temporary Olympic bridge in London 2012. (Source: [https://www.lusas.com/case/bridge/olympic\\_park\\_bridges.html](https://www.lusas.com/case/bridge/olympic_park_bridges.html))



Figure 5: The temporary Olympic buildings in for Tokyo 2020. (Source: <https://www.archdaily.com/965902/renowned-japanese-architects-and-artists-create-a-series-of-pavilions-in-tokyo-in-celebration-of-the-olympics/6101c9f302cad e36f36e70ef-renowned-japanese-architects-and-artists-create-a-series-of-pavilions-in-tokyo-in-celebration-of-the-olympics-photo>)

# Chapter2: what does the temporary bring to Olympics



Figure 6: The Opening ceremony of 2020 Tokyo Olympics. (Source: <https://olympics.com/ioc/news/tokyo-2020-venues-set-to-make-the-city-more-inclusive-and-smart>)

In order to have a better understanding of the relationship between temporary elements and mega-events, we firstly classified temporary events according to their characteristics, such as cultural events and commercial events, etc. And then discuss the tangible and intangible temporary elements during these mega-events, the former mainly focused on some physical and invisible infrastructures as well as their impacts of them on urban public spaces, while the latter refers to the operating system of the organization and even some other activities related to them. Finally, a conclusion can be summed up, although there are many existing cases of sustainable utilization of the temporary elements, there are still some infrastructures built for mega-events that are abandoned or idle after the event, keeping on working on this realm is increasingly more and more essential.



## 2.1 Different types of temporary events

The definition of temporary land use from some researchers is not based on the nature of the user, whether rent is paid, whether a use is formal or informal, or even on the scale, endurance, or longevity of temporary use, but rather on the intention of the user, developer or planner that the user should be brief (Bishop & Williams, 2012).

With urbanization and the economy's development, many cities face the problem that part of buildings and infrastructure will be abandoned or replaced. This also leads to a noticeable increase in the temporary structures and uses in many countries, like America and Latin America. For instance, the number of some churches and grand avenues has been gradually increasing with time, which used to be built as permanent, while their framework is temporary (Bishop & Williams, 2012).

Compared with provisional applications in urban development, it has a long history with mega-events, given the brief features. It is

worth mentioning that the mega-events are changing. Typically, there are two ongoing trends about it. One is that the cities have started to stop insisting on the concept of "bigger is better" when they are poised to host some important events, in other words, less attention is paid to the scale of the events themselves. The other trend is smaller cultural mega-events have become increasingly popular, propagating to cities and regions around the world (Jones, 2020). This means this has seen an increasing 'temporary' use of public space in the last 30 years. It is undeniable that both these two ongoing trends pose a gigantic number of impacts on cities' urban development, especially for the spatial realm. We divide mega-events into three types, they are sports, cultural, and commercial respectively, as illustrated in the following. By analyzing some most characteristic cases to specifically explain each type we can have a better and deeper understanding of these emerging mega-event trends.



Figure 7: The temporary events-burning man festival. (Source: <https://www.sfgate.com/travel/article/burning-man-2022-photos-17421402.php>)

## 2.1.1 Sports events

Taking the first Olympic Games held in Athens in 1896 as an example, it took advantage of the existing Zappeion Building and the restored Panathenian stadium and just decorated the streets. After 100 years, in 2004, the twenty-eighth Summer Olympics were again held in Athens, Greece, and the Panathenaic Stadium, adding some temporary sports facilities inside the stadium, became the finish line of the marathon and the venue for the archery competition, compared to 1896 one. Another case is the Beijing Olympics in 2008, which allowed the host country to reap economic, environmental, and public health benefits. With the improvement of transportation systems like the airport and subway station combined with the urban planning, as well as the establishment of the main venues like the Bird's Nest, some cultural events could grasp more opportunities to be held due to the co-existence of convenient accessibility and grand media. During the period of the Post-Olympic, the Bird's Nest and the Water Cube are often used for some International and national concerts and sports events, respectively. This means that the same sites could be used for different functions with different temporary facilities inside them; they can sustainably exist in the long run. And also, the Turin Olympic Village was built for the 2006 Winter Olympics to accommodate delegations with temporary functions and converted at the end of the event into social housing (Lavagna, Arena, 2014).

Another significant case is the World Cup, the world's second-largest sporting event, which is also a potentially expensive affair compared to the Olympic Games. Despite these two world-class events having many similarities in terms of hosting scale and impacts on the urban spaces and economic development of local cities, there are still some noticeable differences between them. The most obvious difference between the Olympic Games with the World Cup is the joint mode of the host city, to be clear, the Olympic Games are usually held by one city in one country, while the other one has transformed to be jointly organized by multiple countries in the future. Indeed, the co-hosts of the 2002 games,

Japan and South Korea, spent a combined \$4 billion building new facilities or refurbishing old facilities in preparation for the event (Matheson, 2004). The 2026 FIFA World Cup will follow suit by sharing the games between Mexico, the United States, and Canada, the first time that three countries will host that sporting mega-event (Jones, 2020). This means, that not only can host cities rely less and less on the funds for bidding with shared responsibility, but they can also retain more urban public spaces needed to be built for new stadiums before. More importantly, it allows this mega-event to spread around. Besides, the use of temporary infrastructures is another significant point of difference, as the sport of football always requires stadiums of a certain size. In some cases, host cities usually use the existing stadiums or choose to build new ones, with less reliance on temporary infrastructures. On the contrary, the Olympic Games can take advantage of current venues for the parts of sports, for instance, the Olympic Games in Paris 1900, all the venues during this giant party include 73% of existing stadiums, which means, the host city heavily relied on current infrastructures instead of building new ones.





Figure 8: The temporary stadium 947 in 2022 quata world cup. (Source: <https://www.wilsoncenter.org/blog-post/stadium-made-shipping-containers>)

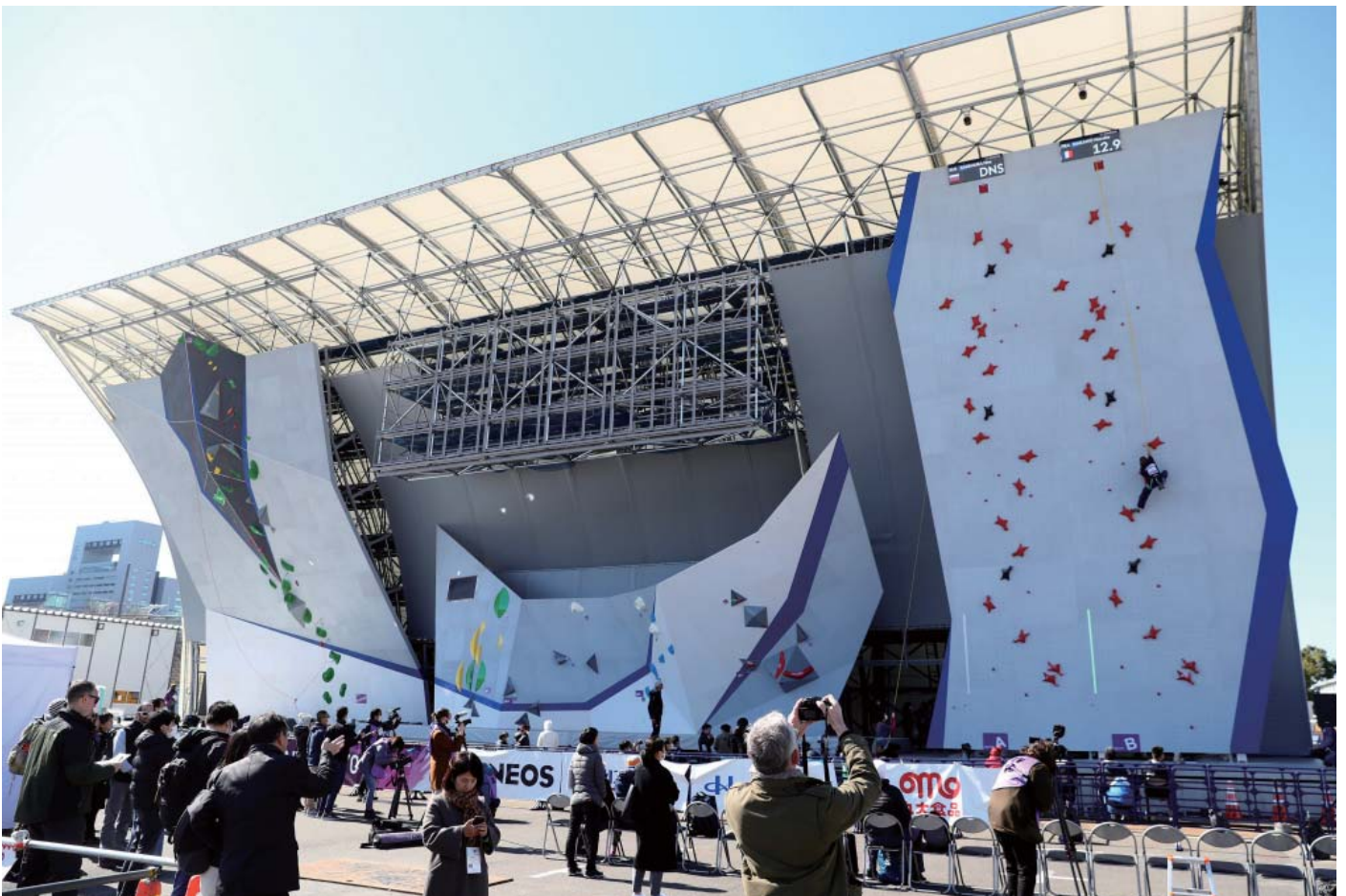


Figure 9: Aomi Urban Sports Park for basketball and sport climbing in Tokyo 2020. (Source: <https://www.wilsoncenter.org/blog-post/stadium-made-shipping-containers>)

## 2.1.2 Culture events

The Expo is a mega event that usually contains many exhibitors showing the world some contemporary cultural, technological, and industrial achievements, which positively impact various areas of life. Each Expo event generally lasts for three or six months. With the continuous upgrading of technology, some modern, lightweight, removable, sustainable, and environmentally friendly building materials bring more possibilities to the World Expo. And many of the temporary pavilions built for it at the beginning of the design phase will be dismantled at the end of the Expo event or re-mounted elsewhere for a second use to promote reuse during the post-event and mitigate the negative impact on the environment (Monica Lavagna, Marika Arena, et,2014). A recent example of the relocation of a temporary pavilion is the Christ Pavilion designed by Von Gerkan, Marg und Partner for the Expo 2000 in Hannover and relocated to Volkenroda (Lavagna, 2006). However, there is another exceptional possibility here; sometimes, some temporary pavilions or facilities were built for some specific function and converted into permanent existence due to their popularity or the value of becoming iconic landmarks. The most famous example of this situation is the Eiffel Tower and London Eye (Gold & Gold, 2016).

Apart from that, there is another mega-event worth mentioning, The European Capital of Culture, which is a year-long cultural program consisting of hundreds or thousands of events embedded within the city itself and throughout the surrounding region as well (Jones,2020). Similarly, there are still some spin-off events like the UK City of Culture or the Italian Capital of Culture. These events rely primarily on the urban public spaces of cities to promote European identity and integration.

The main aim of the host cities holding several events is to spread European culture through various themes and focuses. Typically, part of the event directly depends on the city itself, relying primarily on the pre-existing venues and urban spaces. Different from the World Expo, it can alleviate poverty in cities through increasing

employment opportunities and improve the attraction to more tourists as well. More importantly, its marketing functions, as more and more cities bid for becoming a future ECoC to shape how the world imagines and perceives them from a general marketing perspective (Ooi, Håkanson, LaCava, 2014).

Additionally, the Venice Biennale is a great arts festival with a history of hundreds of years and one of Europe's most important art events. It is an Art Biennale in odd-numbered years and an Architecture Biennale in even-numbered years. The leading exhibitions display contemporary art and architectural art. Its origin is a pavilion in the middle of a public park without too much focus and attention from the public. This situation changed when the local government realized that the Venice Biennale could be a valuable internal and external propaganda tool (Martini, 2013). Then they were gradually willing to invest in rebuilding the national image of Italy.

Compared to those large-scale events, some smaller and traditional events are worth mentioning as well. Such as the Christmas markets and Oktoberfest, which typically create annual rhythms of celebration that add to the identity of spaces, although most cases are intangible and temporary. The organization of Christmas markets has been not only recognized as a cultural and social event but also encouraged to stimulate tourism in the low season and bring additional revenue to local economies with commercial functions (Egresi,2021). The Strasbourg Christmas Market in France, a tradition dating back to the 16th century, has a long history of 445 years and is one of the oldest and most prestigious Christmas markets in the world. In 2014, the market was distributed in 12 locations in the city center, with more than 300 temporary wooden houses built for this grand party. Vendors gathered to sell Christmas decorations, local traditional food and drinks, artisan products, toys, and other local traditional products related to Christmas (Brida, Meleddu, Tokarchuk,2017). It is estimated that the city benefits from a 16 million Euros profit from this 38-day-long tradition. In a similar situation, Oktoberfest is the world's largest Volksfest, which is held





Figure 10: The European Capital of Culture. (Source: <https://www.cultureinexternalrelations.eu/2020/09/24/european-capitals-of-culture/>)

annually in Munich, Bavaria, Germany. During the 16-day Oktoberfest in Germany, large quantities of Oktoberfest Beer are consumed. For example, during the 16-day festival in 2014, 7.7 million liters were served, making it the year where the most beer was consumed at Oktoberfest. Additionally, 14 major and 15 minor beer wooden tents are created to accommodate thirsty tourists within two weeks. To support the load every tent also gets a concrete grounding, which is redone every year again. In some cases, it is a mostly temporary event in terms of the construction of infrastructure.

### 2.1.3 Commercial events

Apart from the former two types of temporary events, there are still others aimed at achieving more economic benefits; in other words, they are one of the effective methods for brands to sell products for maximum benefits. The most popular and common case study is the Nike pop-up shops. Some temporary shops are generally located in public spaces like parks to inspire more people to take up running and attract their attention to outdoor activities (Bishop&Williams, 2014). And in some physical Nike shops, the treadmills are also provided inside them with try-on running shoes for experience to encourage some runners to have a great running experience and stimulate consumption further. Another exciting example is GINGER LINE, the latest one of the popular pop-up restaurants in London (Bishop&Williams, 2014). What's the most interesting thing is that the theme of each time is announced to the customers just one hour ago. The support from the restaurant will always not be refused due to their free publicity of themselves and the fastest speed of selling items in restaurants.

In some cases, activities like Christmas markets and Oktoberfest mentioned before, also can be regarded as commercial events due to the job opportunities and additional revenue to local economies. In 2014, there were 157 main Christmas markets and 2634 smaller markets in Europe, which attracted 493.7 million visitors who spent 4 trillion pounds (CRR Research, 2014). During the period of Oktoberfest, in addition to selling beer and tickets can bring a lot of economic benefits, the cost of accommodation in local hotels also can make a big fortune, as room rates are highest on Oktoberfest Friday and Saturday nights, followed by Oktoberfest weekdays and Oktoberfest Sunday nights, but there is a general and strong price-raising impact (Herrmann, 2014).

Finally, it may be concluded from the previous analysis that temporary infrastructures can be almost seen in all types of mega-event, which means it's a popular trend all around the world. Indeed, some of them are existing venues or

stadiums just used for another function during a specific period hosting the activities, while another situation is that something new is also created for those events like Nike pop-up shops mentioned before. Through this illustration, it is not difficult to see that the utilization of temporary infrastructure shows different proportions for different types of activities. It is worth thinking about how to make full use of the existing infrastructure while building some new ones to meet different needs in the later design part, and how to balance the new temporary infrastructure with the urban space of the host cities as well. Thinking about this realm will be explained in more detail in the next section according to more specific strategies of temporary infrastructure in mega-event.



Figure 11: The Nike pop-up shops. (Source: <https://www.studiodeform.com/new-gallery-1/>)

## 2.2 Relevant studies and inspirations

This part aims to make a more specific analysis of the effects of mega-event on urban spaces, through relevant case studies of two spatial relationships about the distance from the event venue to the city center, they are mega-events close to the city, and mega-events in the city respectively, having a better understanding of the influence of different events on urban public spaces and further providing theoretical support and some inspirations from several perspectives for the later design part in Paris.



## 2.2.1 Relevant and detailed studies

### From the perspective of a functional point of view-accommodation

Generally speaking, the duration of mega-events is generally one week to six months. With the increasing popularity and influence of large-scale global events, more and more people are attracted to their host cities, leading to an urgent problem in terms of tourists' accommodation emerging immediately. How to solve the accommodation problem of tourists during those big parties is very worthy

of attention and full of needs to be solved urgently. There are several case studies mainly divided into three strategies providing more useful and practical suggestions in this accommodation realm.

Taking Burning Man as the first example, which is a nine-day event that begins the Saturday before Labor Day and ends on Labor Day. Building a giant wooden effigy with the shape of a human being is a traditional and symbolic custom during this big party and burning the man at the end of the mega event is the origin



Figure 12: The 2015 EXPO Milano (Source: <https://www.cntraveler.com/galleries/2015-05-13/milan-expo-2015-most-impressive-national-pavilions>)



of the name. Black Rock City is a transient city built by the volunteers of Burning Man, which is originally located in underdeveloped areas allowing participants to freely build an entirely new world. Most urban infrastructure and its layout are made a few weeks before this mega event including the basic needs of accommodation for tourists and some aesthetic requirements, such as the central camp, individual camps, and art installations. Generally speaking, the typical form of Burning Man always is radial mostly due to the consideration of accommodation. Taking the early stage of the one in 1992, the center of this gathering was restricted, and camping hubs were outlined. The planners also designed primary transportation routes. However, this plan just was a draft (Kerry&Scott, 2015). Another excellent example of this event is the one held in 2013. The city blocks are composed of five bisected arced streets. There was a center camp located in the middle of the ring. At the same time, tons of individual bases were scattered around the circle, ensuring that each participant could see the performance from a different perspective. As time passed, the primary layout mode was similar to the

former one in 1992. They both were distributed in a radioactive pattern, perhaps In this case, Oktoberfest does a partly similar thing in terms of tent strategy for one month allowing an entirely empty field to become a temporary party, as in addition to solving the accommodation problem, it is also used to build the venue for the event. There are typically 17 big tents and 21 smaller ones built for providing thirsty tourists from all over the world within two weeks. Besides that, some tents located in surrounding parks are also created for tourists' accommodation requiring rent not for free differently like venues. In conclusion, Burning Man is a quick mega-event mostly created from scratch. Indeed, all the infrastructures in Black Rock City are temporary and movable after Burning Man. In this case, Oktoberfest is also partly built with many temporary tents, it also has a reliance on temporary infrastructure during hold time to some extent. Learning from this one strategy that both Burning Man and Oktoberfest adopt to solve the accommodation problem caused by those big parties. In the design part of Paris, a new idea was proposed that maybe some detachable and disposable tents can be jointly built by volunteer organizations on lawns or open public squares



Figure 13: Truth in Beauty sculpture, Black Rock City, Nevada, August 2013. (Source: <https://americanart.si.edu/blog/eye-level/2018/07/57621/truth-beauty>)

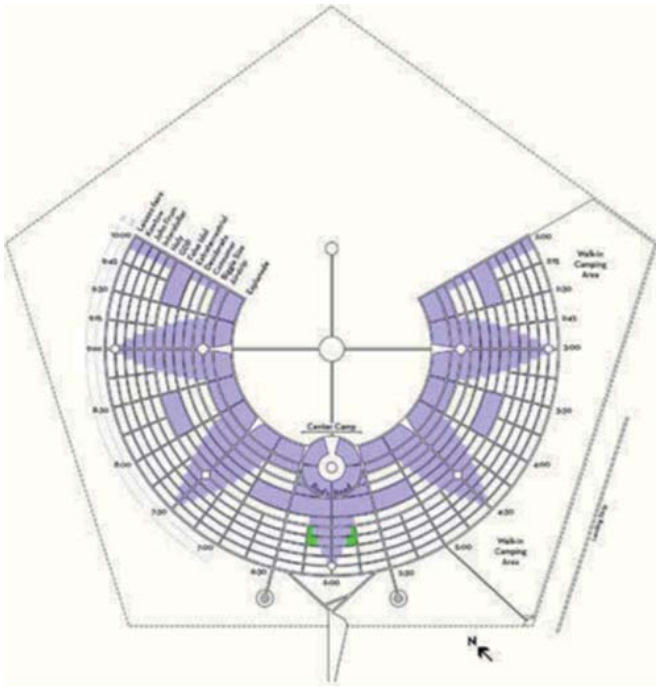


Figure 14: BLM-required Burning Man site plan, Pershing County, Nevada 1992. (Source: Burning Man Project.)

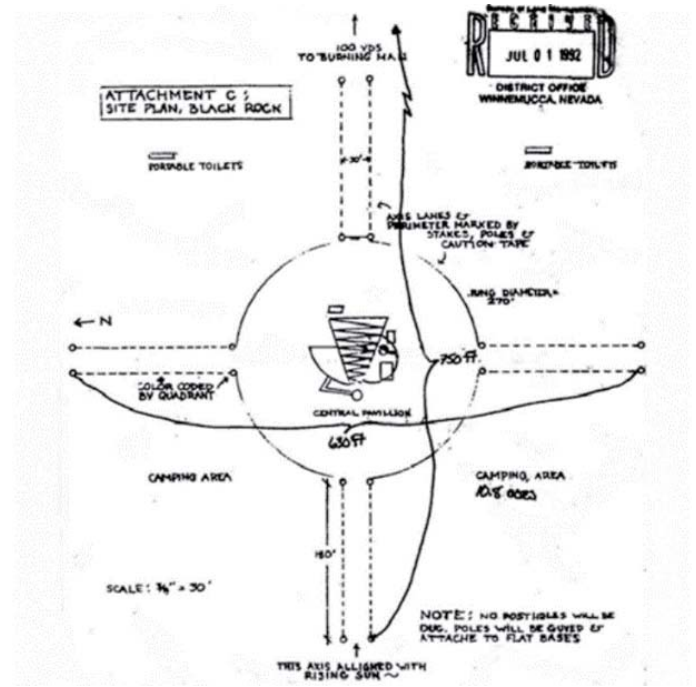


Figure 15: Black Rock City site plan, Pershing County, Nevada 2013. (Source: Burning Man Project.)

surrounding Paris to provide accommodation for a gigantic number of tourists and alleviate the economic pressure caused by the soaring housing prices caused by the mega-event. Similarly, some retail stores selling Olympic peripheral products can also do it in temporary tents as well. Even some less important games, such as the basketball early group games, can also be held in tents temporarily set up in the middle of the open square, free for tourists to watch together.

### ***In terms of view-art installations***

In addition to the consideration of practical functions, making the temporary infrastructures more beautiful and pleasing to the eyes of both residents and tourists also plays a very important role in this popular ongoing trend, even though these events are usually held for a maximum of a few months. Generally speaking, temporary landscapes during in mega-event are mostly built for clear display purposes with specific themes, often rendering different atmospheres through extremely strong visual impact or spatial contrast and conveying a new idea or highlighting a certain element for viewing. To deliver a more aesthetic experience to tourists.

For instance, the Serpentine Gallery located in Kensington Gardens, London, has launched a summer pavilion program since 2000. Every summer, an architect is invited to design a temporary installation on the grass in front of the gallery, free for visitors to enter and experience. There are many star architects who have left creative and amazing works here, such as Zaha Hadid, Rem Koolhaas, Frank Gehry, Frank Gehry, Toyo Ito, Cecil Balmond, etc. Compared with the traditional forms of structures, the Serpentine Gallery provides the stage for star architects to show their different personal styles. There is a tent-shaped infrastructure created by the triangular support structure designed by Zaha, who has a talent for taking advantage of geometry, while Toyo Ito and Cecil Balmond are good at creating a visual feast for viewers through the contrast of light and shadow and reality.

The initial idea behind these transient pavilions is quite simple: to provide an opportunity for architects who have not previously undertaken projects in London to showcase their talents. Each invited architect has 6 months from receiving the project to proceeding with the construction of the pavilion, then those pavilions will be open to the public. Although



Figure 16.: Oktoberfest, Munich, Germany (Source: credited by author)



Figure 17: Oktoberfest, Munich, Germany (Source: credited by author)



each of the previous pavilions was moved to private properties after a brief summer display, they were circulated through imagery and architecture-related mediums, having a long-lasting influence on architectural design thinking and urban aesthetics. Milan Design Week is one of the most typical studies in this realm, one international design event, involving the entire city of Milan in a frenzy of happenings and installations. Together with the annual furniture exhibition, it attracts people from all over the world and has become the major business event taking place in Milan (Deserti, 2015). Taking Milano Design Week 2016 as an example, it attracts more than 300,000 visitors from as many as 165 countries. During MDW, more than 2,400 exhibitors were featured among the Saloni and the Fuorisalone and over 1,000 events spread all over the city. (Libusha, 2015), which can be easily seen that this event is a big attractor all over the world. There are tons of exciting designs with different themes from around the world gathering during this 7-day party in the city. It's a mix of cultural and commercial activities. On the one hand, it hosted the more experimental and aesthetic work of young designers and start-up companies that could not find a place in the official exhibition; on the other hand, it took the form of a parallel commercial exhibition where some of the established companies found more convenient using their showrooms or renting in-



Figure 18: Serpentine Gallery 2008. (Source: Image © John Offenbach)

city spaces to show-off their products (Deserti, 2015).

Taking Milan Design Week 2022 as an example, it was held from June 6-12, 2022. There are several art installations attracting tourists' attention every year. The most amazing installation at this year's exhibition will be the "Energy Park" in the Brera Botanical Garden, showing the "Feeling the Energy" concept created by Italian architecture studio Carlo Ratti Associati and architect Italo Rota. The architects designed sculptures and paths in the Brera Botanical Garden with a 500-meter-long curved copper tube, allowing visitors to



Figure 19.: Serpentine Gallery 2002. (Source: Image © Sylvain Deleu)



Figure 20.: The entrance facility in the Brera Botanical Garden during Milan Design Week (Source: credited by author)

experience the mutual transformation of energy through different interactive methods. For instance, a carousel made with a curved copper tube is situated at the garden's entrance, providing light to the site at night by converting the kinetic energy created by moving the carousel during the day into light. The sculptures, made from twisted copper pipes, are also fitted with solar panels. The electricity generated during the day is stored with the help of a network of tiny batteries to illuminate the garden at night. Another fantastic design is the cooling devices, converting light energy into electricity using sensor-activated water vaporizers to atomize the path as people walk through them, bringing visitors a burst of coolness on hot summer days. Although this carnival all over the city and even the whole world only lasts for one week, some fantastic design concepts will permanently affect the world.

In conclusion, the temporary structure design integrating with urban space can provide many benefits. From the perspective of tourists, it's more accessible and convenient for tourists to

experience, as they only need to walk there within several minutes instead of drive time up to several hours. In terms of urban renovation, the urban area can be revitalized after being attached to more functions, not only can tourists get more joy and inspiration from the specific atmosphere and interactive experience, but also residents living in this area are able to get more jobs opportunities and the funds attracted from tourism will support the city's construction. The designed part for this event mainly is temporary installations that can be disassembled and relocated with minimal impact on the current space while fully utilizing the existing venue for the exhibition building. Lowering the impact on architectural heritage with a long history becomes a priority to make it during the period of Milan Design Week. The areas where it takes place are temporarily transformed by the events, that have a visible impact on the tangible characteristics of the interior and exterior spaces, on the number and the kind of people visiting those spaces, and on the intangible atmosphere resulting from the interaction between people and spaces (Deserti, 2015). Like the interactive installations



Figure 21: The interactive installation in the Brera Botanical Garden during Milan Design Week (Source: credited by author)



mentioned before, visitors not only can have an opportunity to experience the physical process of interconversion of light and electrical energy but also are able to experience something fresh and interesting in a familiar environment and discover the new spaces and joy inside the current one. Similarly, most Christmas markets are also situated in city centers or in historic neighborhoods, in order to be convenient for both tourists and residents to find and access. Besides, from a perspective of intangible sight, people are willing to have fun in this activity not only for consumption, such as drinking hot chocolate or buying some Christmas-themed decorations, but they also prefer the atmosphere, enjoying the time with family and friends together and all the scenery full of aesthetics.

While the Paris 2024 Olympics may introduce changes to how the Olympic Games relate to the city, the issue of heritage is already an aspect that cities should take into consideration during the planning of mega-events, regardless of their spatial relationship to the city (Jones, 2020). In addition to considering how to integrate with the city's local heritages, we also need to consider how it can bring a pleasing aesthetic to the participants, or like the Serpentine Gallery mentioned above, it can provide new inspiration and ideas of design for tourists while they stop for watching, instead of overly taking the simplest design out of cost-effective or economic considerations. Except for innovating from a morphological point of view, we can also be inspired by various color combinations from Milan Design Week, like the colorful solar panels of interactive installations, not only they can absorb solar energy for the next process of energy conversion, but it can also shadow of different colors on the ground, showing an interesting visual image. Inspired by most Christmas markets, light bulb installation on each kiosk illustrate that lighting design is also an important factor needing to be considered. From an aesthetic perspective, when night falls, the lighting can create a beautiful and warm atmosphere.

### ***In terms of public participation***

With the integration of the global economy,

the popularity of various events has become gradually stronger, and public participation as well. In some cases, consideration of how to improve the interaction between the public and the activities themselves from multi-sensory experience is another question worth thinking about.

There are many interesting and successful stories to learn from. Like the interactive installations created in Milan Design Week 2022, in the exhibition area of the Brera Botanical Garden, there is a percussion instrument made of curved copper tube, on the one hand, it serves as a physical sign to guide visitors to the next area, and on the other hand, it can also enhance the interaction between the environment and visitors. Although these temporary art installations will be dismantled after Milan Design Week, the design ideas they bring can affect the design industry and the entire city for a long time. Similarly, in the Paris French Open Stadium in 2022, there are many temporary service facilities. For example, on the lawn in front of the stadium, a large screen



*Figure 22.: The cooling device in the Brera Botanical Garden during Milan Design Week (Source: credited by author)*

is established for the audience who arrive early, offering free viewing of live matches prior to the games they purchased. At the same time, in some temporary sheds in the stadium, the audience will be provided with a free VR tennis experience and free band performances. Based on these ideas, it might be feasible to set up some temporary large screens for live broadcast in the open street or squares, which can not only enhance the interaction between the public who can hardly afford tickets and the Olympic Games but also enhance the cohesion between the audience themselves. Similarly, as mentioned early, some basketball early group games can be held in temporary tents in open spaces, which can be set up by volunteers like the Burning Man or students from high school or university, and in return, they can be offered free access to later game viewing. The symbol of each individual volunteer or voluntary organization can be left on the temporary facilities, like chairs for watching live broadcasts in the squares, wood for setting up temporary

tents, and it can be also given as a souvenir for free after the event to improve the publicity of the event, on the other hand, although the activity is transient, the memories it brings to people can be eternal, and these temporary facilities can be preserved for a longer time in a more meaningful way, rather than being idle or abandoned. Indeed, it can even be donated to third-world countries in the name of the event venue to build their own infrastructure, which can be recognized as another sustainable way to reuse those infrastructures.



Figure 23.: The percussion instrument in the Brera Botanical Garden during Milan Design Week (Source: credited by Sidney Dung)



## 2.3 Conclusion

What's more, tourists also play an essential role in this part, for example, during a particular period of some mega-events like the World Expo and Olympic Games, some local government councils need to establish some infrastructure like stadiums, guiding system, street shops, and resting spaces to meet their requirements and provide them with great experience, in reality, some of them are still used as venues for some public events instead of being abandoned from now on, while very few are eventually left idle.

As the holding of mega-events is an increasingly popular ongoing trend around the world, the design and post-processing of temporary infrastructure have become a series of things that deserve more thought and investment. This chapter first classifies the main big parties into three categories, cultural

events, sports events, and commercial events respectively, according to the characteristics of the events themselves, and analyzes the design of temporary facilities in each of them. Then get more specific inspirations for the design part from other activities from different perspectives, such as the consideration of practical accommodation for tourists, aesthetic art and public participation. Some summarized benefits of temporary infrastructure in mega-event are shown below.

### More temporary, more capability

Through the modern Olympics development and the globalization of tourism, the host city needs temporary facilities to increase its capacity in a short time. Because the number of the visitors would rise dramatically during the Olympics, which is far beyond the capacity of normal days. It could be the train rail to support the temporary transport to the remote game site. In the building period for the Olympics, temporary also plays a vital role. The more temporary accommodation of laborers could support more workers in the project, which eventually could alleviate the pressure on buildings. In this way, temporary means more capability.

### More temporary, more flexibility & fun

As mentioned before, being different from permanent facilities which cannot be easily changed, temporary infrastructures are more flexible for modification in a short time, which means they can be adjusted to different sports. Apart from that, designers can't only add a variety of interactive and innovative ideas, but also the novelty in the appearance of temporary installations so that visitors can not only enjoy the exhibition itself during the viewing period but also experience interactive fun, improving public participation.

### More temporary, more affordable

The temporary facilities could not only alleviate the financial pressure on the host city but also on the visitors. For the host, the price of temporary stuff is obviously cheaper than the permanent one. For tourists, the cost of the hotel during the Olympics could significantly rise, which could cause a big stress on visitors when they think about if they visit the Olympics or not. To solve this problem, the temporary facilities could decrease the cost of temporary accommodation.

# Chapter3: temporary and Olympics-relevant case study



Figure 24: The temporary PyeongChang Olympic Stadium under construction.. (Source: <https://www.archpaper.com/2018/02/south-korea-disposable-olympics-stadium-no-roof-heat/>)

As discussed previously, there are so many inspirations from the other relevant events about the temporary structure. With the help of the temporary structure, those events could be better adapted to the surroundings and have better capability. In this chapter, it is focused on the temporary application in Olympics. Through the research, the history of temporary application would be formulated, the experience would be summarized. Eventually the result would be advisable for the future development. The temporary structure would give varies of cities the even chance to hold Olympics by reducing the difficulty. And it would be helpful to set up a sustainable recycle system, which is eco-friendly. Moreover, the temporary facilities make it possible that the games happen in public space. More ordinary people would have chances to attend the games.

Besides that, there is a dialectical relationship of the temporary and permanent in Olympics. The Olympics itself is a temporary event which only last for one month. However, the host city would prepare for a few years and modify the urban plan to meet the requirements of Olympics. The legacy such as the vast buildings, Olympic parks and so on, would deeply influence the city for the next decades. Through this research, this dialectical relationship would be further discussed.



# 3.1 Temporary and Olympics

It is normal to see the temporary structure since the first modern Olympics. With the temporary facilities, the host city has the capability to meet the requirements of the sports in a short time. In the followings, there are several outstanding examples of temporary application which reflect the different demand of temporary structure, such as low-cost, sustainability, and etc. those examples contain both of the summer Olympics and the winter Olympics.

Through formulating these cases, it is obvious to see the trend of temporary structure in Olympics and the related background. Apart from that, among these cases, London and Los Angeles are two unique cities. The previous one hosted the Olympics for 3 times, the rest one hosted 2 times and is the host city of 2028 summer Olympics. They are similar to Paris. The 2024 Paris Olympics is the third time for Paris to host Olympics. And, during the 3 times of London, it covers multiple type of the temporary facilities. London is the perfect case for the advisable inspiration for our temporary proposal for Paris.

# 3.1.1 Summer Olympics and temporary

## 1896 Athens summer Olympics

Athens proceeded against a difficult political and economic background that made preparations for the first arising of the games (Gold & Gold, 2016). The rule of sports and the standard of the stadium is not very mature. There is no professional venue. Some sports including Marathon, Cycling, triathlon happened in the open spaces. The first Olympic marathon of the modern era, the race was held to commemorate the famous run that the messenger Pheidippides made in delivering news of the victory over the Persians in 490 BC. It is an outdoor race game, which means it needs a long distance for the competition rather than a standard stadium.

In every Olympics, the Marathon game could take place in the urban area temporality such as Athens-Marathon-Athens. Competitors ran from Marathon to the Greek capital on a course that was only 24.8 miles long (modern-day

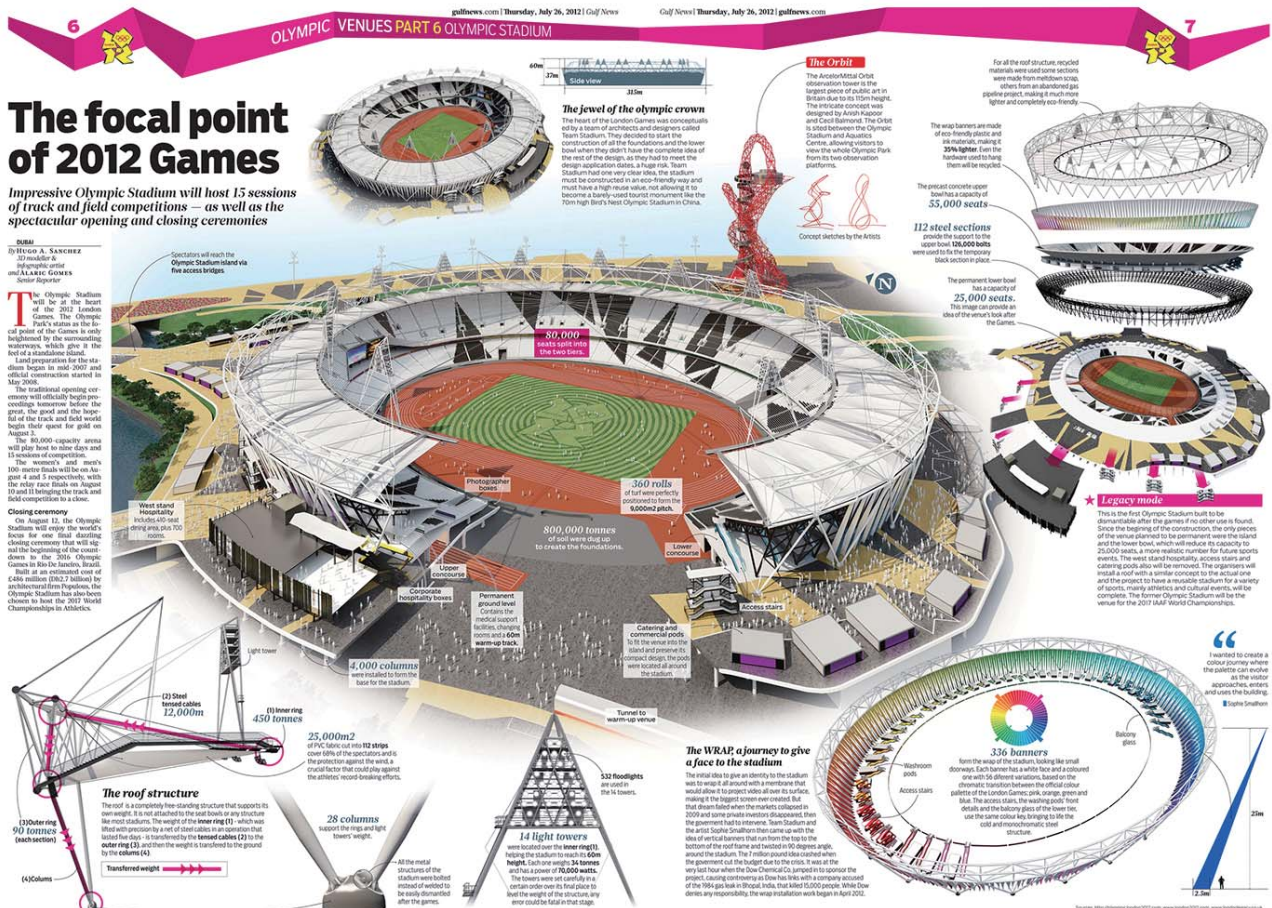


Figure 25: The temporary venues in London 2012 Olympics. (Source: <https://visual.ly/community/Infographics/olympics/london-2012-olympic-venues-part-6-olympic-stadium>)



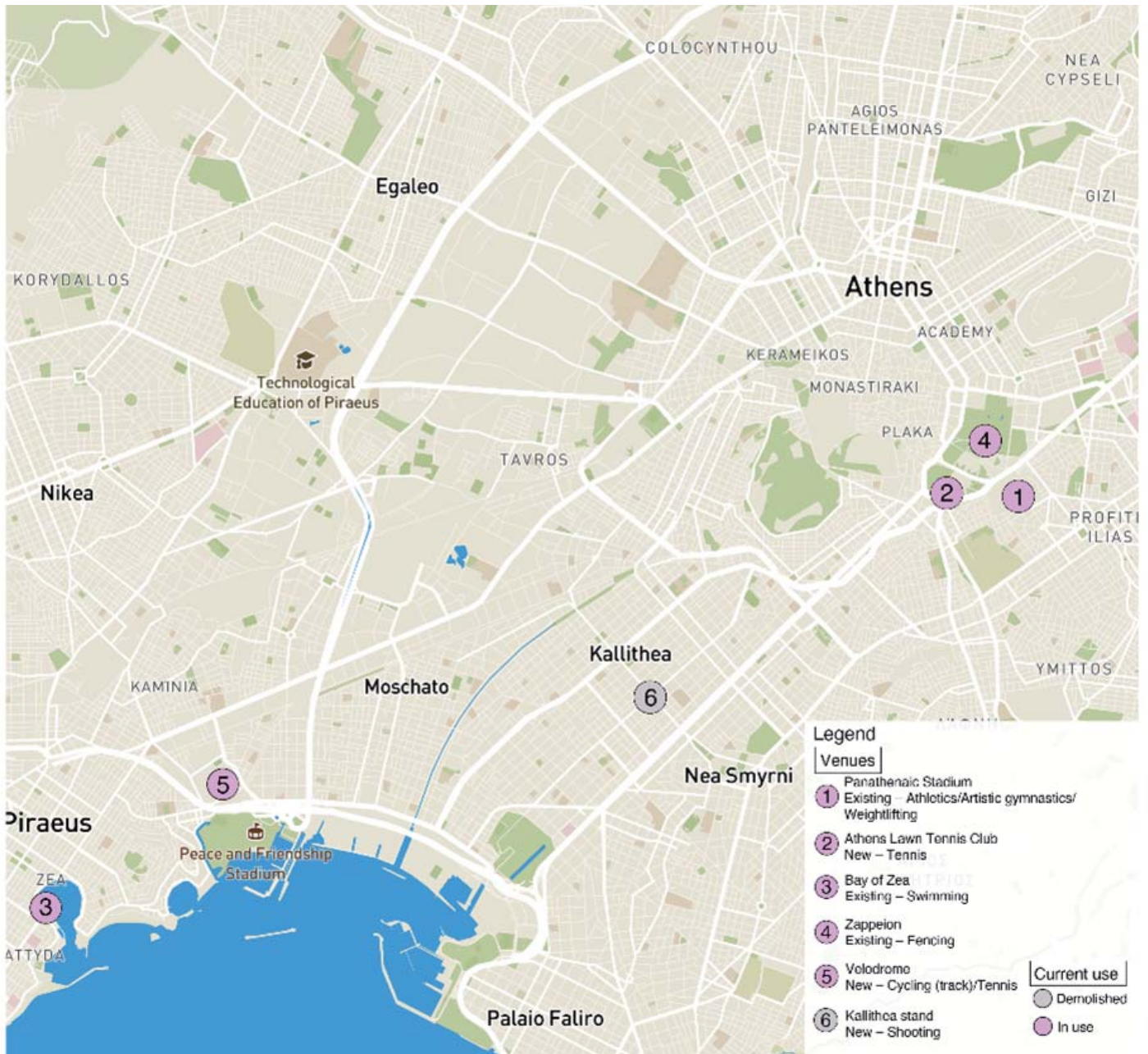


Figure 26: the layout of 1986 Athens Olympics (Source: author draw).

marathons are run over a distance of 26.219 miles or 42.195 kilometers). The same situation happened in the cycling games and other competitions. After that, those sports require maximum space to run, always happen in the city transportation lane. Those streets or blocks would be modified and blocked for hosting those competitions temporarily.

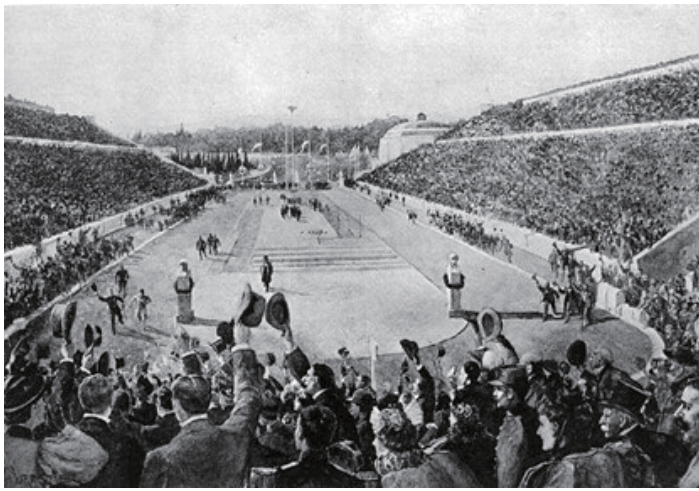


Figure 27: the main venue of 1896 Athens Olympics (Source: Olympic official website).

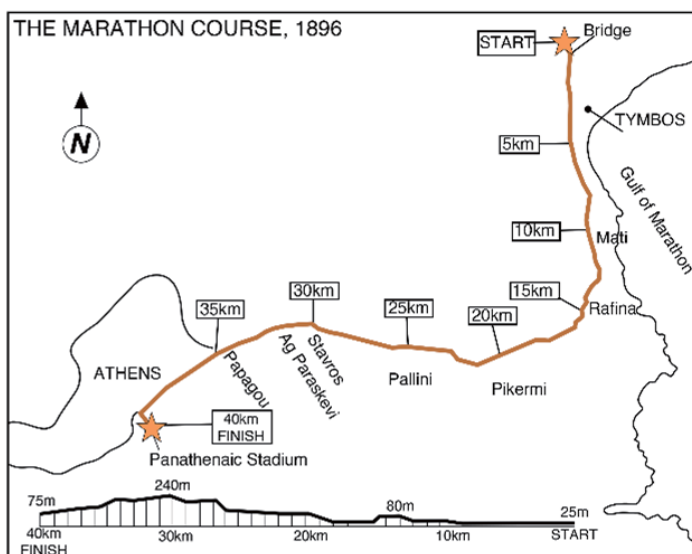


Figure 28: the Marathon path of 1896 Athens Olympics (Source: author draw).



Figure 29: The water jumps in the steeplechase at the 1908 London Olympics (Source: <https://www.thehistorypress.co.uk/articles/london-s-first-olympics-1908/>)

## 1908 London Summer Olympics

London has a long history with the Olympics. However, the whole process contains some frustration. Back in 1908, the fourth Olympics was decided to hold in Roma in the first place. Due to the volcano accident, there was no sufficient budget for the Italian government, then it changed to London with the support of King Edward VII. It was the first time London hosted the games. Through cooperation with the Franco-British Exhibition, it would construct at their own cost all the racing tracks and building necessary for carrying out the Olympic games and should provide all necessary equipment, attendants, and advertisements (Official Report Olympic Games 1908 London, 1908.). The 1908 Olympics is a symbolic time in Olympic history. 12 stadiums were built explicitly for the Olympics. For example, the main stadium, White City Stadium, was built for the Franco-British Exhibition of 1908 and modified for the 1908 Olympics. It could hold over 93000 spectators. After Olympics, it continued to be used for exhibitions and textile fairs until 1937. And it became the playground for dog racing until 1984. The swimming competitions didn't happen in open water. It was the first time to allowed female athletes attended games.



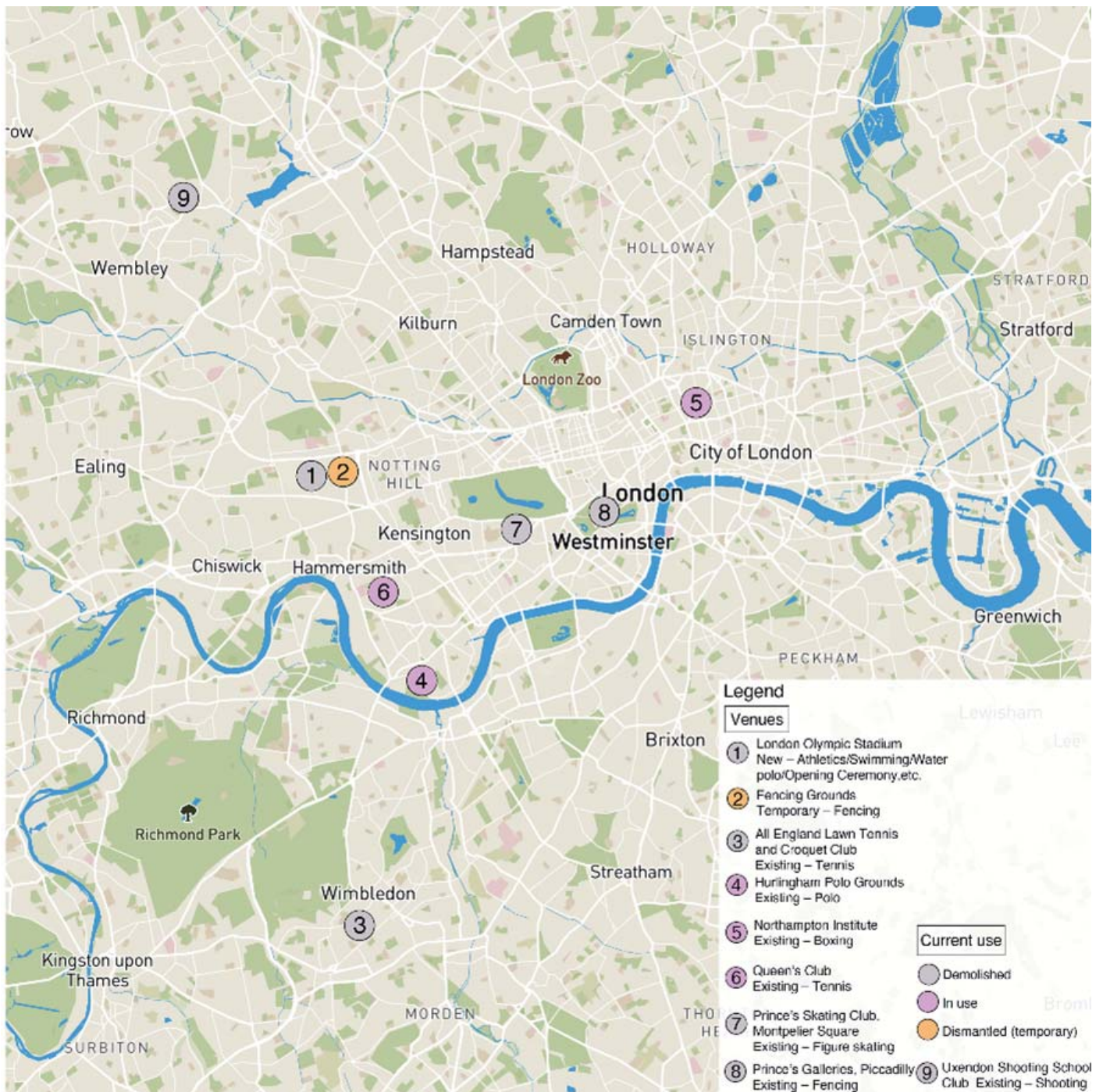


Figure 30: the layout of 1908 London Olympics (Source: author draw).

Above all, we could find the 1908 London Olympics seemed like a sports carnival rather than a professional competition, which is a successful festival to attract the citizens and athletes. But it has limited influence on urban development and lacks vision, which means most of the Olympic buildings were no longer taken proper advantage of for the next period. According to the time background, it is easy to see that people were not aware of the influence of Olympics on the urban development. And the organizer didn't consider those Olympic buildings in the long term but instead for temporary use. At the same time,

the organization was not professional, even the games rule was changed for some purpose. It is more like a temporary sports festival rather than an influence mega-events. The 1908 London Olympics could be recognized as a transition stage from amateur to professional and from a temporary event to an irreplaceable mega-event with gigantic influence on the urban planning. From this case, we could see the potential brought by temporary structure and Olympics as temporary organization. It could improve the capability and flexibility of the host city under such limited condition.



## 1928 Amsterdam Summer Olympics

The 1928 Summer Olympics was an international multi-sport event that was celebrated from 28 July to 12 August 1928 in Amsterdam, Netherlands. A total of 46 nations were represented by 2,883 athletes, including 277 women. There are some innovations in this Olympics such as the sponsors, the parking lot design and so on. There were some temporary structures applied to meet the requirements of the Olympics temporarily.



Figure 31: the layout of 1928 Amsterdam Olympics (Source: author draw)



### BOXING/WRESTLING PAVILION

This was one of two semi-permanent constructions (the other being the Fencing Pavilion) built next to the Olympic Stadium as part of the Olympic Stadium Complex, of which the temporary Olympic Sports Park Swim

Stadium was also a part. The iron-framed pavilion, which had a capacity of approximately 4,500 (seated and standing), was removed after the Games. The site is now occupied by a building that houses a number of different businesses.

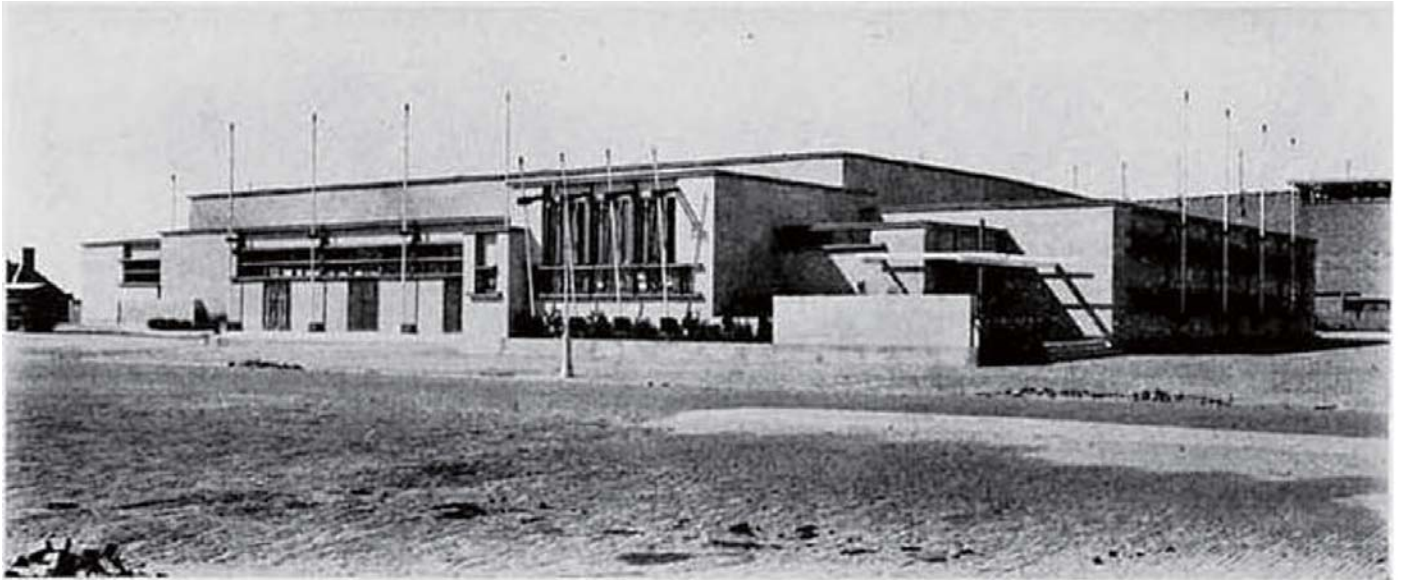


Figure 32: The box center in the steeplechase at the 1928 Amsterdam Olympics (Source: 1928 Amsterdam Olympic report)

### FENCING PAVILION

This was one of two semi-permanent constructions (the other being the Boxing/Wrestling Pavilion) built next to the Olympic Stadium as part of the Olympic Stadium Complex, of which the temporary Olympic Sports Park Swim Stadium was also a part. The iron-framed pavilion, the sides of which were almost entirely glassed in, was removed after the Games.

The site is now occupied by a building that houses a number of different businesses. Based on the Amsterdam Olympics, it was the first time to see the semi-permanent constructions, which inspire the following Olympic host city. The function of permanent stadiums could be extended by installing new structures. In this way, the cost is lower than the traditional way.



Figure 33: The fencing game at the 1928 Amsterdam Olympics (Source: 1928 Amsterdam Olympic report)



## 1932 Los Angeles Summer Olympics

It was the second time for US to host Olympics and the first time for LA to host Olympics. It is the begin of the relationship between Olympics and Los Angeles. Due to the great Depression, the number of attending countries is less than the Amsterdam Olympics, and it is the trickier for application temporary facilities in this Olympics to alleviate the financial stress, including the temporary Olympics villages.

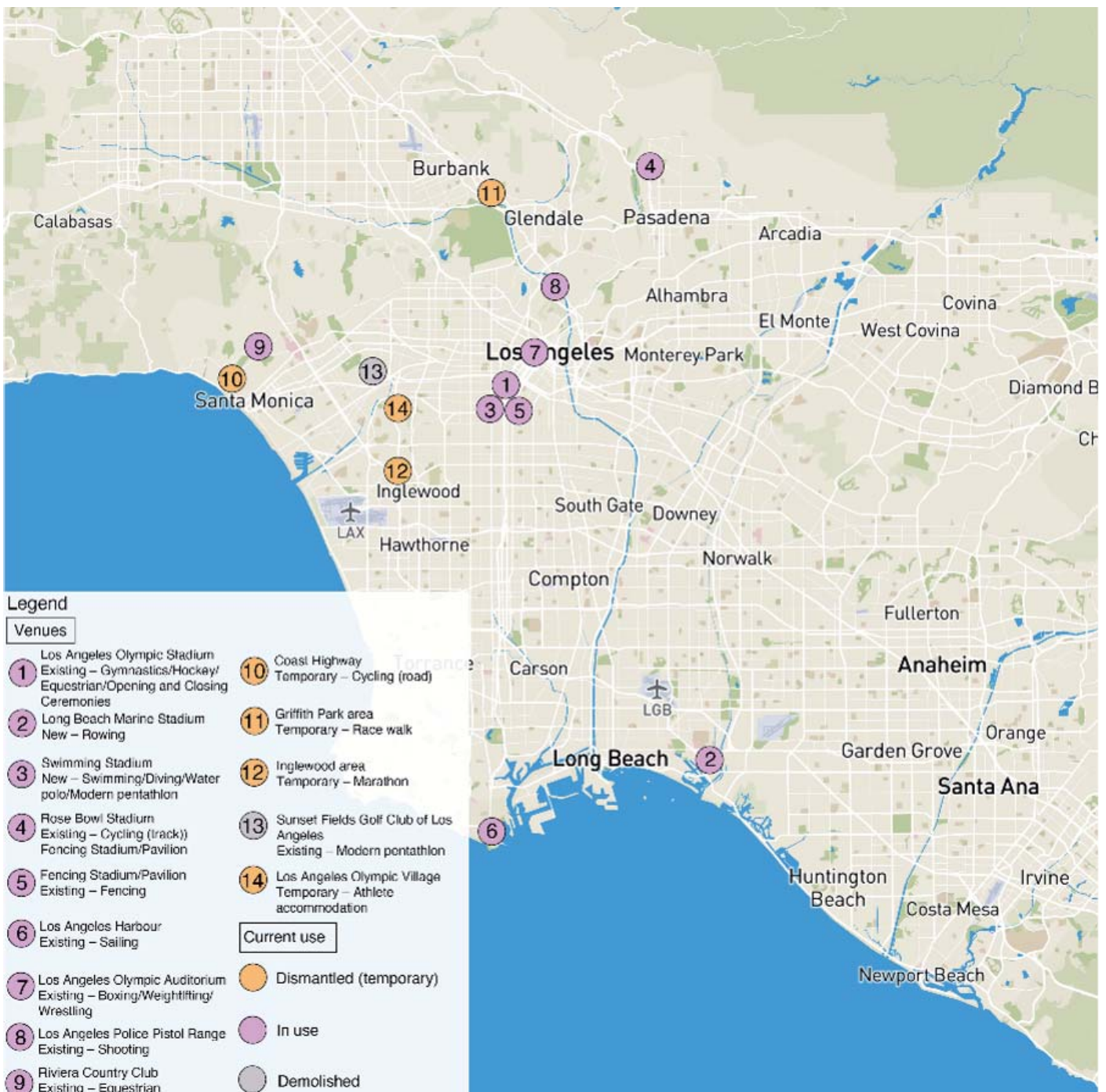


Figure 34: the layout of 1932 Los Angeles Olympics (Source: author draw)





Figure 35: The race walking at the 1932 Los Angeles Olympics (Source: 1932 Los Angeles Olympic report)

### COAST HIGHWAY

The 100km cycling road event was held on a route that ran from the vicinity of Moorpark, joined the Roosevelt Highway at Oxnard and finished in the outskirts of Santa Monica.

### INGLEWOOD AREA

The route for the marathon, which started and finished at the Olympic Stadium, used existing streets in the Inglewood area of the city.



Figure 36: The marathon at the 1932 Los Angeles Olympics (Source: 1932 Los Angeles Olympic report)

### GRIFFITH PARK AREA

The 50,000m race walking event was held on a route that used existing highways in the vicinity of Griffith Park.

### OLYMPIC VILLAGE

Built in a matter of months, the Village had a postal and telegraph service, an amphitheater, a launderette, a restaurant, a hospital, a dental clinic, baths, a fire department, a radio station and a bank. Only male athletes stayed at the Olympic Village, housed in temporary wooden cottages. Their female counterparts were put up at a private hotel in Los Angeles. Most of the complex, which became a model for future Organizing Committees to follow, was dismantled after the Games. The remaining housing is still occupied by local residents today.

In conclusion, the Los Angeles Olympics choose the temporary proposal to face with the Great Depression, the famous financial crisis. Through this case, the value and potential of the temporary facilities were proved with the success of the Olympics. It is a practical and efficient way to enable the Olympics working in difficult condition, which inspires the post-war Olympics.





Figure 37: A bed cushion is carried by a man walking into one of the homes in the Olympic village during the 1932 Los Angeles Olympic Games. (Source: Dick Whittington Studio Collection, USC Libraries)

### 1948 London Summer Olympics

In 1948, after a series of development of Olympics among different cities, the Olympics became more mature. It became a more professional organization with its own standard, although it was through two times of world wars. However, the world war brought some impact on the London Olympics history.

London had been initially chosen to host the 1944 Games, which, like the 1940 edition, was canceled due to the Second World War. With the conflict ending in 1945, plans were made to revive the Games of 1948. It was announced that London became the host city in 1946 after bidding with Baltimore, Lausanne, Los Angeles, Minneapolis, and Philadelphia. It is the first post-war Olympics. This city only has two years to prepare, the focal point of these games was to bring nations together and light the spark of hope for humanity in a very limited situation. The Olympics is not only a mega-event but also the cure for the whole world, after a giant disaster.

However, it was faced with a very difficult situation in multiple aspects. Firstly, it is the financial pressure, which is London's priority problem, and other countries' problem, due to the war damage. It is a huge depression. The first thing for the London Olympics committee is to make it affordable both for the hosts and

participants. To achieve this goal, the organizer takes some genius actions such as a "lend-return basis" (Gold & Gold, 2016). What is a "lend return basis"? To be specific, the London Olympics committee borrow some facilities for the Olympics use instead of buying them to increase the budget. After games, they would return to those manufacturers and owners. Moreover, they would take advantage of those existing buildings to hold those participants temporarily including the campus, military campus, and others. Above all, they are temporary applications in the organization way. In the tangible aspects, those built facilities are designed with multiple functions in order to meet different requirements (London 1948, n.d.). Specifically, the Empire stadium was for athletics equestrian, field hockey, and football (Organizing Committee, 1948).

The London Olympics was called the "Austerity Games" (Olympics website). Financially, the games were a success, as it was the desire of King George VI "to heal his nation's spirit" after six years. The budget was £743,000, while the final expenditure was £732,268. Receipts totaled £761,688, including £1,000 for the TV rights sold to the BBC. The taxman's cut was £9,000 (Organizing Committee, 1948). So, it is obvious to see the financial benefits of applying the temporary facilities.

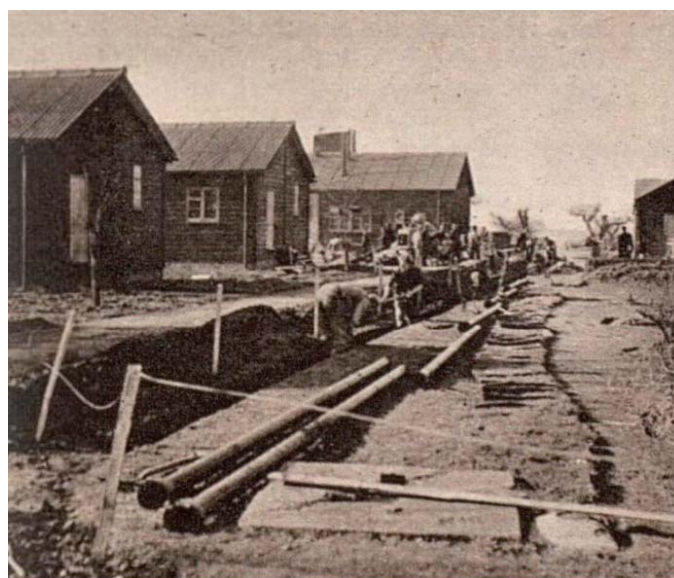


Figure 38: The Olympic village at the 1948 London Olympics (Source: <https://blog.britishnewspaperarchive.co.uk/2021/07/07/adversity-and-austerity-at-the-1948-london-olympic-games/>)



Figure 39: the layout of 1948 London Olympics (Source: author draw)

The committee solved the accommodation problem by making them part of the urban future development. However, the furniture of the Olympic Village was borrowed from the ministry of education and the army.



## 1984 Los Angeles Olympics

Since the 1960 Roma Olympics, the trend of construction of gigantic venues and urban planning for the Olympiad has appeared. It is named the Catalyst period from 1960 to 1976 (Gold & Gold, 2016). All the Olympics in this period consider Olympics as an opportunity to redevelop the city through new urban planning, landmark stadium construction, and the building of Olympics villages. And it goes bigger and bigger. Significantly, 1976 Montreal summer Olympics, produced a final shortfall of \$1.2 billion for its ambitious gigantic sports facilities (Morris, 1983.). The 1980 Moscow Olympics also had some financial problems for

the grand plan of the Olympics. Although it is during the peak of the cold war and boycotted by the western countries, hosting an Olympics still is considered a perfect propaganda for the advance of socialism. To achieve this goal, the Moscow Olympic committee made a series of gigantic buildings and a great urban plan for the Olympics. The result is that the ambitious project brings the burden on the national budget. So far, hosting the Olympics seems like running a business at a loss. Games were to bring nations together and light the spark of hope for humanity in a very limited situation. The Olympics is not only a mega-event but also the cure for the whole world, after a giant disaster.

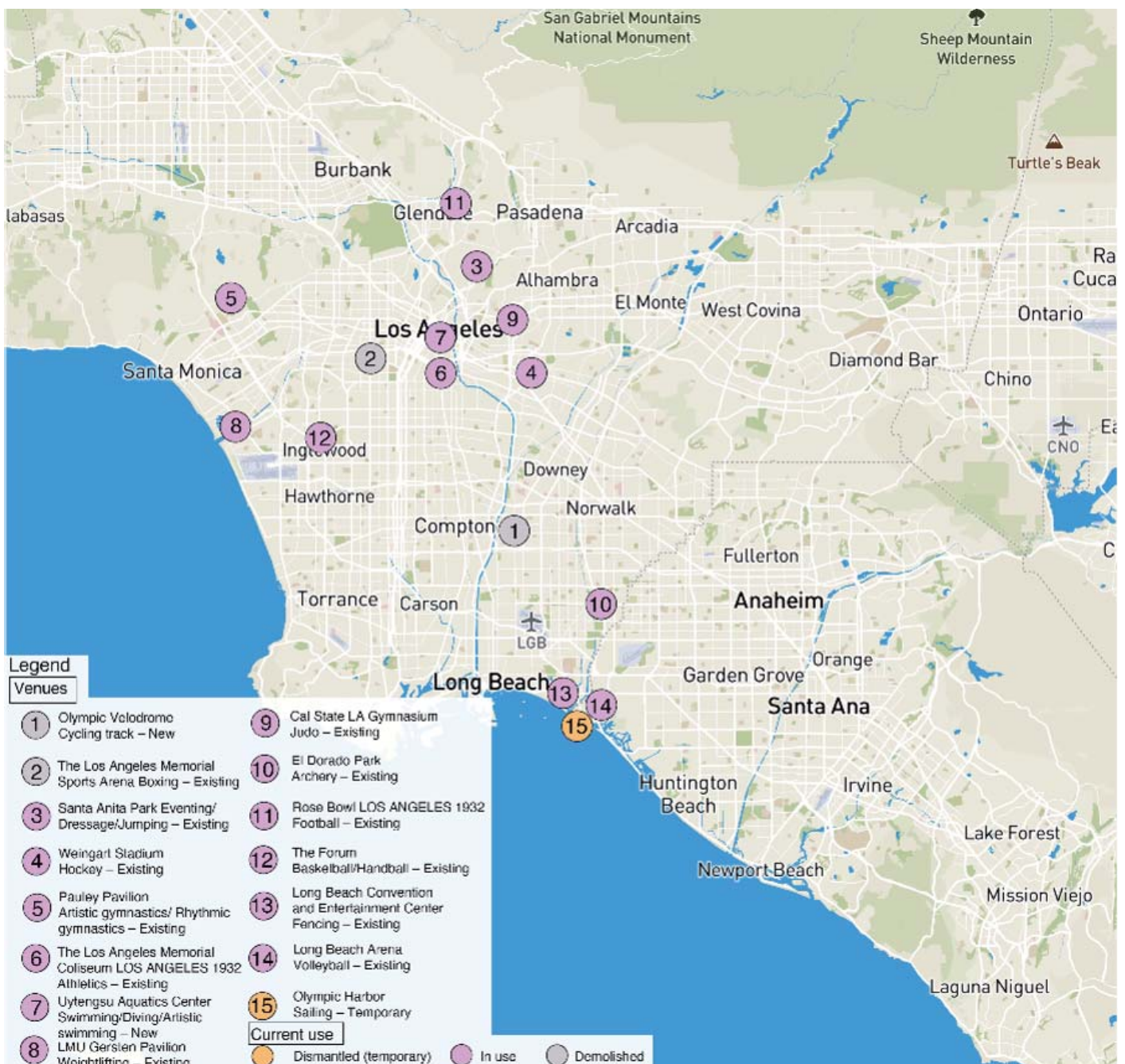


Figure 40: the layout of 1984 Los Angeles Olympics (Source: author draw)

Things changed in 1984, during the Los Angeles Olympics. It is the second time for LA to host the Olympics. To avoid the former financial trap, Peter Ueberroth, the former chairman of the USOC (the United States Olympic Committee), suggested that private sponsors should be introduced into the process of hosting, which turns the Olympics into a profit business event by commercial operations (Wenn, 2015). This revolution saved the continuities of the Olympics. Due to the commercial operation's involvement, controlling the budget is essential. This Olympics took advantage of the existing buildings as much as possible to reduce the cost. As mentioned, the stadium for outdoor water sports and certain outdoor events happened in some open water spaces with temporary facilities.

### **LAKE CASITAS**

A reservoir created by the construction of a dam in 1958, Lake Casitas provides drinking water and ensures flood control in Ventura County. Before the 1984 Olympic Games, it had never staged races or sporting events of any kind. Temporary facilities were set up for the Games. These included spectator stands, ramps, docks, boathouses, and an athlete day village. The site was restored to its original state after the Games.



Figure 41: The lake casitas at the 1984 Los Angeles Olympics (Source: <https://www.ebay.com/itm/363244972077>)

### **FAIRBANKS RANCH**

The cross-country section of the 1984 Olympic three-day event competition took place on a site that was converted into an 18-hole golf course immediately after the Games. A nine-hole system was added in 2004.

As for temporary structures, in 1984, they were applied in water sports to modify those existing natural environment to adapt the spots. Although the sustainable theory was not aware by publics, those temporary structures were good examples about nature protection in 1984. It could be considered as the primary attempt for the sustainable development.

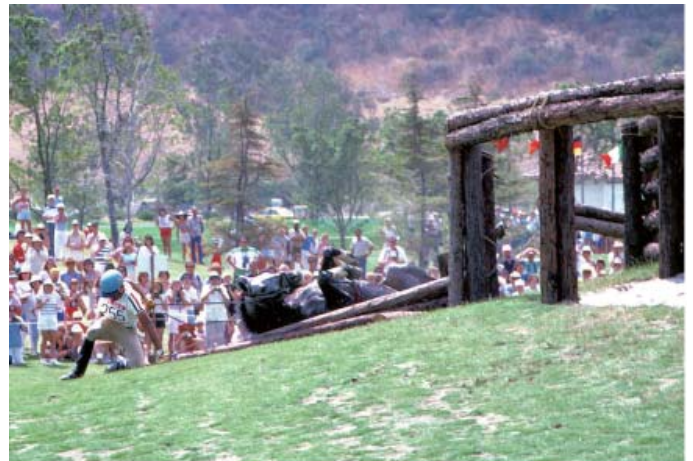


Figure 42: The Fairbanks Ranch at the 1984 Los Angeles Olympics (Source: <https://www.ebay.com/itm/363244972077>)

### **2000 Sydney Olympics**

The Sydney Olympics is famous as the “Green Olympics”. In 1992, representatives of many governments and nongovernment organizations got together in Rio de Janeiro and set an agreement to address the global environment and development dilemma. In the Earth Summit, the IOC decided to incorporate Agenda 21 into the Olympics ideology, which becomes sports, culture, and environment. Since this conference, the concern for the environment is part of the core of the Olympics. Of course, it becomes one of the evaluation standards of the bidding process.





Figure 43: the layout of 1988 Los Angeles Olympics (Source: author draw)

The 27th summer Olympiad was staged in Sydney between 15 September and 1 October 2000. It is the second time to host Olympics in Australia. The bidding proposal of Sydney emphasized the ‘Green Games’, responding to the growing mood of environmentalism. As the previous president of IOC, Juan Antonio Samaranch said, the success of Sydney was largely due to the strength of its world-class Environmental Guidelines (Sydney 2000, 2021).

What are the specific actions for the “Green”? At first, it is the green building process, the Australian construction company OCA was awarded for their Olympics projects, which are eco-friendly. Their design includes features such as underground rainwater storage; a unique lift shaft design that reduces air conditioning requirements, and the use of light scoops that reduce the energy needed to light the building. Secondly, it is to take advantage of solar energy. The useless part of the roof would be installed with some solar collectors.

Thirdly, they would encourage bicycle access by building some relevant facilities, in order to decrease the carbon emission. And they would build some temporary venues to protect the local environment such as the Bondi beach. The organizer promised it would express environmental responsibility in using resources and design facilities.

candidate must prepare their sustainable proposal to show their responsibility of the nature protection.

### *BEACH VOLLEYBALL CENTRE*

Located on Bondi Beach, the center comprised two courts, with temporary seating for 10,000 people installed on the main court. The venue was dismantled after the Games.

Since the IOC considers the environment as one of the Olympics' responsibilities. The Sydney Olympics is the first time that the temporary application is officially for the sustainability by protecting its coastal environments. The meaning of temporary application extends. It is not only for the financial profits but also for the eco-friendly. Moreover, with the success of the Sydney Olympics, it become a precedent for the future Olympics Bidding process, each



Figure 44: The Bondi Beach at the 2000 Sydney Olympics (Source: <https://www.alamy.com/an-aerial-view-taken-august-18-2000-of-the-olympic-beach-volleyball-centre-at-sydneys-bondi-beach-the-sydney-olympics-begin-on-september-15-mdb-image380911713.html>)



## 2012 London Summer Olympics

In 2012, it was the third time London hosted the Olympics. Compared with the previous two times, on the one hand, it is also facing some financial problems. On the other hand, the Olympics play more roles in different aspects. It is the chance for urban regeneration. It is representative of sustainable development. It is the bridge to connect local heritage. The temporary application becomes more necessary and reasonable. First, it could alleviate financial stress.

Due to the 2008 economic depression, the initial £9.345 billion budget for construction of the Olympic stadium has to downgrade to £7.301 billion. So, the main proposal has to continue on a mixture of existing, newly built, and temporary venues in London 2012 (Organizing Committee, 2012). The London Olympics would have more temporary facilities than ever in previous Olympics and other mega-events.

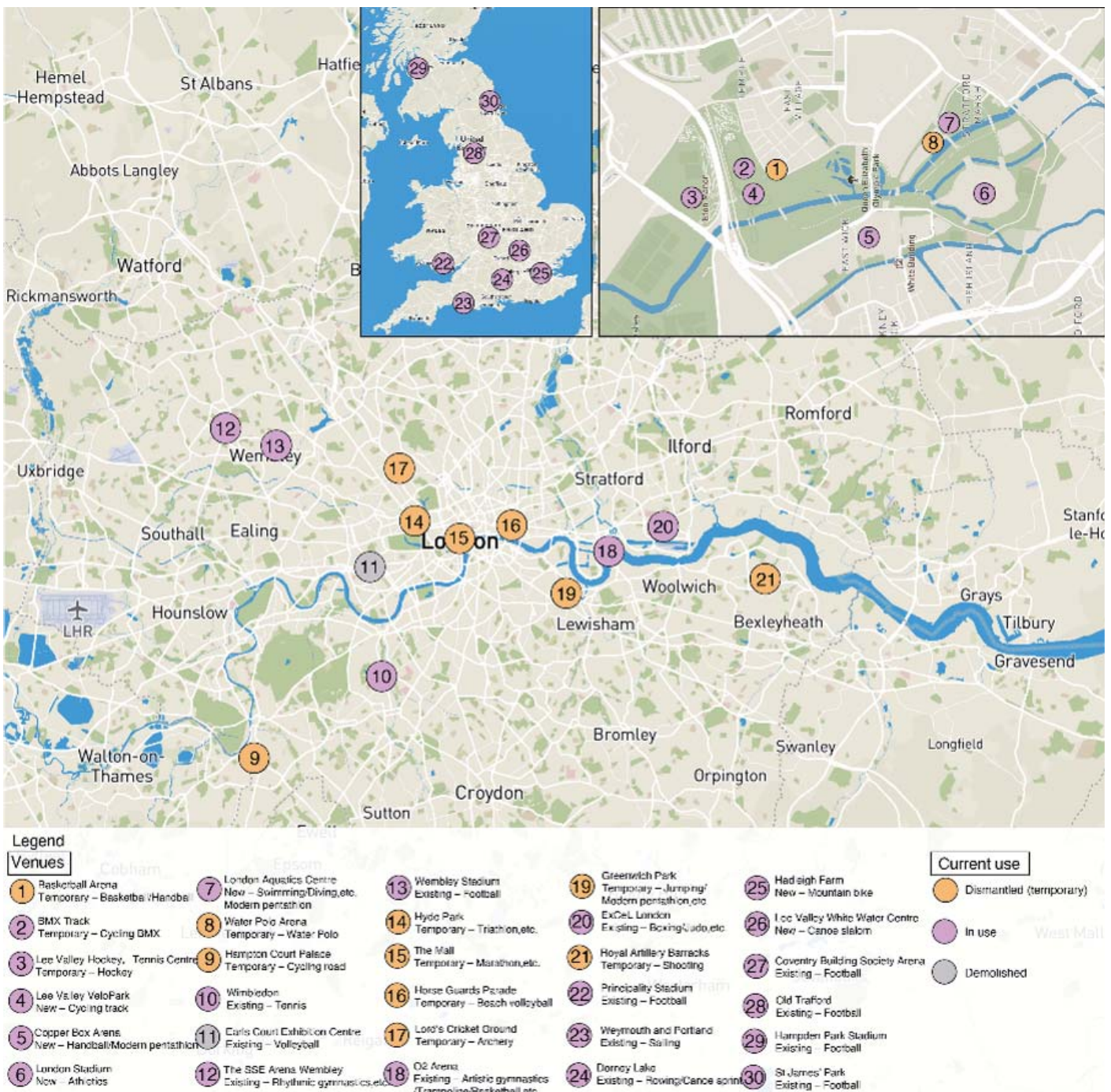


Figure 45: the layout of 1948 London Olympics (Source: author draw)



Secondly, London is a city with a long history of hosting the Olympics. 2012 Olympics make it become the first city to host the Olympics three times. The committee of London must take this history into consideration. Specifically, it is about how to illustrate the British Olympics tradition, and how to use the previous Olympics' remains. Besides, London is a historical city, so it is important to connect the local heritage remains in the Olympics background, which could put local people together and let people around the world know about London again. It is a big chance to propaganda for the city.

Olympics report said, given the temporary nature of the games, the onus was to buy and hire things that would have a use after the games, whether reused, redeployed, repurposed, or recycled (Organizing Committee, 2012). the committee is aware of the possibility of temporary facilities to protect the environment and offer some services to hosting games, learning from the previous Olympics. Thus, in London, engineers would do their best to find a temporary way to construct those fields that suit the sports and be moveable and eco-friendly to the environment.

Thirdly, it offers an opportunity to achieve a sustainable Olympics. As the 2012 London



Figure 46: The aquatics center at the 2012 London (Source: <https://olympics.com/en/news/excitement-builds-at-the-london-aquatics-centre-during-swimming-event>)

### LONDON AQUATICS CENTER

The London Aquatics Centre is an indoor facility with two 50-metre (164-foot) swimming pools and a 25-metre (82-foot) diving pool in Queen Elizabeth Olympic Park in Stratford, London.

The center, designed by architect Zaha Hadid as one of the main venues of the 2012 Summer Olympics and the 2012 Summer Paralympics, was used for the swimming, diving and synchronized events. The two wing-like seating

stands are temporary structure and removed after the games. It is a good example for the hybrid temporary application.



## **BASKETBALL ANREA**

The basketball stadium is the most significant temporary building, located northeast of the Olympic Park. This building consists of a 1000ton, 35m high, and 115m frame wrapped by 20000 of recycled white PVC. From the inside, it seems like a high-tech style. Simon Wright, the ODA director of infrastructure and utilities, said, "There was no legacy demand for such a stadium in this part of London, and therefore we made it temporary and relocatable. It's a good example that we've only built when there was economic demand in the long run."

After Olympics, the building would be dismantled, and that external structure would be shipped to the 2016 Rio de Janeiro Olympics, and the seats would stay in the UK for other sports venues such as Silverstone (Design-Build Network, 2011).



Figure 47: The basketball center at the 2012 London (Source: [https://en.wikipedia.org/wiki/Basketball\\_Arena\\_\(London\)](https://en.wikipedia.org/wiki/Basketball_Arena_(London)))

## **WATER POLO ARENA**

Located in Queen Elizabeth Olympic Park, this demountable venue was built using environmentally friendly materials that could be reused. It housed a competition pool and a warm-up pool and was dismantled in April 2013, with materials recycled or fed back into the supply chain. Today, the area occupied by the venue is being transformed into one of the sites for East Bank, a major culture and education district.

## **GREENWICH PARK**

Greenwich Park is one of the oldest and most famous parks in London. Its use for the Olympic Games was opposed by some local residents, who expressed concern that the equestrian events would cause irreparable damage to the park and local ecosystem. Those fears proved unfounded due to the recycle temporary structures– the venue was returned to its normal use after the Games, and all temporary infrastructure was removed.

Without doubt, the 2012 London Olympics is successful in many aspects. As for temporary structures, it shows the multiple possibilities of temporary application. It could be installed in the existing parks or plazas. It could be along with the heritages. It could temporarily change the route and so on. With the assistance of temporary, the Olympics become more flexible and interesting. It inspires the temporary facilities development.

### 3.1.2 Winter Olympics and Temporary

The winter Olympics appears in history until 1924, which is almost 30 years later than the first summer Olympics. As Pierre de Coubertin said, why this happened was because of Scandinavian fears to host a winter Olympics would destroy their traditional winter sports festivals such as Nordic Games and Holmenkollen. However, with the popularity of winter sports increasing, some winter sports were included in the summer Olympics, such as figure skating, ice hockey, and so on. In 1924, the first separated winter Olympics occurred in Chamonix, six months before Paris summer Olympics. Due to the big success, the winter Olympics was added to the Olympics Charter in 1925. Until 1948, the country that hosted the summer Olympics had the right to stage the winter games. After 1948, there was an independent selection of the winter Olympics host city, but the event was staged in the same year. The further change happened in 1992, the Winter Olympics and summer Olympics would be hosted alternately for 2 years.

Due to the different character of the winter sports, the influence brought by the winter Olympics on the city is different. The summer Olympics could stage almost sports in a relatively small scale and fragile landscape. By contrast, the winter Olympics involved more elements, which include the main venue located in the center of the host city, slopes, and downhill ski runs in the remote place, which means the facilities in winter Olympics should be more friendly to the environment. But the law of its development is similar to the summer Olympics. It could be divided into 5 phases<sup>1</sup>, the minimal infrastructure investment (1924-1932); 2, emerging infrastructure demands (1936-1960); 3, tools of regional development (1964-1980); 4, large-scale transformations (1984-1998); 5, sustainable development and legacy planning (2002-present) (ESSEX \* & CHALKLEY, 2004). When we compare the two kinds of Olympics relating to the historical background, we could identify the similarity between the two kinds. They are influenced by the same theory, which is why the evolution of the hosting plan is quite similar.



1968 Grenoble winter Olympics – the first temporary stadium in history



Figure 48: the layout of 1968 Grenoble winter Olympics (Source: author draw)

Not only the summer Olympics but the winter Olympics also even take further steps of temporary facilities, given the character of the winter Olympics. The tenth winter Olympics happened in the French city Grenoble, the largest city in the Isère department in southeastern France. Back in the 1960s, the winter Olympics was associated with the winter Olympics, although people were aware of the winter Olympics as a regional development tool (Gold & Gold, 2016). With fewer nations participating, and fewer athletes, the authority

of Grenoble decided to construct a temporary stadium as illustrated for opening and closing ceremonies. It was able to host 60000 persons temporarily. After the closing ceremony, the whole stadium would deconstruct (Beacham, 2015). A similar situation happened in Lake Placid, the USA, in 1980 and Albertville, France, in 1992.



Moreover, transportation is another problem to host the Winter Olympics in Grenoble which has poor transportation infrastructure. Due to the financial and technical imperatives, part of the transport system must be built in a temporary way. Specifically, during the Games, further temporary tracks and signaling installations were provided to permit the handling of the exceptional passenger traffic expected in the neighborhood of the Olympic Village and the Road Transport Terminal. A temporary railway station was opened near the Olympic village. The track in the direction of the Chambéry is adapted for traffic to this point (Organizing Committee, 1968).



Figure 49: The opening ceremony venue at the 1968 Grenoble winter Olympics (Source: <https://www.today.com/slideshow/amp/winter-olympic-parks-villages-33122836>)



## 1972 Sapporo winter Olympics

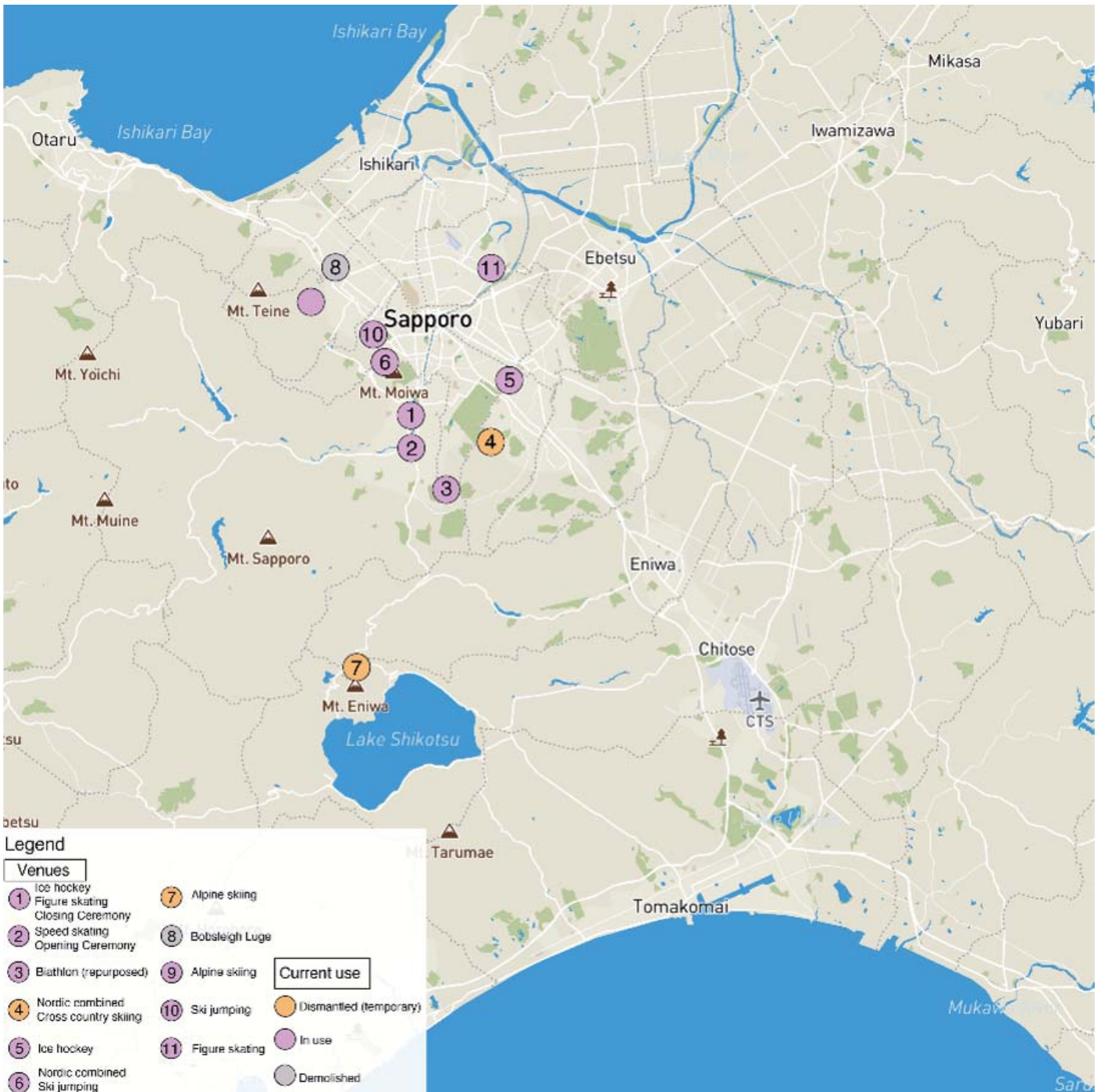


Figure 50: the layout of 1972 Sapporo winter Olympics (Source: author draw)

Mount Eniwa is an active volcano, although it has not erupted since the early 18th century. The original plan was to make the downhill courses on its slopes permanent. However, following opposition from the public and a nature conservation group, the local authorities changed their plans. It became a temporary venue on the condition that all facilities be removed afterward, and the area permanently restored to its original state.



Figure 51: The opening ceremony venue at the 1972 Sapporo winter Olympics (Source: <https://www.japantimes.co.jp/sports/2022/01/31/olympics/winter-olympics/1972-sapporo-winter-olympics-legacy/>)





Figure 52: the layout of 1992 ALBERTVILLE winter Olympics (Source: author draw)

### 1980 LAKE PLACID winter Olympics & 1992 ALBERTVILLE winter Olympics

The Opening Ceremony was held at a standalone temporary venue dismantled after the Games, on the Lake Placid Equestrian Stadium ground.

Located in Albertville's Henri Dujol Olympic Park, it hosted the Opening and Closing Ceremonies. Regarded at the time as the largest temporary structure ever built, it had a capacity of 35,000 and was taken down as planned as soon as the Games were over.

A model for subsequent temporary venues, it is now an urban park. All that remains of the original construction is the 52-meter-tall flagpole that once stood at its center and was a distinctive feature of the Albertville 1992 ceremonies.

From the winter Olympics, there is another perspective for the temporary structure in the Olympics. because of the character of the winter sports, part of them must be located in the remote place which are shortage of infrastructures and surrounded by wonderful nature environment. There is no need for building massive and permanent constructions for the winter Olympics in such small city. The intervention of the temporary facilities perfectly enhances the capability of the host city in a short time.

## 3.2 Temporary application for Olympics

What is the specific temporary application in the Olympics? In this part, we would discuss it and the relevant case study in order to inspire further design. According to the above study, the temporary application could divide into several parts: temporary stadiums, temporary accommodations, and temporary infrastructures.



Figure 53: the archery competition in London Olympics (Source: <https://populous.com/project/summer-olympic-paralympic-games>)



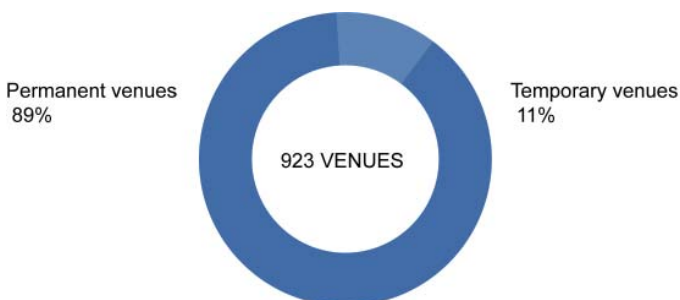
## 3.2.1 Temporary stadiums

The history of the Olympics stadiums could originate from the stadium of Olympia, which is deeply influenced by the Olympic Games (Kiuri & Teller, 2012). After the renaissance of the Olympics, the stadium as the main building plays an important role in modern urban development, which has a considerable impact on the surroundings. Moreover, the evolution of the Olympics venue could be the height in three aspects: innovation of the construction technology, influence on the urban area, role as a cultural space, and as part of the cultural territory (Kiuri & Reiter, 2013). The classification of the Olympics venue is based on the construction status at the time of the host city, it could be divided into permanent and temporary. The permanent one is designed for lasting a long period. In contrast, the temporary stadium is suitable for a short period of use.

**Existing permanent venue:** The venue already existed when the host city/territory was selected to host the Games. The venue required no major changes or construction ahead of the Games.

**New permanent venue:** The venue did not exist before the host city was selected to host the Games. The venue was intended to be permanent, and its construction was initiated/accelerated by the Games.

**Temporary venue:** The venue was constructed for the Games, and, when the Games were over, the site was returned to its previous condition.



Graph 1: This graph shows the percentage of permanent and temporary venues used in the past Olympics (Source: author draw).

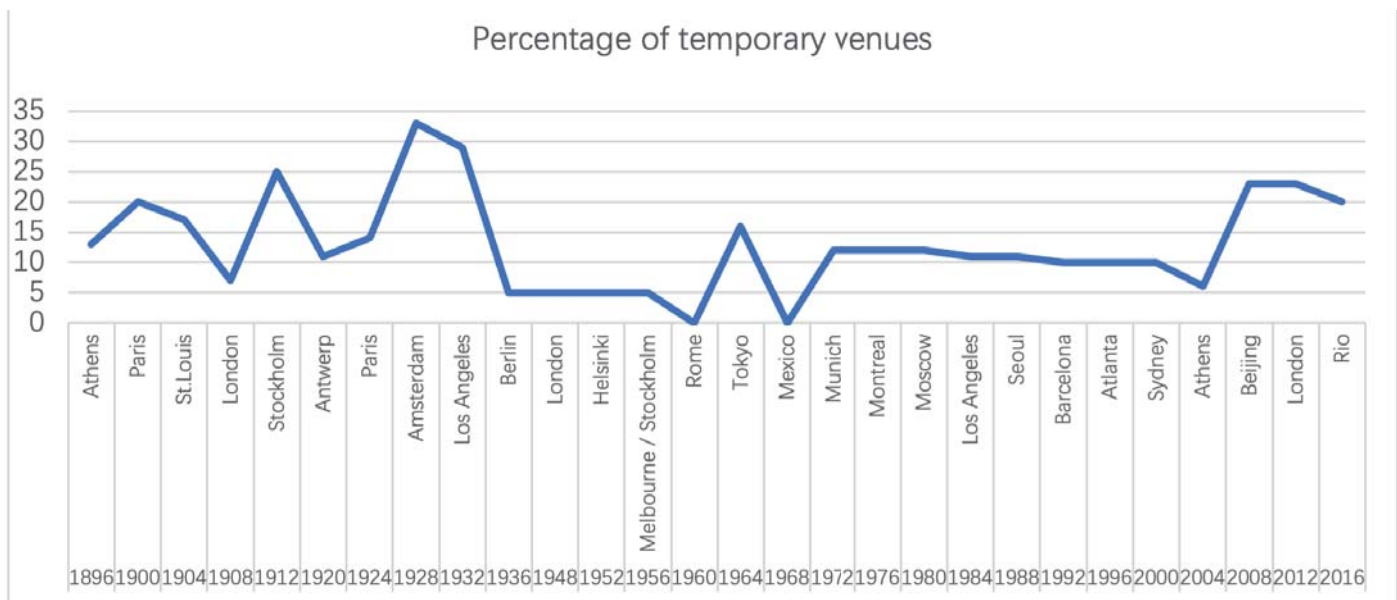
From the perspective of the temporary application, it would be a vital part of the Olympics venue project. For those existing venues, it could temporarily enhance their capacity for the Games. Or the entire building could be built in a temporary way for a short period of use. The temporary enables the flexibility of the venues and decreases the cost of the Olympics.

The temporary venue would be the trend for the future. As Olympic Games executive director Christophe Dubi said in this exclusive interview, Few permanent buildings will be built for the Olympics in the future, with events set to be hosted in existing structures and temporary venues instead (Ravenscroft, 2022). In Dubi's vision, there would be gradually no more need for the new Olympics venues. In the 2026 Milan winter Olympics, there will be only one new construction of the Olympics stadium. In 2028, the number of new buildings is zero. The future Olympics sports fields would be tenderly related to the existing local open public space.

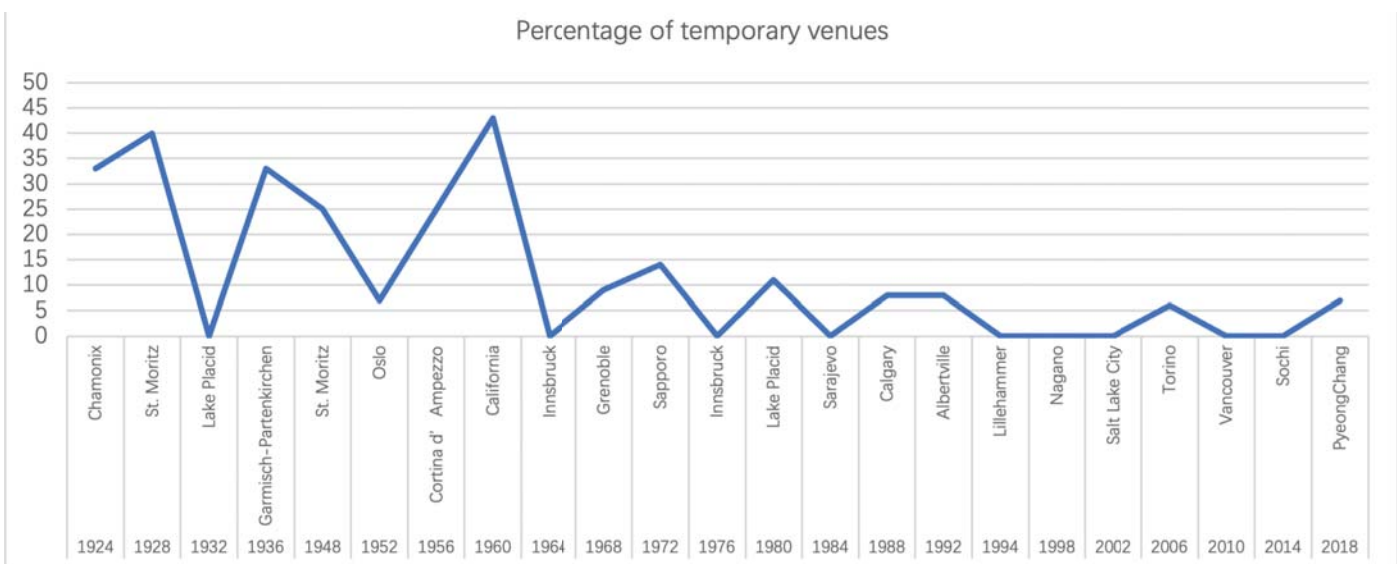
Based on the official report, the percentage of temporary venues is due to multiple reasons, including urban development, the evolution of the sport, the character of the sports, and the sustainable requirements. It is related to the background closely. And the winter Olympics and summer Olympics have some differences in the temporary venues, according to the sports features.

As illustrated in the following chart, in the beginning period, the Olympics faced a shortage of variety of support. It must take advantage of temporary venues to ensure the games. Then Olympics become more and more popular among cities. Different cities would apply temporary facilities to supply the local service to meet the requirements of the Olympics.

That is why the line is not very stable. The next period is with the global economic development after the second world war. It is not very necessary to apply temporary venue in the thrives of the economy. Until 2008, there is an



Graph 2: This graph shows the percentage of temporary venues used in the Summer Olympics (Source: author draw)



Graph 3: This graph shows the percentage of temporary venues used in the Winter Olympics (Source: author draw).

obvious rise in the temporary use of stadiums. It is because people realize the function of the temporary application in multiple ways including budgets, the environment, and public involvement.

The next graph demonstrates the changing trend of the temporary venue of the winter Olympics. Due to the features of winter sports, part of the sports fields are located in remote places. Related to the background information to the graph, the change in the percentage is more dramatic than summer Olympics due to the uneven construction of infrastructures.

Some host cities use a big number of temporary venues for the lack of service facilities to hold those sports in the beginning phase. With the global urbanization, those winter Olympics host cities had equipped with mature urban infrastructure and capability to support the winter Olympics. Then the temporary application plays less roles than before.



### ***Temporary as stadium:***

Through the research, some public infrastructure including highways, lakes and others was temporarily used as stadium for certain sports including Marathon, Fencing, Swimming, Triathlon, Cycling and so on. There is one common for those games is outdoor activity, or at that moment, it was recognized as an outdoor sport.

#### **Sports need adequate outdoor space**

Some sports require much outdoor space including Marathon, Cycling, triathlon, and much of winter sports, which would happen in the open spaces. The first Olympic marathon of the modern era, the race was held to commemorate the famous run that the messenger Pheidippides made in delivering news of the victory over the Persians in 490 BC. It is an outdoor race game, which means it needs a long distance for the competition rather than a standard stadium. In every Olympics, the Marathon game could take place in the urban area temporality such as Athens-Marathon-Athens. Competitors ran from Marathon to the Greek capital on a course that was only 24.8 miles long (modern-day marathons are run over a distance of 26.219 miles or 42.195 kilometers). The same situation happens in the cycling games.

#### **Sports were recognized as an outdoor activity**

Some sports like fencing and swimming were recognized as outdoor activities. According to the report, before the 1932 Los Angeles Olympics, the swimming or relevant diving all happened in the open water area. The Olympic swimming center appeared in 1932, the result might be related to the improvement of technology such as the water exchange system, water purification technology, and so on. For example, the Antwerp water stadium comprised three parallel pools overlooked at one end by a clubhouse. A 50-meter swimming course with seven starting positions was laid out in the main pool, while the middle pool was reserved for the water polo matches. The stadium was dismantled after the Games.

### ***Partly temporary stadiums :***

Through the Olympics history, it is normal to see part of the stadium is hybrid of the temporary and permanent. That is because every host city not only build new stadium but also try the best to use the existing buildings, specifically to modify them to meet the requirement of the Olympics. In this process, some stadiums take the temporary modification to enhance the capability of the venue for the suddenly rising number of visitors. Besides, with the population of the sustainable theory, the temporary facilities used in stadiums would be recycled to apply again after the games, which would decrease the environmental stress caused by mega-events.

There are several examples of the temporary application in the Olympics history. It could be divided into two types: 1, as modification of the existing buildings; 2, as supplication of the new buildings.

In conclusion, the reason why the hybrid stadium appears depends on the following elements. First, the population and the urban scale play an important role. The host city would face a huge number of visitors that is far beyond the existing capacity of the city. And after games, there would be no need for additional facilities. In this condition, the temporary modification is the perfect solution. Second, it depends on the popularity of the sports among people, the Olympics sports do not suit everybody. If it is not popular, the permanent facility would be a waste of public resources. According to this, the host government decides which stadium would be temporary.

### ***Totally temporary stadiums:***

Some of the Olympics venues are totally temporary. This phenomenon originally and normally happened in the winter Olympics. Because, at first, the importance and the scale of the winter Olympics are not the same as the summer Olympics. It used to be an additional part of the summer Olympics. Moreover, due to the character of the winter sports, the host place normally is located in some remote and ecological sensitive place, which means it is not easy and necessary to build a gigantic stadium. To be interested, recently in the 2012 London Olympics, a lot of temporary venues appears to respect sustainable requirements, solve the problems of limited budgets, and involve the local heritage. Based on the research, there are several functions of the temporary stadium, including the opening ceremony, protection of the environment, protection of the heritage, and sustainable development.



Figure 54: The Rio 2016 temporary-stands (Source: <https://architectureofthegames.net/2016-rio-de-janeiro/rio-2016-construction-temporary-stands-2/#jp-carousel-7021>)



## 3.2.2 Temporary accommodations

As well known, the Olympics is a mega-event that doesn't last for a long time. The related service such as accommodation is temporary as well to serve the athletes from all around the world. But each case of Olympic villages is different. It might be a temporary building, and it could be used as accommodations temporarily. In conclusion the trend of the Olympics villages is illustrated as followings: temporary, permanent, temporary.

### ***Rent as the Olympic accommodation***

The first time the concept of the Olympic Village is 1910. It was the ideal of Baron Pierre de Coubertin, the father of the modern Olympics. But before 1932, the accommodation was assigned to local temporary dwellings such as hotels, campuses, and so on with an "emergency residential menu" (Muñoz, 1997), which contains all manners of temporary dwellings. There were some problems, when players stayed in hotels which were shortage of the standards. In that period, individuals and teams would decide which hotel they wanted to stay in when they came to the host city as if they were tourists. Their national federation determines the accommodations without any thought of cohabitation in the overall plan, which means it would bring challenges to organizing a more extensive scale of events. Moreover, the living environment would impact the performance of the athletes. Above all, this period is related to the professional sports development. With the development of the professional sports, more standards appear, and it would standardize the temporary housing for athletes.

### ***Build for Olympics***

With the influence of the modern Olympics, it plays an important role in the urban development. Finally, the first official Olympics Village was built following the image of Coubertin. In his description of the Olympic city, in addition to his descriptions of competition sites, Coubertin gives consideration to the need for a hotel for the group of people connected with the organization of the sporting events requiring

temporary accommodation. He also envisages, in a pamphlet published in the Olympic Revue addressing the people taking part in the International Architecture Competition (Paris, 1910), a space "nearby for a camp and a form of barracks to house the athletes during the Games" (Pierre de Coubertin, 1910). It was the prototype of the Olympics Village.

in the 1924 Paris Olympics, the concept become truth. Near the main stadium, several hundred three-bedded wooden huts were arranged in rows with earthen passageways (COJO, 1924). It supports some services such as wash facilities, warm water, and others in such a compact community. It was the first approach and influenced the succeeding Los Angeles and Berlin Olympics.

In 1932, Los Angeles was the host city far away from Europe and Australia. And is in the midst of the Great Depression. To ensure every nation could afford it, the OCOG communicated with some steamship companies for reduced fares for each team. And they knew the importance of affordable accommodation during the games for athletes. Rather than that, the local hotels were in short supply to hold those participants. Then the Los Angeles OCOG decide to build the first temporary Olympic villages which contains a lot of the supplements for the athletes. However, it didn't cover all athletes. The female athletes still stayed in the private hotels. Anyway, it was still a big step ahead.

In 1936 Berlin, at first, Hitler was against spending too many resources on the Olympics. However, after he was aware of the propaganda function of the Olympics, he gave the project all his backing. There was no obstruct to Berlin Olympics. As part of the general plan, the Olympic Village was built, which is a multifunctional structure with entertainment, rest and bodily care, and leisure areas. It would hold 4000 male athletes and their staff, and the female athletes stayed in the hostels, the Friesenhaus, close to the stadium.

In this period, the host cities constructed a lot of permanent buildings for Olympics, since they were aware of the big value of the Olympics. But they didn't think of the function

of the post-games. Some of the Olympics facilities was built and abandoned. This trend ended with the World War II.

### **Temporary for the Olympic accommodation**

After the World War II, the global economic situation was not very good. Thus, in the post-war Olympics, the host cities must deal with the limited budgets by taking advantage of the existing facilities as possible as they could. Of course, there was no new built Olympic villages. In 1960, with the economic recovery, Roma started construct new buildings for the Olympics including the Olympic villages. But the cognition of Olympics village was added new elements. It was built for Olympics and the urban development. The Olympic villages would temporarily play the role of accommodation for the athletes, after the games, it would eventually become the citizen's house. It was the first time the Olympics villages were inserted into a local residential zone.

Since the Roma Olympics, this trend that the Olympics could be a trigger for the urban regeneration, appeared and is called as Olympic urbanism. The host cities started aggressive and ambitious urban expansion in the name of the Olympics. And with the blind expansion it causes some negative cases, such

as 1976 Montreal Olympics and 1980 Moscow Olympics. The blindness urban expansion brought a huge debt to Montreal. The same situation happened in Moscow. After these two failure cases, people paid attention to the project management and thought of the multifunction of the Olympics buildings more than ever.

In conclusion, the development of the Olympics village is in the following process: "rent for temporary use"; "built for Olympics"; and "temporary as Olympics accommodation". The concept and practice of the Olympics village are developing as the awareness of urban development. Hosting the Olympics is no longer for a single purpose, instead of multiple requests such as sustainability, profitability, and community friendly, which means it must be considered for further development. Taking this consideration into the future design of the Olympics village, more temporary facilities would be part of the main method to modify some existing buildings as athletes' houses to achieve the sustainable and profitable goal of the modern Olympics. In another way, it shows the potential of the Olympics as an engine of urban regeneration with the assistance of those temporary facilities.



Figure 55: The accommodation of 2020 Tokyo Olympics (Source: <https://www.valleymusictravel.com/events/coachella-old010220/safari-campgrounds/>)



### 3.2.3 Temporary infrastructure

In the modern Olympics, temporary facilities are one of the critical methods of resilient design. During the Olympics, temporary infrastructure is applied to enhance the capability of the host city to meet the temporary requirements, which include transport, water purification, services, and so on. The meaning of the temporary is developing. Back to the 1968 Grenoble winter Olympics, why there are temporary training and train stations, it is because there is no need for permanent transport infrastructure here for the limited local residents.

After games, all these infrastructures are dismantled. Compared with the 2012 London Olympics, in the Olympics park, there is a temporary bridge leading to the Olympic stadium that took a short time during the

Olympics. After games, it is removed and applied in other places. The difference is due to the spread of sustainable thinking. In 2009 the Olympic board agreed with a policy about the temporary material application. Most following contractors contain the guarantee to implement 'take-back' systems to ensure the materials will be reused or recycled (Design-Build Network, 2011).



Figure 56: The temporary structures at the 2012 London Olympics (Source: <https://www.akt-uk.com/projects/central-park-footbridge/>)

### 3.3 Conclusion

In conclusion, the development of modern Olympics is along with the temporary structures. There are multiple reasons for application of the temporary structures as illustrated above, such as financial pressure, the requirements of the sustainability, public involvement and so on.

#### 3.3.1 The summary of temporary facilities

##### Alleviate the financial stress

Focusing on the Olympics development, some host cities faced different financial stress during different periods. In the beginning, the Olympics was not important compared to other exhibition events, thus it was a lack of support from the local governments. The budget is very limited. The sports stadium, the accommodations, and the relevant facilities all were rented for temporary use. A similar situation happened in the post-war period, such as the 1948 London Olympics. The application of the temporary facilities could alleviate the pressure of the cost for the host city. arranged in rows with earthen passageways (COJO,1924). It supports some services such as wash facilities, warm water, and others in such a compact community. It was the first approach and influenced the succeeding Los Angeles and Berlin Olympics.

##### Achieve sustainability

Since 1972, sustainable development is recognized as common sense around the world. 1992 the IOC decided to take responsibility for the environment in the Olympics charter. Thus, the temporary facilities play another role in the hosting city. Due to the character of the temporary, it becomes the perfect solution to balance the environment and the Olympics events. Such as the Bondi beach, a temporary venue was built for beach volleyball, which could be removed after games. In this way, the impact of the events on nature would be minimized. As time goes by, the sustainable theory of temporary is developing. In the 2012 London Olympics, the temporary application becomes a loop. Because of the temporary, it could be reused in another place, after the games.

##### Involve more elements

The temporary facilities could make the Olympics competition happens in more places which could be open public space or landmark in the host city. In this way, it is better to achieve the Olympics goal to involve more people to spread the Olympics spirit. Meanwhile, more heritage involved means more charming of the host city would be displayed in front of visitors. The propaganda function of the Olympics would be enhanced.

##### Improve the capacity

The Olympics itself is a temporary mega-event, which means it would bring millions of visitors to the host city. it would be beyond the capacity of the host city and bring a heavy burden on the infrastructure of the host city, including the accommodation, transport, and other basic urban services. In the Olympics history, we could see a lot of cases. For instance, in the 1908, London Olympics, the committee rented many grandstands to increase the capacity of the stadium for more spectators. In the 1968 Winter Olympics, due to the location of some winter sports in the mountain, the organizer planned a temporary train line to the place. The rise in the number of visitors requires more facilities to support in a very short time.



Besides the purposes of the temporary facilities in Olympics, there are some further influences with the temporary structures in the Olympics. The principle of the trend are in the followings:

#### More professional, less temporary

In the beginning period, the more professional the events are, the less temporary stuff is involved. It is a process from origin to maturity. As a series of standards were set up, the informal activities would disappear with the temporary facilities, and there is no more rent of some private clubs for the sports field.

#### More temporary, more flexible

As time goes by, people are aware of the importance of the protection of the environment. Due to the flexible features of the temporary facility, it could offer a removable proposal to host some sports events in downtown or other eco-sensitive areas without leaving some waste behind. It is an ideal approach for a sustainable way to host events. Meanwhile, due to this character, it could enable those sports to happen in the heart of the host city, which normally is located in the center of the city with historic remains and lack of some necessary services. It could be a bridge to connect people and their heritage through events.



Figure 57: The EXPO Milano Gate (Source: <https://zero.eu/en/luoghi/15627-expo-gate,milano/>)

### 3.3.2 The guideline of the temporary structure in Olympics

The temporary structures bring multiple advantages to the modern Olympics, including financial release, sustainable development, public participants and etc. As part of Olympic Agenda 2020, the IOC now requires Olympic organizers to make the most of existing and temporary venues, and to build new ones only when there is a proven long-term need. New materials and technologies allow increased use of temporary facilities, thus reducing emissions from construction, for example. Obviously, the temporary structure plays a critical role of the future Olympics development.

Therefore, according to the previous research about the temporary application in relevant mega-event and Olympics history, the Olympics temporary could be inspired by the other events. There are several guidelines for the temporary structure's proposal:

**1. the temporary structures should be affordable for both host city and visitors.**

Affordability is the primary feature of the temporary structures. In the Olympics history, most host cities chose temporary structures in mega-events for the budget pressure. It declines the cost for the host. Meanwhile, it also could release the visitor's financial stress, based on the temporary study of the other mega-events. For example, every year in the Oktoberfest, there are some temporary tents for visitors to stay. It is the cheapest way to spend night in such a grand and busy carnival.

**2. the temporary structures should be flexible, which could be adapted to different situation.**

Based on our research, the temporary structures in Olympics are applied in the specific places, which is limited in the space condition. There would be more possibility of the Olympic temporary facilities, if was as flexible as other events are. There are multiple fashion week or design week all around the world every year. Most of it happened in the historical quarter, which needs high level of adaptability to the local environment. If Olympic temporary proposal could learn from the advanced plan from them, it could be more flexible and involve more citizens by occurring everywhere in the host city.



### 3. the temporary structures could be well designed with aesthetic appearance.

The temporary structure in Olympiad could be more aesthetic. The modern Olympics include the professional sports, public sports promotion and culture Olympiad. Apart from the professional part, the rest could be inspired from fashion week, design week and the Burning man festival. In this way, the Olympics could attract more people to expand its influence.

### 4. the temporary structures should be harmless to the local heritage.

As more street sports become part of the Olympics and the basis of IOC for sustainable development, more temporary venues are introduced and set up in the center of the host city. It combines the local heritage closely than ever and also bring the new challenge to balance the Olympic temporary venues and the local heritage. The primary requirement of temporary facility is to be harmless to the remains.

### 5. there should be a well-organized reused chain of temporary structures.

With the development of the temporary structures, it is important to discuss what happened after the games. A well-organized reused chain is necessary, to ensure the reused temporary system works well. Meanwhile, there is the possibility of developing the system into profit by taking advantage of the fame of the Olympics. The profits could be used to support Olympiad.

### 6. the temporary structure should be designed with professionals to meet the professional requirements.

It is obvious that the professional part of the temporary structures should be designed by relevant professionals and athletes in order to guarantee the performance of athletes. For example, the basketball Arena in 2012 London Olympics, it is well designed for the game, although it is temporary.

# Chapter4: Paris and the Olympics



Figure 58: The Paris Olympics 2024 (Source: <https://olympics.com/ioc/news/olympic-games-paris-2024-sports-calendar-and-first-ticket-pricing-details-released>)

Since 17th century, Paris has become one of the most significant global cities of the finance, diplomacy, commerce, fashion gastronomy, science and arts, even sometimes it was referred as the capital of the world or “the city of light”. In this chapter, we would formulate the history of Paris and Olympics and to research the potential of the 2024 Paris Olympics.



## 4.1 The history and future of Paris Olympics

In modern Olympic history, France plays an irreplaceable role. Since 1900, it hosted 5 times of Olympic games, both summer, and winter. Among them, Paris is the city that hosted twice the summer Olympics. and it will host it again in 2024, which made it the second city hosting times after London. Compared with other host cities, no matter London or Paris has more experience and is more capable to host it successfully in an innovative way. It claims that it would use 95% of existing and temporary venues to decline the environment impact (France and Olympism, 2021).



Figure 59: The game of 1900 Paris Olympics (Source: <http://www.olympicartifacts.com/1900-olympic-games-paris/>)

### 4.1.1 1900 Paris summer Olympics

The second Olympics was hosted in Paris and it lasted for 5 months, which is far different from the recent Olympics. It was part of the World Exhibition. The organizers referred to this sport events as the “international competition of physical exercise and sports”, which lead many spectators were not awarded of it for years.

And the 1900 Paris Olympics is the milestone of the Olympic history. It is the first Olympics that Baron de Coubertin is the chairman of the IOC. 997athletes including 22 women from 24 counties attended the games. Moreover, there was the first female Olympics Champion, the British tennis player Charlotte Cooper. However, the 1900 Paris Olympics is in the first period of the Olympics. The whole game lacks the professional standard, and it is additional part of the exhibition.

## 4.1.2 1924 Paris summer Olympics

In 1924, the Olympics came back to Paris. This time, it was a more professional event, and the games were properly referred to as “Olympics” and attracted very considerable interest in the capital city. It is a big deal for Paris. Back to 1924, there were 126 trials in 17 disciplines, and 135 of the 3089 athletes from 44 countries (France and Olympism, 2021). Moreover, it is not only the sports competition but also a series of art events including the architecture, painting, literature, and music. It added the Olympics the culture property. By the way, the concept of Olympics villages was introduced, and it was the first attempt to build following the image of Pierre de Coubertin.

Above all, there are always some innovations associated with the Olympics in Paris. In 1900, it was the second Olympics, and it involved the female athletes into the games. It broke the existing social shackles and made the Olympics as the pioneers among events. In 1924, it achieved the Coubertin’s ideal to build the prototype of the Olympic villages. It enhances the urban influence of the Olympic and supply good accommodation for the athletes in order to get better sport performance. Based on this, we could see the development of the modern professional sport. Olympics promote the modern sport. So, what is next in 2024 Paris Olympic?



*Figure 60: Basketball Demonstration at the 1924 Olympic Games (Source: The Official Report of the Olympic Games of Paris 1924)*



## 4.1.3 2024 Paris summer Olympics

The 33rd Olympics will return to Paris again, after 100 years in 2024. The 2024 Paris aims to become the most innovative games. The committee of the Paris Olympics take the social responsibility by making commitments in 3 aspects: the environment, the labor and society (Paris 2024 - Homepage Paralympic ay, n.d.). After over 100 years of development, the Olympics has become a complex event which contain multiple aspects and stands for the advanced values for humanity.

### **1 The environmental ambitious**

The 2024 Games in Paris will be unlike any other Games in history as they will be both spectacular and sustainable. It would encourage energy conservation, innovation and creativity to develop new ways of working and bring about a new era in the organization of the Olympic and Paralympic Games. It would become the first major sporting event to positively impact the climate. In the bidding, the sustainability is the core of the Paris 2024. It would introduce the sustainable way to the core of urban area.

Specifically, the 95% of the venues for 2024 is existing or temporary stadiums(Paris 2024 - Environmental Ambition, n.d.). The stunning French architectures in Paris would be given the center stage by transforming into sports field. And only two new built venues for 2024 separately are the Olympic and Paralympic Village and the Aquatics Centre. The whole construction process would be monitored for tracking and measuring the carbon footprint.

### **2 The responsibility of the labor and economy**

The Paris 2024 also takes the responsibility for the legacy, business and employment for the host city. It is the vital opportunity for the Paris regeneration. Through the games, the committee wants to leave some legacy to the city and citizens. For example, the sports would become part of the citizens' lives after Olympics. The local company could invite new ways of living and working, etc. Paris 2024 can act as a lab to invent the city of tomorrow, a city

designed for the people who live there.

Moreover, the Paris 2024 would integrate the social and solidarity economy, integrate the micro business and small and medium-size enterprises. It would benefit all kinds of local business. It would work with different level of business association and governments, to offer equal and sufficient opening tenders. For small company, it would introduce the business coach, build the business community in order to maximize the profit during the Olympics.

On the other way, the Paris 2024 would grow the the local employment. It would bring adequate job opportunities for the citizens. And the relevant organizations start to make some movements for it. For example, the local association named "Pôle employ" will set up a taskforce in the coming months to focus on developing new services. Between now and 2022, the Ile-de-France will receive over €1 billion of State funding as part of the Skills Investment Plan (PIC), which led to the regional investment agreement signed with the Ministry of Labor on 4 April 2019. The "Paris Tous en Jeux" program, announced by the Mayor of Paris, Anne Hidalgo, on 1 April 2019, will be launched by Pôle emploi and the City of Paris in autumn 2019.

### **3 The sport and society**

For the society, the 2024 Paris also make some promise, which involve the citizen's health, the education and civic services. Specifically, the Olympics would bring the sports to the daily life. People would be inspired by Olympics and show more willing to take participants in sports, which would dramatically alleviate the current health problems. Moreover, the Olympics committee hope the local companies will encourage the employee work out. For the education, the committee hope more schools would be involved in the sports. More children would be inspired by Olympics to cultivate the good values through sports, and the committee and governments would encourage children exercise at least 30 minutes every day. For the civic service, the committee corporate with

Paris 2024, the French Ministry of National Education, Youth and Sport (which is also responsible for youth engagement), the French Civic Service Agency to offer more volunteer opportunities to involve more people during the 2024 Olympics.



Figure 61: Paris 2024 Olympics villages illustration (Source: The Official website of the Olympic Games of Paris 2024)

## 4.1.4 Conclusion

Above all, it is obvious to see that the Olympics hosted in Paris is always a pioneer with innovations, which are the milestones in the history. Back to 1900, the second Olympics, it happened in Paris. Although, it lacked the attention, it is a big step forward. Paris is an innovated city which is open to new stuff such as Olympics. After 20 years of the development, Olympics became an influence event which could impact multiple aspects. Moreover, Paris also made a remarkable innovation this time. It introduced the concept of the Olympic Village firstly. This movement decide the future Olympic urban development. On the one hand, it is more professional to support the athletes. On the other hand, it strengthened the urban influence of Olympics. After another 100-year development of Olympics, it would come back to Paris again. During this period, the modern Olympics become the symbolic global mega-

event, involved multiple aspects beyond sports. According to the Paris 2024 proposal, the committee propose a universe plan stands for the responsibility of humanity. It declared over 95% venue is existing or temporary which is an ambitious plan to decline the hosting cost and contribute to the sustainable development. Meanwhile, it makes some effect on the public participant such as Marathon. It invites ordinary people to run with champion.



## 4.2 The temporary proposal in 2024 Paris Olympics

The committee of the 2024 Paris Olympics claims that there would be over 95% of venues which were existing or temporary. The application of temporary structure is total temporary venues and hybrid temporary venues. They would be located in the center of Paris, especially some historical places. Besides, according to the official documents, there is another type of temporary application is in the Olympics villages. A lot of equipment would be temporarily installed in the Olympics villages for the professional requirements. After games, they would be removed and be used in other places. Moreover, there is a big innovation of the Paris 2024. It introduces the concept of the cultural Olympiad. As Pierre de Coubertin said, “muscles and mind”, the Paris 2024 is encouraging everyone – artists, troupes, non- profits, communities, sports club and so forth to participant by hosting a series of temporary events.

### 4.2.1 2024 Paris Olympics venues and temporary structures

The venues of Paris 2024 are located across France, and it could be divided into 3 parts: the Paris city, the Île-de-France region, and throughout France. Most of venues are in the former two places, as illustrated in the following figures. As for the throughout France area, some soccer games are hosted in the other cities, and some specific games like surfing and sailing would happen in the ocean city. Above all, those two charts demonstrate the venues and associated information in Paris and the Île-de-France region. It is easy to identify most of the venues are modifications of existing buildings or temporary structures.

## In Paris

This is the location of the games happening in the urban area of Paris. It is obvious that most venues are modified by the existing ones or some temporary constructions. The committee fully considers the condition of the heritage in Paris and takes advantage of the temporary facilities to achieve a sustainable and affordable Olympics more than ever.

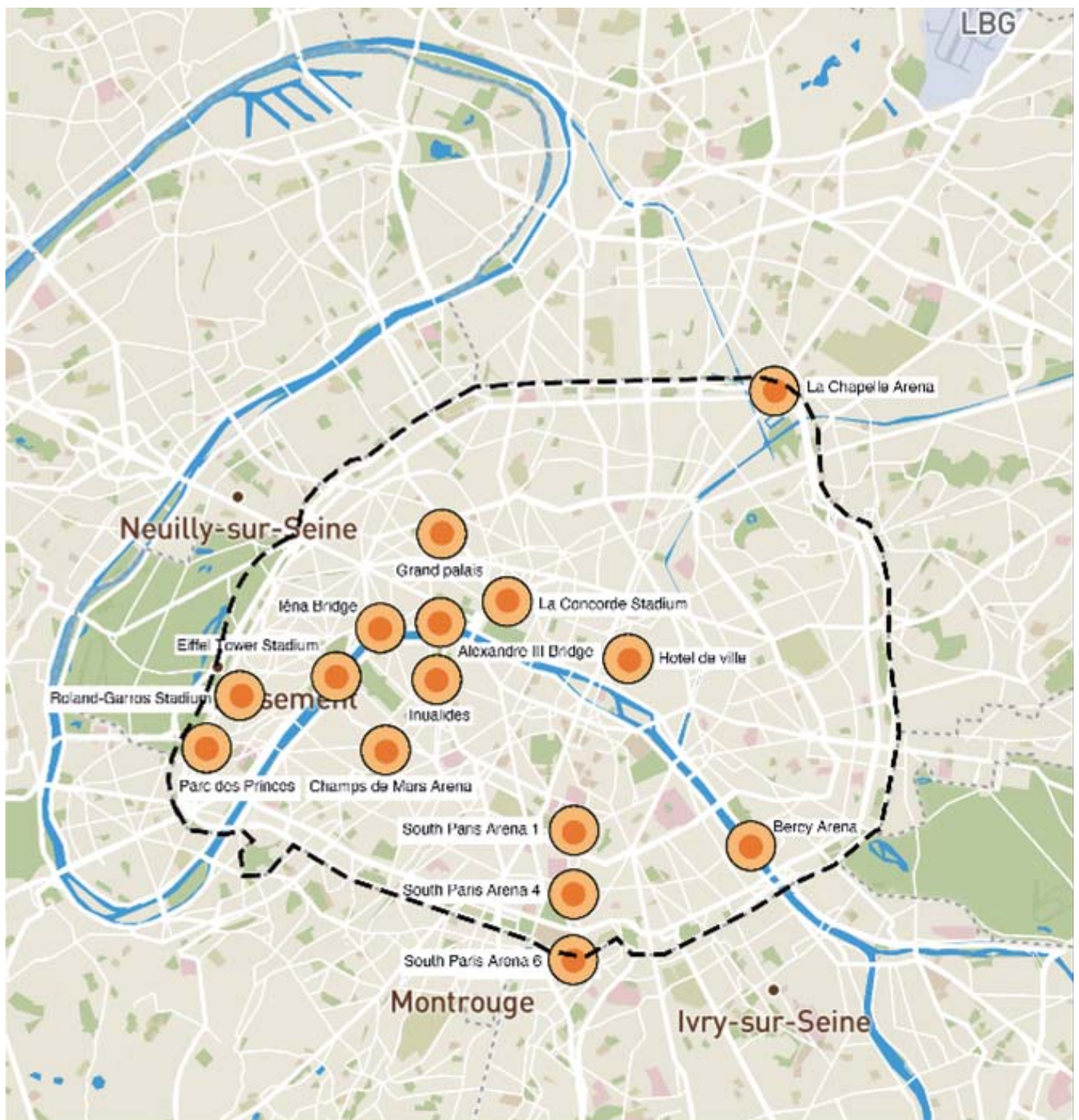


Figure 62: Paris 2024 Olympics venues location in Paris (Source: author draw)



Games	Venues	Heritage	Type of venues
Badminton/ Rhythmic gymnastics	Porte de la capelle arena	/	New building
Basketball/ Artistic gymnastics	Bercy arena	/	Existing building
Marathon	Hotel de Ville	Place de l'hôtel de ville	Existing palace
Volleyball	South Paris arena 1	EXPO complex	Existing building
Table tennis	South Paris arena 4	EXPO complex	Existing building
Weighting/ Handball	South Paris arena 6	EXPO complex	Existing building
BMX freestyle/ Skateboarding/ Breaking/ 3x3 basketball	La Concorde	Place de la Concorde	Temporary
Fencing/ Taekwondo	Grand palais	Grand palais	Historical building modification
Marathon swimming/ Triathlon/ Road cycling	Pont Alexandre II	Pont Alexandre II River Seine	Temporary
Archery/ Athletics Road cycling	Invalids	Invalids Eiffel Tower	Temporary
Judo/ Wrestling/ Breaking	Mars arena	/	Existing building
Road cycling/ Athletics	PONT DIÉNA	River Seine Eiffel Tower	Temporary
Beach volleyball	Eiffel tower stadium	Eiffel Tower	Temporary
Tennis/ Boxing	Roland Garros stadium	/	Existing building
Football	Parc des princes	/	Existing building

Table 3: Paris 2024 Olympics venues in Paris and associated information (Source: author draw)

# In Paris

## La Concorde

La Concorde is an open-air venue at the heart of Paris for the urban sports such as BMX freestyle, skateboarding, breaking, 3x3 basketball. Due to the character of these sports, it belongs to the city away from the traditional stadium. And it is the second time to introduce the street sport into the Olympics, which could demonstrate the up-date features of modern Olympics. The Olympic games would change

with the trend of popularity. Besides, the street games could bring more vigor to the modern Olympics. it attracts more youths. It enables the Olympics happen in the street of the urban center, which could involve more urban elements into Olympics, such as more citizens, the heritage, and etc.

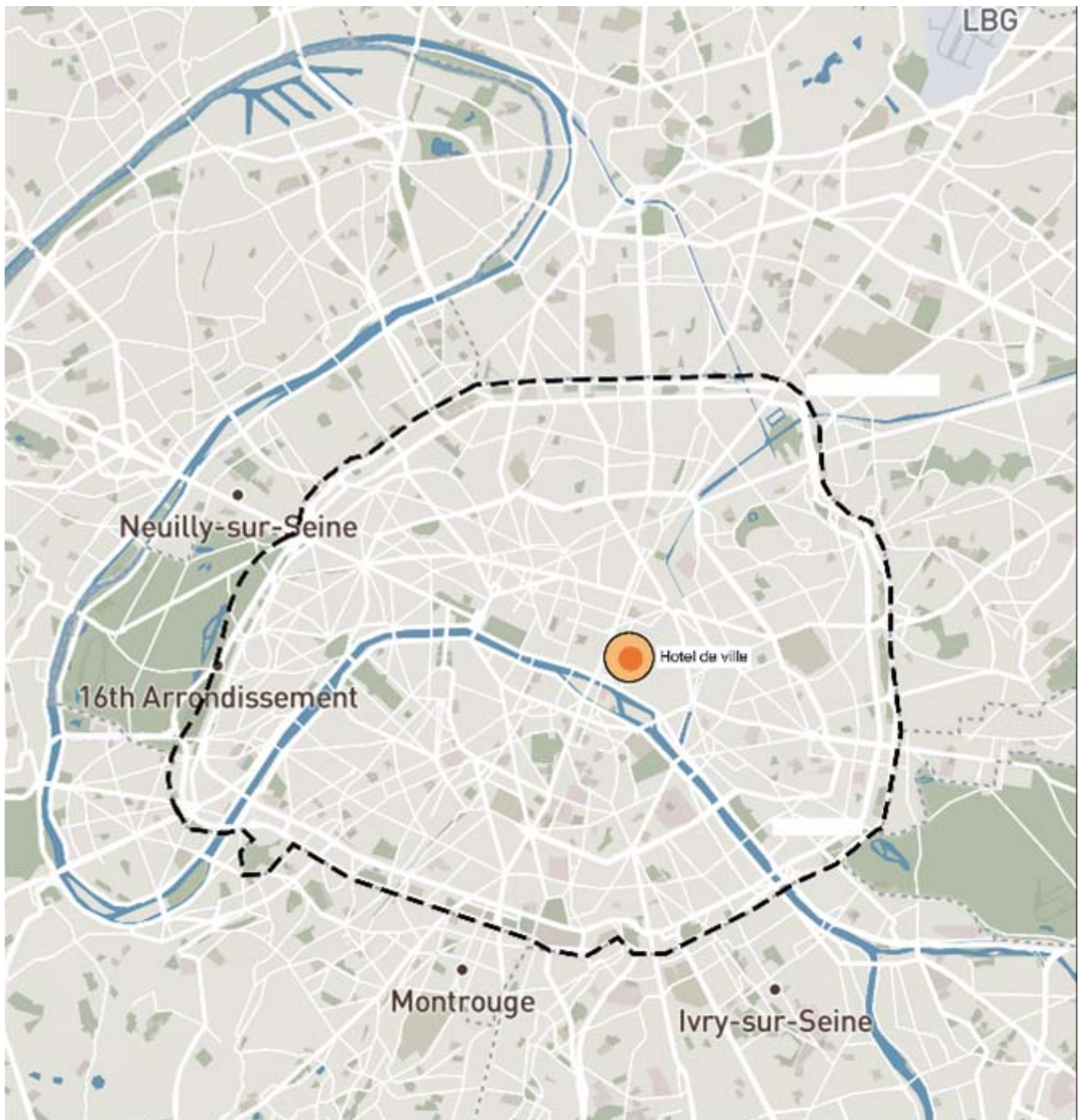


Figure 63: the location of BMX bike in Paris (Source: author draw)





Figure 64: BMX bike in Paris (Source: The Official website of the Olympic Games of Paris 2024)

## Pont Alexandre II

Pont Alexandre III is a bridge between the Seine's two banks, at the heart of Paris and surrounded by the countless monuments sprinkled across the capital. It has been part of the city's most memorable events since it was inaugurated for the 1900 Exposition Universelle and is a work of art and monument in its own right. In the 2024 Paris, it would provide a spectacular backdrop with the assistance of the temporary structures.

The bridge is 45 metres wide, 107 metres long,

bounded by four impressive columns supporting golden bronze statues, and will provide a spectacular backdrop for several events during the Paris 2024 Games.

Pont Alexandre III connects two other Paris 2024 sports venues: the Grand Palais and Invalides, and is the perfect illustration of Paris 2024's aim to bring the Games to life in the centre of the world's most beautiful city and amid its best-known, most-loved landmarks.

The bridge linking Invalides and the Grand

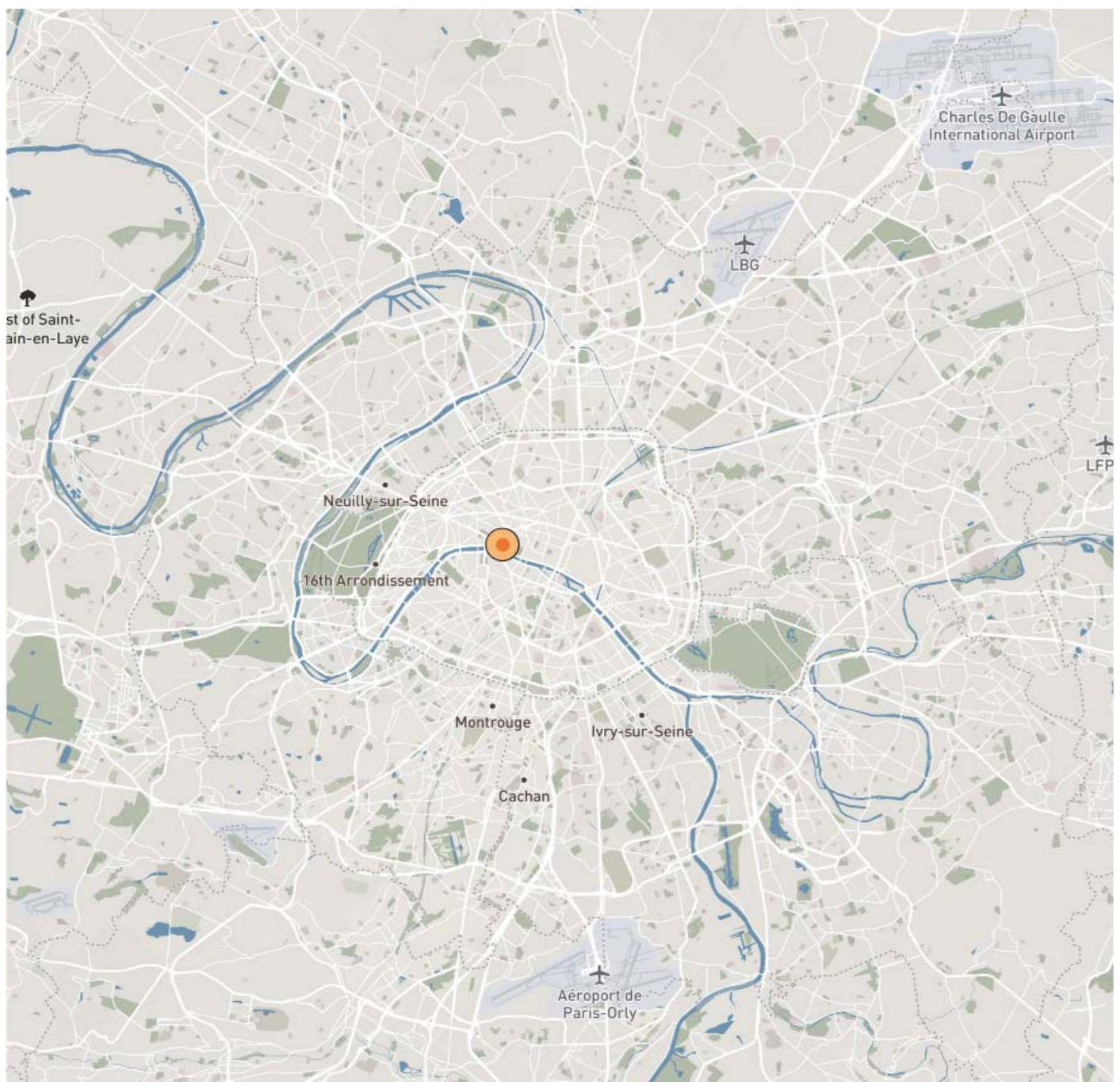


Figure 65: BMX bike in Paris (Source: author draw)





Figure 66: Pont Alexandre III in Paris (Source: [https://it.wikipedia.org/wiki/Ponte\\_Alessandro\\_III](https://it.wikipedia.org/wiki/Ponte_Alessandro_III))

Palais is also a stone's throw from Concorde, the Arena Champ-de-Mars, Pont d'Iéna and the Eiffel Tower stadium, so the entire area will be abuzz with energy during the Games. It will provide a majestic setting for the finish line of the individual cycling time trials, swimming marathon, triathlon and para triathlon.

## Invalids

Built in 1687 as a military hospital and retirement home for war veterans. The Hôtel des Invalides includes French military history museums and monuments, as well as the tomb of Napoleon Bonaparte. At the heart of Paris, the Esplanade des Invalides has become one of the preferred leisure destinations, where Parisians and tourists can enjoy some sport, music and walking. In 2024, it will be part of a dedicated area for the Games, promising a

unique experience for athletes and spectators. The venue will be temporary structures and it would be removed after games.

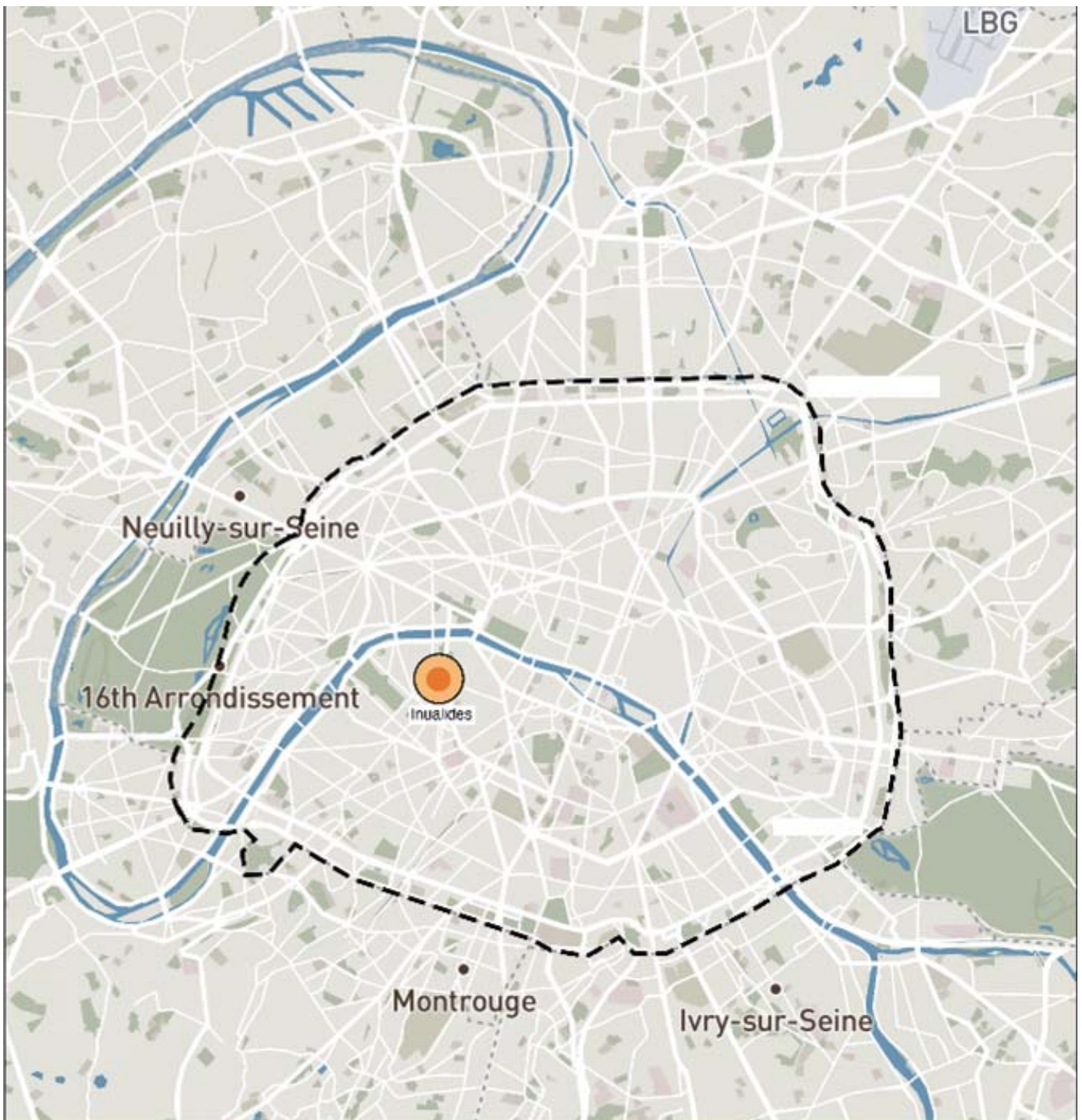


Figure 67: the location of Hôtel des Invalides in Paris (Source: author draw)



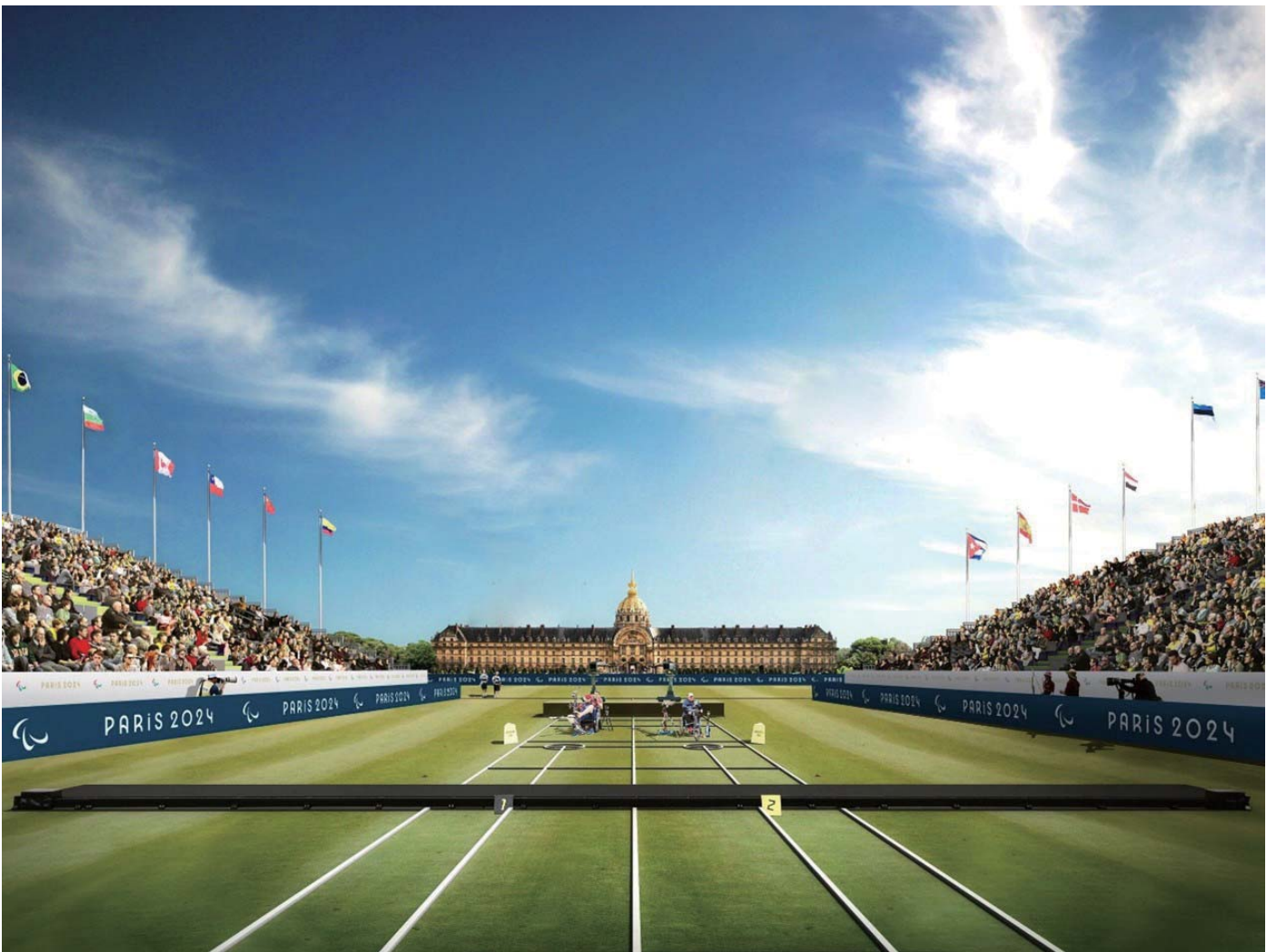


Figure 68: Hôtel des Invalides in Paris (Source: The Official website of the Olympic Games of Paris 2024)

## PONT D'ÉNA

Pont d'Éna is one of Paris' 37 bridges that cross the River Seine. Located at the foot of the Eiffel Tower, it will be part of an area dedicated to the Games in 2024. In 2024, Pont d'Éna will offer an exceptional viewing platform and experience for spectators and television audiences for the triathlon, para triathlon, road cycling, athletics (marathon and 20km race walk) and swimming (10km marathon swimming) events with the help of the temporary facilities.

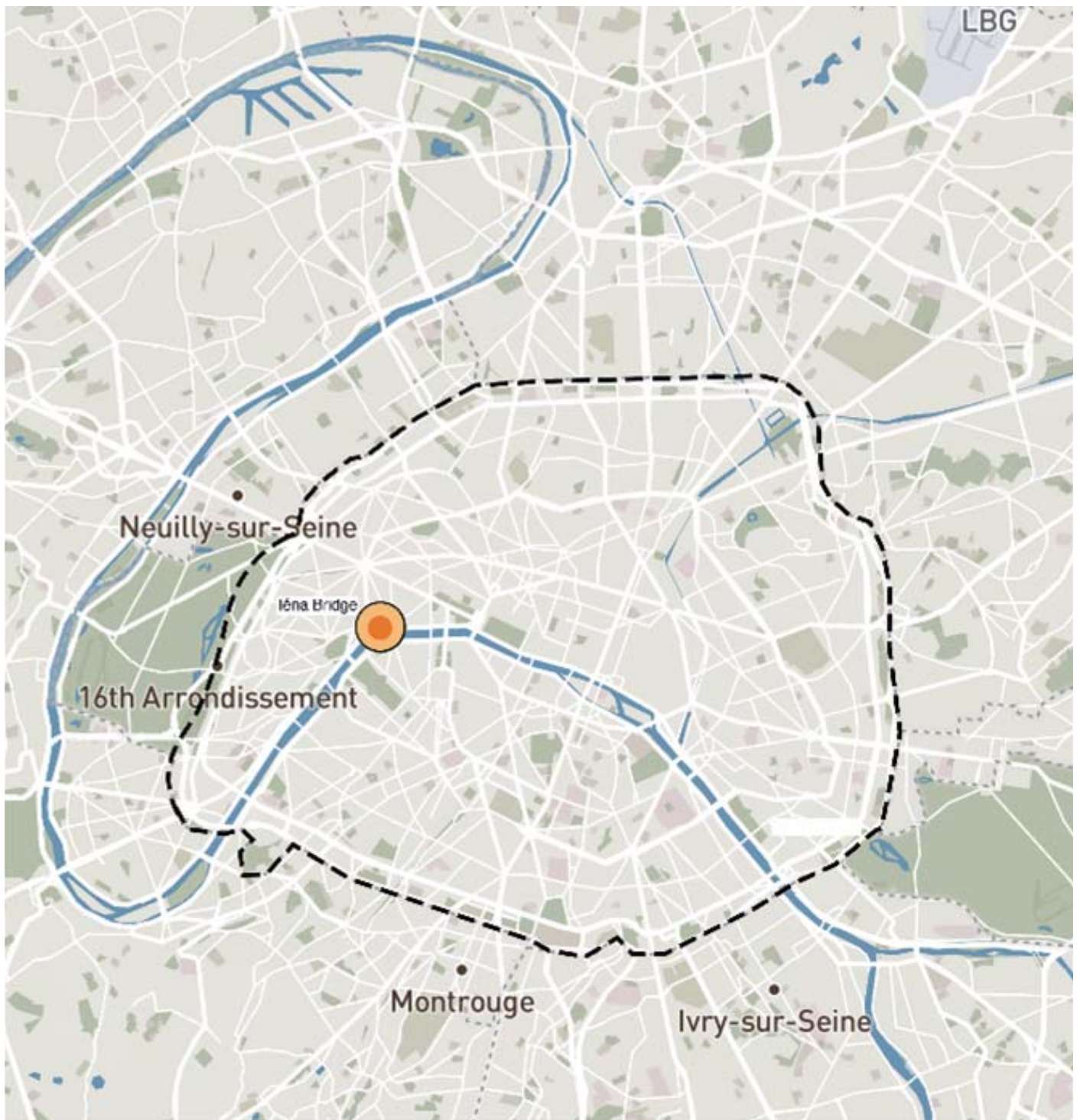


Figure 69: the location of PONT D'ÉNA in Paris (Source: author draw)





Figure 70: PONT D' IENA in Paris (Source: The Official website of the Olympic Games of Paris 20240



## Eiffel tower stadium

The Champ de Mars is a place to meet up and celebrate, regularly attracting thousands of people to share in events together, from the traditional 14 July firework displays to a Football World Cup Final, which is now one of Paris' most iconic public gardens. To stage the beach volleyball and blind football events, a temporary outdoor arena will be built in 2024, enabling everyone to enjoy this venue's magical setting.

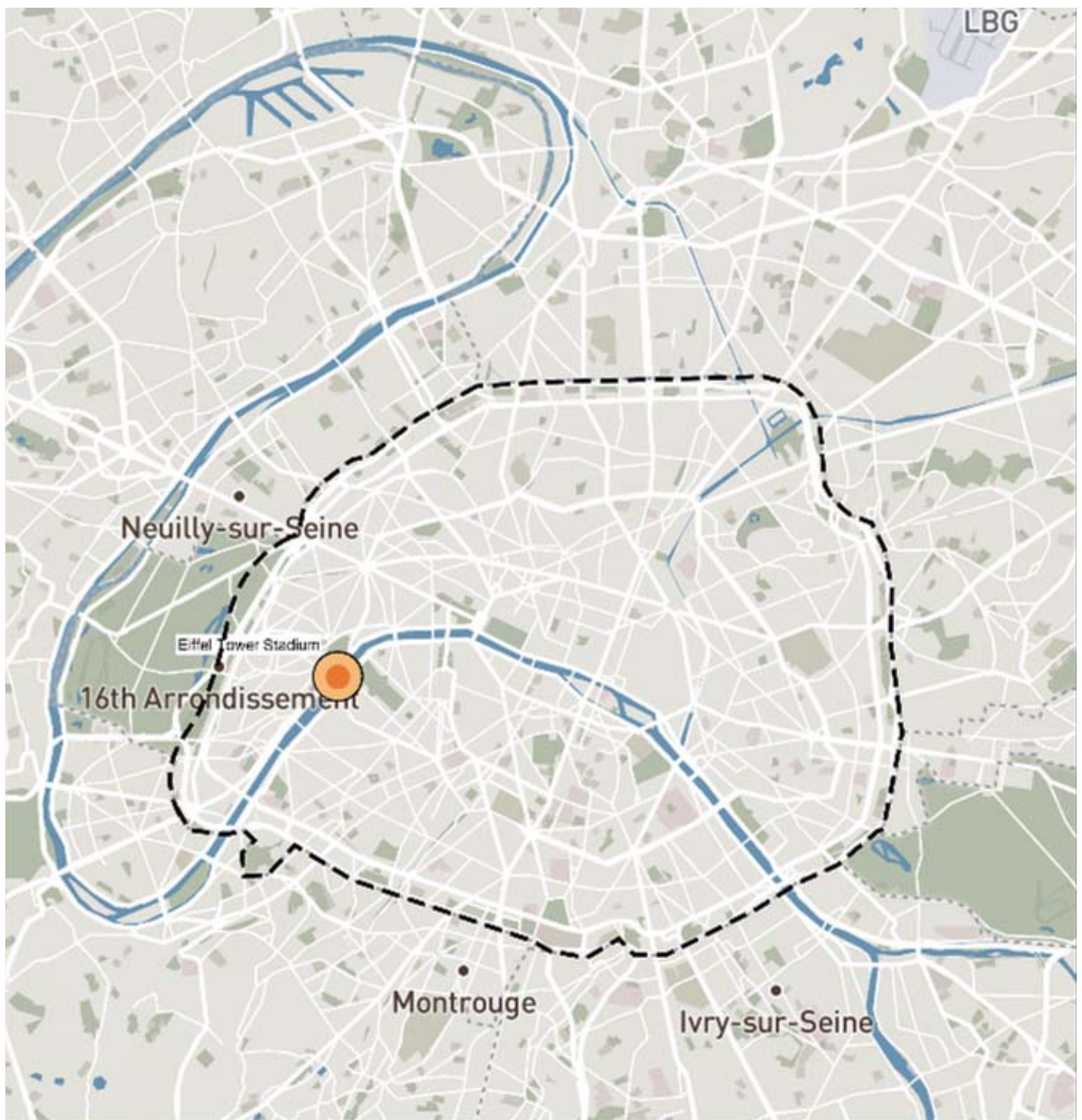


Figure 71: the location of Eiffel tower stadium in Paris  
(Source: author draw)



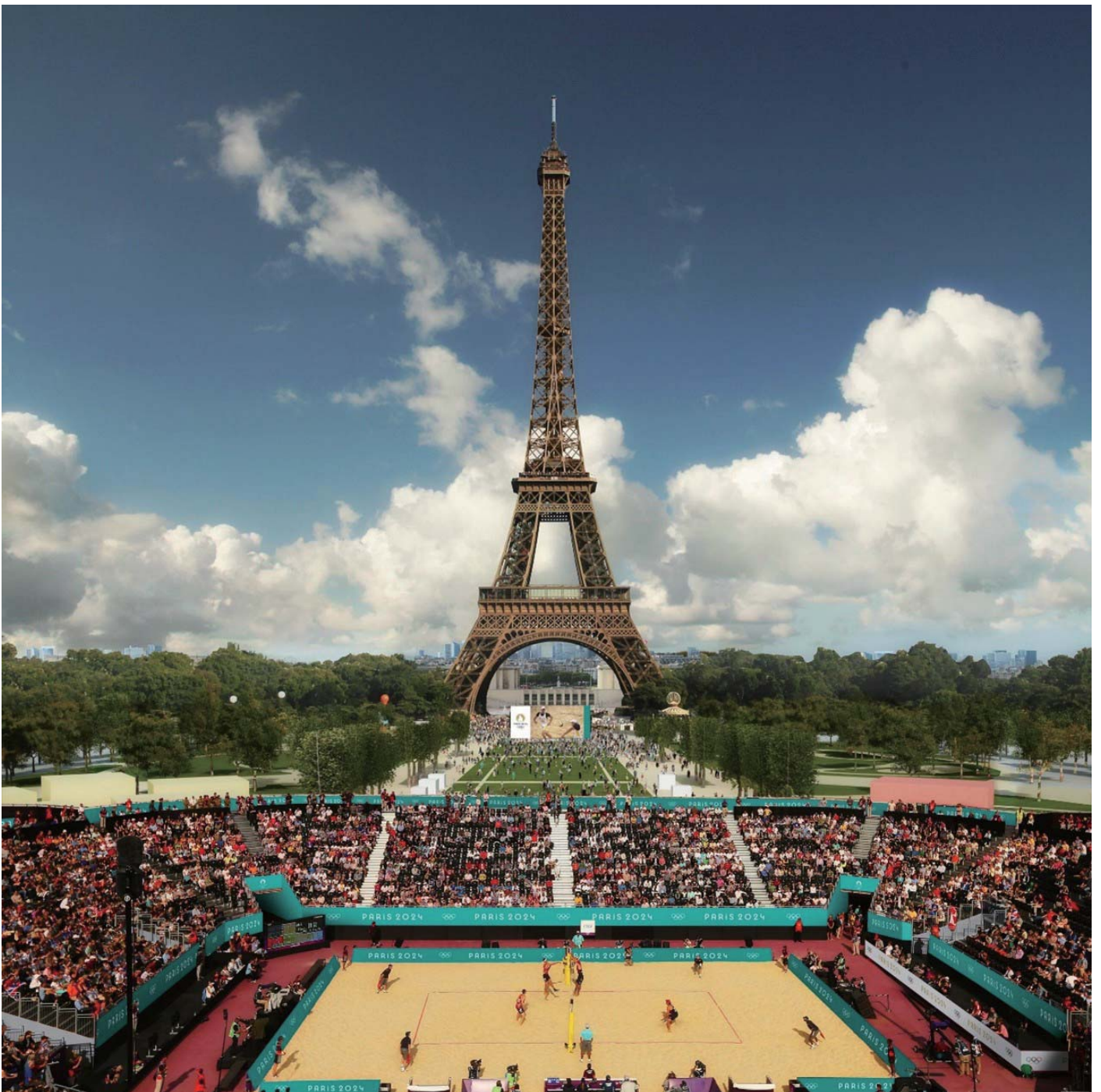


Figure 72: Eiffel tower stadium in Paris (Source: The Official website of the Olympic Games of Paris 2024)



# In Île-de-France region

## CHÂTEAU DE VERSAILLES

What??

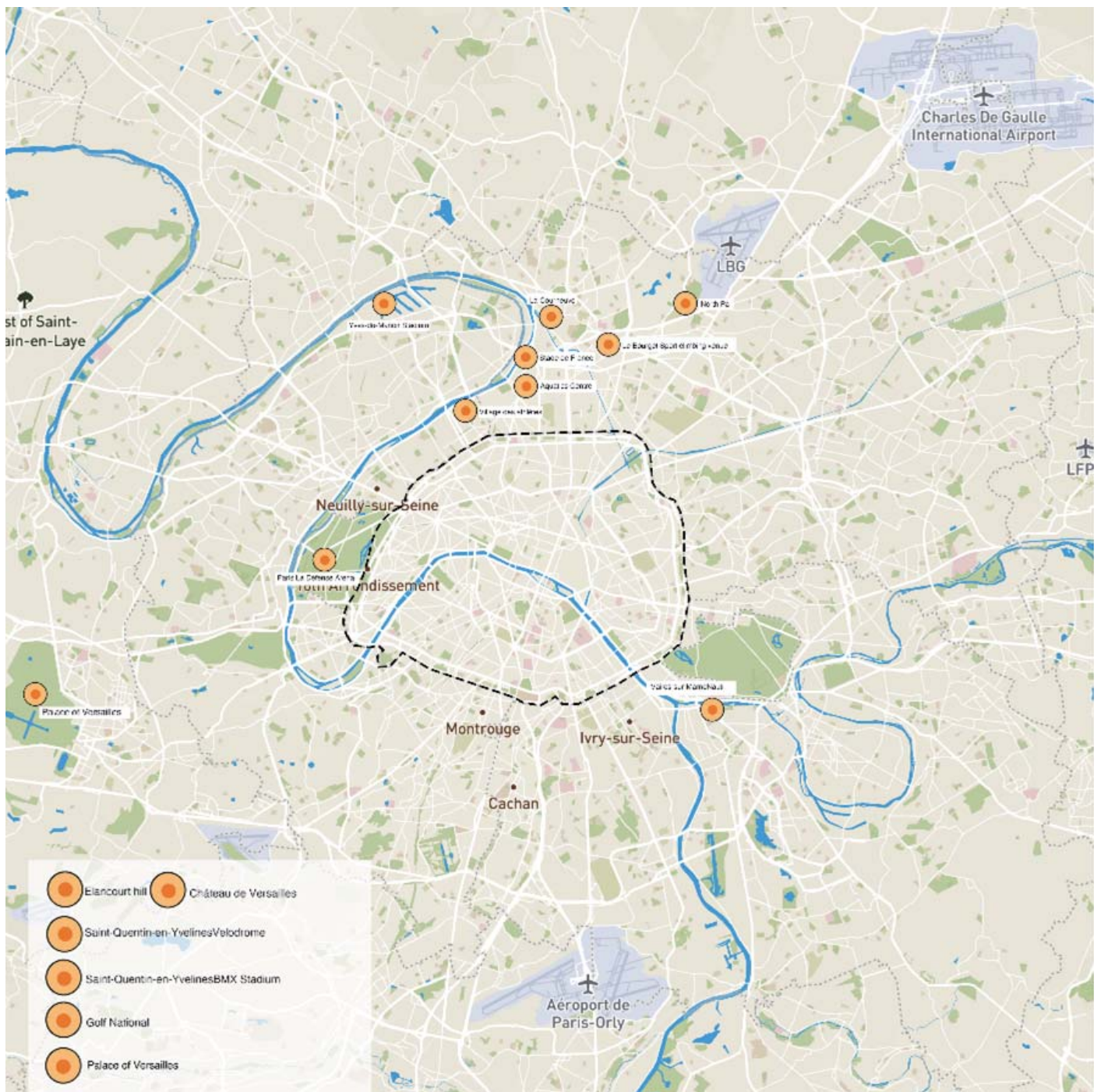


Figure 73: Paris 2024 Olympics venues location in Île-de-France region (Source: author draw)



Games	Venues	Heritage	Type of venues
Boxing/ Modern pentathlon	North Paris arena	/	Existing building
Canoe Rowing	Vanes-suomarine nautical stadium	/	Existing building
Sport climbing	Sport climbing venue	/	New building
Shooting	La Courneuve shooting range	/	Existing building
Atheletics/ Rugby	Stade de france	/	Existing building
Artistic swimming/ Diving/ Water polo	Aquatics cente	/	Existing building
Hockey	Ives du Manor stadium	/	Existing building
Swimming/ Water polo	Paris La defense arena	/	Existing building
Equestrian/ Modern pentathlon	ICH À VERSAILLES TEAU DE	Palace of Versailles	Temporary
Mountain bike	Elancourt hill	/	Temporary
Cycling track	Saint Quentin en Yuplines velodrome	/	Existing building
BMX racing	Saint Quentin en Yvelines BMX stadium	/	Existing building
Golf	Golf national	/	Existing building

Table 4: Paris 2024 Olympics venues in Île-de-France region and associated information (Source: author draw)

## In Île-de-France region

### CHÂTEAU DE VERSAILLES

The Château de Versailles, an iconic symbol recognised worldwide, illustrating France's global reputation, will welcome the Olympic Games in a magnificent setting with a rich history. Thanks to overlay facilities, certain Paris 2024 events will be staged in a truly exceptional and historical setting. A temporary outdoor arena, flanked by several stands, will be set up on the Etoile Royale esplanade, to

the west of the Grand Canal, at the heart of the Palace's gardens. This arena will stage two eventing disciplines (dressage test and jumping), as well as the jumping and dressage competitions (Olympic and Paralympic).

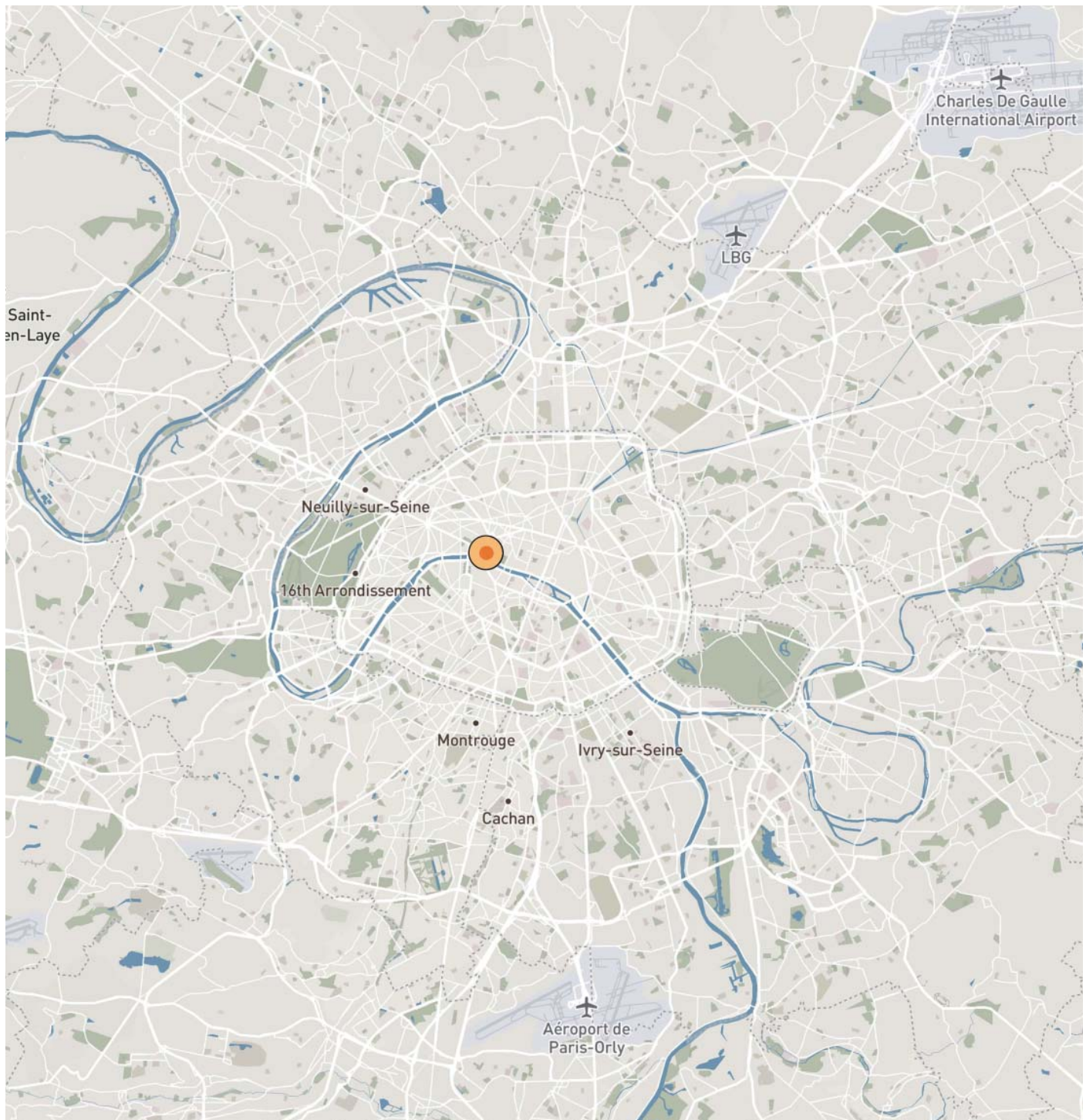


Figure 74: the location of CHÂTEAU DE VERSAILLES In Île-de-France region (Source: author draw)



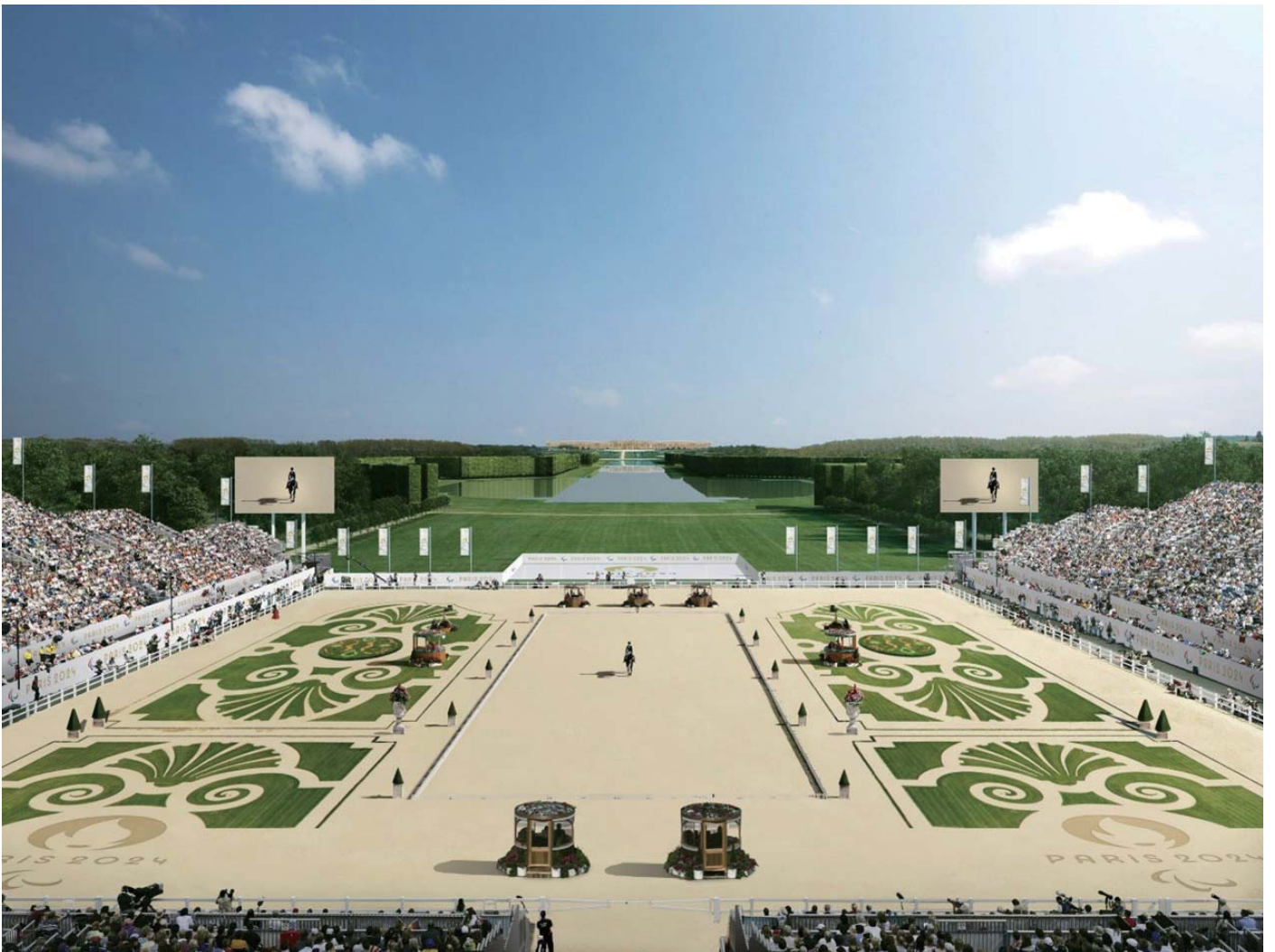


Figure 75: CHATEAU DE VERSAILLES In Ile-de-France region (Source: The Official website of the Olympic Games of Paris 2024)

## Elancourt hill

The Elancourt hill is for the BMX races and no major infrastructure will be created on site, with a view to minimizing any impact on its biodiversity. 95% of the future trails for the Olympic Mountain biking events are based on existing paths. Even better, the various routes to be left as a legacy will offer a selection of accessible trails for diverse users, from children and families through to experienced riders.

In conclusion, we could find some principles of these temporary venues. At first, it is the character of the sport, which is the precondition

of the temporary venues. Those urban street sports such as BMX, skate boarding requires to be in the open-air place. The outdoor sports need to happen in the rural place. Besides, with the temporary facilities, those games could be around the local landmark or in the center of the city. it could enhance the relationship between Olympics and the City. There are more public participation in the Paris 2024. In the end, the temporary proposal takes the most advantage of the Paris bridge and modify it for spectators with the temporary facilities. This plan enables the urban infrastructure and the iconic River

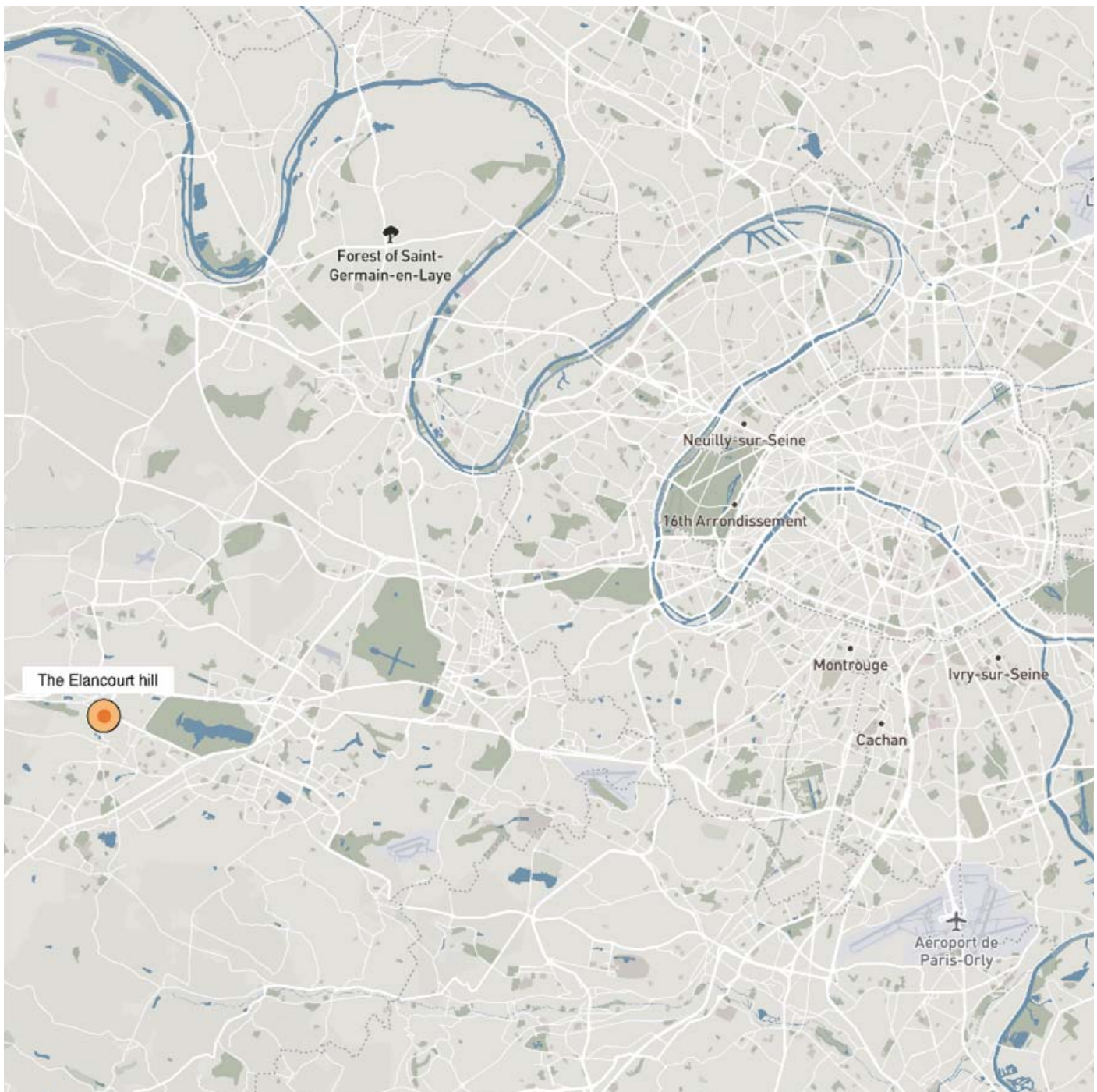


Figure 76: the location of BMX races In Île-de-France region (Source: author draw)





Figure 77: BMX races (Source: <https://www.francsjeux.com/breves/a-client-for-elancourt-hill>)

Seine become part of the Olympics. Above all, the development of the modern Olympics, the hosting process is more related to the host city, because the street sports game. It requires more temporary structure involved.

## 4.2.2 2024 Paris Olympics villages and temporary structures

The temporary facilities benefit the Olympics village as well. The Olympic village in Paris 2024 is a new building specifically for the Olympic and Paralympic. The design of this Olympic village is with the athletes in order to improve the accommodation as professional as possible. Besides the goal of providing optimal accommodation for athletes, when the Games are over the Village will become a part of the surrounding city, for people in Seine-Saint-

Denis, and mirror the exemplary environmental standards that Paris 2024 intends to meet. It means these buildings temporarily play the role of Olympics with the temporary structures.

The temporary facilities, required to address the specific requirements associated with a village's operations during the Games (logistics and operational capabilities, the athletes' restaurant, etc.) will complete the facilities left behind as legacy.

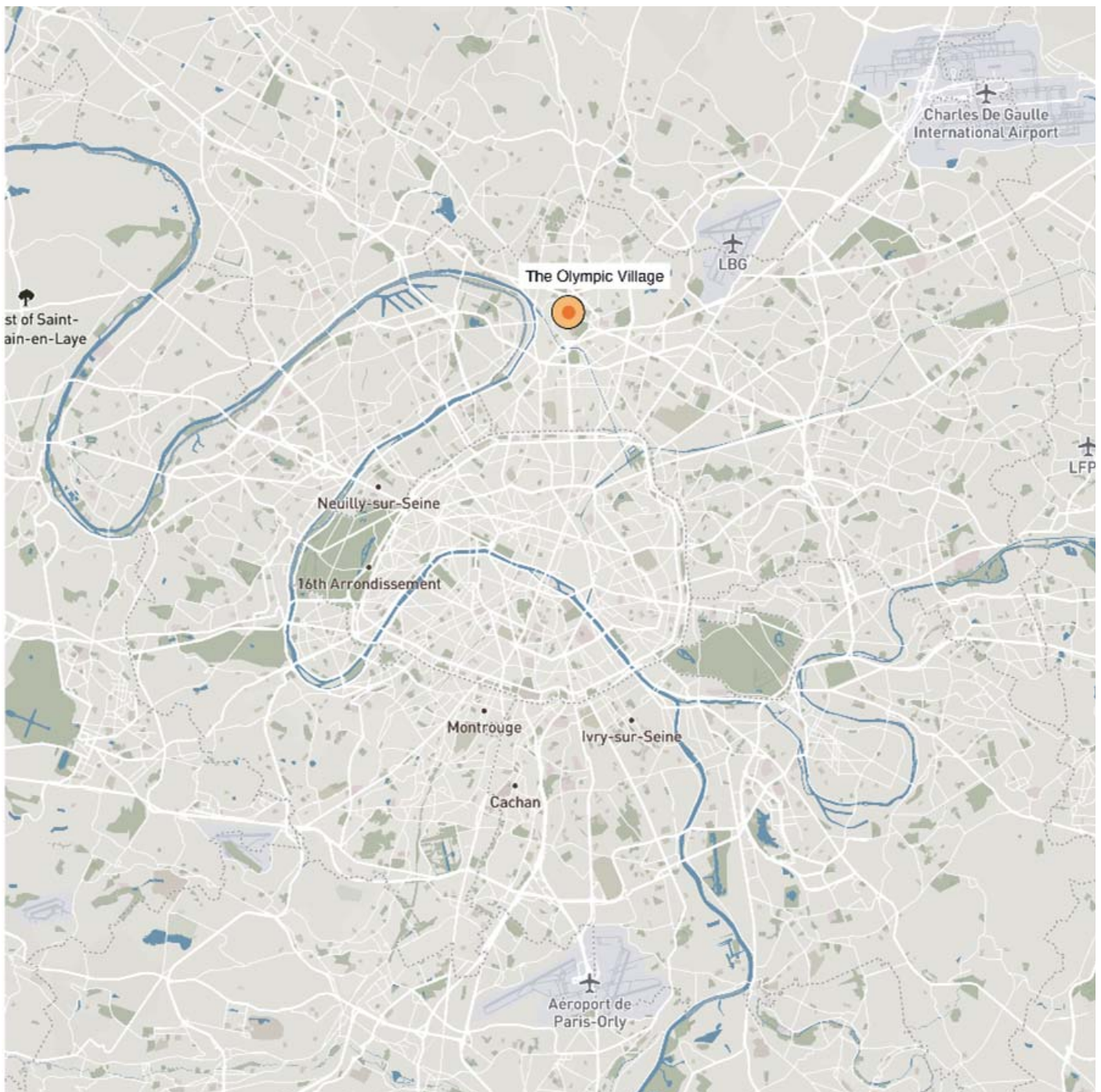


Figure 78: the location of Olympics village of Paris 2024 (Source: author draw)





Figure 79: The Olympics village of Paris 2024 (Source: The Official website of the Olympic Games of Paris 2024)

In November 2024, once the Games are over, the operators will begin a reversibility phase. The circular economy's principles will be applied through a strategy to reuse materials during deconstruction. They will hand over a new, eco-responsible, functional neighborhood, which will blend into the city of the future, to the community in 2025.

After the Olympics, those professional facilities and professional decoration could be removed and reused somewhere else properly.

In conclusion, the interruption of the temporary facilities enables the Olympics Village the flexibility. During the Olympics, it could be the professional accommodation for athletes to rest, to exercise and to prepare for the game.

## 4.3 Conclusion

### 4.3.1 The character of the current temporary proposal

As previous content, the temporary proposal in the current plan is mainly applied in two fields, the venues and the Olympics village. The intervention of the temporary structure could bring more possibility and flexibility to the modern Olympics. It could support the street sports to happen in the city center. It could involve the local heritage. It could assist to meet some professional requirements in the existing buildings temporarily. Moreover, according to the official documents, the reuse system was appeared in the plan, which brings the whole chain of the temporary structures.

On the base of the possibility and flexibility, the intervention of the temporary facilities could help the Paris 2024 to take the environmental responsibility and achieve the goal of the carbon neutrality. Specifically, the Paris 2024 commit to take the advantage of the temporary structures to use 95% existing and temporary venues to host the games, which is out of building process. It could dramatically decrease the carbon footprint.

Above all the Paris 2024 is from the perspective of athletes and governments to apply the temporary structures. The former requires the temporary structures could give the professional support. The later wants to use them from the big picture, to achieve the committees such as the environmental protection, the urban development and etc. After a long history of development, the temporary proposal relatively matured. The financial profit is the foundation, it plays a more significant role of sustainable development, which demonstrate the advance of the modern Olympics.

### 4.3.2 The possible supplement to the proposal

Comparing the current proposal and the previous research, it is obvious that the current temporary proposal is from top to the bottom, which is from the perspective of governments and professional athletes instead of the ordinary visitors and citizens. Specifically, in the Paris proposal, the temporary structures mostly apply to the professional venues and Olympic villages. However, the visitors and ordinary people are ignored in the temporary proposal.

Thus, our temporary aims to become the possible supplement of the existing proposal.

For the visitors, the temporary facilities could be applied into following parts: ***the accommodation, the services, and etc.*** The Olympics would be more affordable and convenient for the public, which is good for broadcast the Olympic spirit to more people. Apart from that, our proposal would benefit the ordinary citizens as well. The temporary structure of Olympics would be put in the public space in Paris. It would include multiple aspects such as culture of the Olympiad, the community sports corner, the fan meeting and so on. It would involve everyone in the city to participant the Olympics, which might be the intangible legacy of Paris 2024.

Besides, our temporary proposal would detect more possibility of the temporary structures, the appearance, the whole reuse system, the business of the used temporary structures. It has a big potential for the Olympic development.



Comparing the chapter 3, the followings demonstrate the specific aspects achieving or missing in the current Paris plan:

## What is already in the existing temporary proposal?

1. The temporary structures are affordable for Paris.
2. The temporary structures are flexible in the Paris proposal, it could be modified in a short time during the Olympics to be adapted to different sports requirements, according to the illustration of the existing proposal.
3. The temporary structures are designed to be harmless to the local heritage in the first place, although Paris 2024 has the closest relationship between the Olympics and the heritage than ever.
4. Based on the official website, those temporary structures associated with the sports would be designed with the athletes. With their professional advice, those facilities would meet the requirements of the Olympics standards.

## What is unclear in the existing temporary proposal?

1. According to the official documents, it is unclear that if the temporary structures are designed with aesthetic appearance.
2. What happened to those temporary application after games is also unclear for now. There is no related proposal for it.

## What is missing in the existing temporary proposal?

From the existing documents, the current temporary proposal is from the perspective of governments and professionals. The ordinary people are missing including the visitors and the citizens. There is a big potential for the temporary facilities to be multi-functional, including declining the price, becoming more convertible, hosting temporary activities, and so on.

# Chapter5: Temporary Olympics design for the public



Figure 80: The Paris Olympics 2024 (Source: [https://www.eurosport.com/olympics/welcome-to-olympic-day-what-is-it-what-is-the-theme-what-do-people-do-on-olympic-day\\_sto9002461/story.shtml](https://www.eurosport.com/olympics/welcome-to-olympic-day-what-is-it-what-is-the-theme-what-do-people-do-on-olympic-day_sto9002461/story.shtml))

Since 17th century, Paris has become one of the most significant global cities of the finance, diplomacy, commerce, fashion gastronomy, science and arts, even sometimes it was referred as the capital of the world or “the city of light”. In this chapter, we would formulate the history of Paris and Olympics and to research the potential of the 2024 Paris Olympics.



## 5.1 Temporary design for the ordinary people

### 5.1.1 The supplement of the current proposal

In the time of professional sports industry, the attraction of the Olympics is losing. People have more choices to watch the game. How to evoke the people's passion for the Olympics is the key topic for the future development of Olympics. It must boost the participant of public. The temporary facilities might play a significant role in the promotion of public.

Although, according to the official bidding documents, it obvious that the Paris make a grand effect on the temporary venues and Olympics villages in order to achieve the sustainable goal. As for the ordinary people, it lacks a considerable plan to take advantage of the temporary facilities' features for the Olympic public participants.

What we proposal is to supply the current plan from the perspective of the ordinary people by using temporary facilities. We classify the ordinary people into 2 kinds, the citizens and the visitors. Our main goal is to enable the Olympics more affordable, more enjoyable, more involved, more convenient for people. Specifically, ordinary people could gather together to watch the game, to experience the game, to enjoy the cultural Olympiad. The citizens have more chance to contribute the Olympics as volunteers. The visitors could have a more affordable price to visit Paris during Olympics, by stay in the tent or watch the game in the plaza instead of in the venues. Connecting to the previous research, there might be some inspiration in the public temporary facilities. To be clear, the objective is public rather than professionals, the relevant structure design could pay more attention to the appearance instead of performance, which means it requires some attraction. Without doubt, the participants of the public in Olympics would be increased because of the temporary intervention.

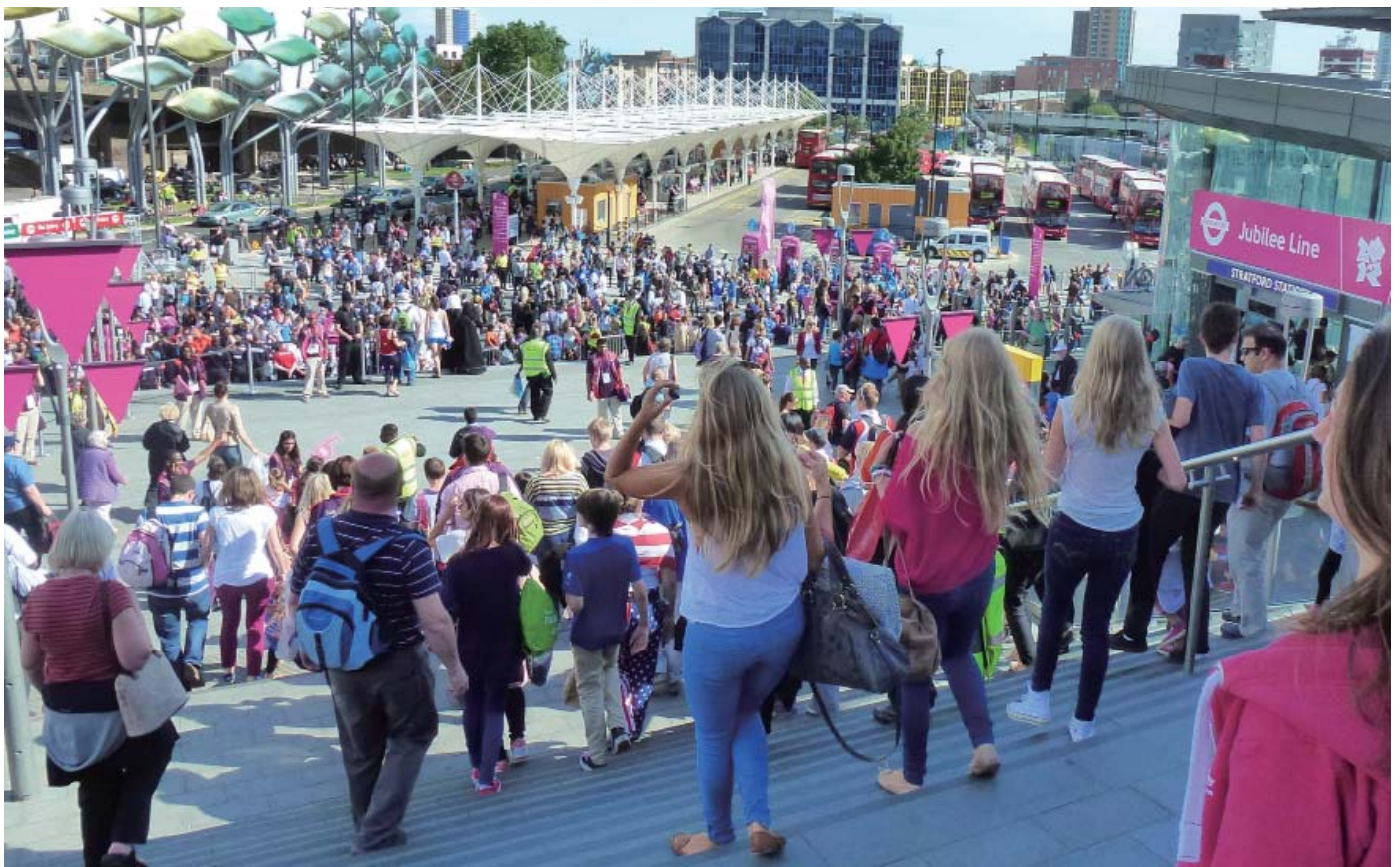


Figure 81: The 2012 Olympics (Source: <https://www.movementstrategies.com/blog-posts/let-the-2016-olympics-commence>)

## 5.1.2 The potential places in Paris

Where to put those temporary facilities is another key point for our proposal. Paris is a metropolis city with varies of public spaces include plazas, museums, gardens, parks and so on. We want to classify them in to 3 types:Unobstructed space, Limited obstructed space and obstructed space.

### Unobstructed Space

In our proposal, the definition of the unobstructed space is open without sight block in the city, include plazas and grass land, such as the Rue de Grenelle and Champ de Mars. As illustrated in the followings, there are some open spaces in Paris which could be the perfect places for the fans gathering to experience the game, to watch the game to have some cultural carnival during the games.

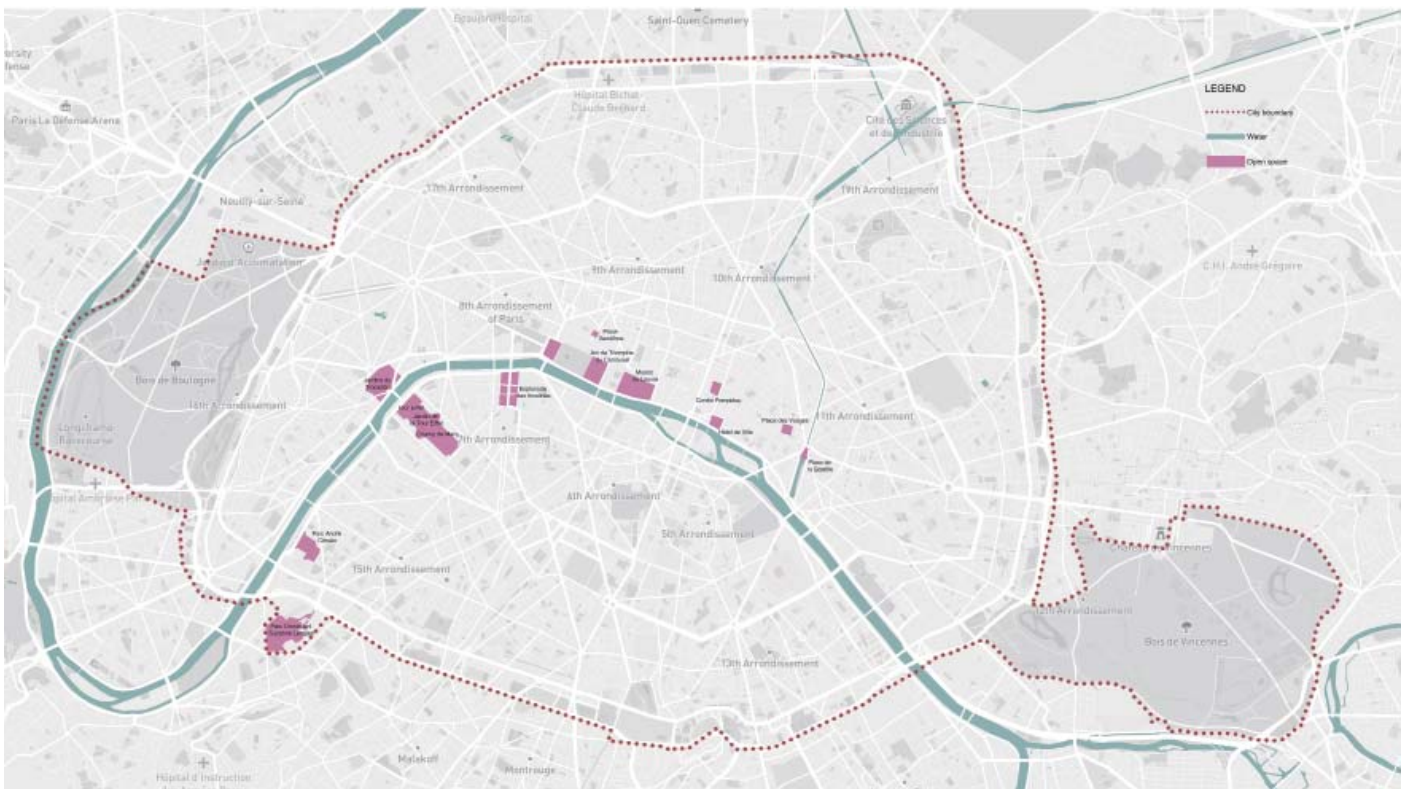


Figure 82: The layout of Unobstructed places in Paris (Source: author draw)





Figure 83: Champ de Mars (Source: [https://zh.m.wikipedia.org/wiki/File:Champ\\_de\\_Mars\\_from\\_the\\_Eiffel\\_Tower\\_-\\_July\\_2006\\_edit.jpg](https://zh.m.wikipedia.org/wiki/File:Champ_de_Mars_from_the_Eiffel_Tower_-_July_2006_edit.jpg))

### Limited obstructedd space

In our proposal, what we mean of the space with few obstructions is the park in Paris, which could offer some private spaces and relatively open spaces, such as Bois de Vincennes, Parc des Buttes-Chaumont and La Villette. It could be used to put the tent zone including some life supply and other temporary facilities. With the temporary intervention, visitors would have an affordable accommodation during the Olympics. Moreover, it means there might be more visitors for the Olympics. As illustrated in the following maps, Paris has adequate parks which could meet our requirements.

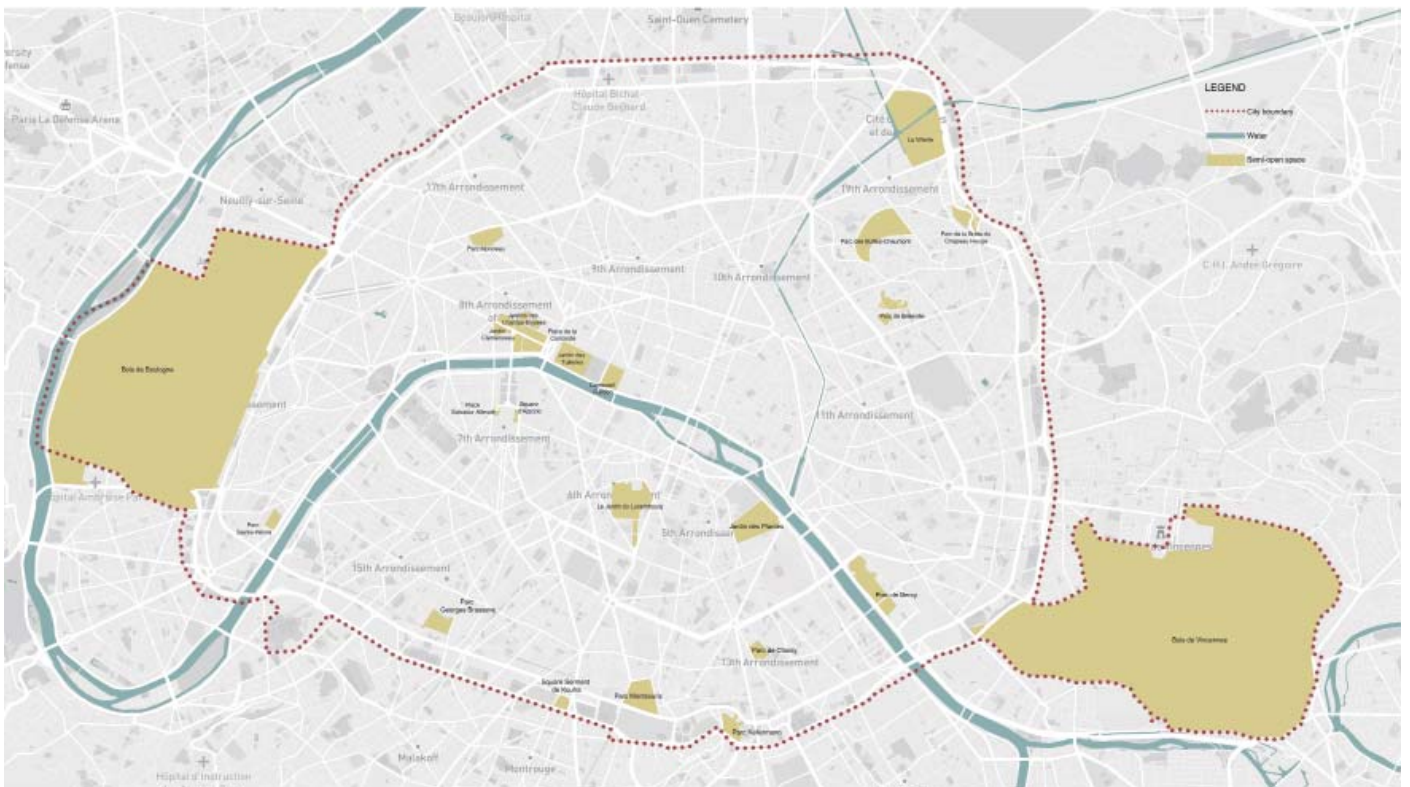


Figure 84: The layout of Limited obstructed place in Paris (Source: author draw)





Figure 85: Parc de la Villette (Source: <http://en.hotelrelaisbergson.com/238-paris/249-le-parc-de-la-villette-la-grande-halle.html>)

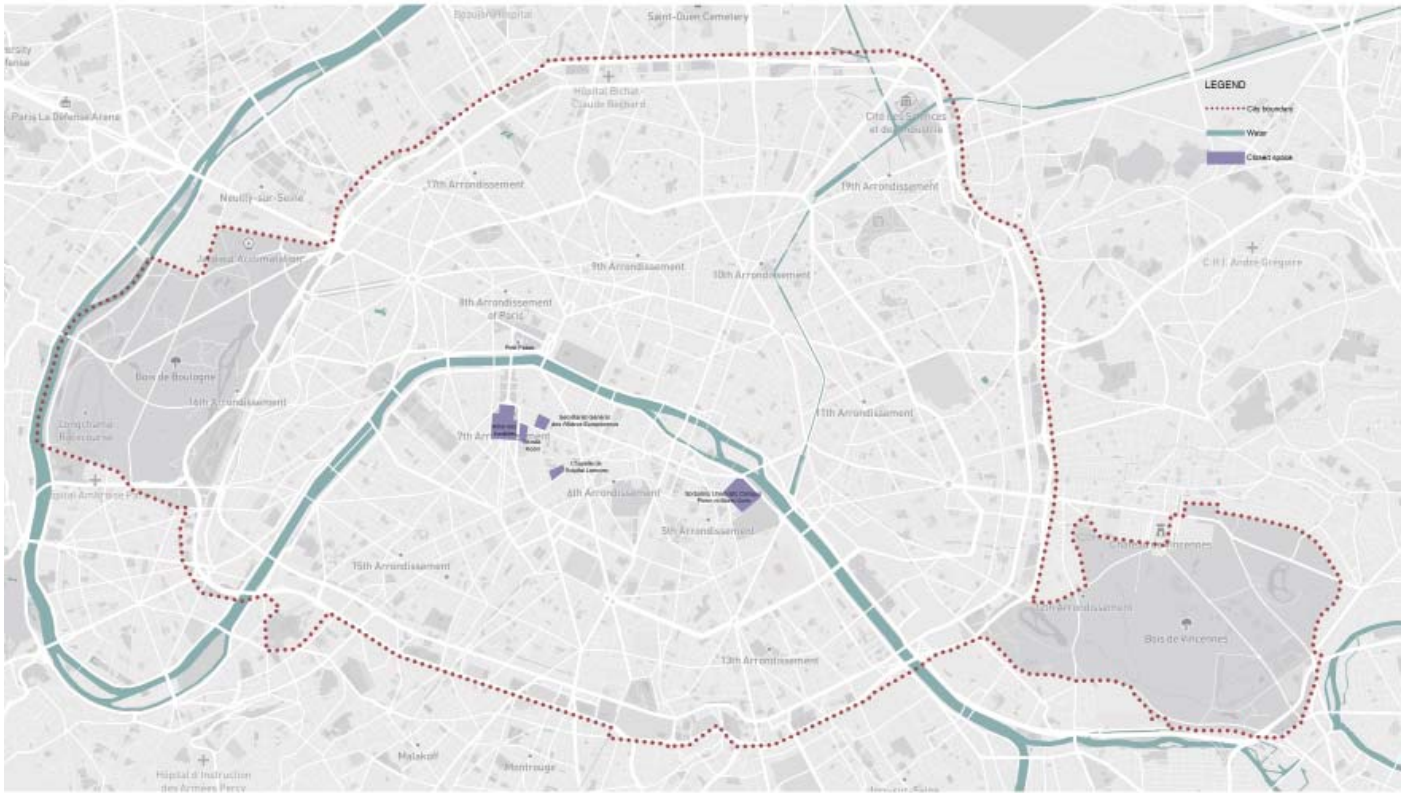


Figure 86: The layout of Obstructed place in Paris (Source: author draw)

### **Obstructed space**

In our proposal, the definition of the spaces with obstruction is focusing on the gardens and country yard associated to the museums. It is normally very close to the heritage and cultural buildings. This place would host the Olympiad cultural events with the assistance of the temporary facilities. There are many similar places in Paris such as Musée du Louvre, Jardin des Tuileries and Jardin du Palais-Royal. The layout of this type of spaces is in the following map.





Figure 87: Musée du Louvre (Source: <https://www.cntraveler.com/activities/paris/louvre-museum>)



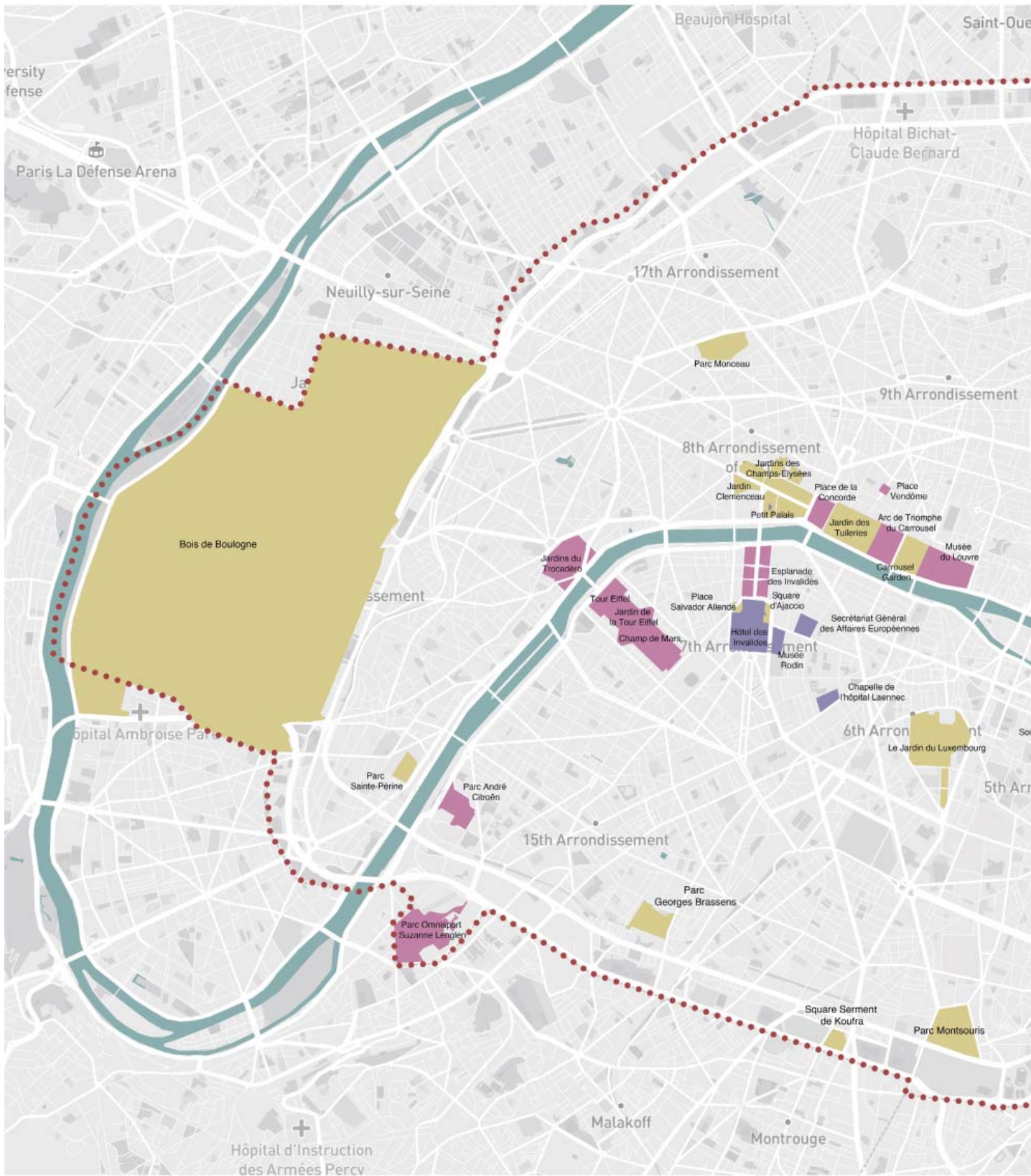
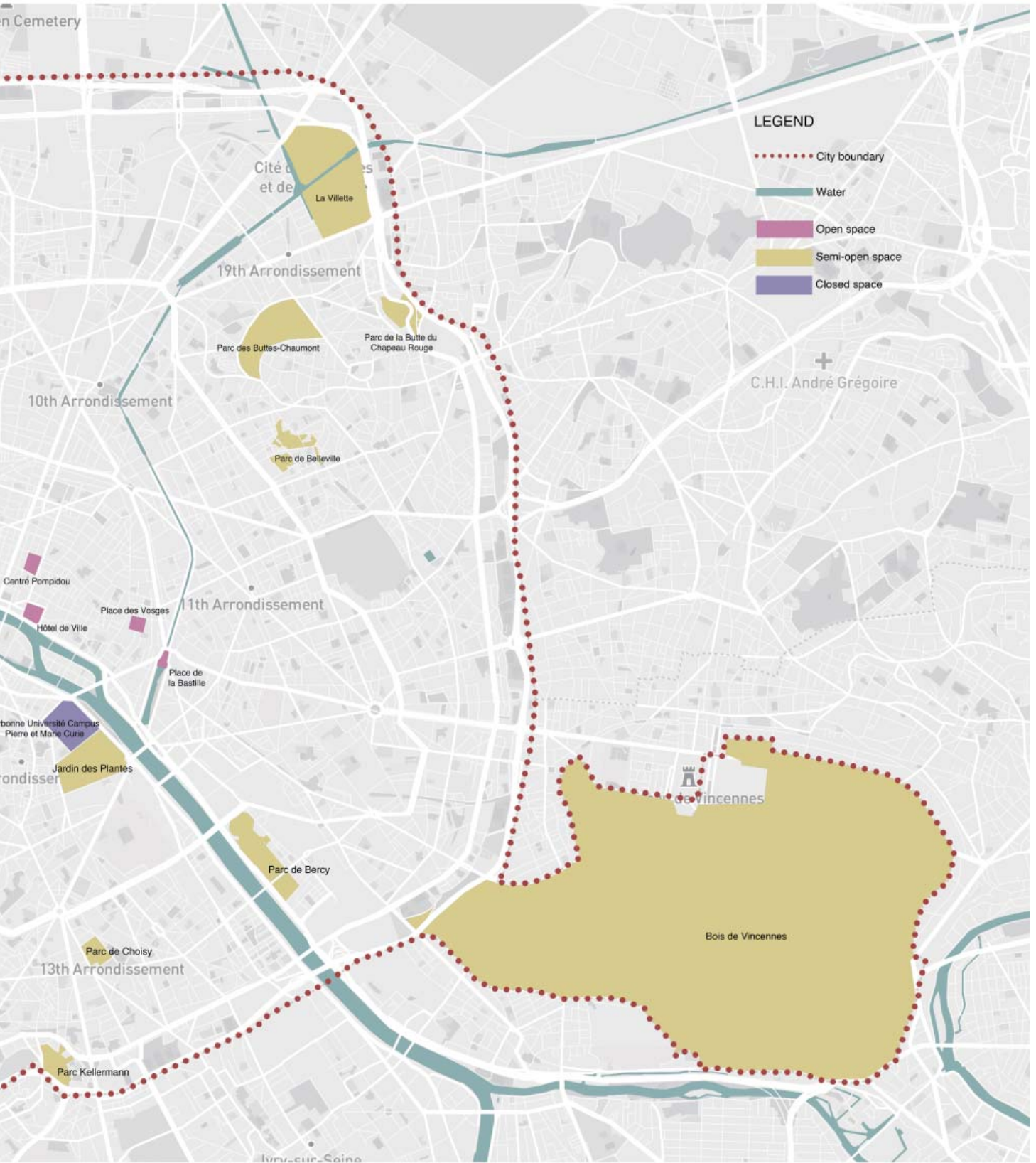


Figure 88: The overview of potential public space in Paris (Source: author draw)





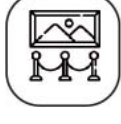





### 5.1.3 Strategy

The whole strategy is illustrated by the following diagram. At first, have potential activities of the ordinary person, which including watching the games, experiencing sports, Olympics parties, tents relevant cultural activities. Because the key point of our temporary proposal is from the perspective of the public in order to promote the

#### ACTIVITIES

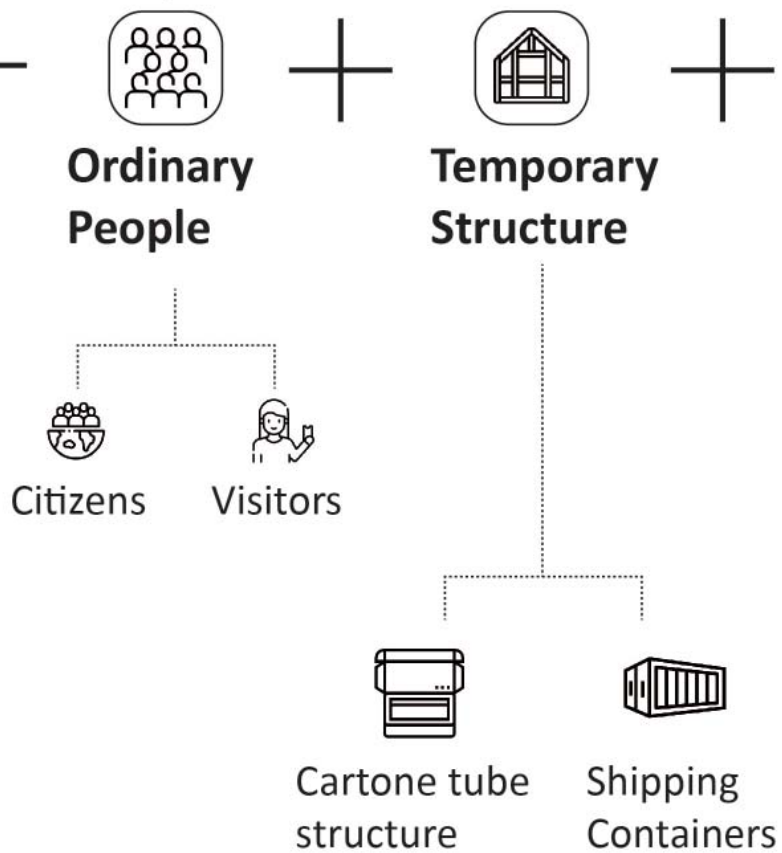
-  Watch the games
-  Experience the games
-  Olympic party
-  Tents
-  Exhibition
-  Concert

#### GOAL

Promote the Olympic sprits

#### METHOD

Increase the public participants



Olympics further. Meanwhile, we classify the space in Paris into 3 types: Unobstructed space, limited obstructed space, and obstructed place.

Then, we connect these two elements and arrange those potential activities into 3 places. In this way, more urban heritage and people would be involved. Eventually, it achieves a win-win situation.



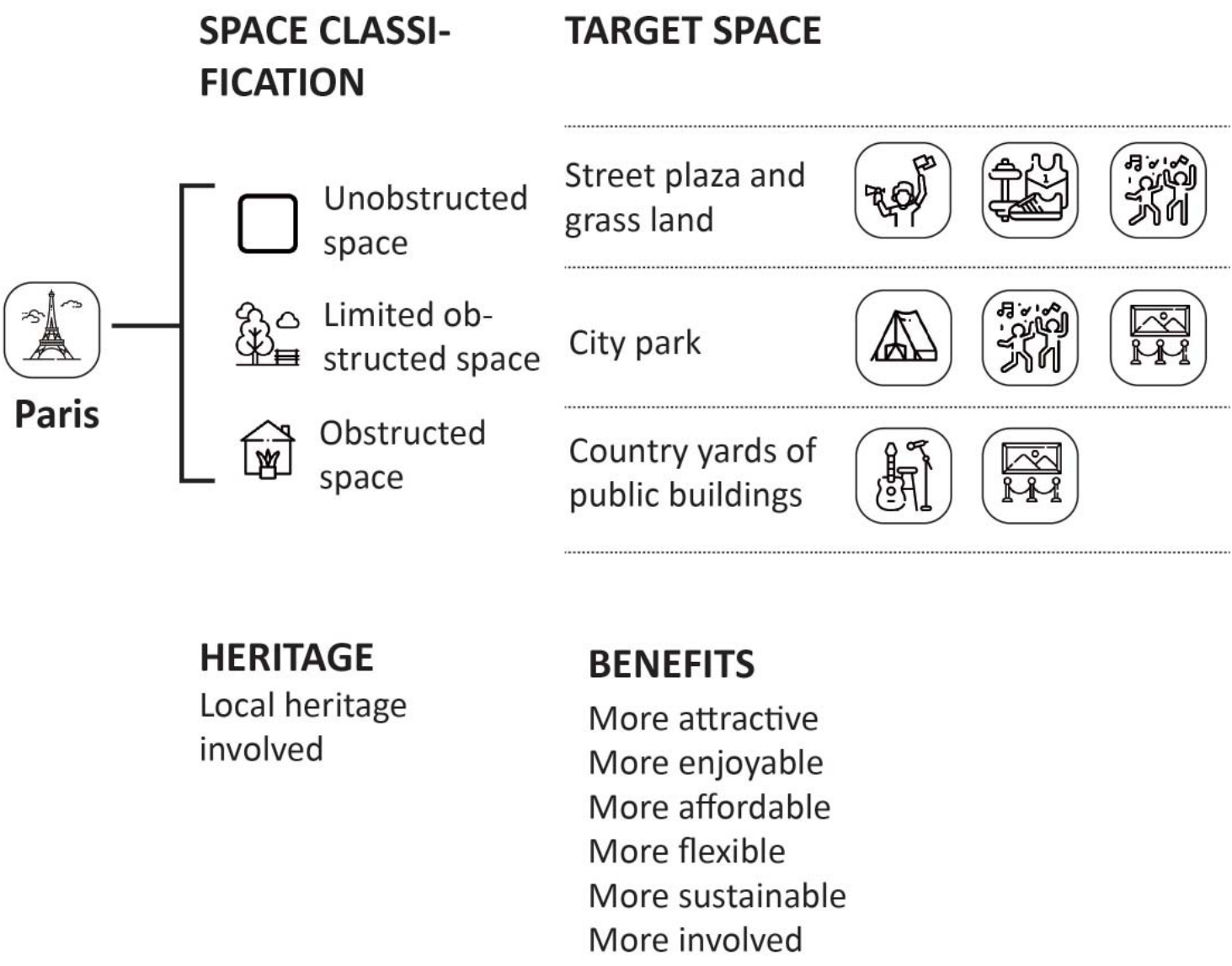


Figure 89: The working system of temporary proposal for Paris 2024 (Source: author draw)

## 5.1.4 The temporary structure applied

### **Cartone tube**

The success of the cartone tube by Japanese architect Shigeru Ban found a suitable method to achieve sustainable and affordable temporary facilities in Paris in 2024. Through a series of case studies of Shigeru Ban, the cartone structure is stable, and low-cost for the mega event, if the structure is properly designed. Moreover, by applying the cartone tube, there would be more possibilities due to its flexible features. Meanwhile, the consist of cartone tube could be recycled, which means it could decline the waste and benefit the sustainable development goal further.

Representative works: Paper Log House, Hursley Nine Bridges Golf Club, Paper Church, Japan Pavilion at World Expo Hannover, etc. He provides temporary shelters for people who have suffered huge disasters and been displaced in Rwanda, Turkey, India, China, Italy, etc.

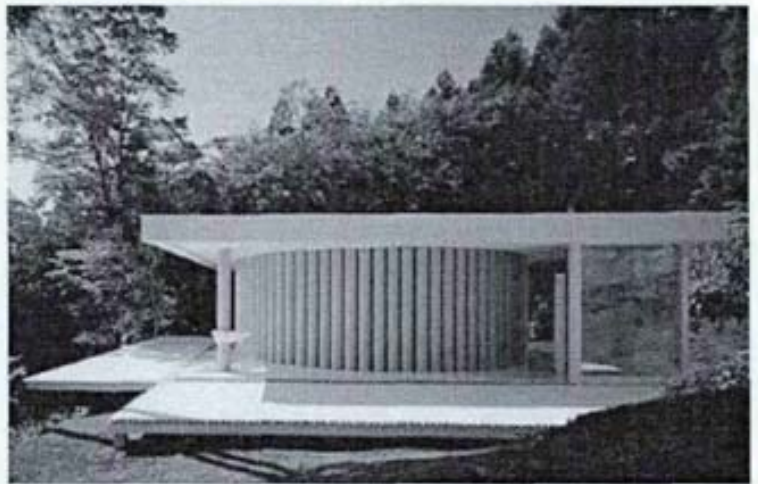
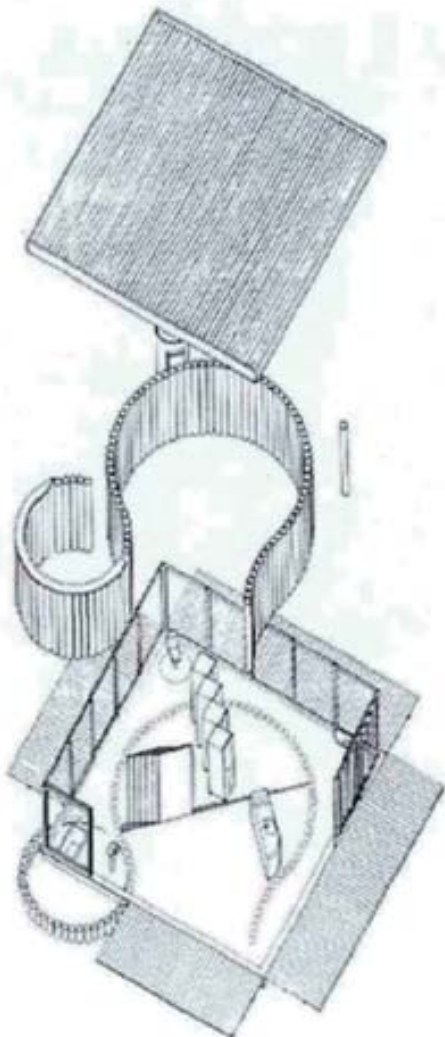


Figure 90: Paper Log House (Source: Guan Li's graduated thesis-A Study of Shigeru Ban's Paper Construction Architecture)





Figure 91 & 92: Hursley Nine Bridges Golf Club ( Source: <https://www.goood.cn/goood-interview-shigeru-ban.htm>)



Figure 93 & 94: Paper Church (Source: <https://www.goood.cn/goood-interview-shigeru-ban.htm>)

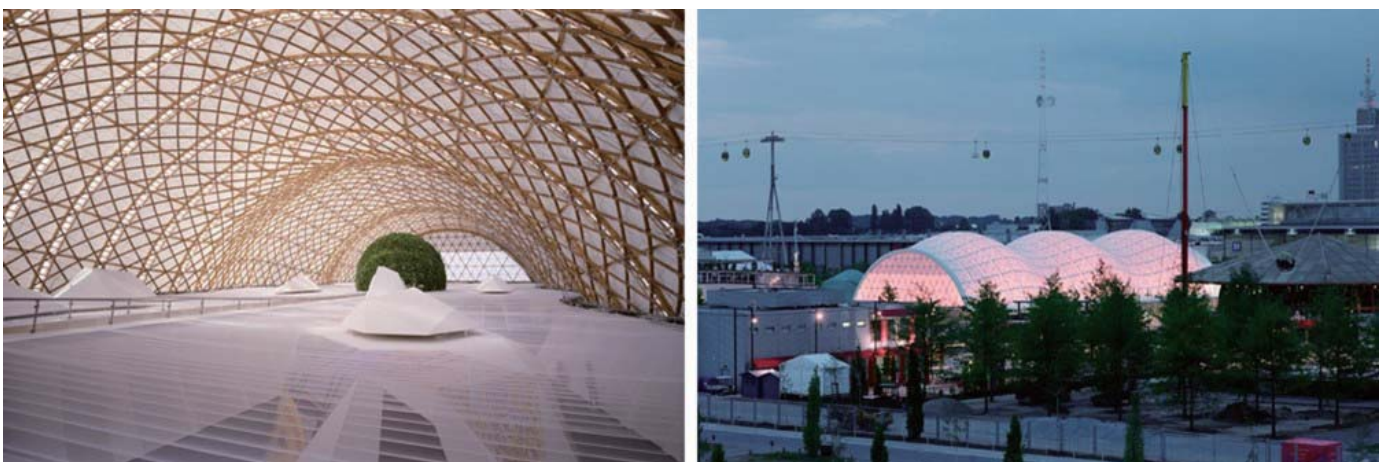


Figure 95 & 96 : Japan Pavilion at World Expo Hannover (Source: <https://www.goood.cn/goood-interview-shigeru-ban.htm>)



There are four categories used by Shigeru Ban: paper tube-wall system, paper tube frame system, arch system and grid system. Among them, the utilization rate of the paper tube frame structure is the highest.

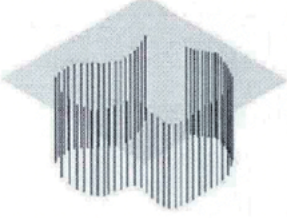
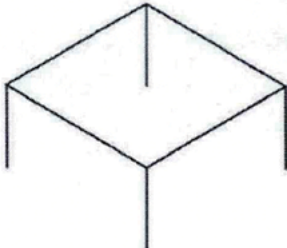
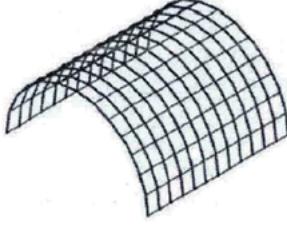
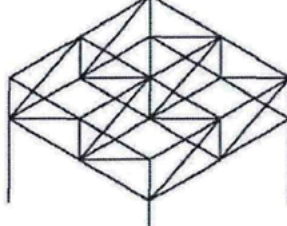
Structure	Work	Year
 <p>Paper wall</p>	PAPER ARBOR	1989
	MIYAKE DESIGN STUDIO GALLERY	1994
	PAPER LOG HOUSES	1995
	PAPER HOUSE	1995
	PAPER CHURCH	1995
	PAPER LOG HOUSE	2001
	PAPER DOME TAIWAN	2008
	Quinta Botanica	2009
	CAMPER TRAVELING PAVILLION	2011
	 <p>Paper tube structure</p>	LIBRARY OF A POET
PAPER EMERGENCY SHELTERS FOR UNHCR		1999
PAPER HOUSE FOR NIIGATA EARTHQUAKE VICTIMS		2004
PAPER BRIDGE		2007
HUALIN TEMPORARY ELEMENTARY SCHOOL		2008
PAPER EMERGENCY SHELTER FOR HAITI		2010
HERMES PAVILION		2011
PAPER ATELIER		2011
PAPER CONCERT HALL		2011
Abu Dhabi Art Pavilion		2013
Cardbord Cathedral		2013
Museum Rietberg Temporary Pavilion		2013
Paper Log House		2014
 <p>Arch</p>		PAPER DOME
	JAPAN PAVILLION, EXPO 2000 HANNOVER	2000
	PAPER ARCH - Museum of Modern Art	2000
	PAPER DOME	2003
	PAPER STUDIO - Keio University	2003
	PAPER TEMPORARY STUDIO	2004
	CENTRE D' INTERPRETATION DU CANAL DE BOURGOGNE	2005
	HONG KONG SHENZHEN BI-CITY BIENNALE PAVILION	2009
	Shigeru Ban Paper Temporary Studio in Kyoto University of Art and Design	2013
	 <p>Frame</p>	SINGAPORE BIENNALE, PAVILION
Madrid Paper Pavilion		2013

Figure 97 : Paper tube structure (Source: Guan, L. A Study of Shigeru Ban's Paper Construction Architecture. Master. Thesis, School of Architecture and urban planning Nanjing University, 2014.



### **Ship container**

The ship container is another temporary facilities approach method. Due to its features, it could be easy to redesign and transform into other buildings, which means it has more possibility as a temporary structure. At the same time, it has excellent waterproof, fireproof and anti-corrosion performance, and has strong anti-seismic and anti-deformation capabilities.

Above all, it could be taken advantage for us to achieve what we want in Paris a more aesthetic, durable and sustainable temporary facilities.

Representative cases: Stadium 947 in Qatar, Hoorn Bridge, the Netherlands, Starbucks Seattle Drive-in Restaurant and Pedestrian Store, Lecco Regional Institute of Technology Research Center in Milan, and Freitag store in Switzerland.



Figure 98: The 947 stadium for Qatar world cup 2022 (Source: [http://stadiumdb.com/stadiums/qat/stadium\\_974](http://stadiumdb.com/stadiums/qat/stadium_974))



Figure 99: The 947 stadium for Qatar world cup 2022 (Source: [http://stadiumdb.com/stadiums/qat/stadium\\_974](http://stadiumdb.com/stadiums/qat/stadium_974))



Figure 100: Hoorn Bridge, the Netherlands, (Source : [Landscape.cn/news](https://www.landscapen.nl/news))





Figure 101: Starbucks Seattle Drive-in Restaurant, (Source: <https://stories.starbucks.com/stories/2013/innovative-new-drive-thrus/>)

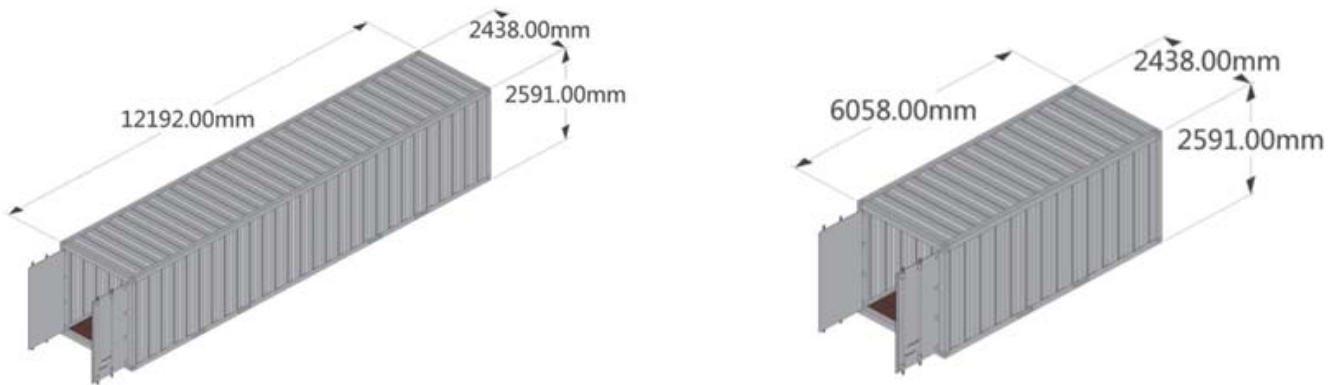


Figure 102 & 103: Regular size of ship container (Source: <https://www.falconstructures.com/blog/shipping-container-weights-sizes>)

### **Become a temporary system**

To be mentioned the application of ship container could be connect with the cartone tube structures as a system. During the construction process, the ship container could carry those cartone tube to site. And after games, those cartone tubes could also be carried by ship containers to other places.

## 5.2 Specific temporary proposal

In the time of professional sports industry, the attraction of the Olympics is reducing. People have more choices to watch the game. How to evoke the people's passion for the Olympics is the key topic for the future development of Olympics. It must boost the participant of public. The temporary facilities might play a significant role in the promotion of public.

Although, according to the official bidding documents, it obvious that the Paris make a grand effect on the temporary venues and Olympics villages in order to achieve the sustainable goal. As for the ordinary people, it lacks a considerable plan to take advantage of the temporary facilities' features for the Olympic public participants.

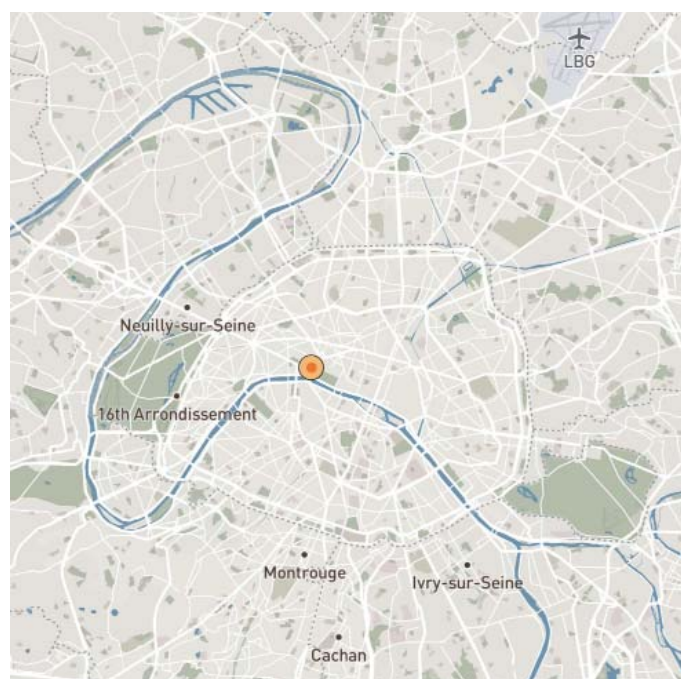


Figure 105: The location of Place de la Concorde (Source: author draw)

### 5.1.1 Temporary proposal for Place de la Concorde

The Place de la Concorde is one of the major public squares in Paris, France. Measuring 7.6 ha (19 acres) in area, it is the largest square in the French capital. It is located in the city's eighth arrondissement, at the eastern end of the Champs-Élysées. During the 2024 Paris Olympics, it would be transformed into an outdoor temporary venue. Some games would be host in this plaza including the BMX freestyle, the Breaking Dancing, the skateboarding and the 3X3 basketball games.

As illustrated by the following official documents, those four sports competitions would share the plaza for couple days. And it tells us the number of the courts including 4 basketball courts, 1 stage for dancing, and one free style field for BMX and skateboarding.

Sport/Discipline or event	July											
	Wed 24 -2	Thu 25 -1	Fri 26 0	Sat 27 1	Sun 28 2	Mon 29 3	Mon 30 4	Wed 31 5	Thu 1 6	Fri 2 7	Sat 3 8	Su 4 9
Basketball 3x3									09:00-11:00 12:30-14:30	09:00-11:00 12:30-14:30		
							17:30-19:30 21:00-23:00	17:30-19:30 21:00-23:00	18:00-20:00 21:30-23:30	17:30-19:30 21:00-23:00	17:30-19:30 21:30-22:30	17:30-19:30 21:30-22:30
Breaking												
BMX freestyle							13:25-16:30	13:10-16:30				
Skateboarding- Street				12:00-15:30 17:00-19:00	12:00-15:30 17:00-19:00							
Skateboarding- Park												

Table 5: Table 5: Paris 2024 Olympics Game schedule (Source: author draw)





Figure 106: Place de la Concorde (Source: <https://www.paris.fr/pages/la-concorde-une-place-aux-multiples-facettes-22106>)

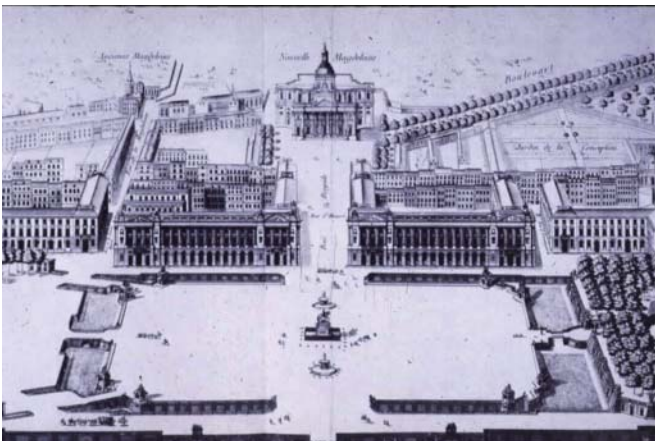


Figure 107: Place de la Concorde (Source: [https://fr.wikipedia.org/wiki/Place\\_de\\_la\\_Concorde](https://fr.wikipedia.org/wiki/Place_de_la_Concorde))

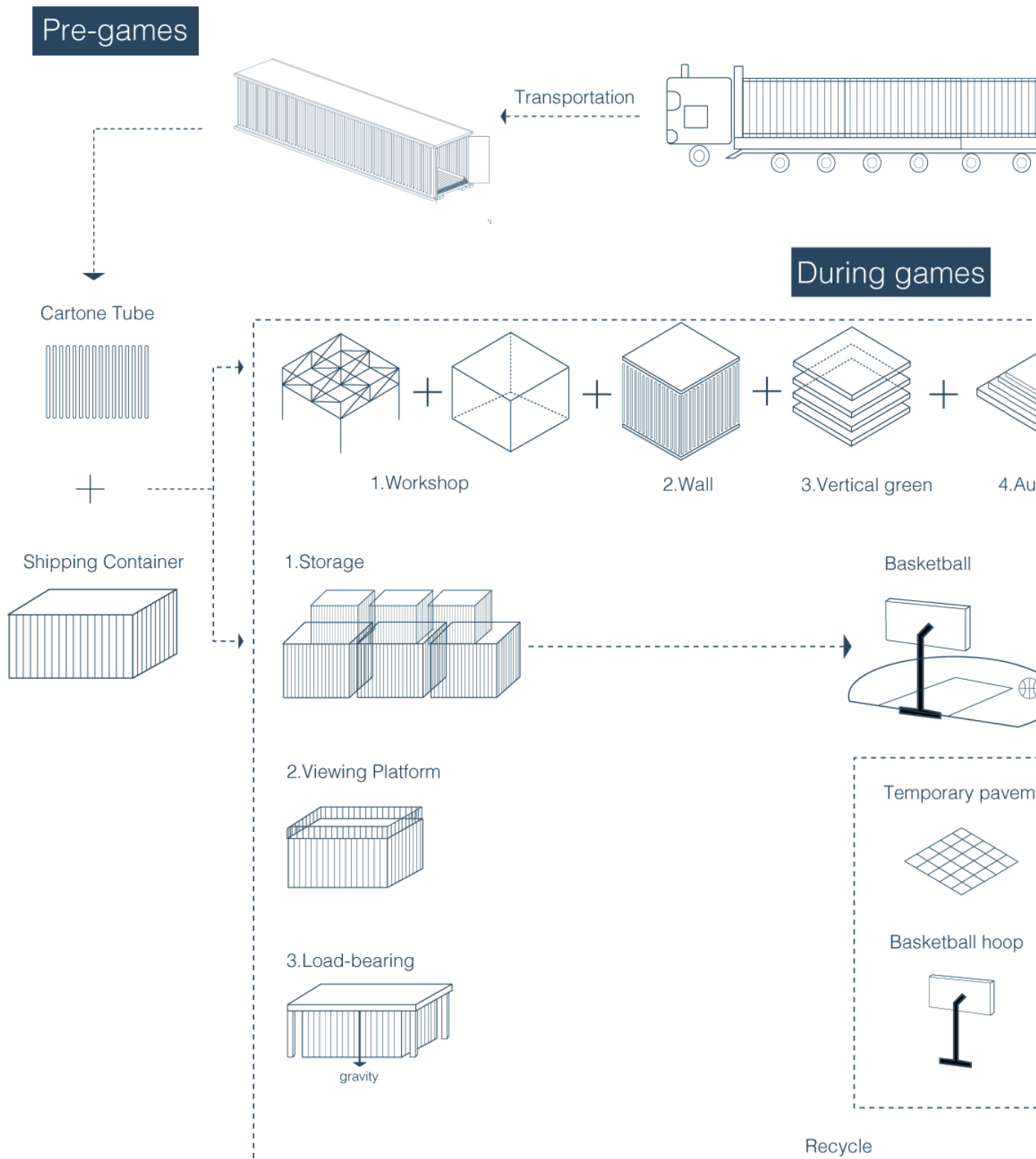
The first challenge of this temporary proposal is to balance the existing heritage and the sports requirements. Secondly, the ordinary citizens are also in the consideration. Although, the public space is temporarily taken for the Olympics, it could be also welcome to the public. The public could also enjoy the games, even without tickets.

August						
n	Mon 5 10	Mon 6 11	Wed 7 12	Thu 8 13	Fri 9 14	Sat 10 15
9:30	17:30-19:30					
2:30	21:00-23:20					
					16:00-18:00	16:00-18:00
					20:00-22:00	20:00-22:00
		12:30-16:00	12:30-16:00			
		17:30-19:00	17:30-19:00			

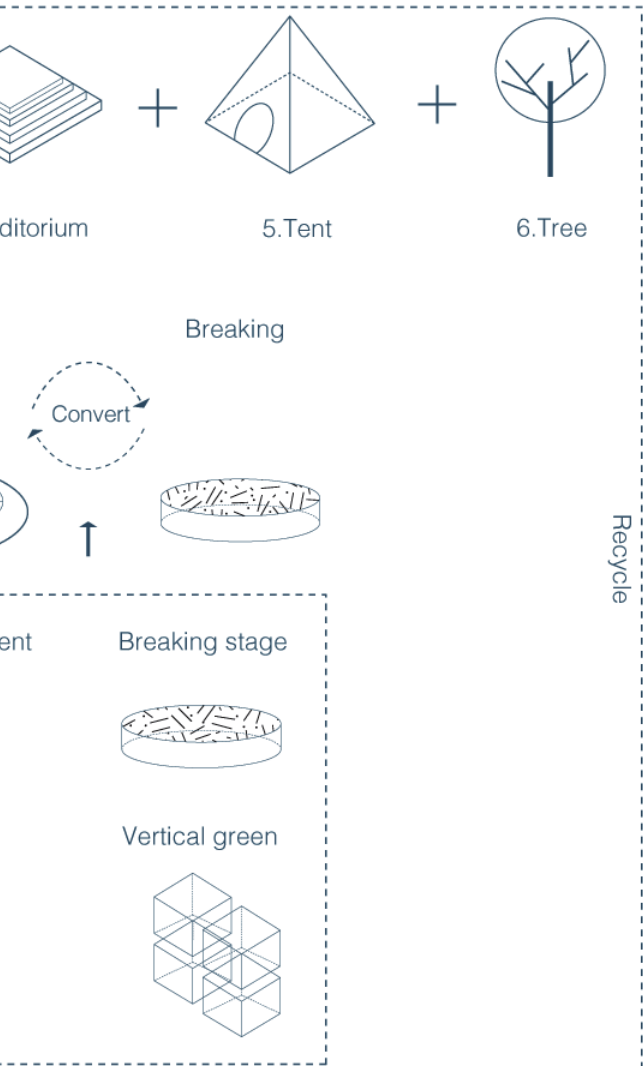
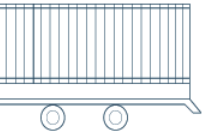
# Strategy

What we want to do is to take advantage of the ship containers and paper tube to construct a temporary venue. To be mentioned, in our proposal, the carton tube and ship container become a group in the building process, the carton tube would be carried in ship container. After games, the building would be deconstructed and the tubes would be removed in the ship container.

## Circulation System

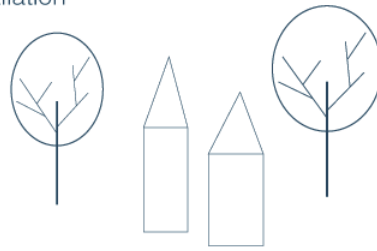






## Post-games

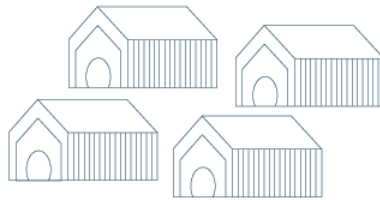
Art installation



Sports plaza



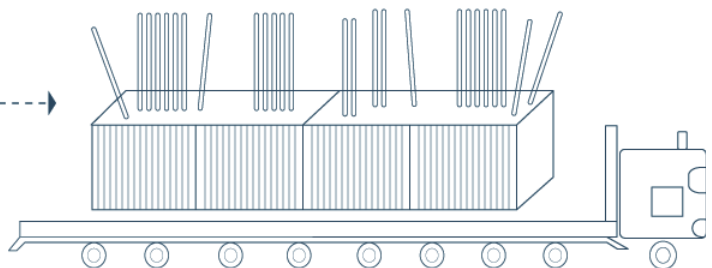
Accommodation

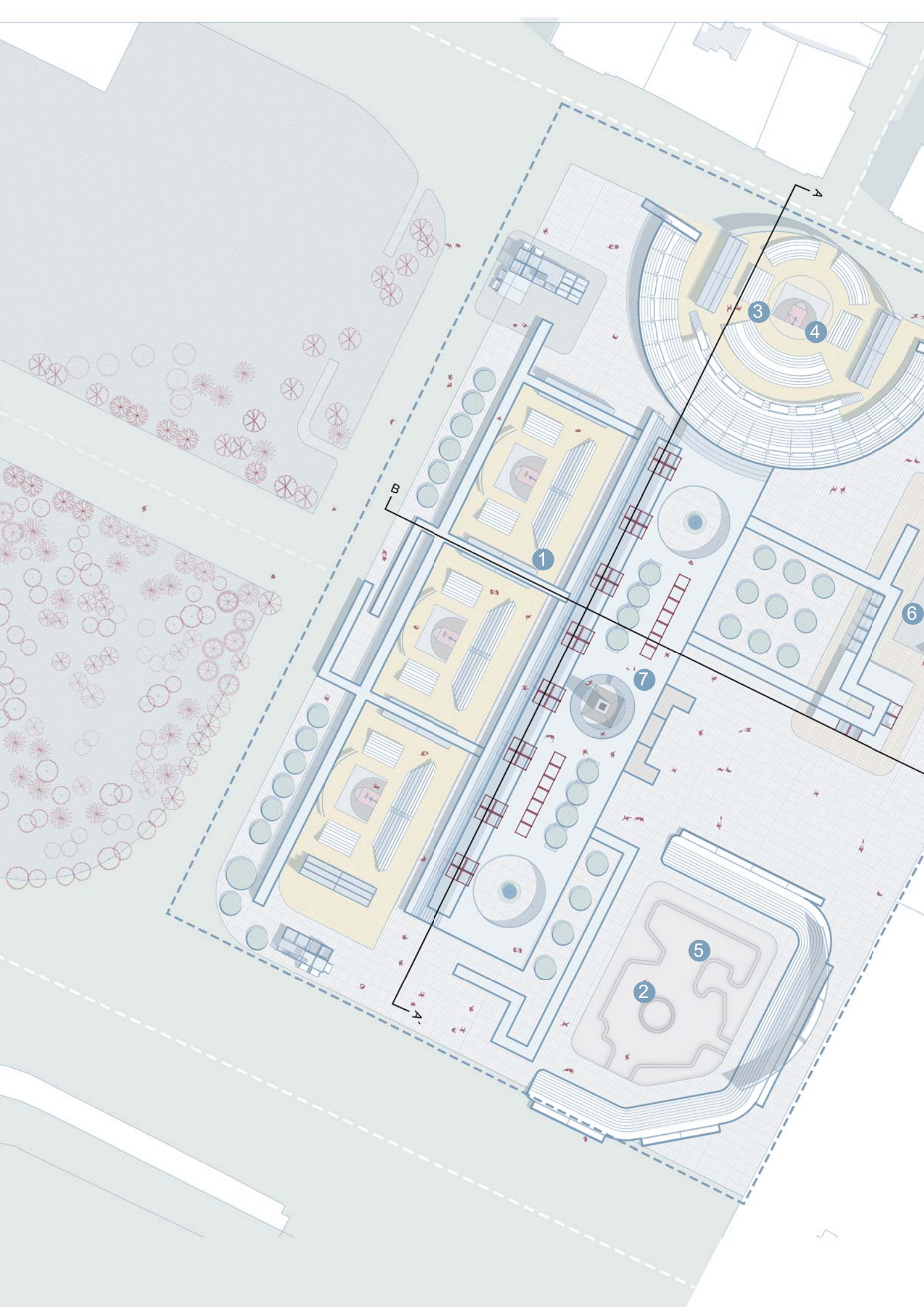


Somewhere needed

Transportation  
+  
Reinstallation

Recycle + Sustainable





B

A

1

3

4

7

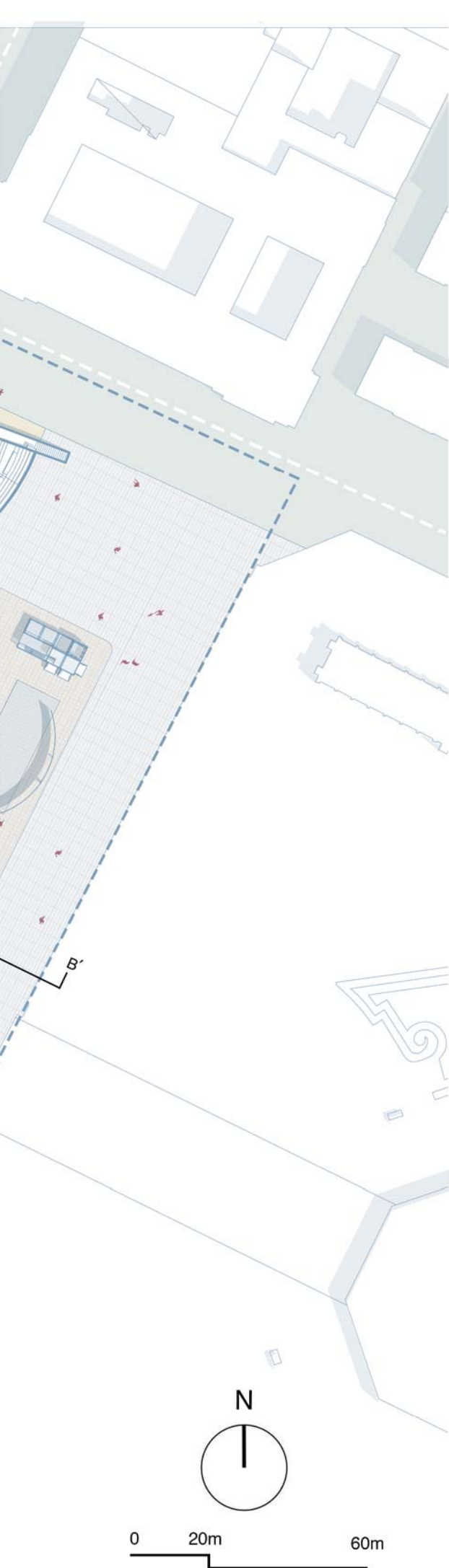
6

5

2

A





## Legend

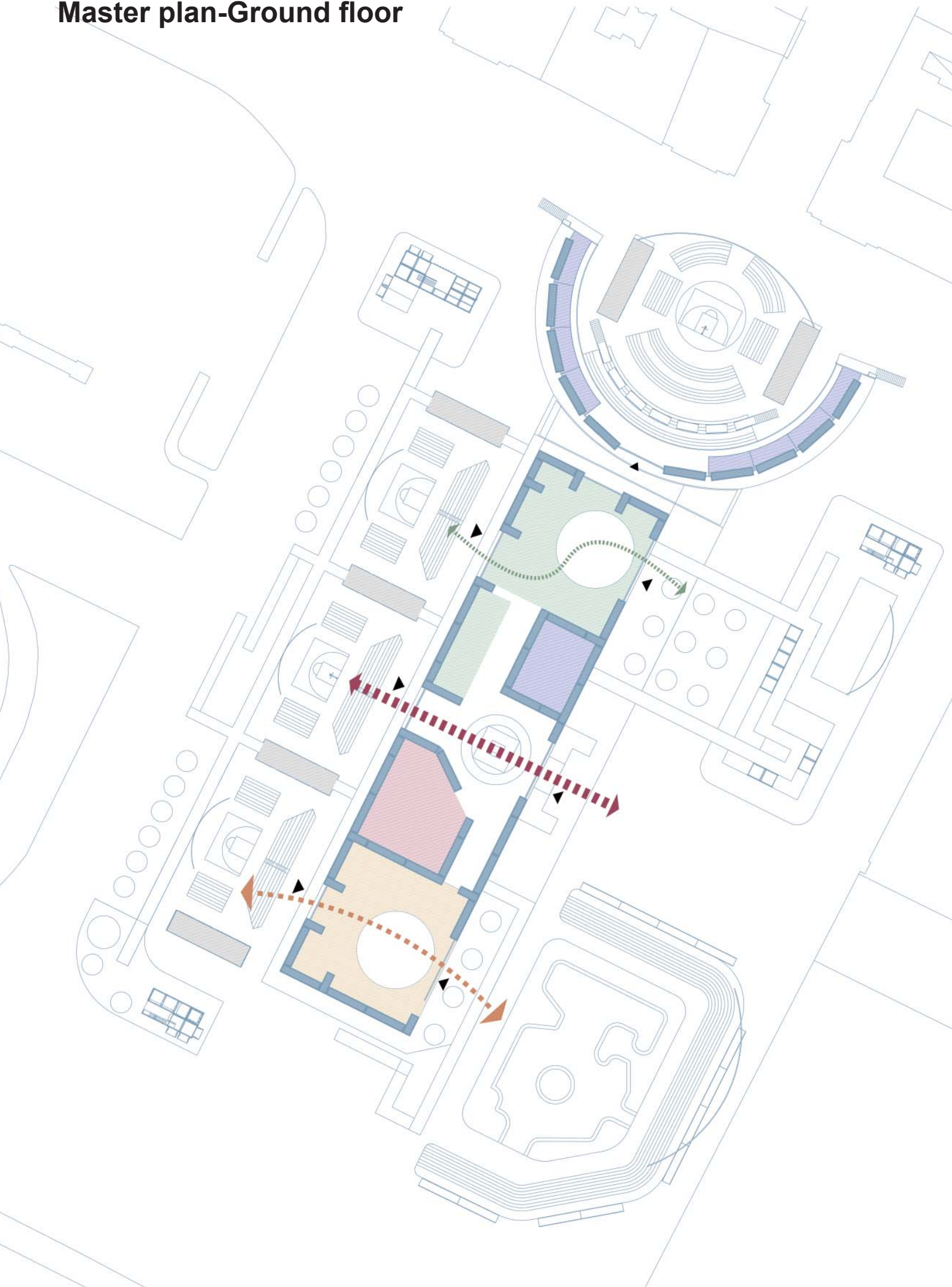
- ① 3X3 basketball court
- ② Skateboarding court
- ③ Breaking dance court
- ④ Basketball finals court
- ⑤ BMX court
- ⑥ Public plaza
- ⑦ Temporary complex



## Master plan



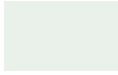





It divides into 2 main parts: the ticket zone and the public zone, as illustrated. The ticket zone is for the visitors who have the tickets. It would be made of the cartoon tubes and offer the perfect view. The public zone is the giant ship container construction, which is surrounded the existing heritage. The roof of this building is open to everyone. They can watch the game freely. The first floor of this building is consisting of the athlete services, museum, the retails. Eventually, it could become a perfect place for athletes, visitors and the citizens.

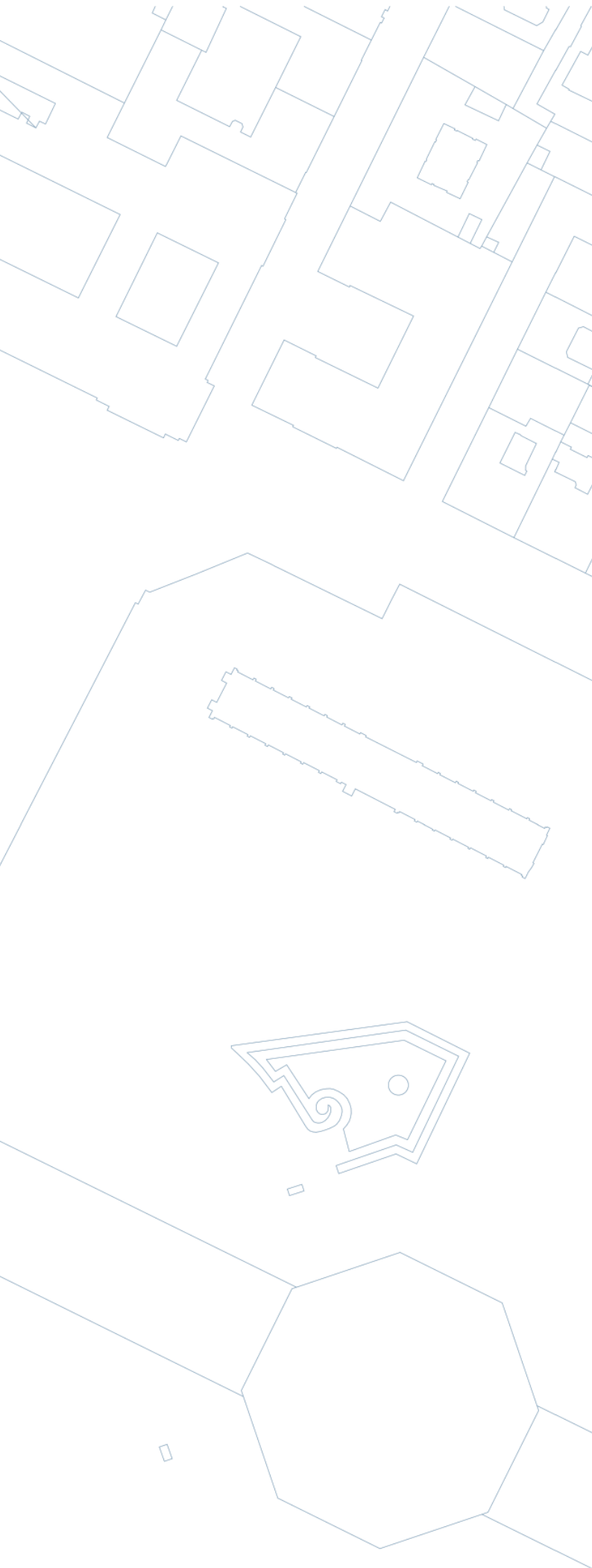
# Master plan-Ground floor





# Legend

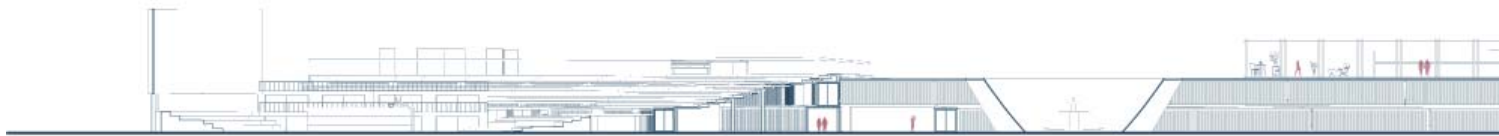
-  Storages
-  Retails
-  Multi-functional places
-  Athelets rest room
-  Museum
-  Athelets entrance
-  Audiance main entrance
-  Audiance second entrance



# Section A-A'

Ticket zone

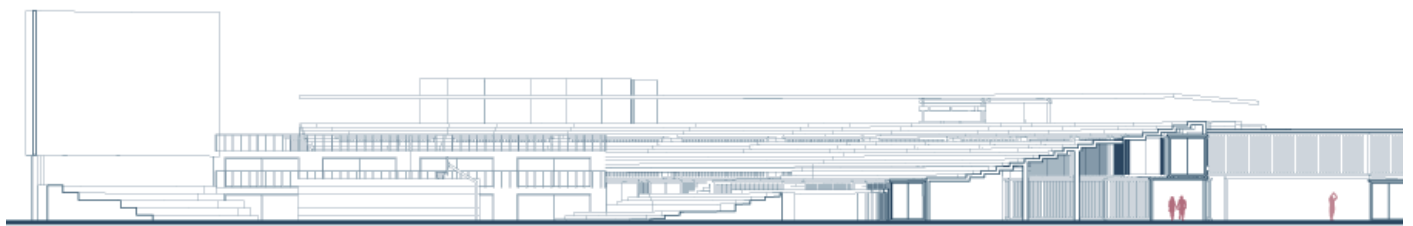
Public zone



0 4 12

Museum

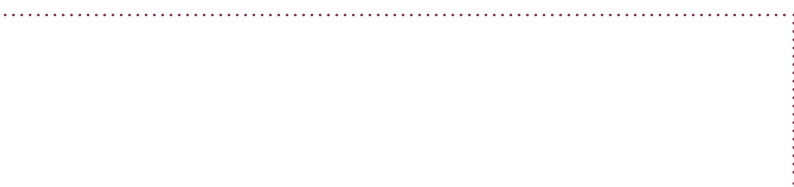
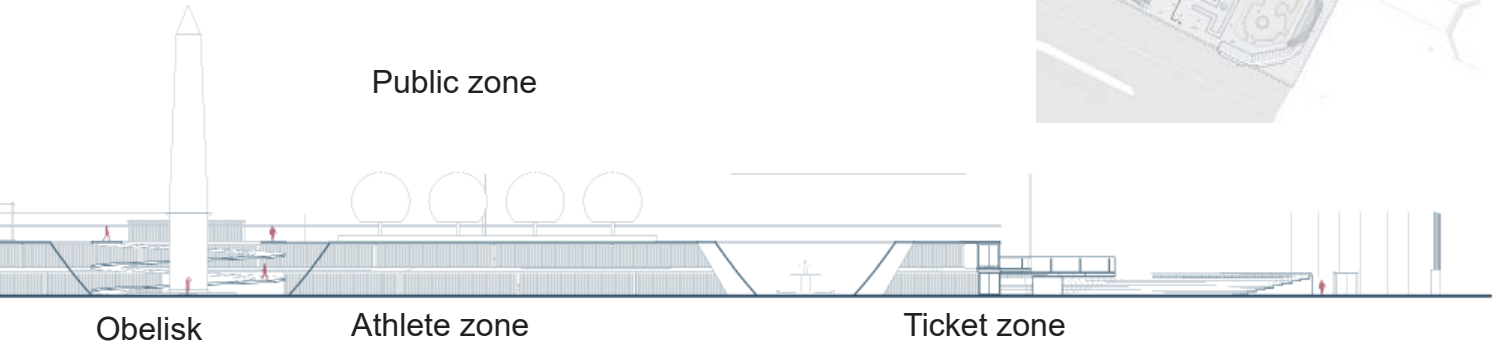
Retails



0 4m 12m

Ticket zone

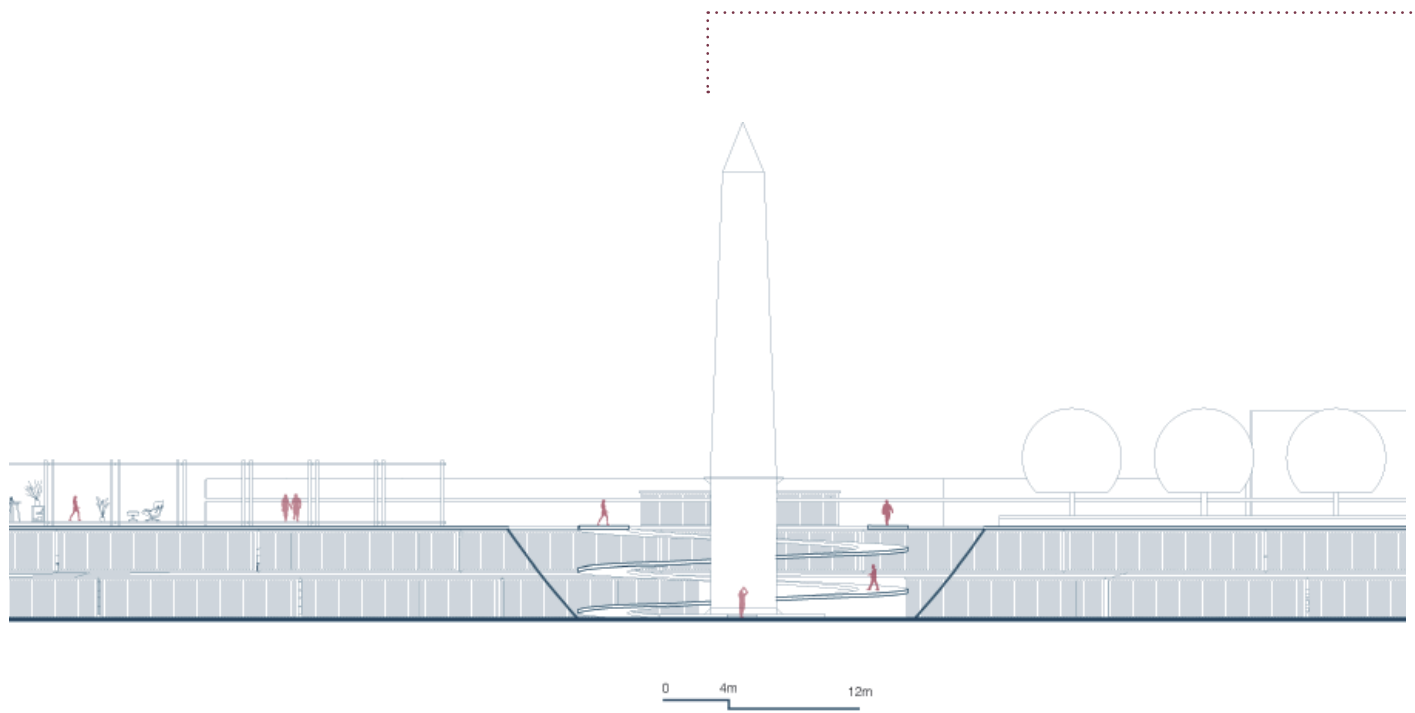
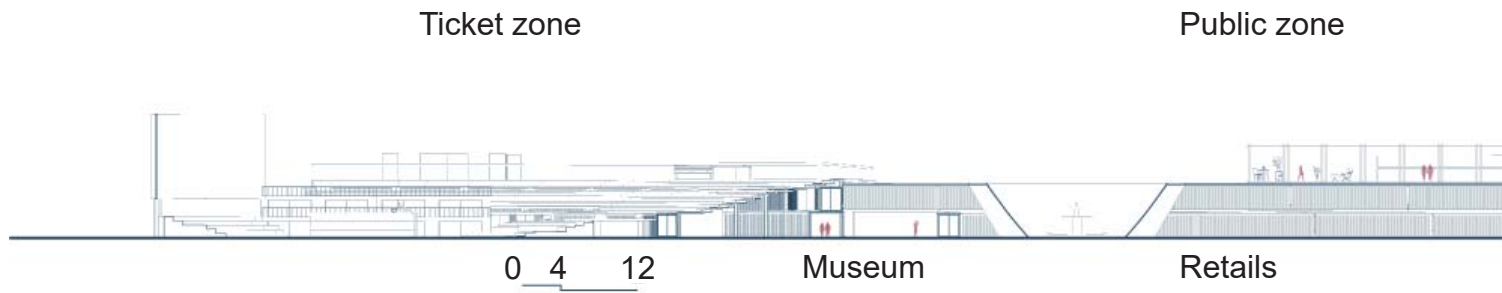




0 4m 12m

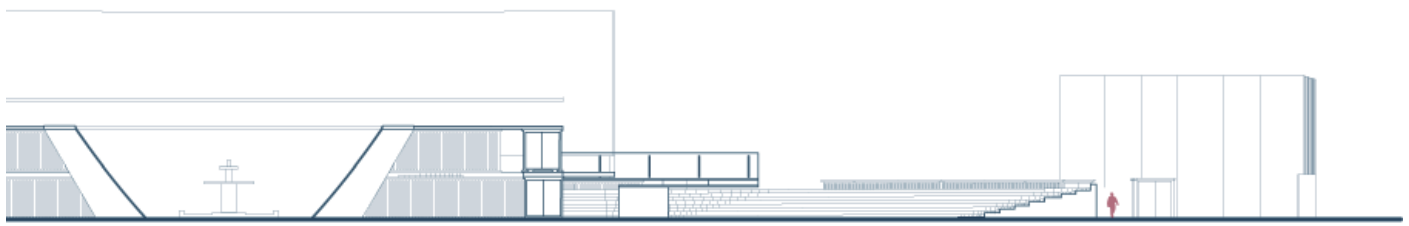
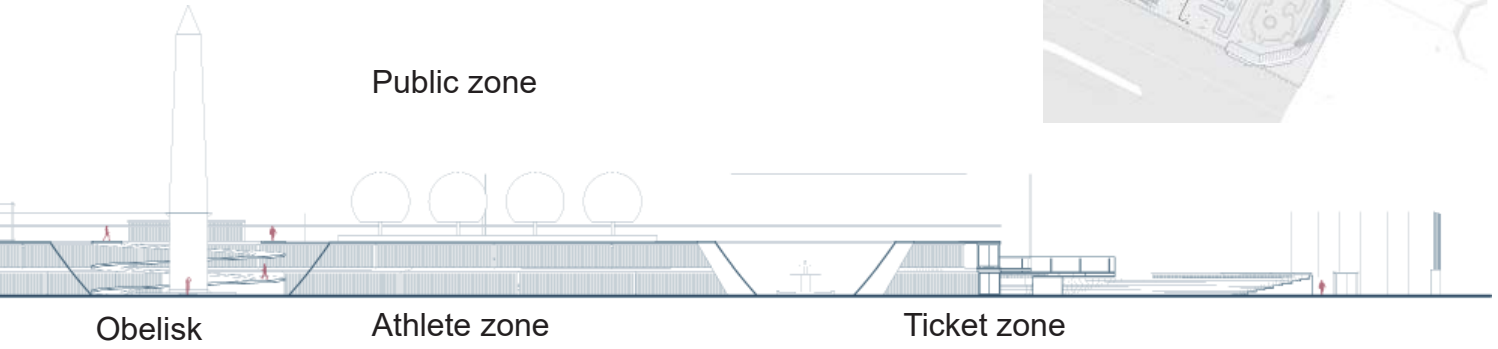
Museum

# Section A-A'



Obelisk



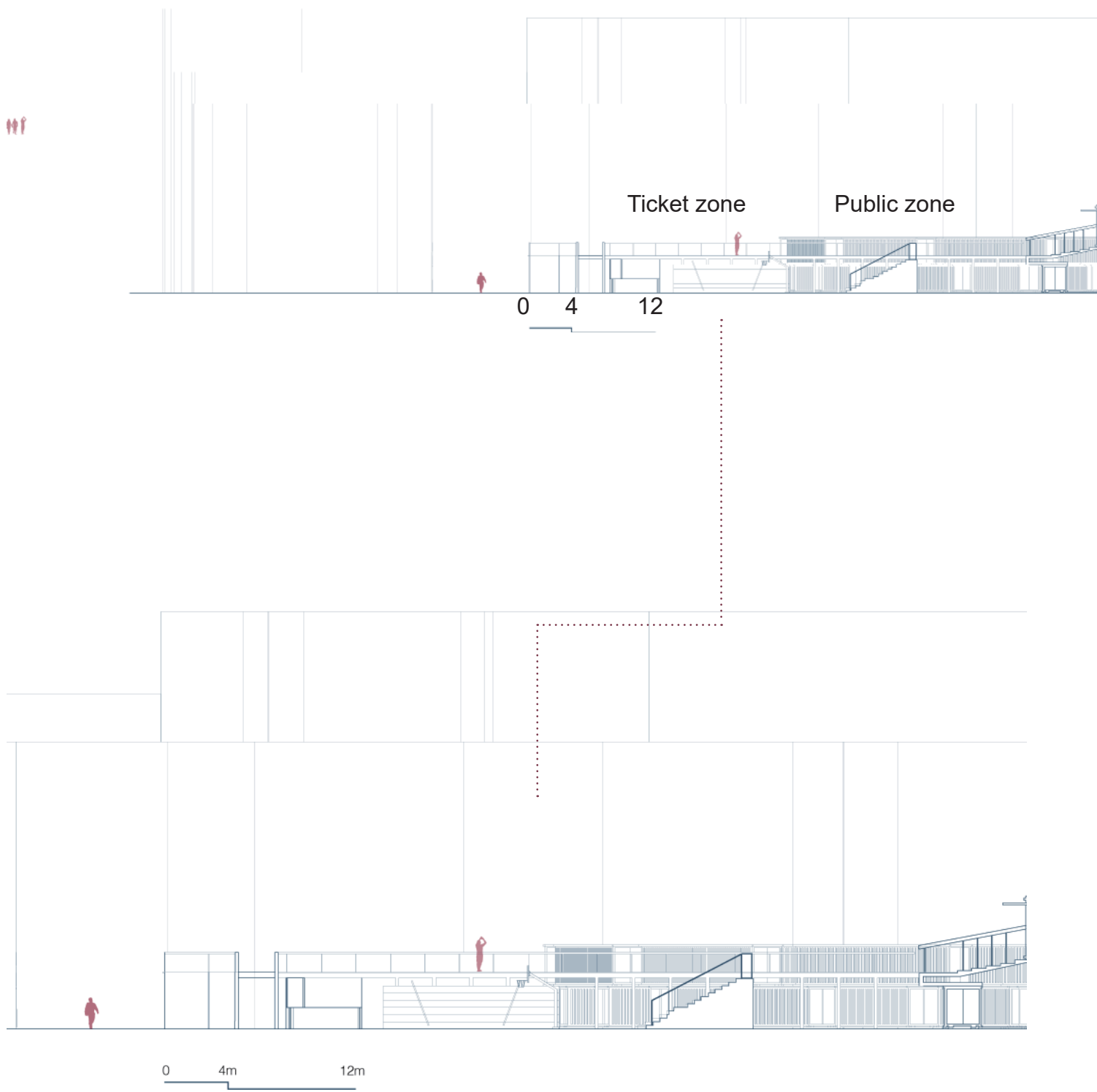


0 4m 12m

Athlete zone

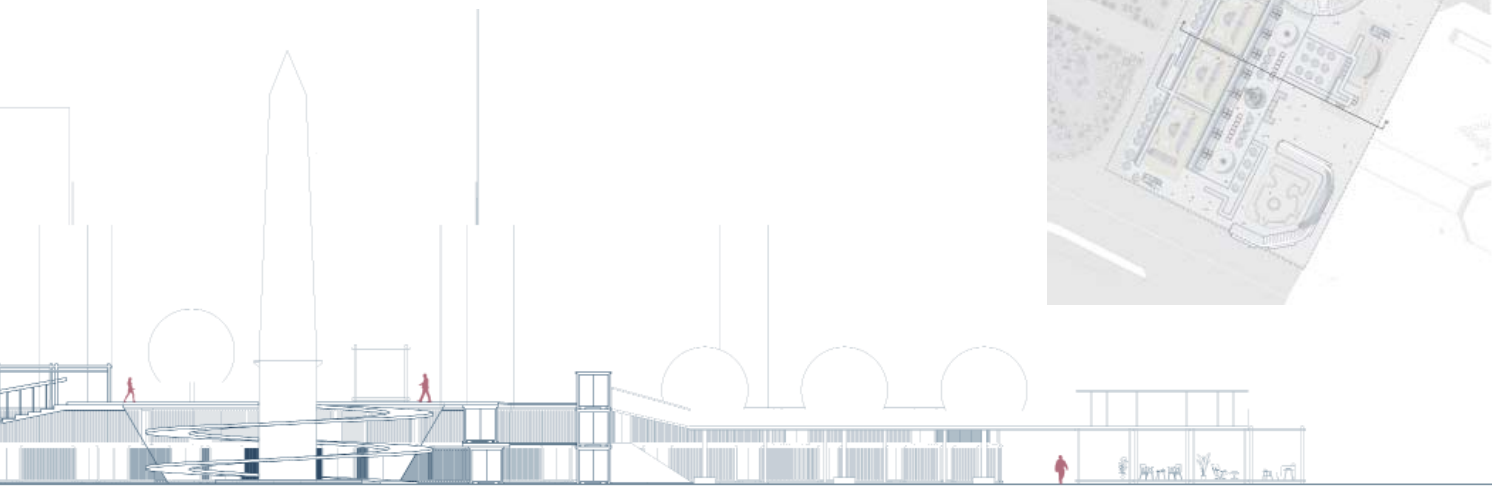
Ticket zone

# Section B-B'



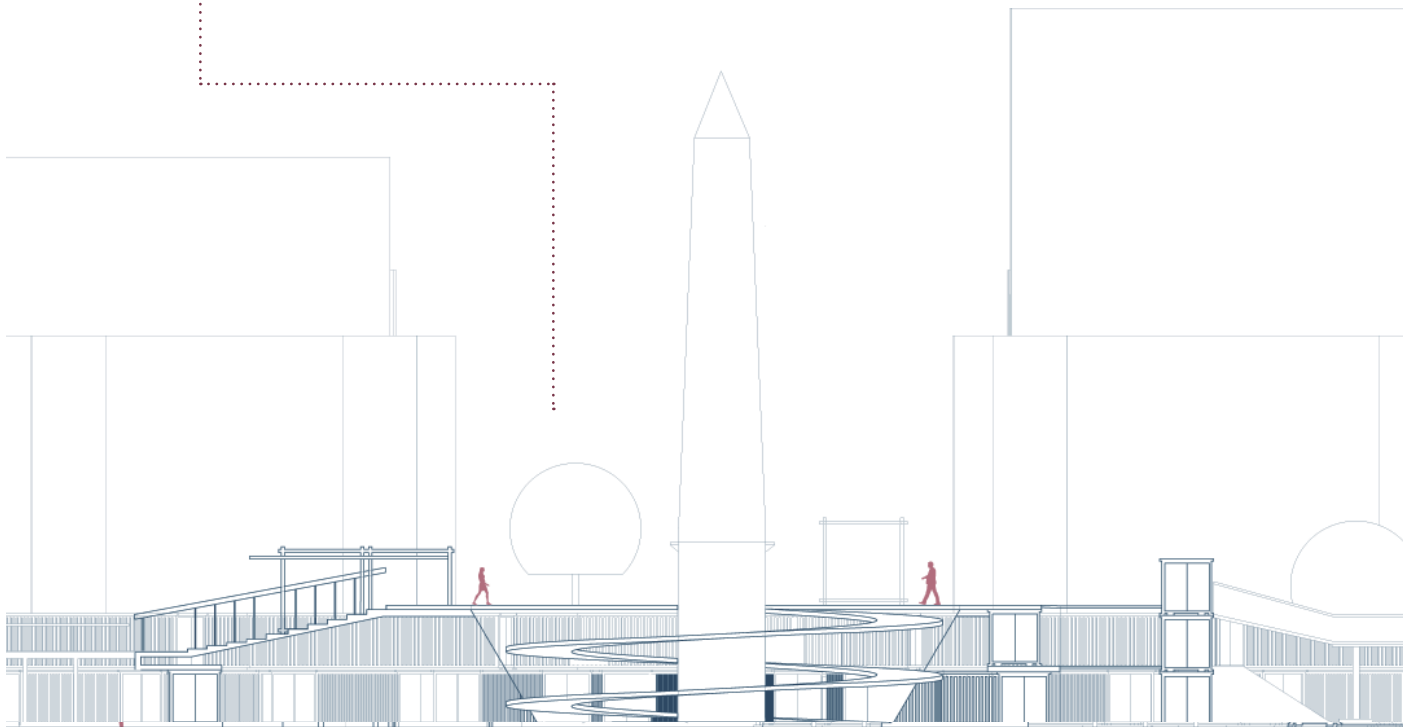
Ticket zone





Museum

Public zone

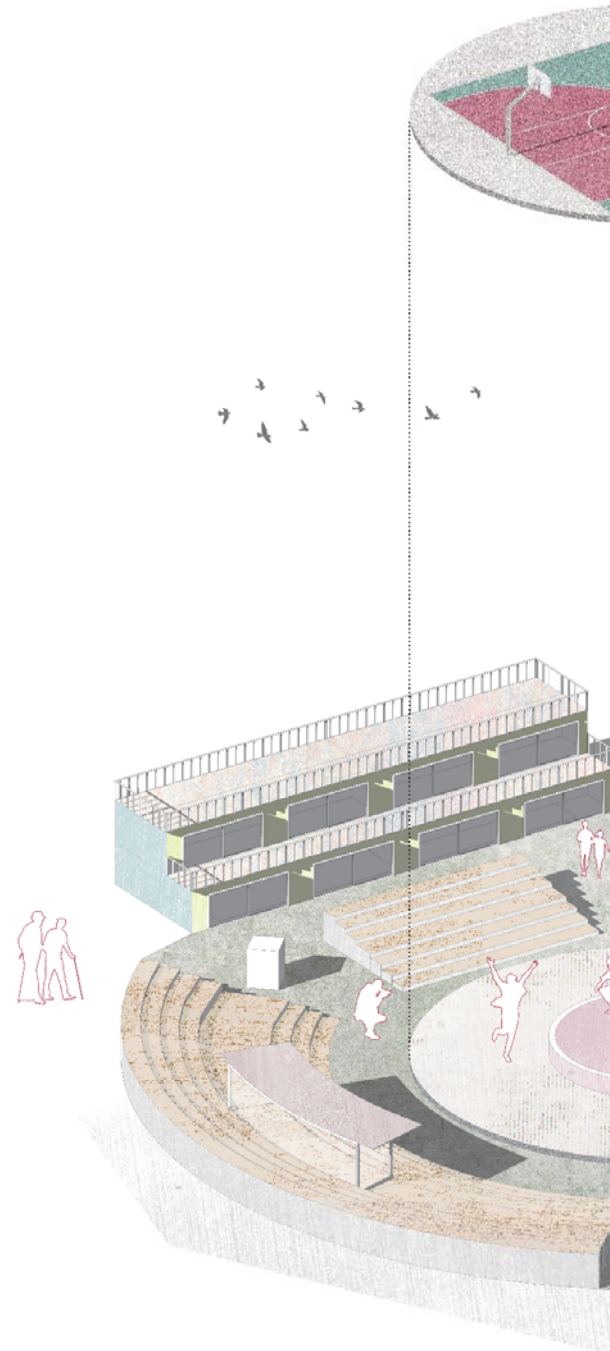


0 4m 12m

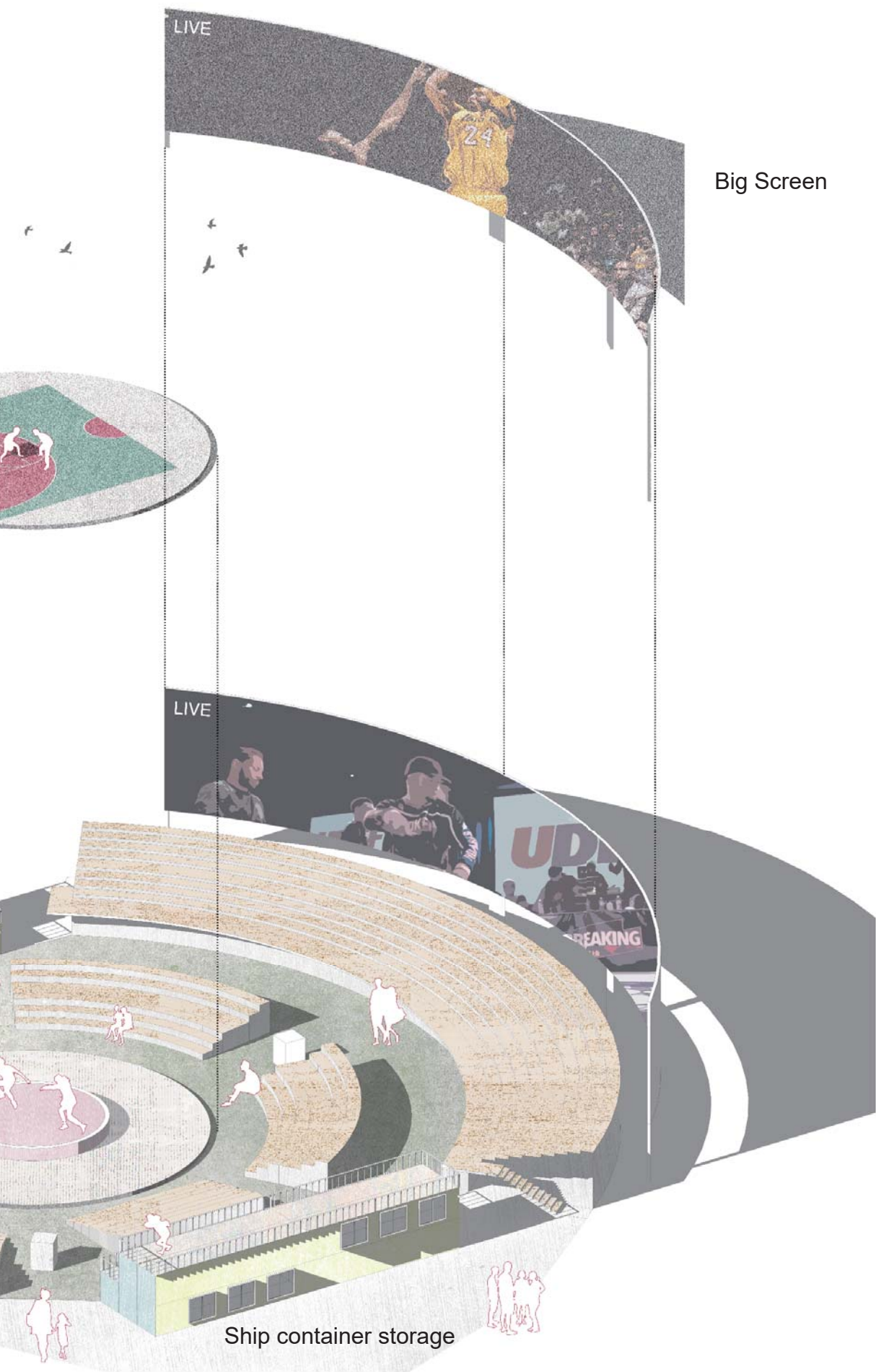
Museum

## Multi-functional fields

According to the features of the sports, the temporary venue would be designed as flexible as it could be. In our proposal the final 3X3 Basketball games would share the final stage with the Breaking dance finals, as illustrated. To be mentioned, the relevant equipment would be stored in the ship containers besides the court, in order to transform quickly.





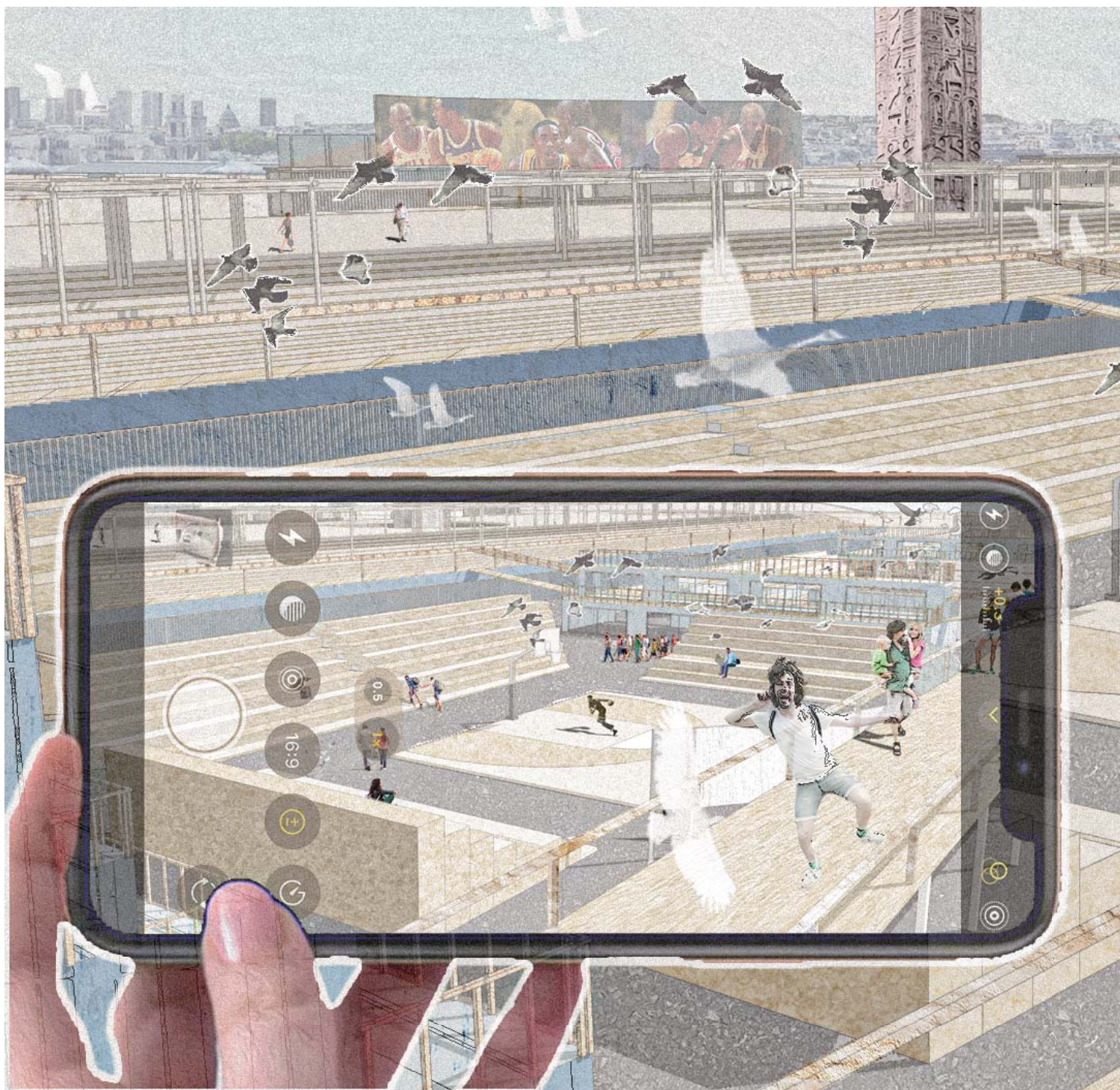


Big Screen

Ship container storage



# Perspective view from stands of temporary stadium in Place de la Concorde





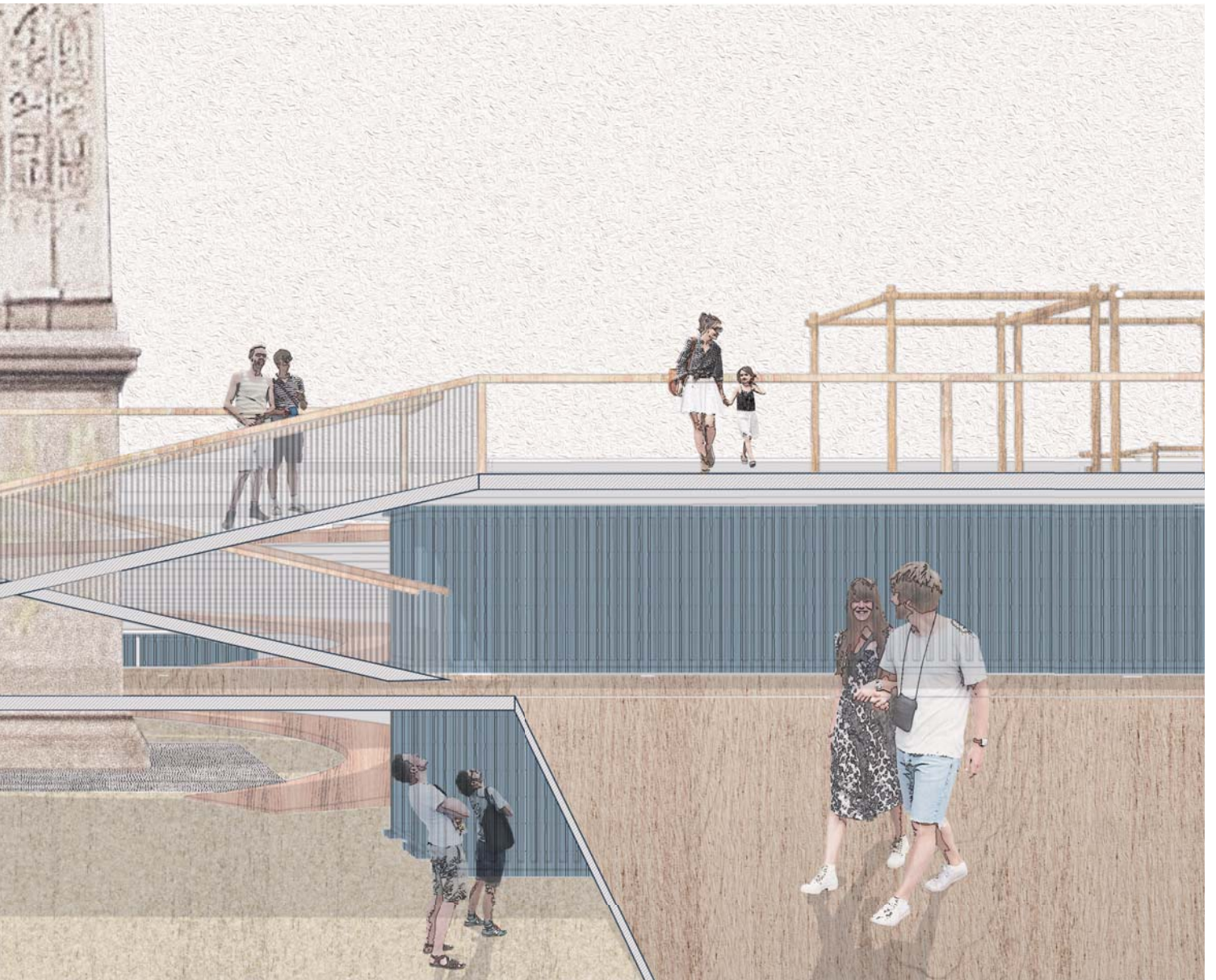




# Perspective view of main entrance of Place de la Concorde







## 5.2.2 The temporary proposal for the courtyard of the city hall

The Hôtel de Ville de Paris has been the seat of the Paris City Council since 1357. The current building, with a neo-renaissance style, was built by architects Théodore Ballu and Edouard Deperthes on the site of the former Hôtel de Ville which burnt down during the Paris Commune in 1871. The courtyard is one of the most popular open spaces in Paris, which is always occupied by different kinds of activities temporarily.

In our proposal is to take advantage of the carton tube to build a cube, which is multi-functional and flexible. Based on the carton cube, we construct temporary buildings which could be multi-functional as a café, a bar, a workshop and so on. Meanwhile, there are some open spaces for kids to play games, for people to experience sports and watch the games. it would be the good place for ordinary citizens and sports fans to visit during the Olympics.

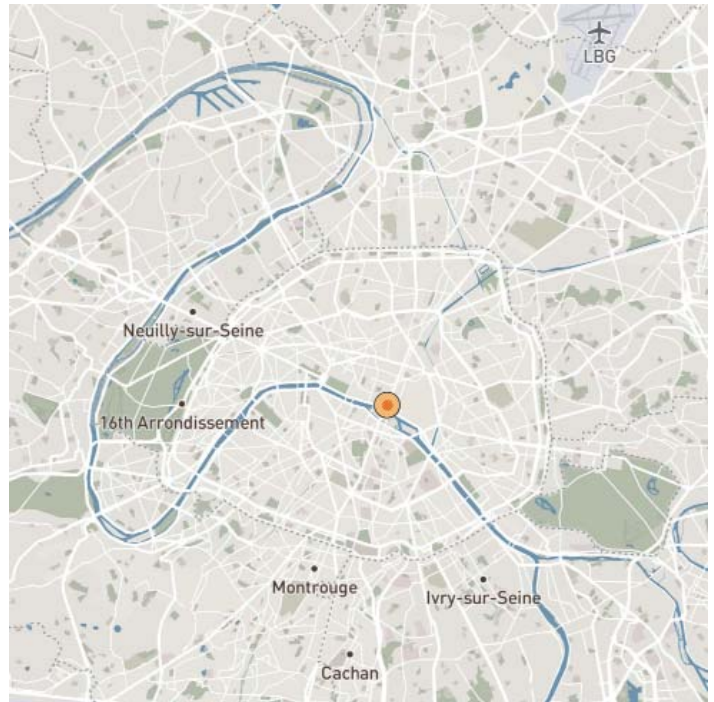


Figure 108: The location of courtyard of the city hall of Paris (Source : The authors draw)



Figure 109: Nighttime view of the Hotel de Ville (Source : <https://www.parisinsidersguide.com/hotel-de-ville-paris.html>)

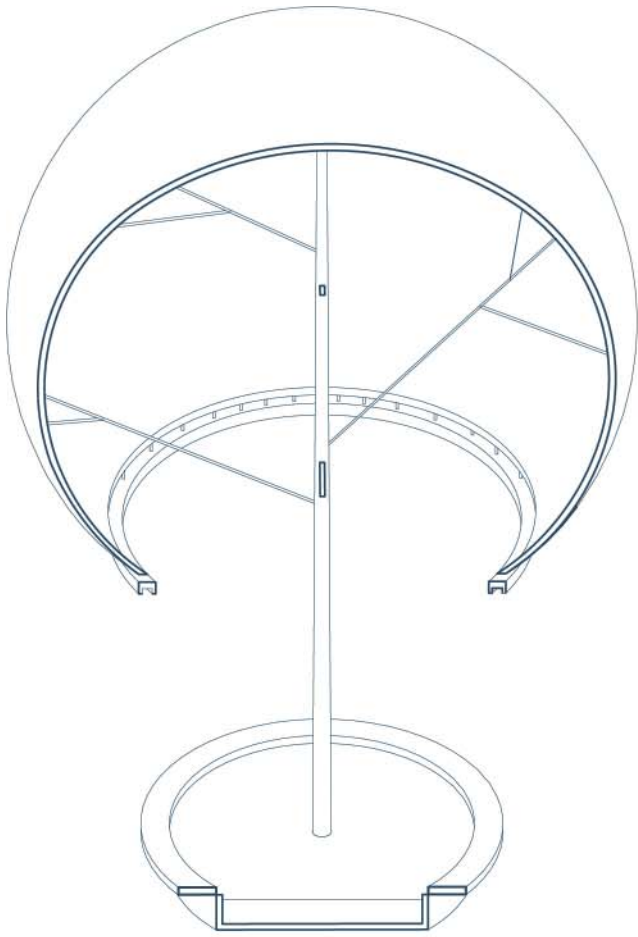




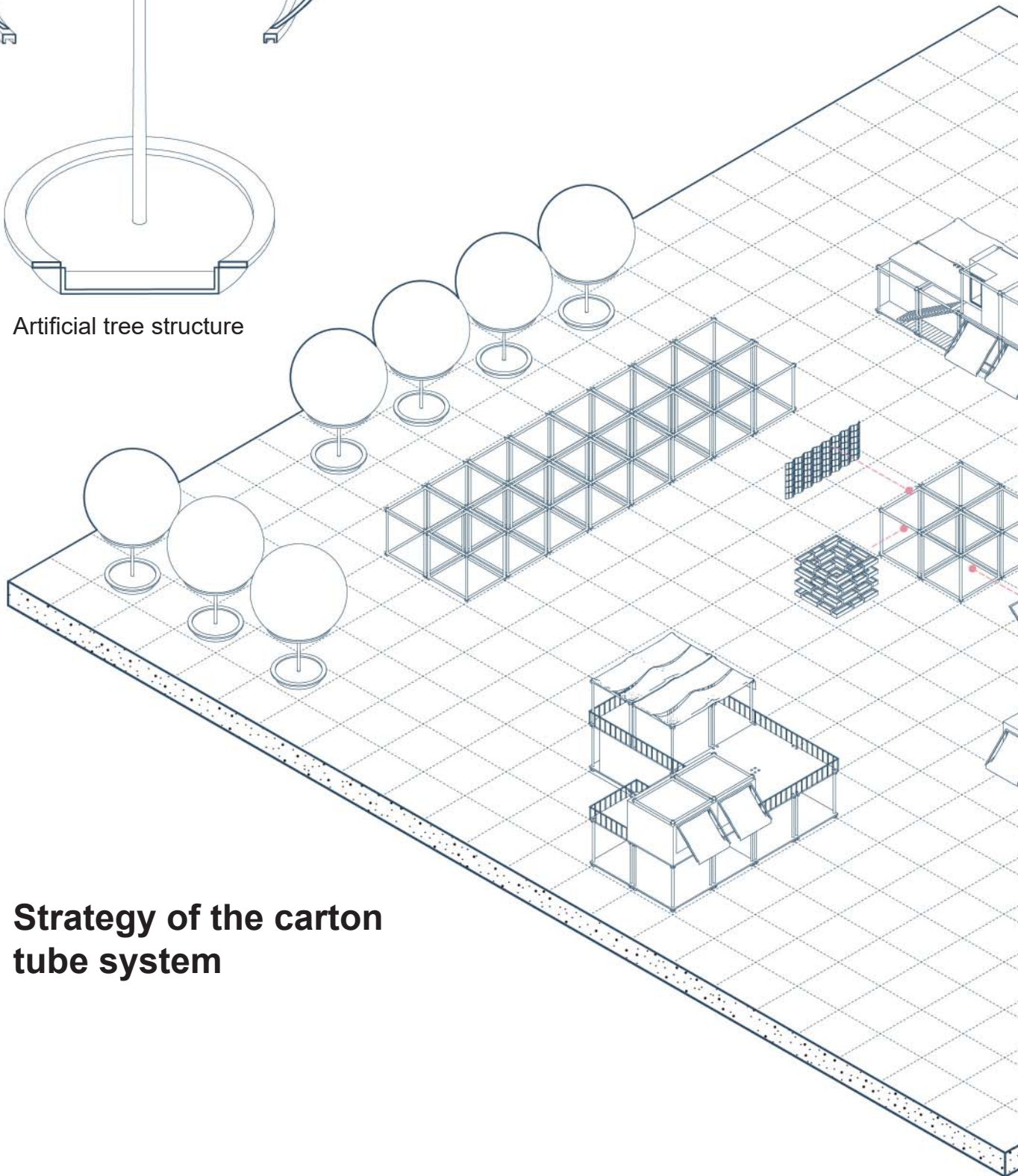
Figure 110: Skating rink at the parvis de l'Hôtel de Ville (Source : <https://www.parisinsidersguide.com/hotel-de-ville-paris.html>)



Figure 111: Hotel de Ville following the fire of 1871 (Source : <https://www.parisinsidersguide.com/hotel-de-ville-paris.html>)

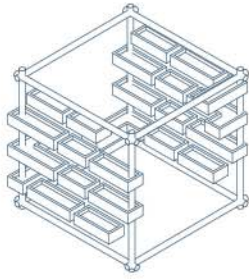


Artificial tree structure

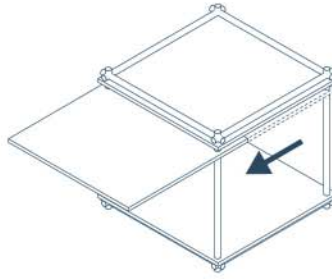


**Strategy of the carton tube system**

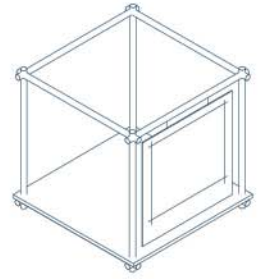




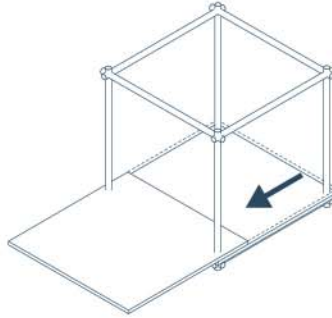
Vertical green



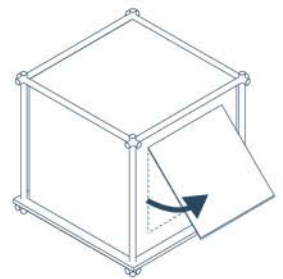
Shield



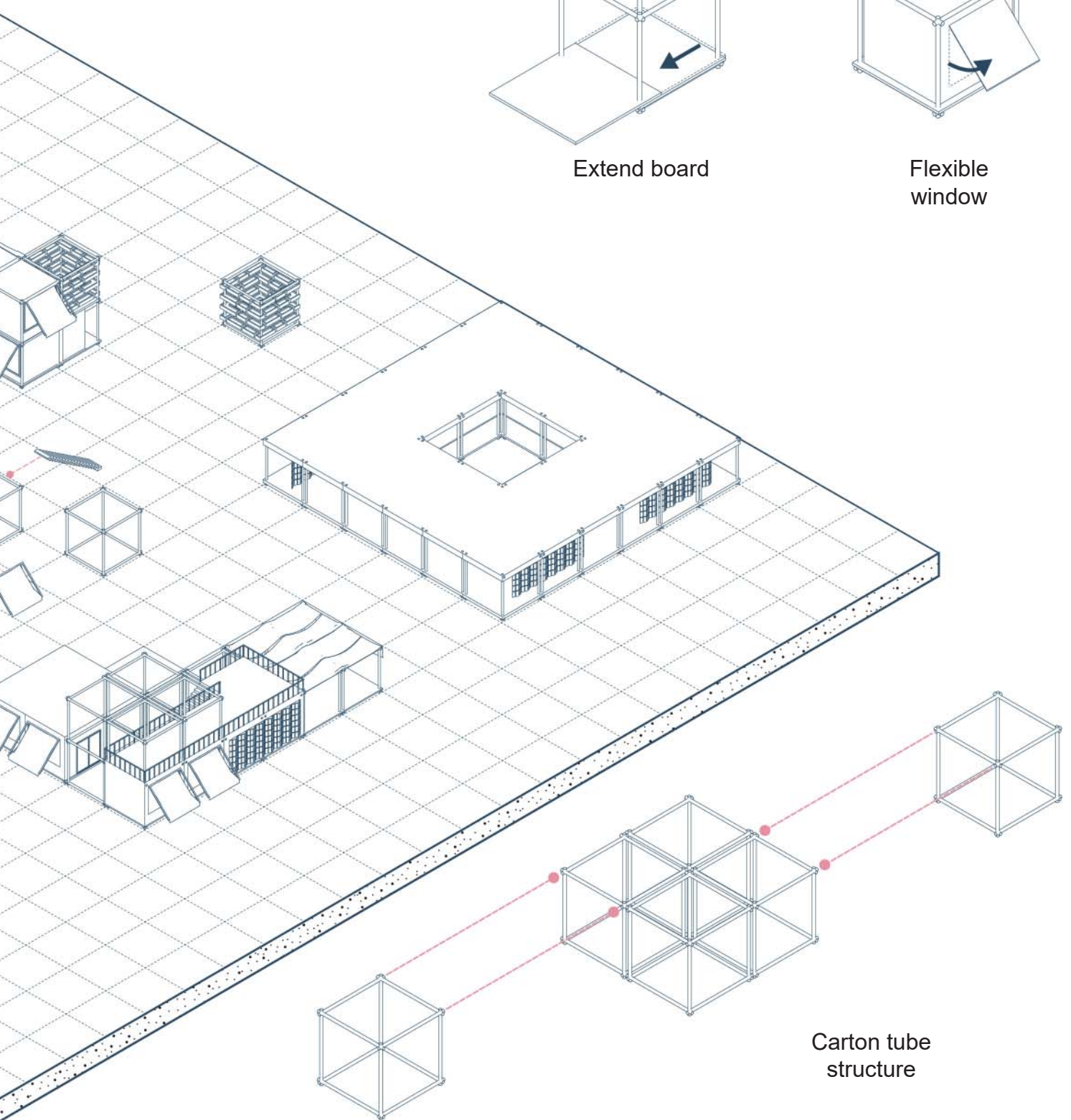
Projector screen



Extend board

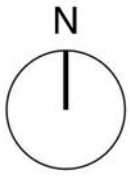


Flexible window



Carton tube structure

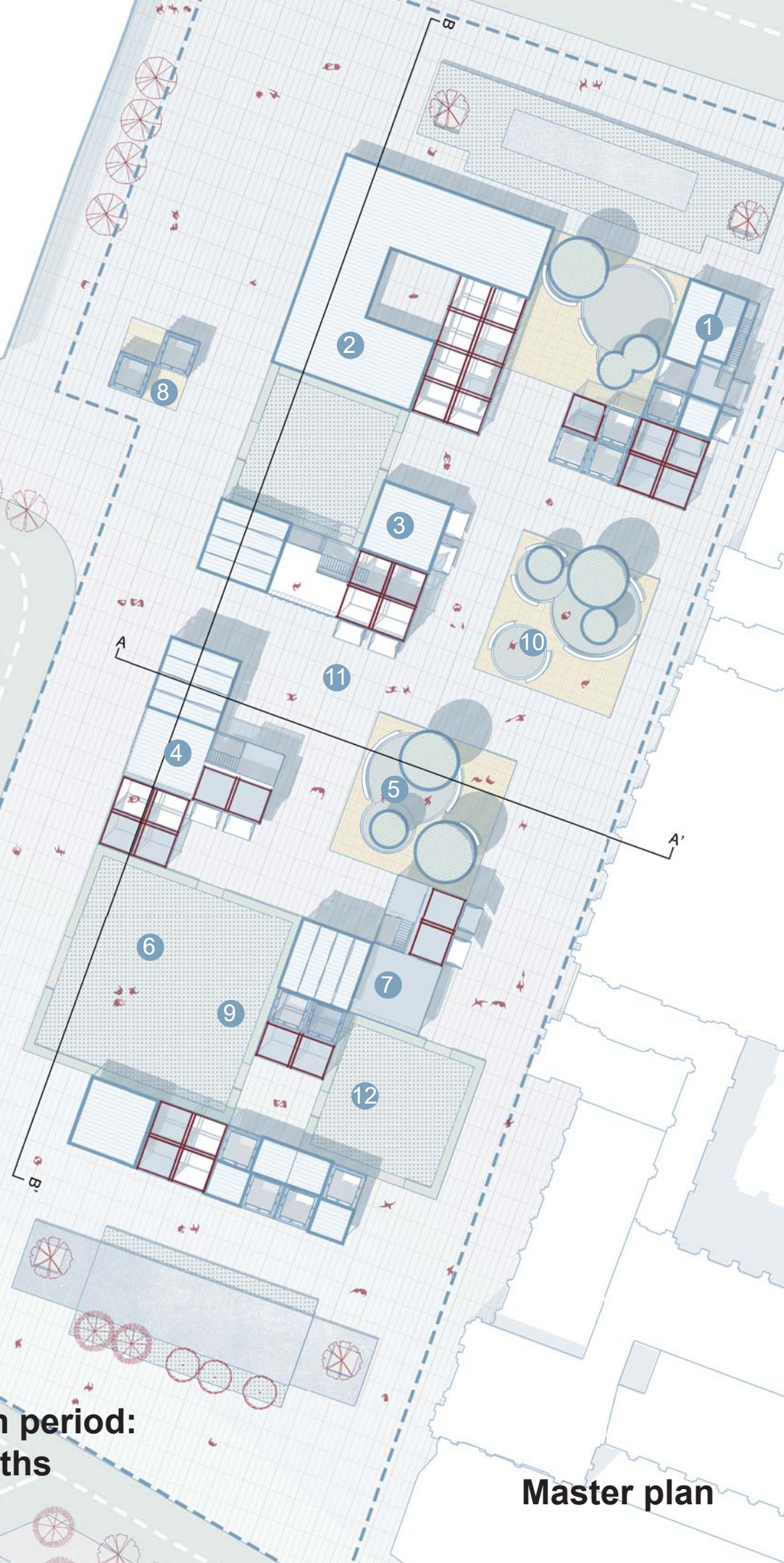




0 8m 24m

# Legend

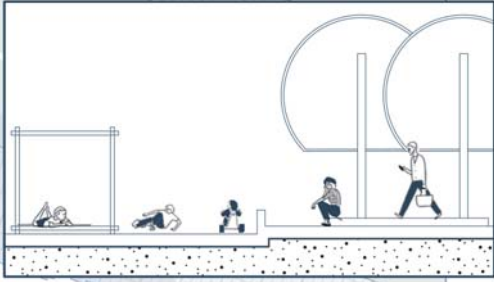
- 1 Bar
- 2 Workshop
- 3 Cafe
- 4 Retails
- 5 Play ground
- 6 Sports field
- 7 Restaurant
- 8 Vertical green
- 9 Watch game
- 10 Bunker
- 11 Plaza
- 12 Dance floor



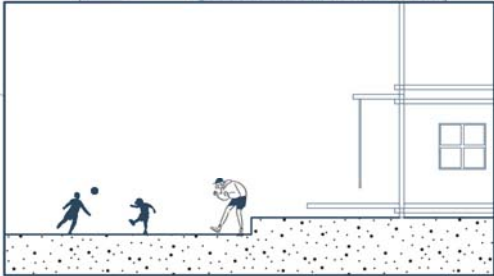
**Duration period:**  
6-9 months

**Master plan**

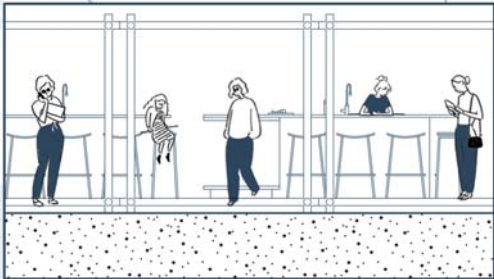




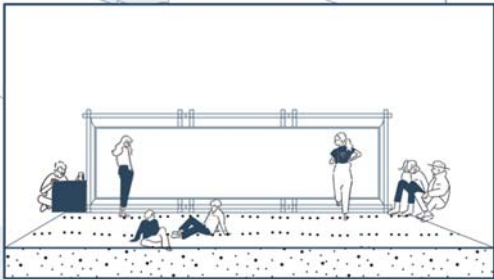
Play ground



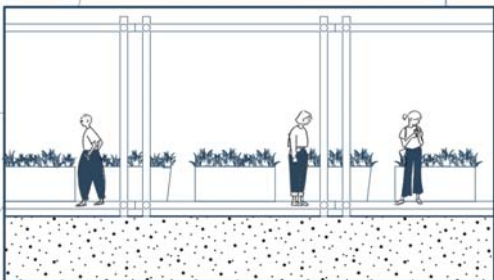
Sports field



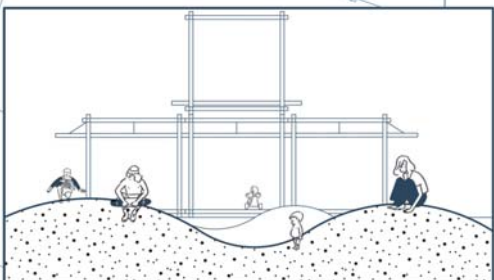
Workshop



Watch games



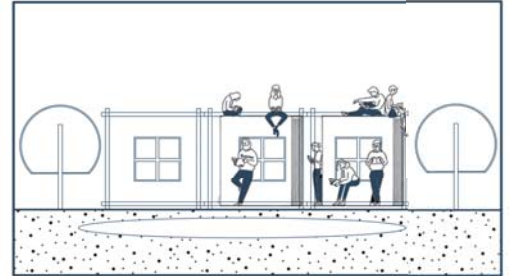
Vertical green



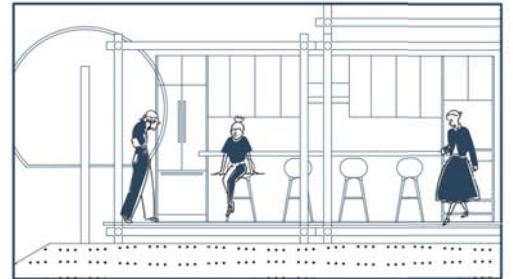
Bunker



Bar



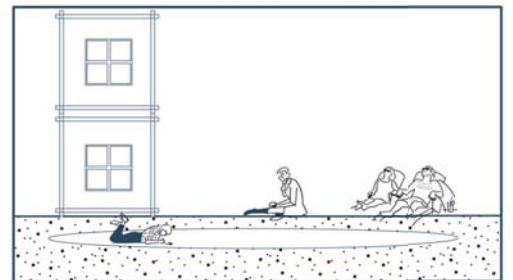
Plaza



Cafe



Restaurant

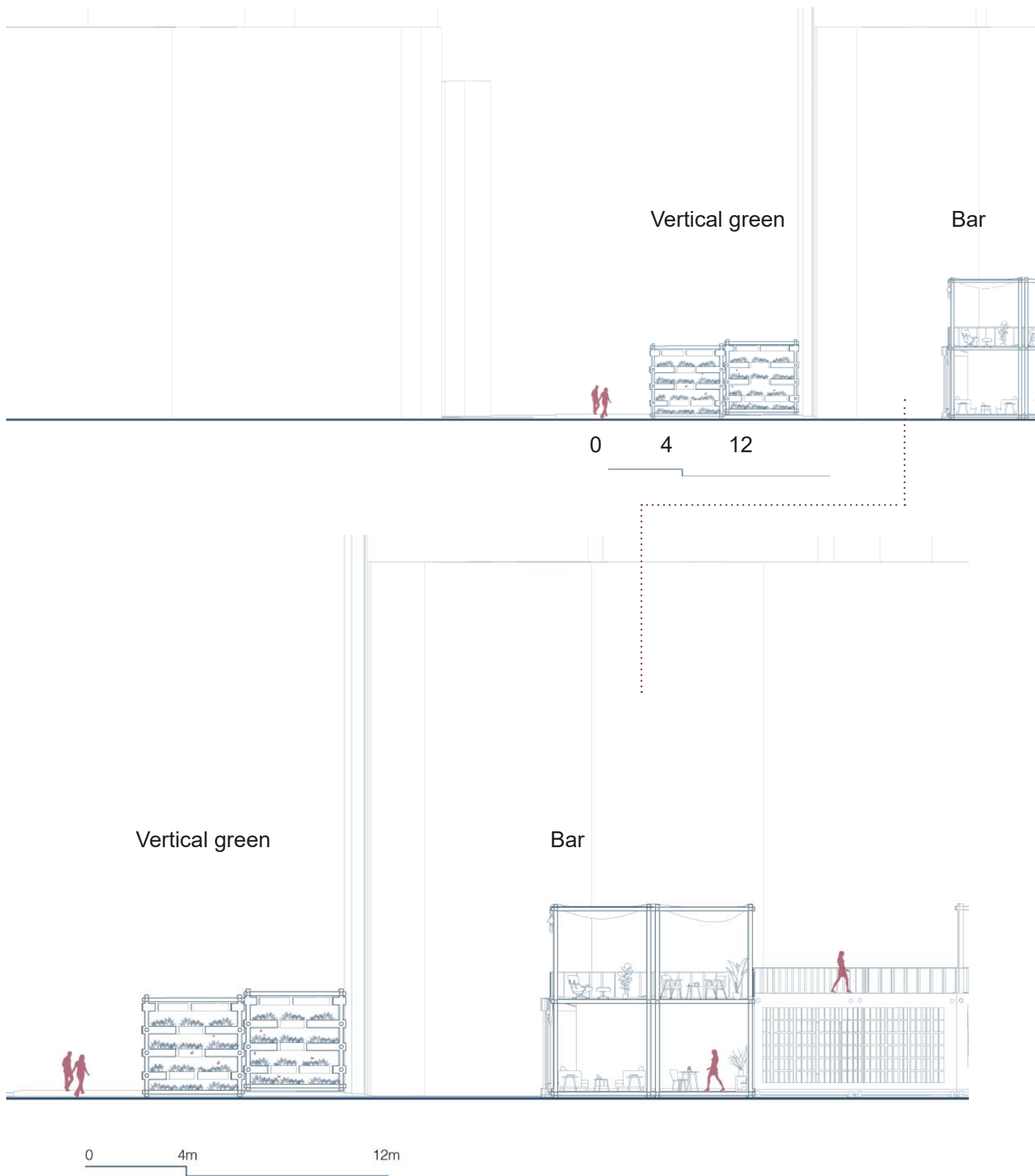


Sunshine

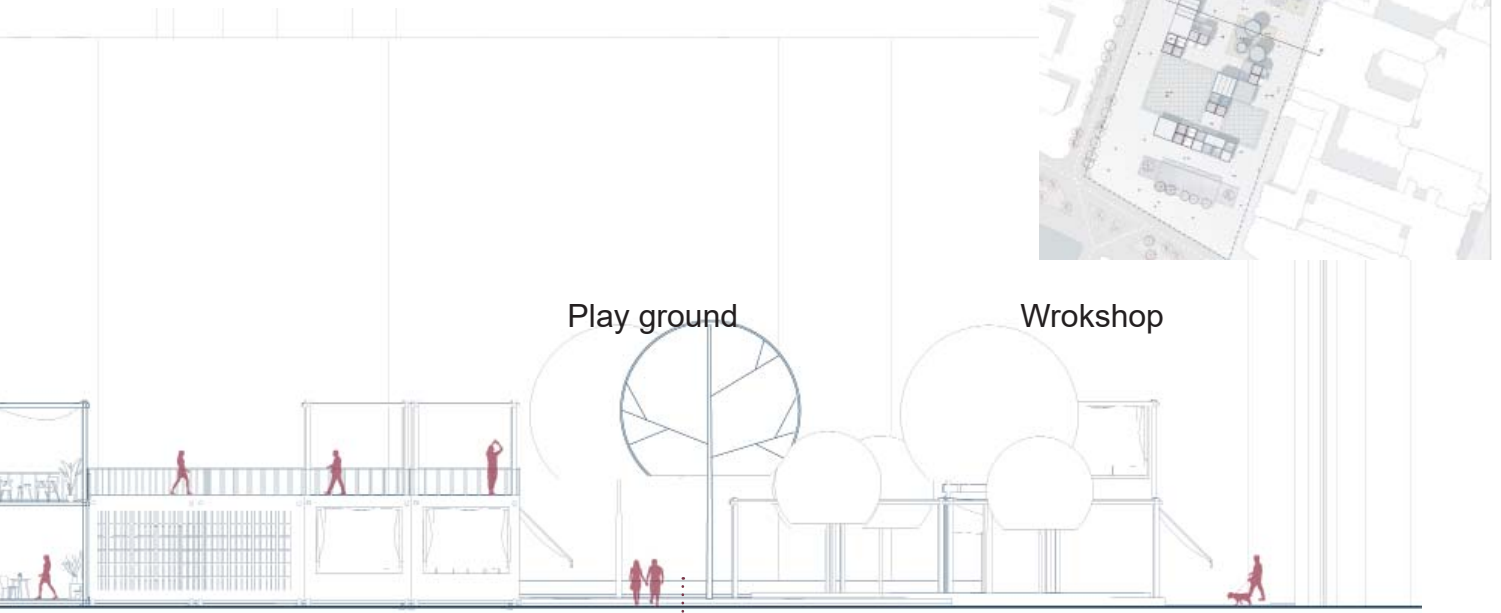


Dance floor

# Section A-A'

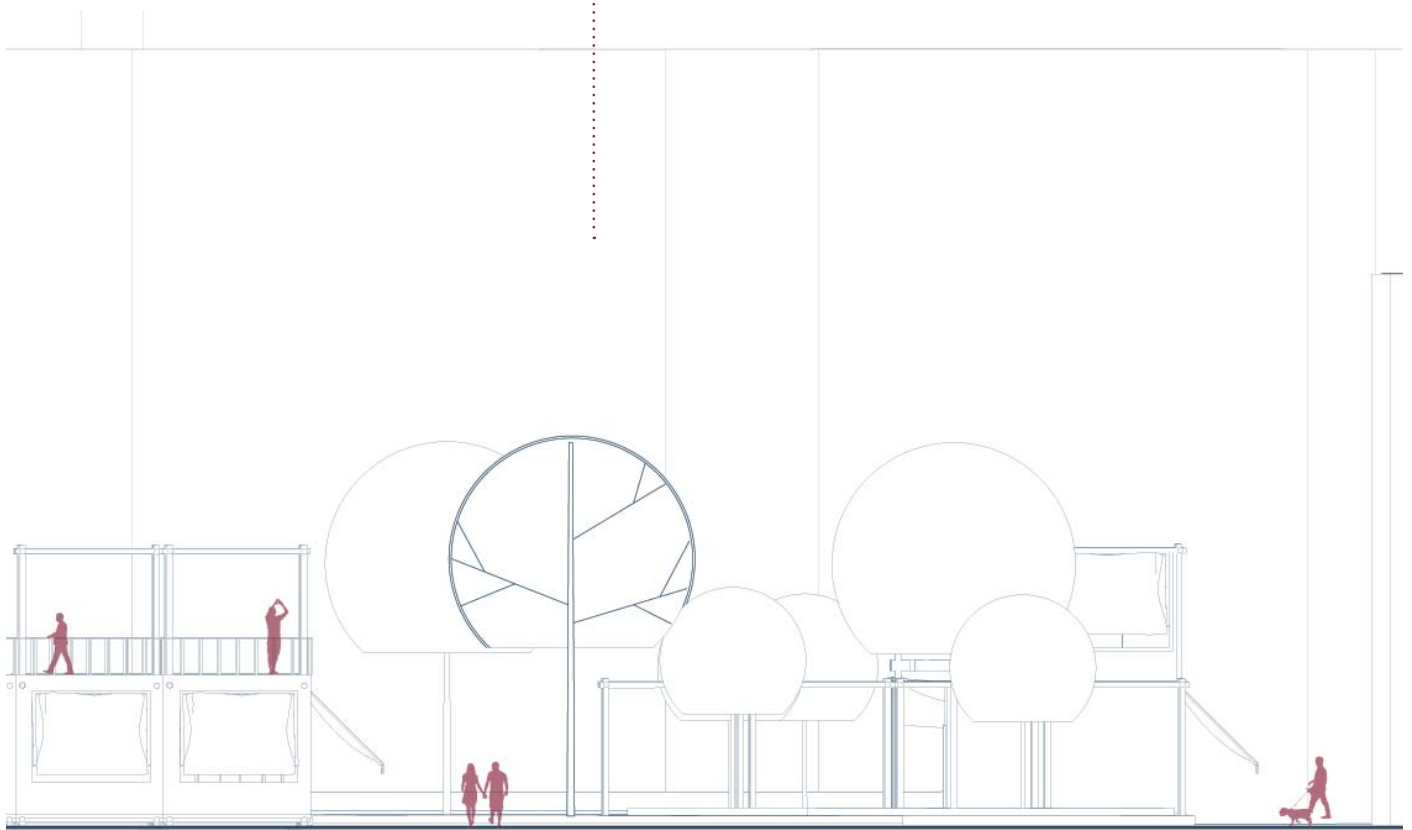






Play ground

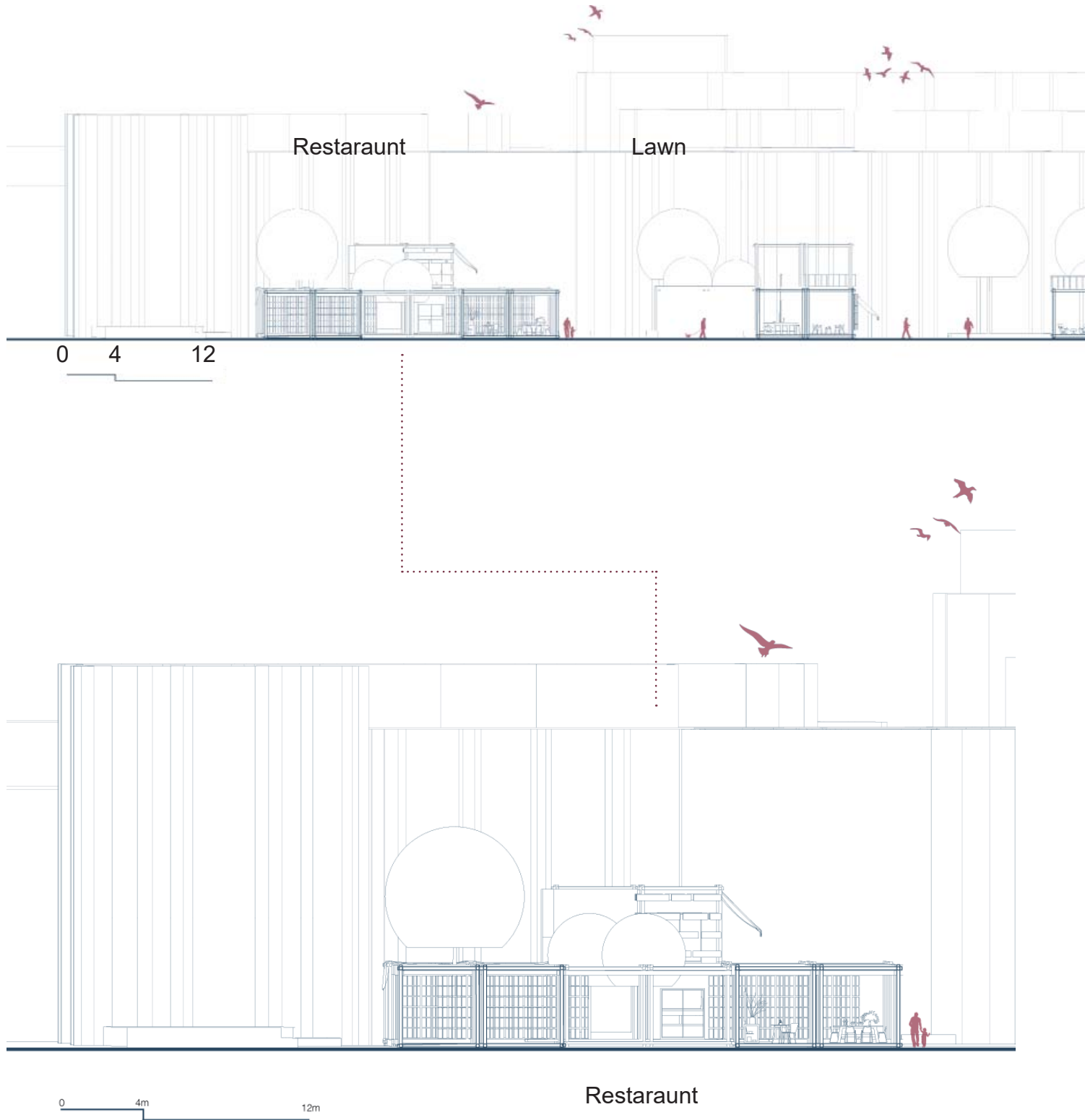
Wrokshop



Play ground

Wrokshop

# Section B-B'

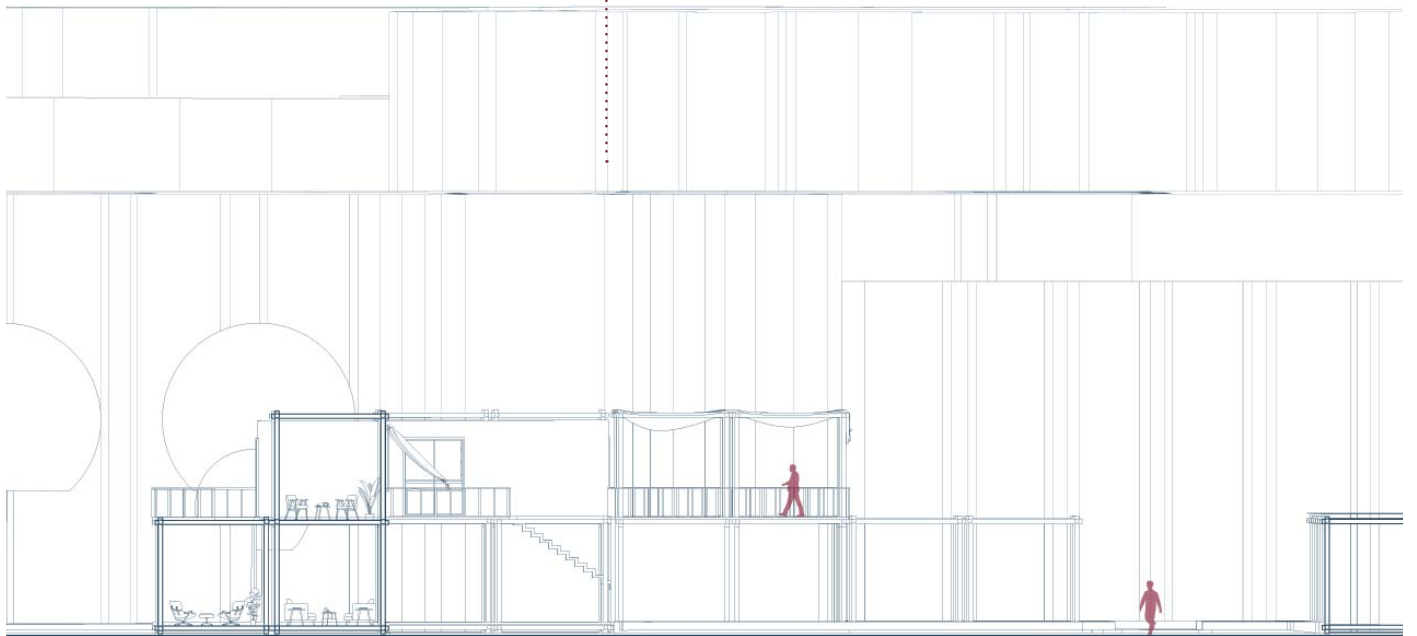
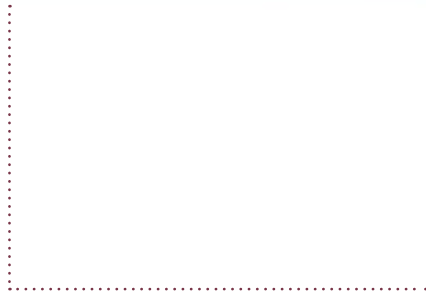






Complex

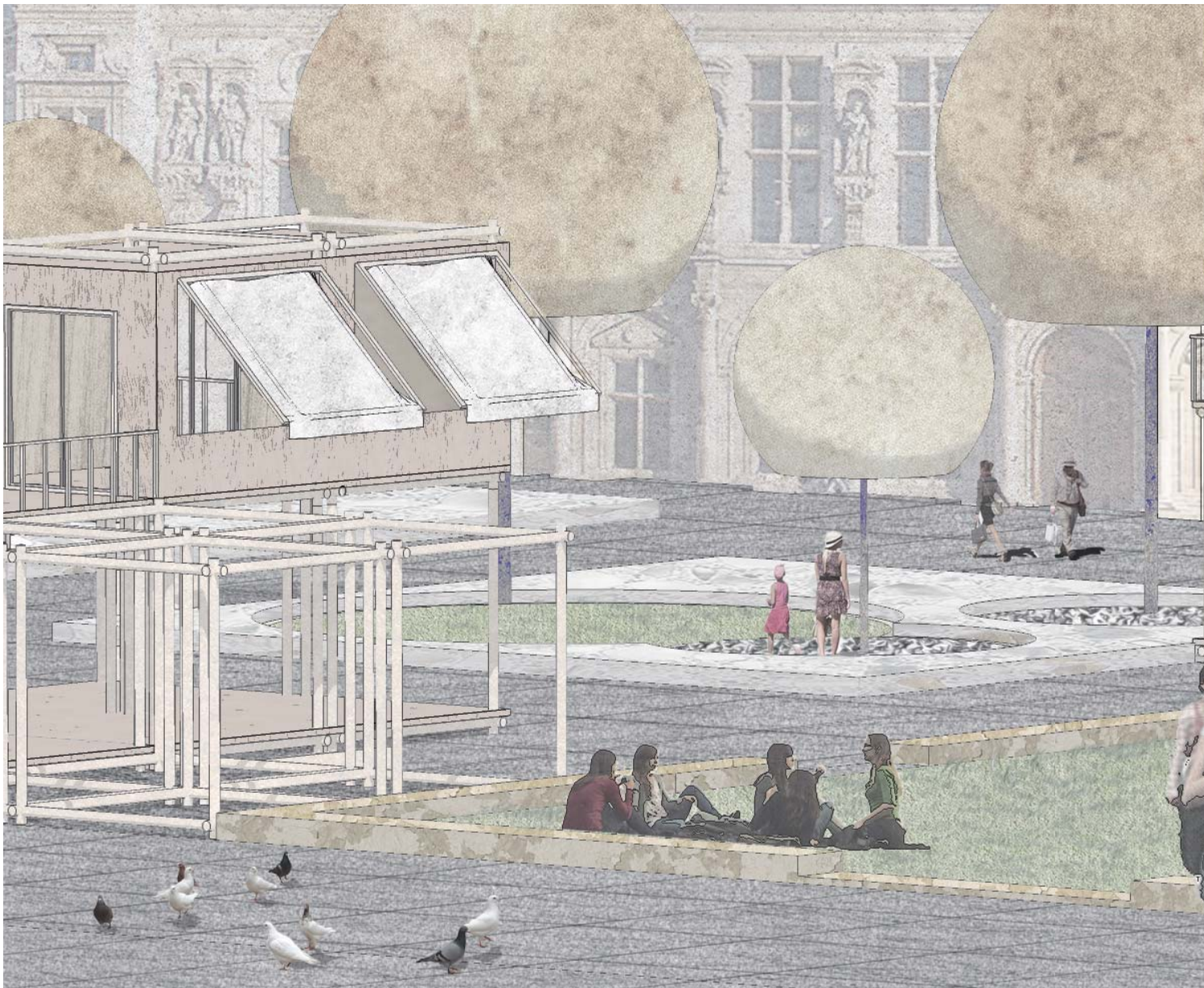
Playground



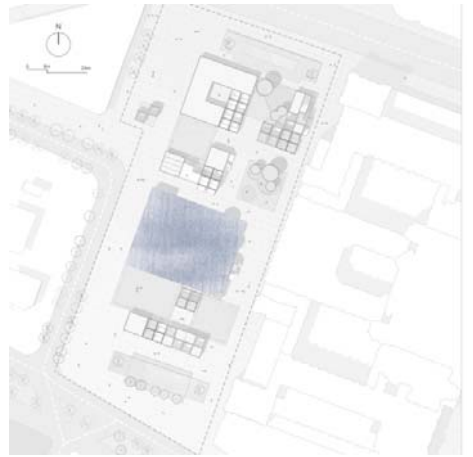
Cafe

Retails

# Perspective view the courtyard of the city hall





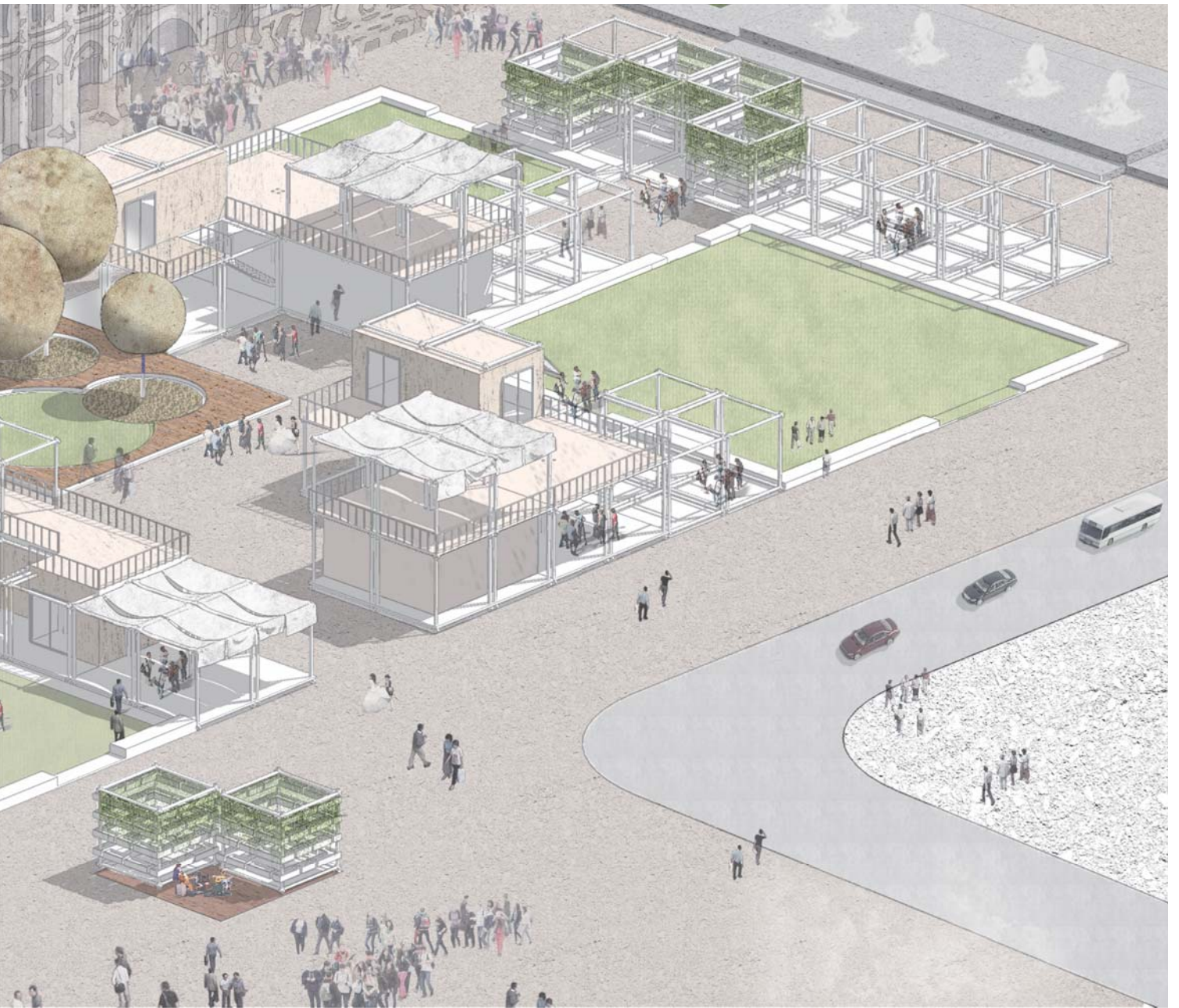




# Bird's eye view of the courtyard of the city hall









### 5.2.3 The temporary proposal for Pelouse de Reuilly

The lawn of Reuilly, with an area of approximately 10 hectares, is one of the remains of the International Colonial Exhibition which took place from May 6 to November 15, 1931. Situated at one end of the Bois de Vincennes and close to Daumesnil lake, the Pelouse de Reuilly is a huge area surrounded by trees. It hosts numerous public events throughout the year. The Reuilly lawn hosted the Fête de l'Humanité from 1966 to 1970 and the Fête des Bleu-blanc-rouge from 1993 to 2001, bringing together the various sensibilities of the extreme right around the National Front. The lawn hosts many political or associative events, including the famous Foire du Trône, every year since 1964, where the Paris festival is fun! since 2016. Similarly, at the end of the year, several circuses, such as the Pinder circus or the Arlette Gruss circus, set up to welcome the Parisian public. Since 2010, a free flight event (FFVL) has taken place in this space, Paris Plane. During this event, Boomerang and mountainboard kites are presented, as well as construction workshops for children and demonstrations of acrobatic kite ballets.

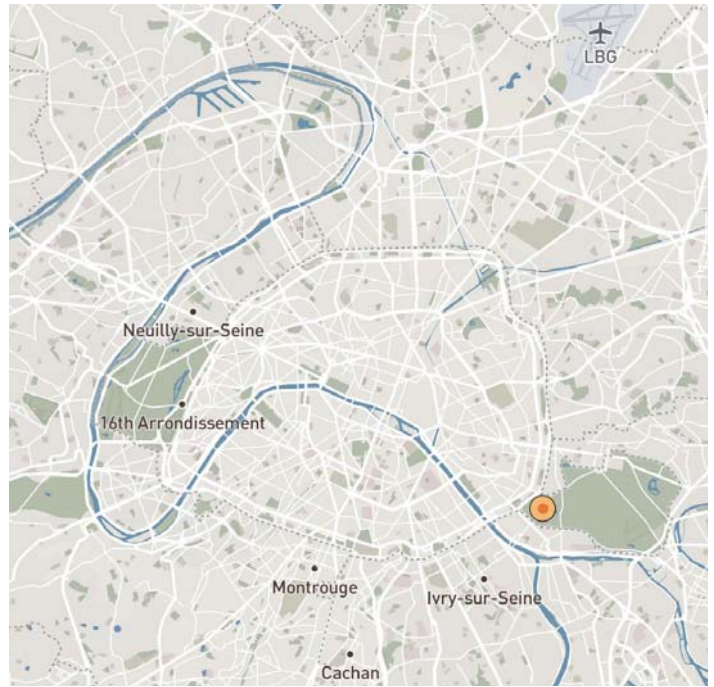


Figure 112: The location of courtyard of the Pelouse de Reuilly (Source : The authors draw)



Figure 113: Pelouse de Reuilly (Source: [https://fr.wikipedia.org/wiki/Pelouse\\_de\\_Reuilly](https://fr.wikipedia.org/wiki/Pelouse_de_Reuilly))



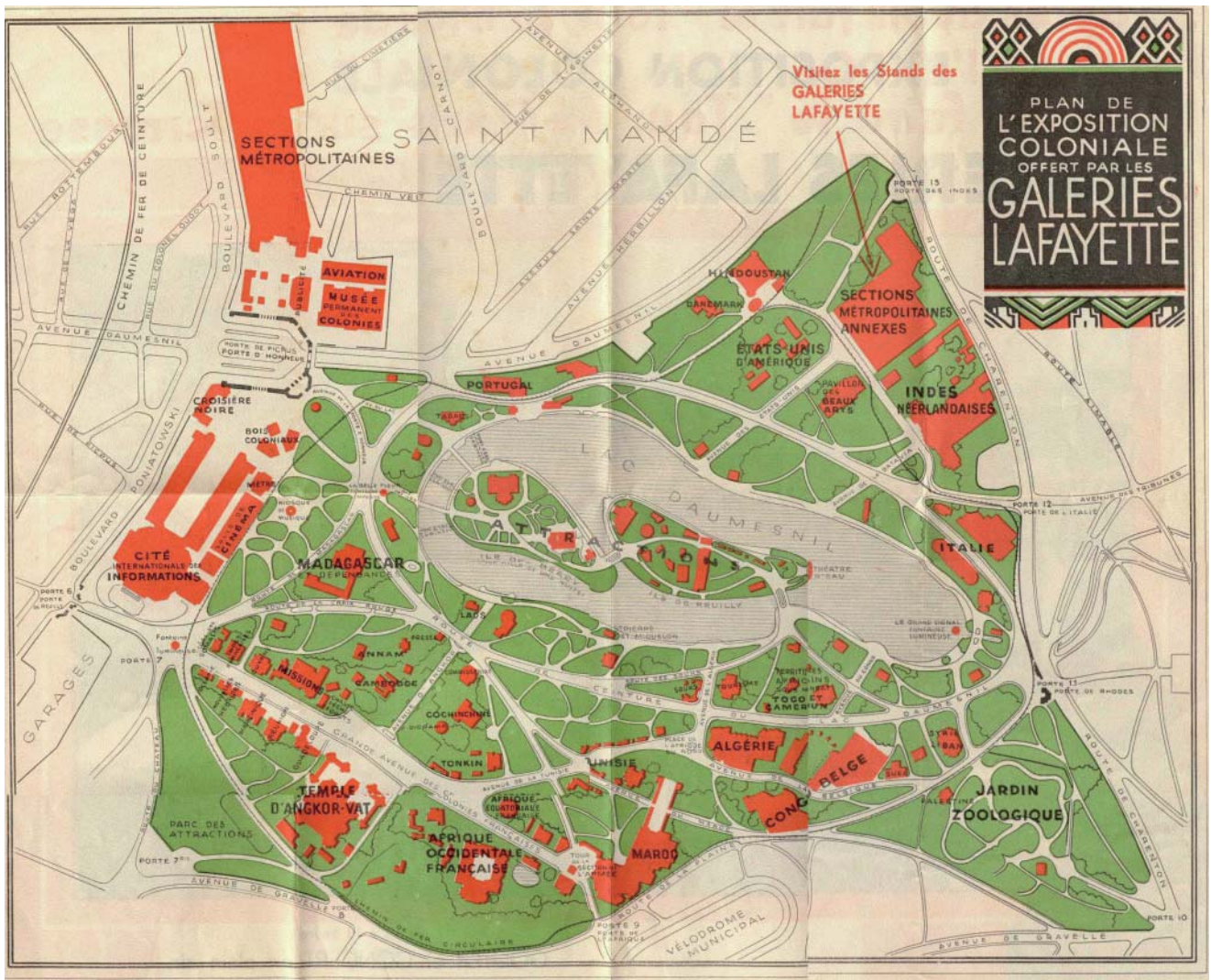
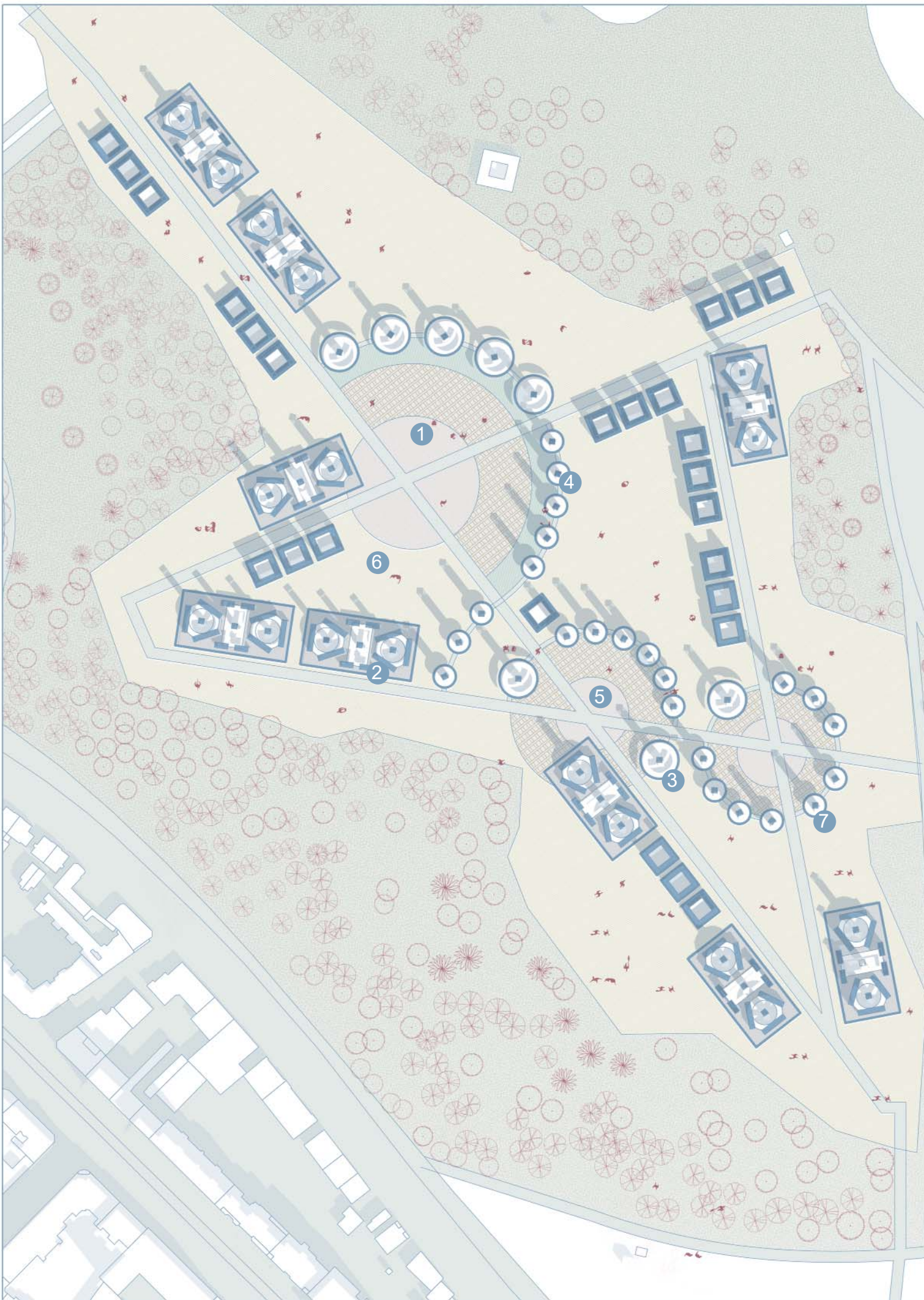


Figure 114: The map of courtyard of the Pelouse de Reuilly (Source : <http://belairsud.blogspot.com/archive/2017/03/18/la-pelouse-de-reuilly-son-histoire-et-quelques-anecdotes-3089462.html>)



Figure 115: Pelouse de Reuilly (Source : <https://mctv.ouest-france.fr/decouvertes/mon-mag-lifestyle/la-foire-du-trone-de-nouveau-a-paris-sur-la-pelouse-de-reuilly-0504/>)

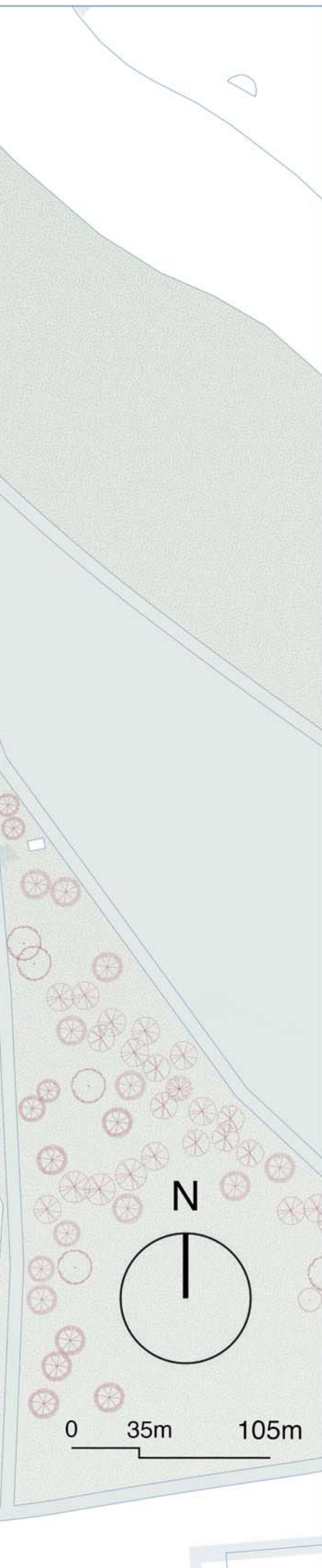






# Master plan

 Duration period:  
1-2 years

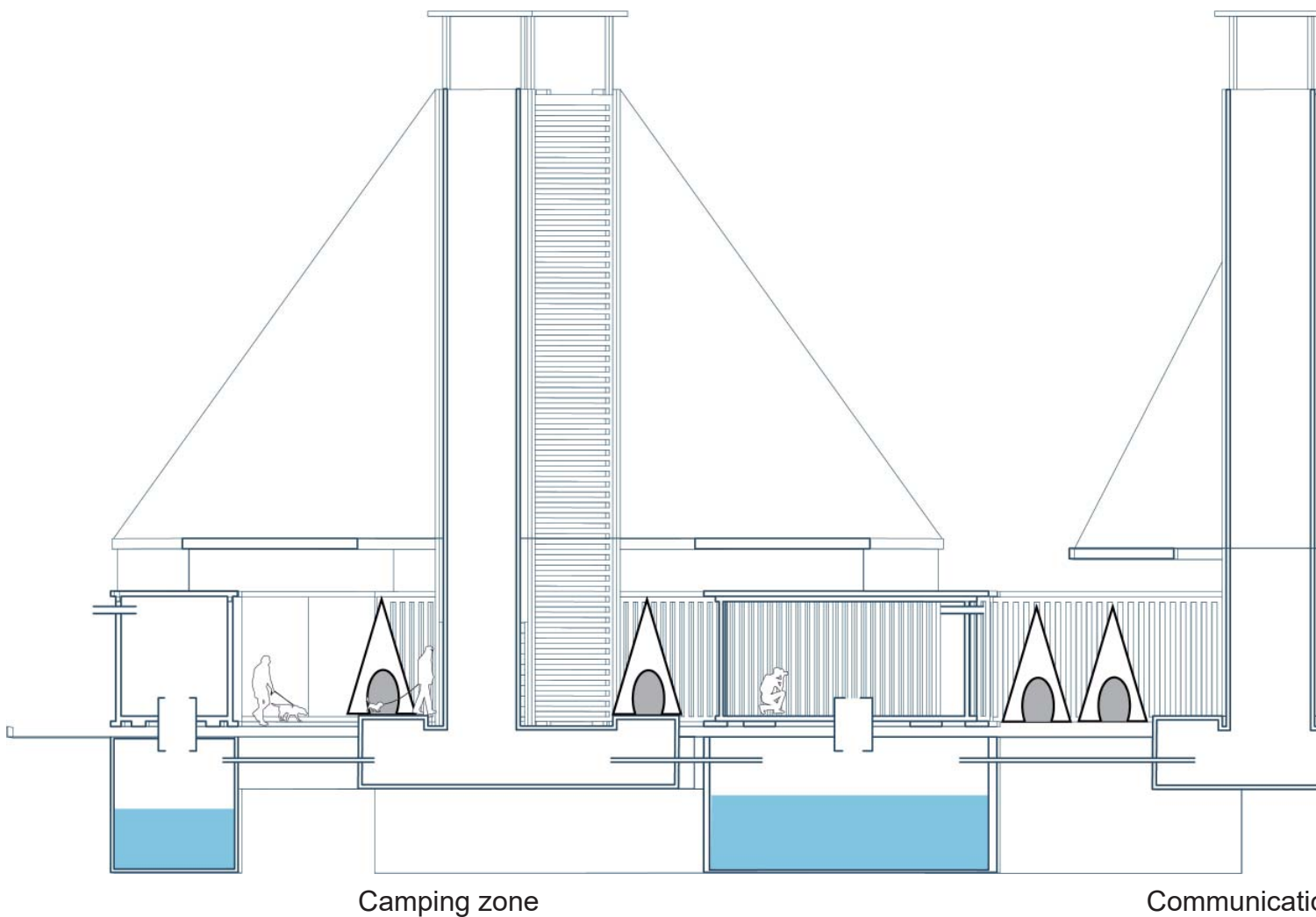


## Legend

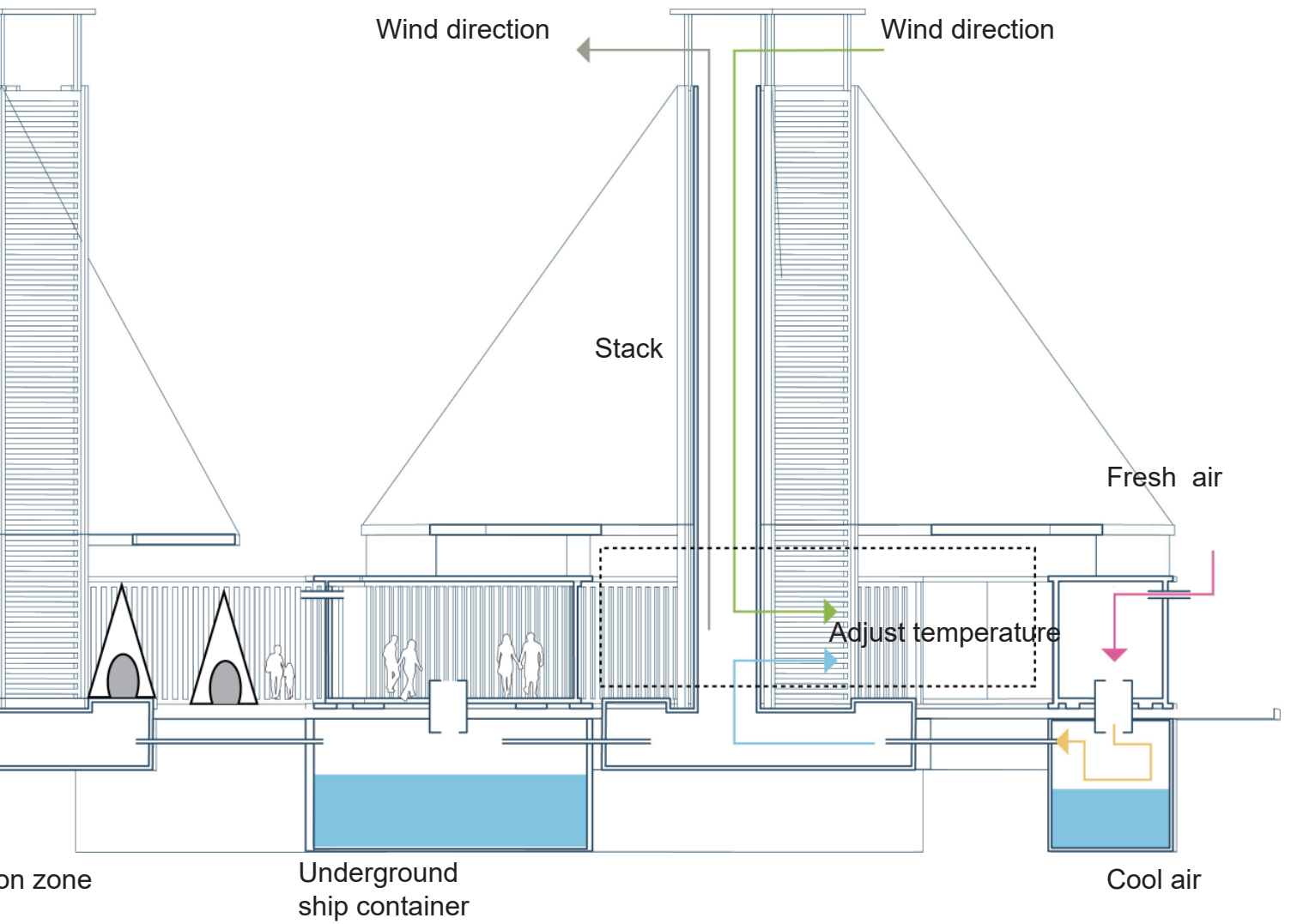
- ① Plaza
- ② Stack tent camp
- ③ Circle tent camp 1
- ④ Circle tent camp 2
- ⑤ Play ground
- ⑥ Lawn
- ⑦ Restaurant

## Strategy-stack effect

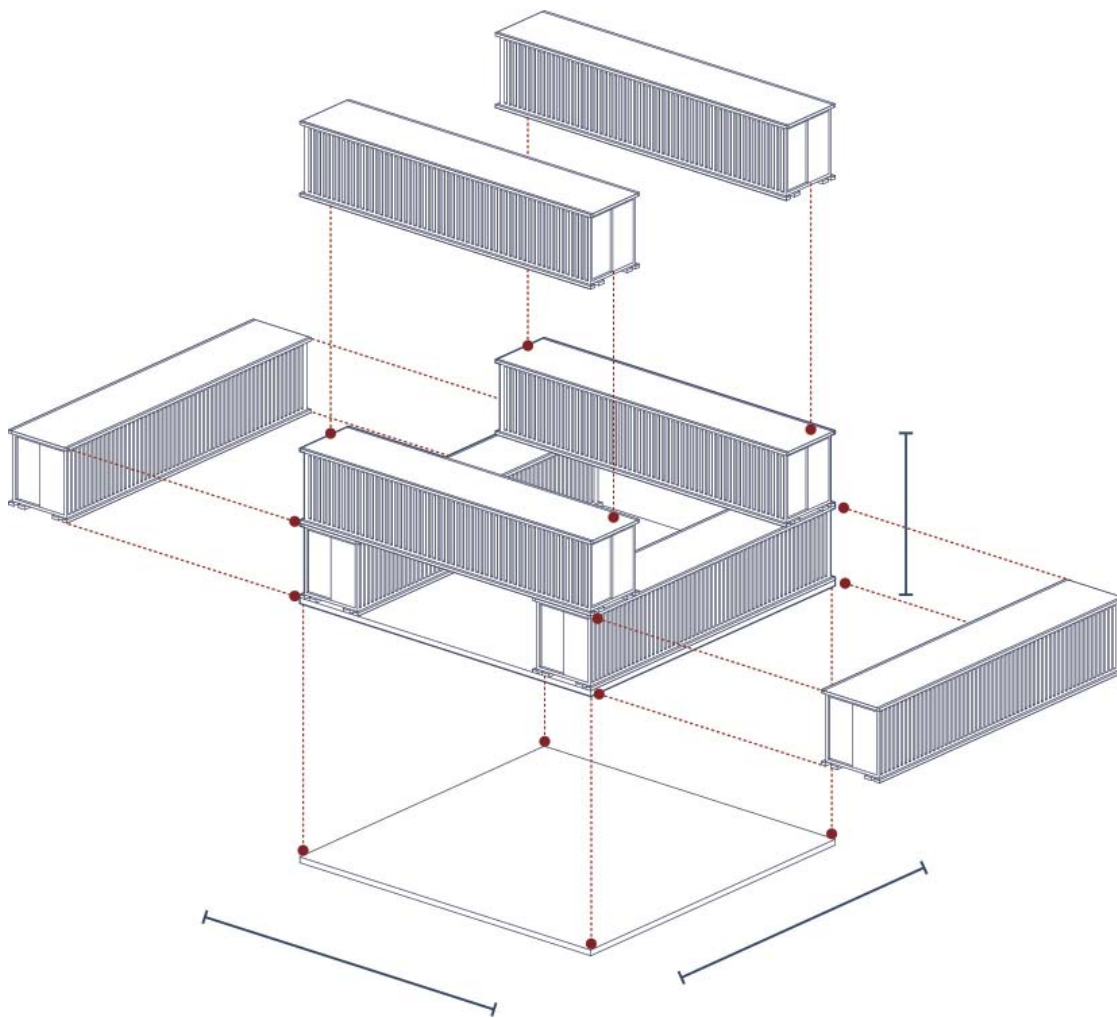
This part would become another perfect example for the temporary accommodations during the Paris 2024 Olympics. it could reduce the cost of the visitors from around world. In our proposal, the stack effect would be introduced to adjust the hot temperature in Paris summer. There would be a vertical ship container as the stack, and 3 ship containers would be buried underground with water to cool the air. And there are 3 ship containers on the ground to be transformed into temporary hotel. Meanwhile, people could bring their own tent to stay in the camp. The whole accommodation construction would be last for couple years in the future.



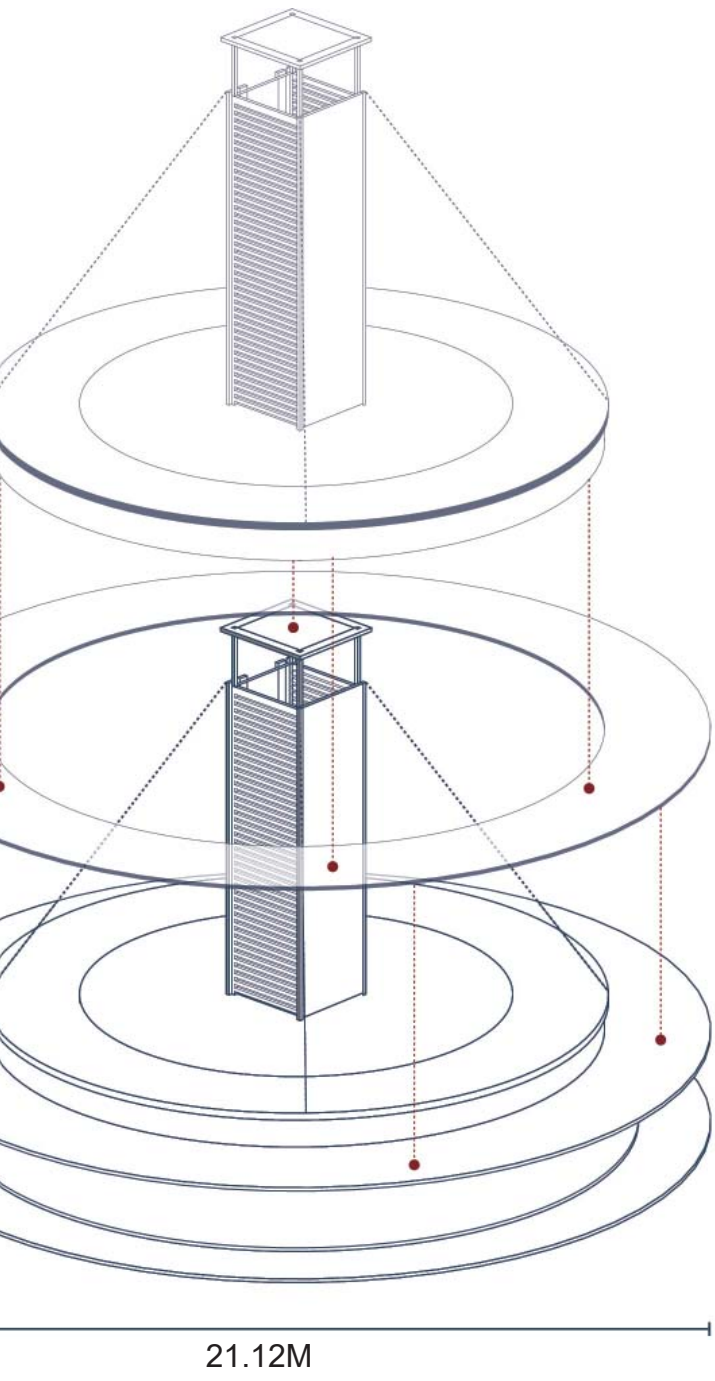




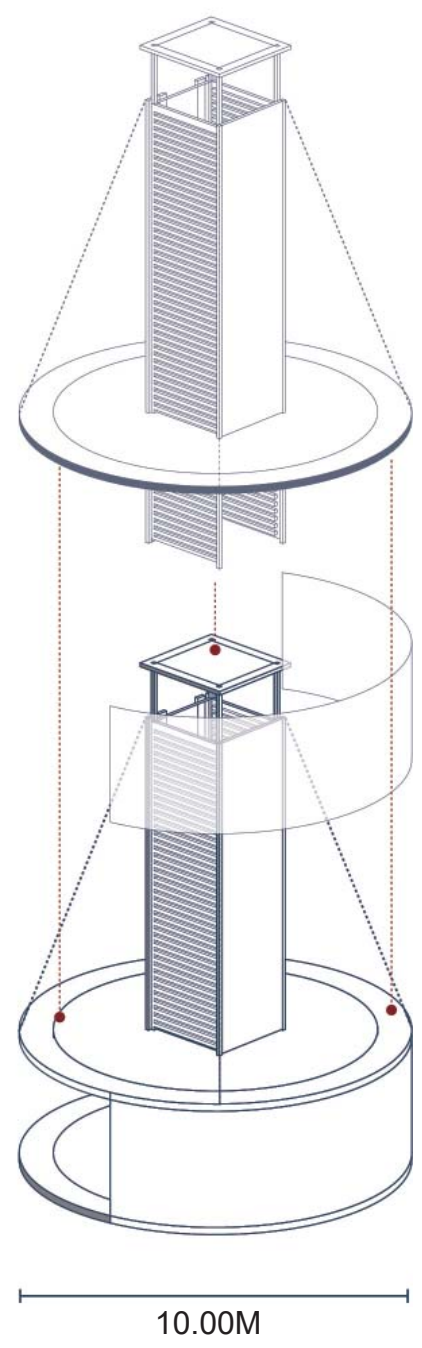
# Construction explosion diagram of the ship container camping construction 3&4



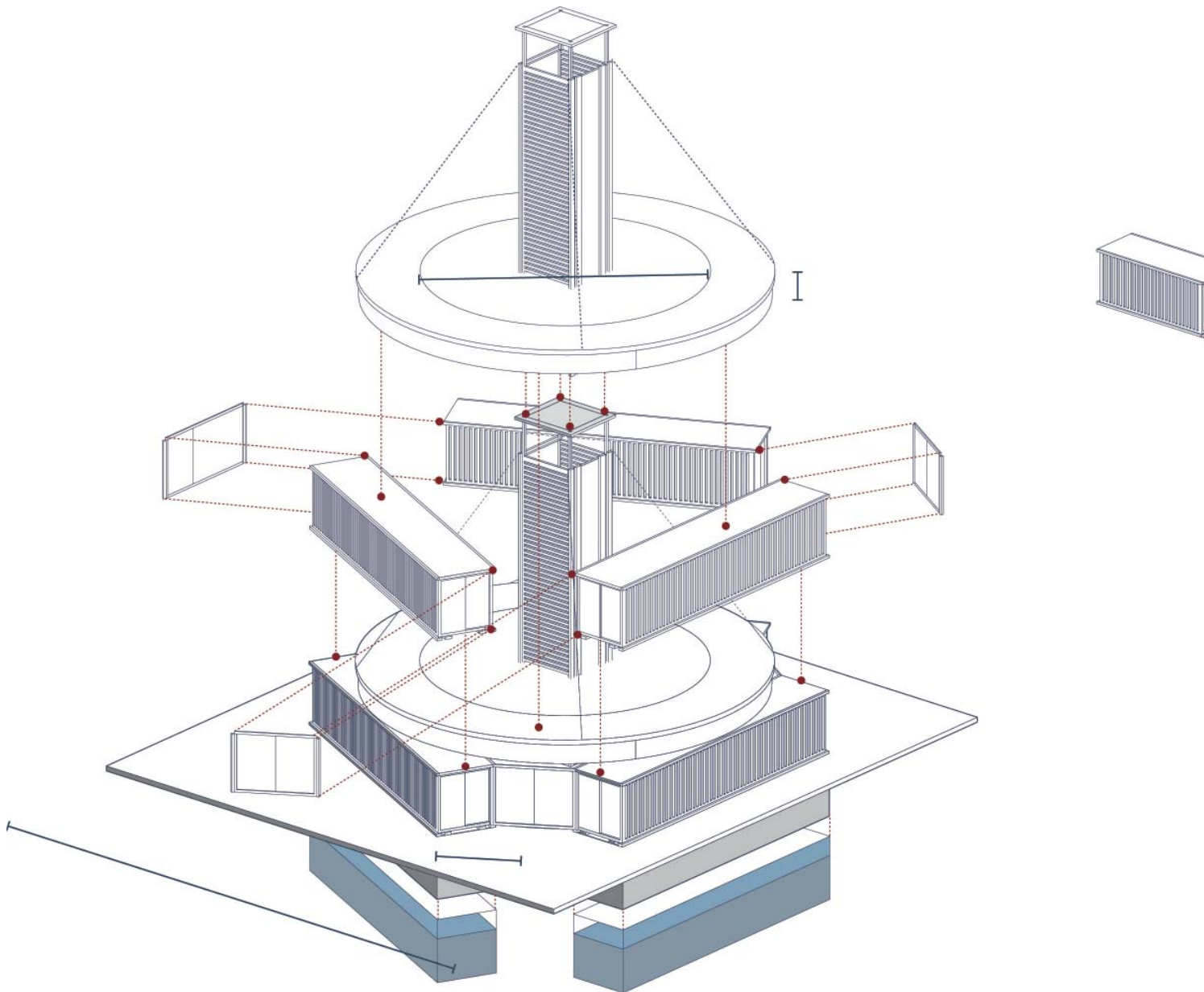




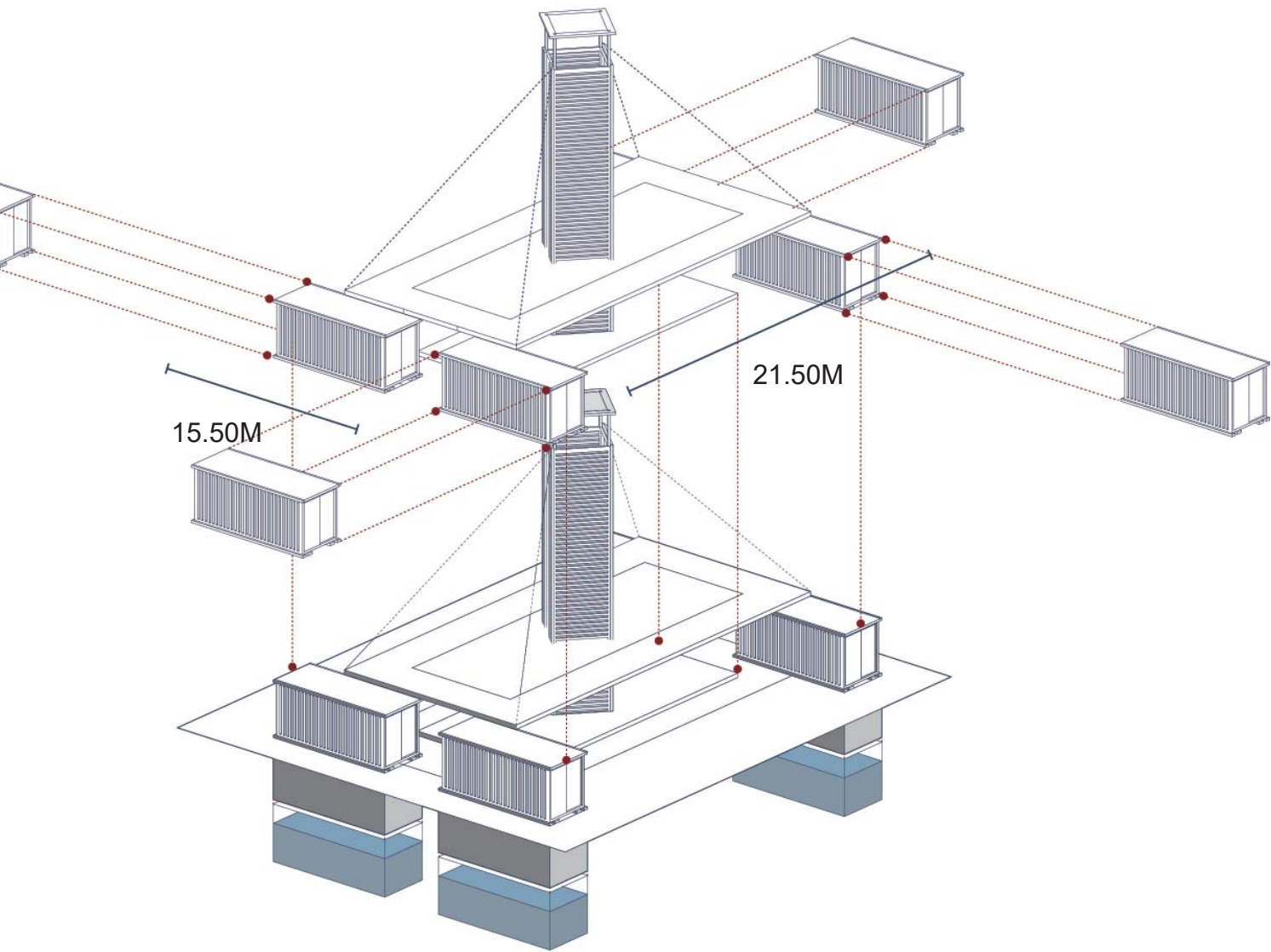
10.00M



# Construction explosion diagram of the ship container camping construction 3&4

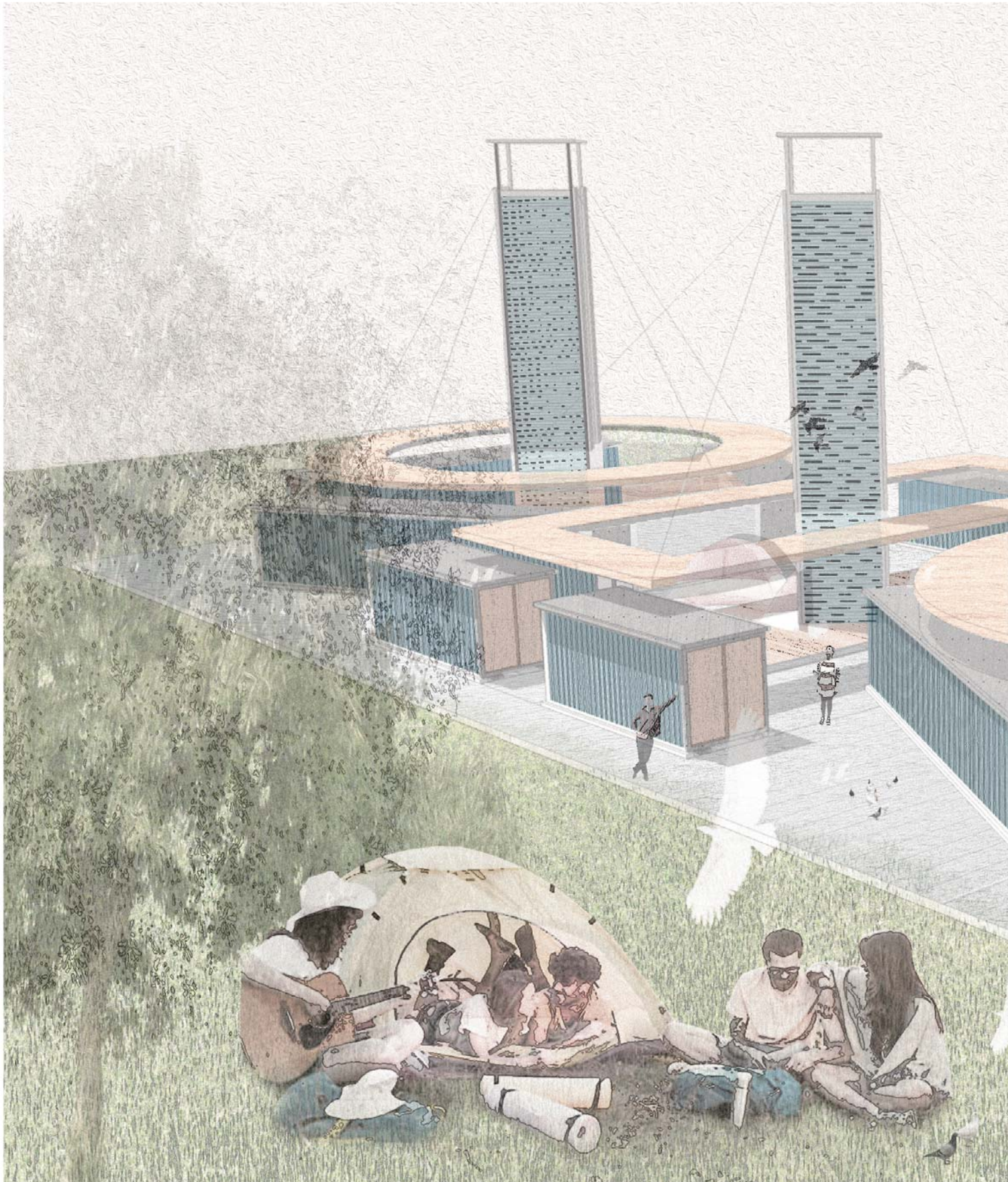




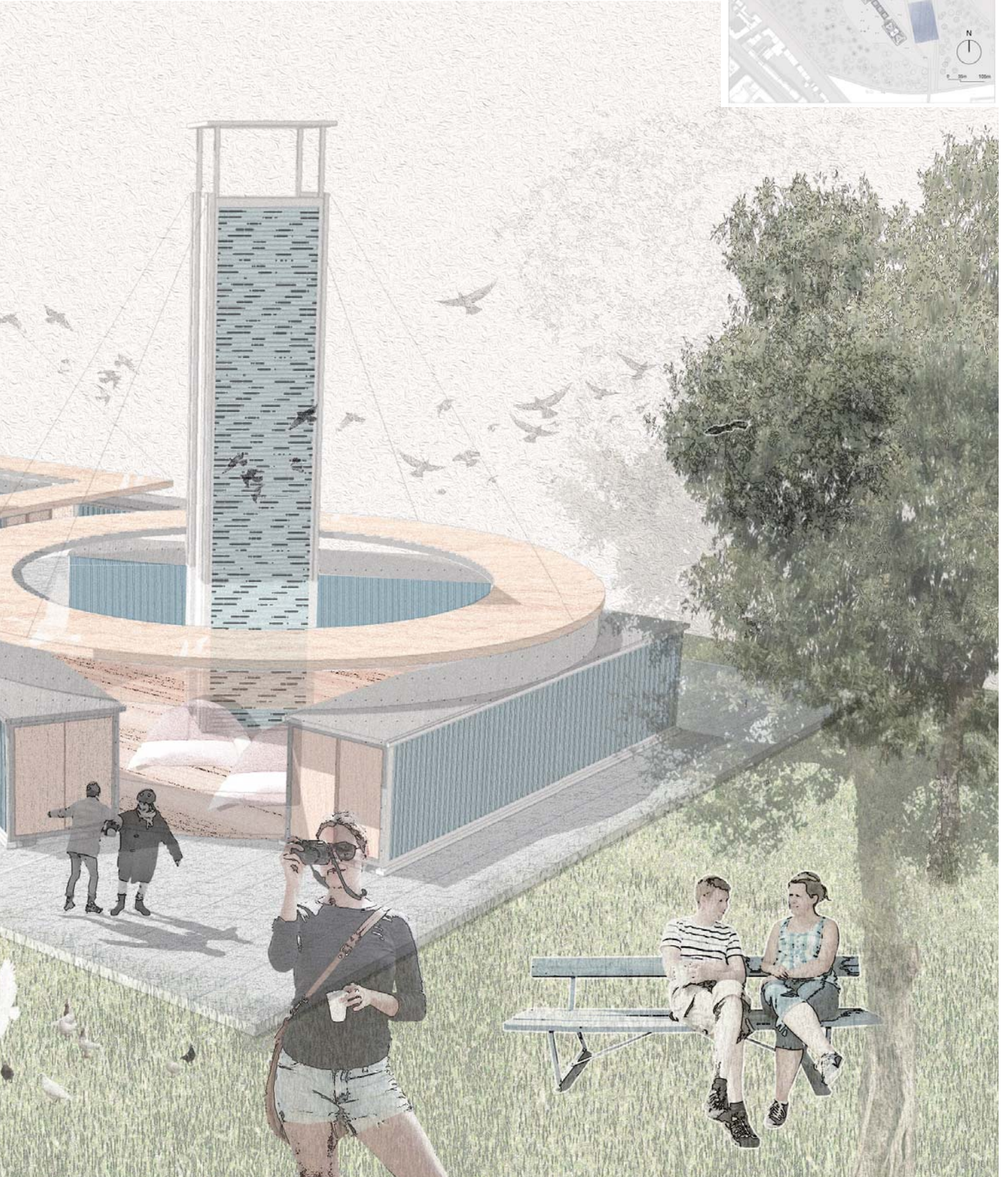




# Bird's eye view of Pelouse de Reuilly









## 5.2.4 The temporary proposal for the La Villette

The Parc de la Villette is the third-largest park in Paris, 55.5 hectares (137 acres) in area, located at the northeastern edge of the city in the 19th arrondissement. The park houses one of the largest concentrations of cultural venues in Paris, including the Cité des Sciences et de l'Industrie (City of Science and Industry, Europe's largest science museum), three major concert venues, and the prestigious Conservatoire de Paris.

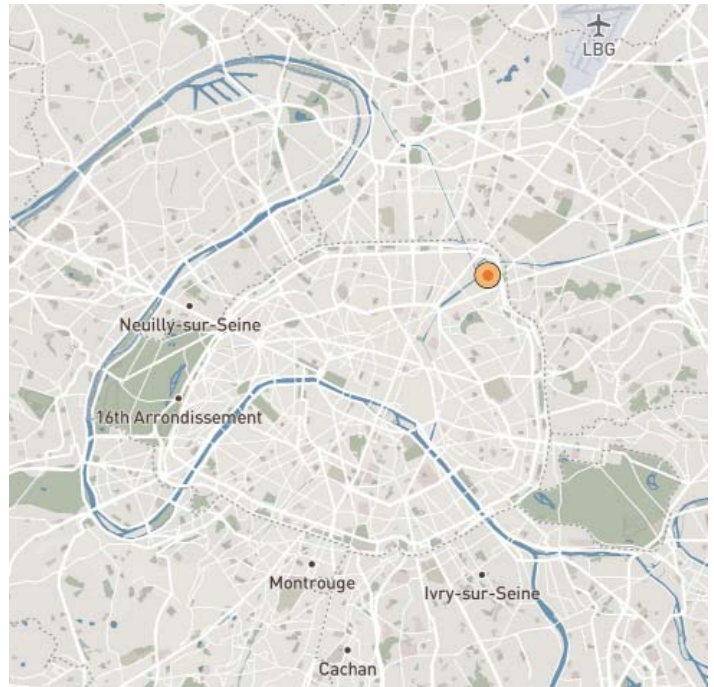


Figure 116: The location of courtyard of the parco La Villette (Source : The authors draw)

Bernard Tschumi designed the Parc de la Villette with the intention of creating a space that exists in a vacuum, something without historical precedent (Bernard Tschumi Architects, n.d.). The park strives to strip down the signage and conventional representations that have infiltrated architectural design and allow for the existence of a “non-place.” This non-place, envisioned by Tschumi, is the most appropriate example of space and provides a truly honest relationship between the subject and the object (Papadakēs, 1988). Visitors view and react to the plan, landscaping, and sculptural pieces without the ability to cross-reference them with previous works of historical architecture. The design of the park capitalizes on the innate qualities that are illustrated within architectural deconstructivism. By allowing

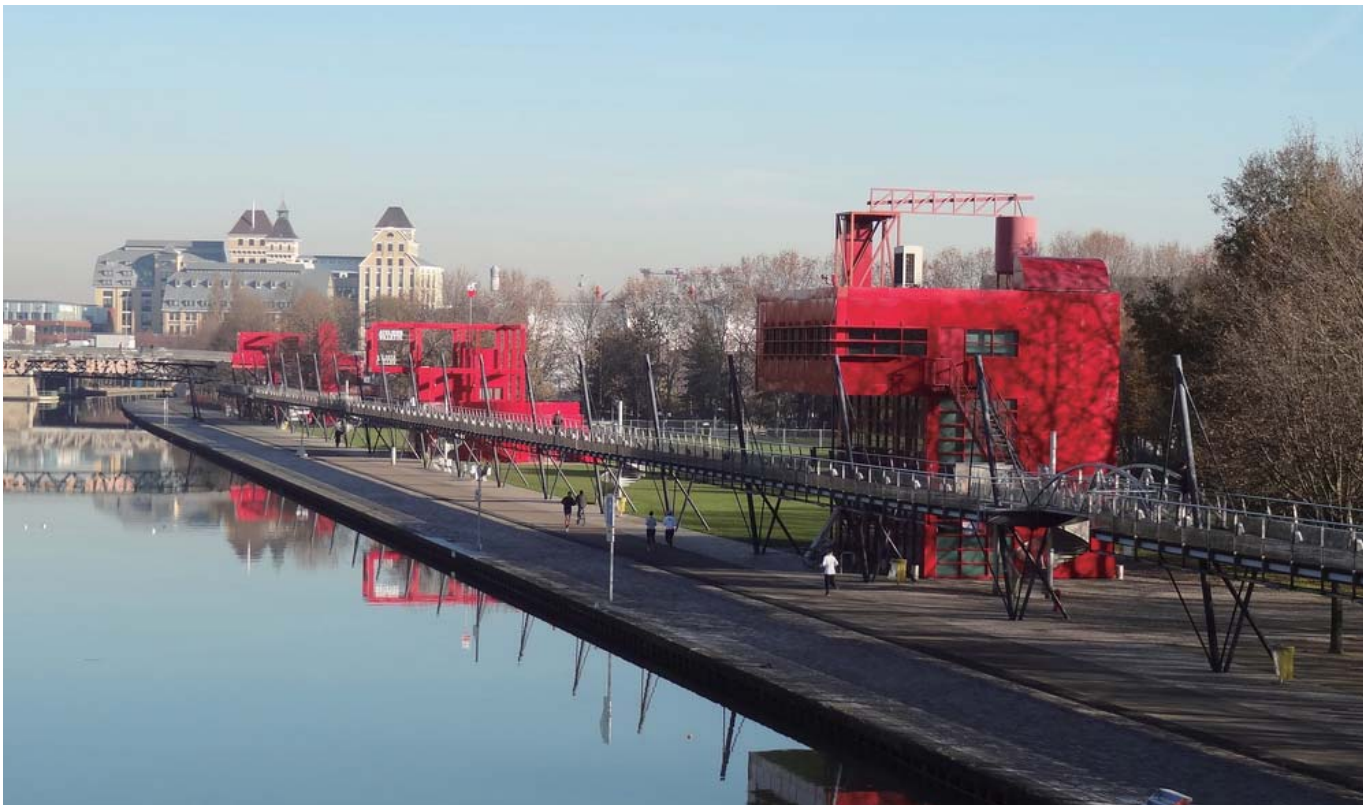


Figure 117: PARC DE LA VILLETTE (Source : <https://modulo.net/en/realizzazioni/parc-de-la-villette>)



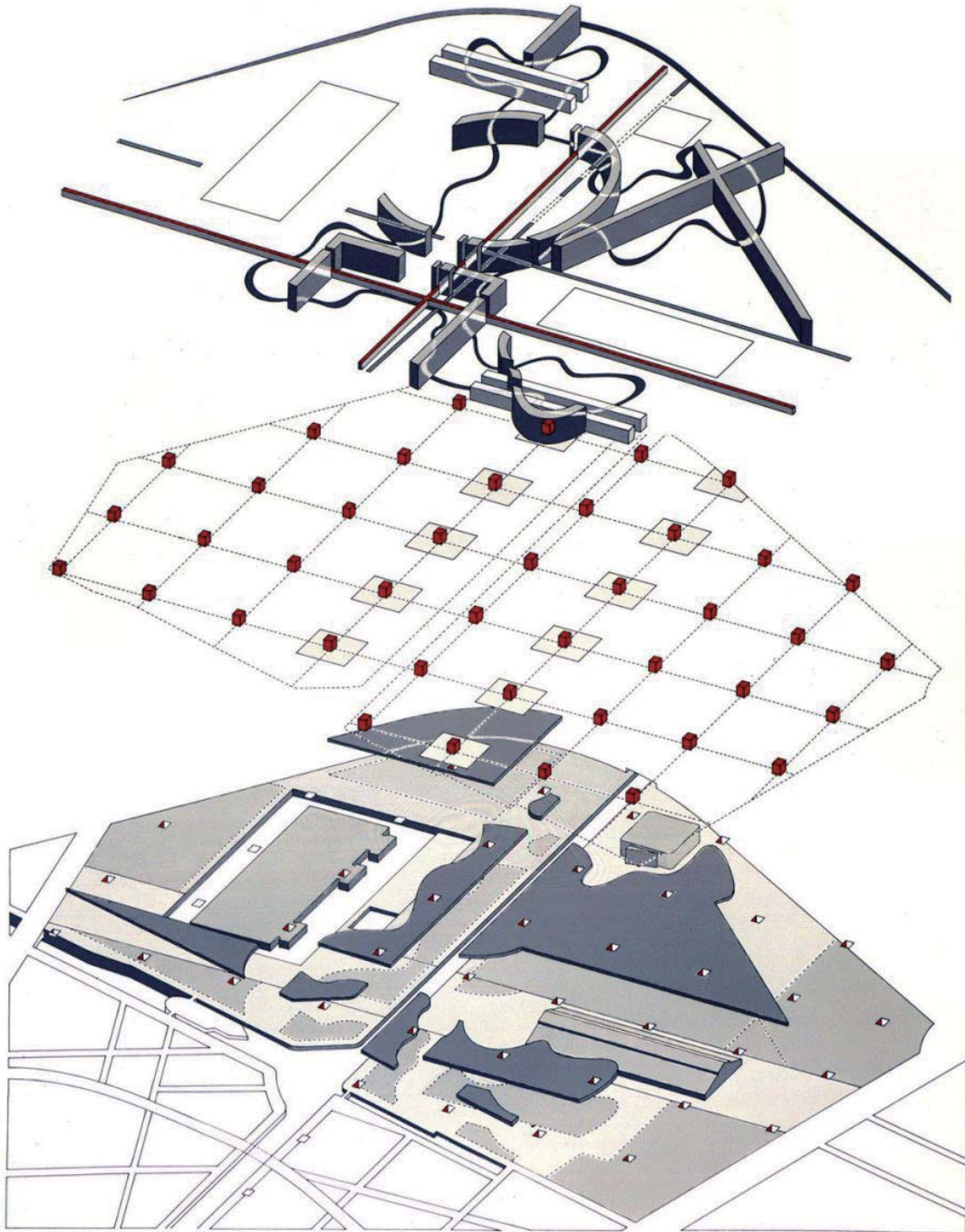
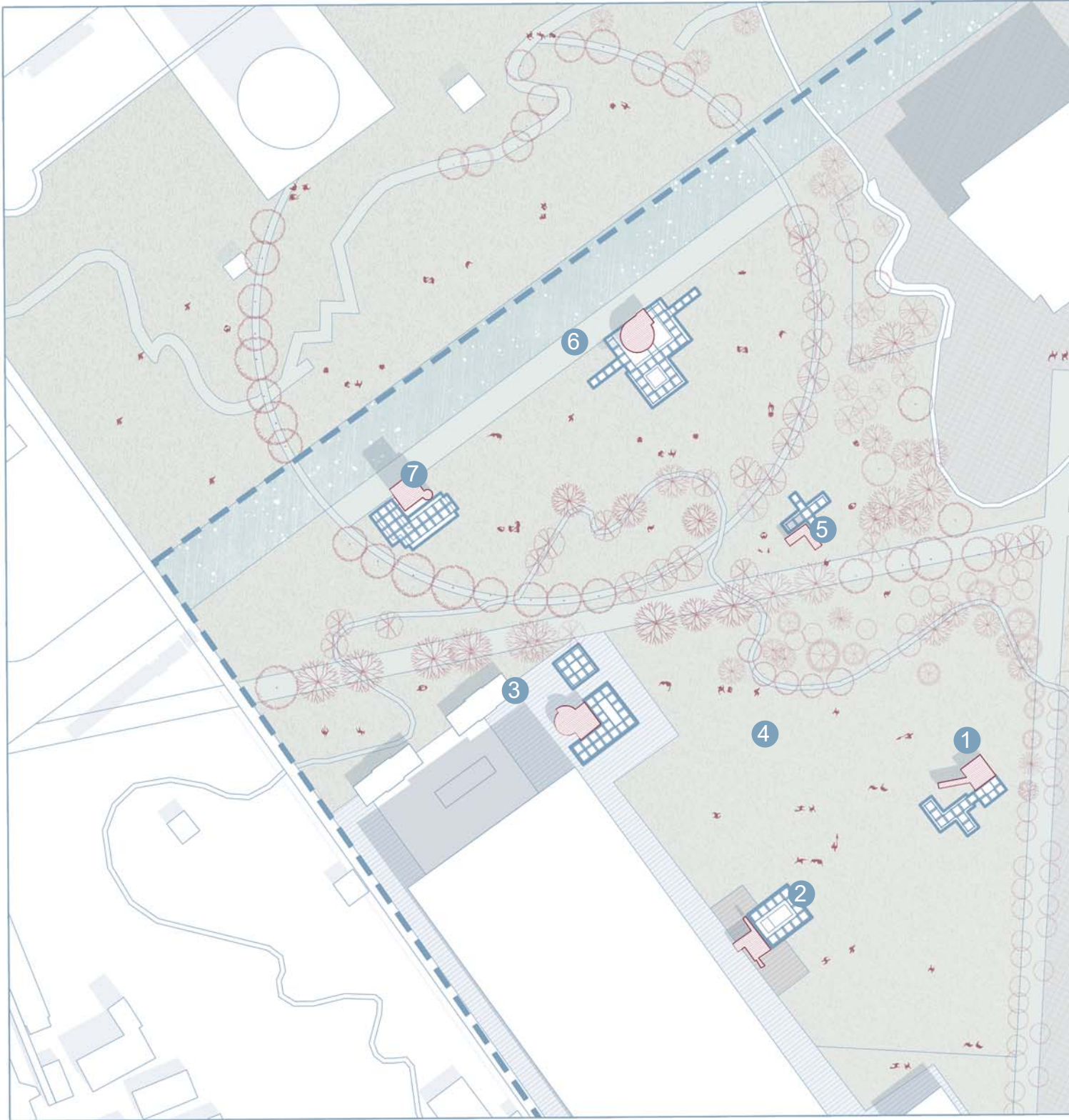


Figure 118: The diagram of PARC DE LA VILLETTE (Source :<https://www.archdaily.com/92321/ad-classics-parc-de-la-villette-bernard-tschumi/5037f5b228ba0d599b000691-ad-classics-parc-de-la-villette-bernard-tschumi-axon>)

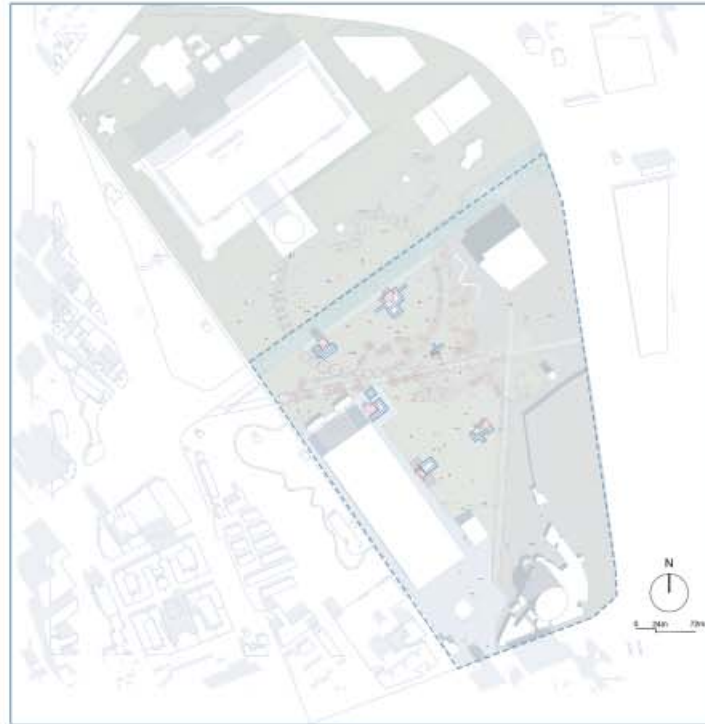
visitors to experience the architecture of the park within this constructed vacuum, the time, recognitions, and activities that take place in that space begin to acquire a more vivid and authentic nature (Tschumi, 1996). The park embodies anti-tourism, not allowing visitors to breeze through the site and pick and choose the sites they want to see. Upon arrival in

the park, visitors are thrust into a world that is not defined by conventional architectural relationships.



**Duration period:**  
**1-2 years**





**General map**

## Legend

- ① Follie
- ② Carton tube system
- ③ Play ground
- ④ Lawn
- ⑤ Restaurant
- ⑥ Cafe
- ⑦ Stage

## Master plan

In the park, the sixteen follies are the most iconic pieces. In our proposal, the carton tube structures would be connected to those follies to become a big camp system. People could bring their own tents to stay here in an affordable price. The carton tube would be connected as carton cube to supply some shields for people in Paris summer. The folly would become a supply station for the tent. Meanwhile the folly would host diverse activities as a stage.

# Perspective view temporary camping in La Villette





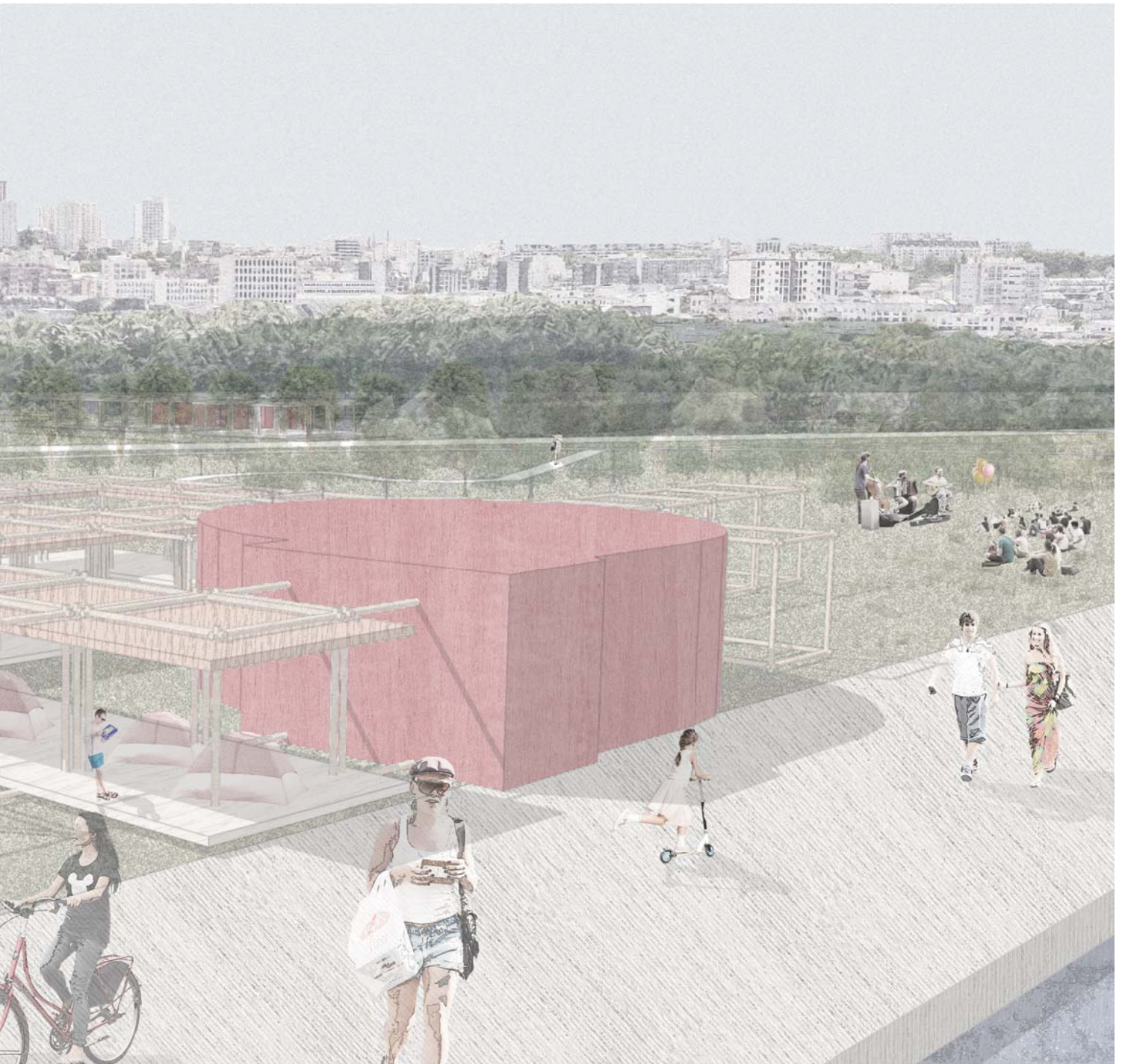
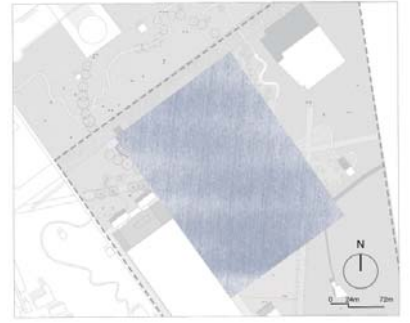




# Bird's eye view temporary camping in La Villette







## 5.3 Temporary proposal after games

What happened to the temporary facilities after Olympics is another essential part of our proposal. In our plan, the temporary reuse system would become a well-organized chain to support relevant Olympics events.

### 5.3.1 The goal of the temporary facilities after games

Although, the goal of the temporary facilities in the post-game time is diverse in general. The main goal--promoting the Olympics spirit consist of multiple specific goals. Besides, the goals of different donating places are not the same.

#### ***Increase the sport participants in ordinary place***

The destination of the temporary facilities could be the community of Paris or remote places around Paris. This kind of place has the ability to support the sports event. The Olympics facilities could be the "spicy" in the local sports industry. People may take more participants in the sports because of Olympics influence.

#### ***Offer more opportunities of sports in poor places***

If those temporary facilities go to relatively poor places such as Africa, it might be the best sports equipment in local. Obviously, it could offer more opportunities for people to take part in sports. The temporary facilities would play an important role in the Olympic promotion.

#### ***There are some specific goals of the temporary facilities in the followings:***

##### ***Boost the local sports events***

As all know, the Olympics is the most symbolic sports event in the modern life, the relevant stuff is highly valuable including the temporary facility. It would bring its Olympics story to the donated places and encourage the local sports by its high quality of sports equipment. The locals would use the same sports facilities as Olympic champions do. It would be a wonderful experience in their life.

##### ***Encourage kids to take part in the games***

There is an important concern about the kid's involvement in the recent Olympics documents. With the reused system, local children will have the chance to take part in some sports which used to be hard approach. There are no doubts the local children would be benefited the Olympic temporary facilities.

##### ***Improve the citizen's health***

The citizen's health would be also improved by the donate of temporary Olympic facilities. People would have more and better choice of sports in their daily life. Obviously, it would be good for their health, if they do more exercise.

### 5.3.2 The advantages of the Olympic temporary facilities

There is no doubt that the Olympics temporary facilities have significant potential and pros to be used after games. It could play a critical role to boost the influence of modern Olympics.

##### ***High standard quality***

As the most important sports event, the associated temporary facilities stand for the high quality. As for those sports facilities, it could meet the requirements of the professional athletes. Of course, it would be far beyond the request of the amateurs. As for the service facilities, the situation is the same. It could cater the daily use. Moreover, it is almost new. Because the Olympics only last for one or two months.

##### ***Remarkable symbolic value***

Those temporary facilities also have remarkable values in the name of the Olympics, which means it could bring a lot of profits to the Olympics. Specifically, it could be donated to some poor places in the name of the charity of Olympics. it could demonstrate the social responsibility of the mega-event. In the other way, it could be resold as souvenirs. The incomes could support the future development.



***Low-cost for locals***

Because of the donating system, it becomes a kind of charity organization. For the local governments, it cost nothing. What they have to do is just maintain those facilities. For the locals, it must be free to approach in order to maximize the influence, which must be part of the donation term.

# Chapter6: Conclusion

Nowadays, events play an important role in peoples' life. It became more frequent and massive than ever. Hosting an event is related to urban development and citizens' happiness. In this condition, how to host the event becomes significant. According to our study, the temporary approach has become the trend, which is the sustainable way to meet the requirement of low cost and low waste.

## ***What is the background of this research design about the temporary facilities in Olympics?***

Recently, an increasing number of the temporary application appears. It becomes a trend to host events around the world. Because there are more requirements for hosting an event especially such as Olympics. Olympics is the highest standard event, which means it has to face with multiple request form different aspects including the environment, the human rights, the economic and so on. More and more host city chose the soft way to host the Olympics considering these. The temporary application apparently is the best choice to achieve the goal.

## ***What are our research questions about the temporary facilities in Olympics?***

So, what are our research questions? In our design research, the research questions are the followings: what the origin of temporary facilities is, how does the temporary facilities influence the modern Olympic development, and which is the possible future trend of the temporary structures in the Olympics. These questions are related to the core of the temporary application in the Olympics. We could follow the temporary history to study the development of the temporary facilities in Olympics. It is about the Low- cost, sustainable development, environment protection. Based on that, we can discuss the influence of the temporary facilities on Olympics and discuss the future. Furthermore, we could image what meaning of the temporary facilities is on other similar events.

## ***What is the inspiration of the similar events about temporary facilities?***

To inspire the temporary facilities on Olympics, we start to study the similar events. What happen in similar events is inspired for our future design in diverse ways. According to our research, we find that the temporary facilities could be far different from what we thought. It could be aesthetic, it could be cheaper, it could be sustainable for new materials and on. The result fresh our minds. In conclusion, we think the more temporary facilities are the more capable they are; the more temporary they are, the more flexible they are; the more temporary they are, the more affordable for each aspects.

## ***What is the history of temporary facilities in Olympics?***

In the next chapter, we focus on the history of temporary facility in Olympics. Through the research, we find the history origins back to the begin of the Olympics. At the beginning period of Olympics, so many facilities are temporary because it lacks the profession. It is a show for everyone. And the temporary facilities are the cheapest way to host an event such as Olympics. With the development, the host city pays more attention to it, and it becomes a serious event and influence the urban development deeply. In this period, Then, people are aware of the significance of environment, they choose to apply the temporary facilities to achieve the sustainable goal. Eventually, it becomes the trend in the latest Olympics.

## ***What happened in Paris about Olympics and what is going to happen in Paris 2024?***

Then, we start to study the Paris. We find Paris is the city which has a long history with Olympics. it hosts two time of Olympics and will host the third time. Moreover, each time, Paris always is the innovation Olympics at that moment. In the next move, we study the official website, and we find the Paris 2024 declare it



would use 95% temporary or existing venues to host the Olympics. The Paris committee pay a lot attention to the temporary applications in order to host the most sustainable Olympics than ever. However, the current situation is missing the citizens and the visitors. Through our previous study, the temporary facilities would bring multiple benefits to the ordinary people, such as reducing the price, increasing the involvement and so on.

***What is our temporary proposal of Paris Olympics? – the supplement of the existing proposal from different perspective?***

We consider our temporary Proposal as the supplement of the existing temporary proposal. We want to design the facilities from the perspective of the ordinary people including the visitors and the citizens. For the visitors, we want our temporary facilities to reduce the price of the accommodation, to host more culture events, to enable the Olympics funnier. For the citizens, we hope the Olympics won't take away the city form the citizens by increasing the activities. The temporary facilities could bring more possibility to the urban space which could involve more citizens and actual bring them in the Olympics. In conclusion, through our proposal, the participants of the ordinary people increase. And the sprits of Olympics are promoted.

***What have we learned in this project?***

What we have learned in this design research is the potential of temporary facilities. With urban development, there is no longer a need for huge construction projects happening in cities of developed countries. The temporary facilities could bring vitality to the old city. The city could rely on the temporary approach to achieve gradual micro development in old districts. Meanwhile, the temporary facilities offer opportunities for the small town to host events that it couldn't imagine before, due to the flexibility of the temporary staff. It could be the new path for mega-event development.

***What is the future development of the temporary application in Olympics and its influence on similar events.***

According to our study, we think the temporary facilities would become the future of hosting events. It is affordable for both government and visitors. It could involve more urban elements. It could host more guests for the Olympics. It could be more flexible and increase the capabilities. Above all, it could not only be the future of the Olympics, but also for FIFA world cup, EXPO and other events. Moreover, it could bring the chance to host such events even in small downtown.

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