

**CITY WITHIN A CITY**  
**Revitalization Through Connectivity**

by

Zacari Jardak

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## ABSTRACT

This thesis seeks to revitalize the soon-to-be vacated, iconic Molson Brewery in Montreal. In many instances, the development of the Molson Brewery mirrors that of its urban context. Occupying a footprint roughly equivalent to 12 Montreal city blocks, the Brewery is located in a post-industrial, fragmented neighborhood. The facility's layout suggests that it no longer runs as an efficient industrial facility as the brewery complex consists of a fragmented, incoherent series of building elements, analogous to the neighborhood in which it is located. Entrenched in the collective memory of Montrealers, the Molson Brewery's adaptive reuse strategy emphasizes the preservation of building elements rather than demolition. The complex will be revitalized by connecting all building elements to one another, transforming the complex into a city within a city.

This thesis will draw upon the theories of Team 10 to define a strategy for the *building-as-city*. The Brewery, seen as analogous to a city, will be sub-divided into constituent districts, each incorporating a different but complimentary program, addressing the needs of the surrounding neighborhood and city. Districts will be further sub-divided and linked together by a hierarchy of unifying elements. The redevelopment will also be linked to the city beyond. By introducing a system of hierarchy and connectivity to the Molson Brewery, this thesis can become a case study for large scale urban redevelopment.

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# CHAPTER 1: INTRODUCTION

## 1.1 Overview

Montreal's iconic Molson Brewery has occupied its present site along the Saint-Lawrence River in the central Montreal neighborhood of Sainte-Marie since its inception in 1786. Its development is closely related to that of the Sainte-Marie neighborhood and the city of Montreal. The Molson Brewery is North America's oldest brewery and Canada's second oldest company. As such, the site is of significant value to Montrealers and Canadians alike. As the institution prepares to relocate to another Montreal site, this thesis seeks to repurpose the immense brewery complex and revitalize its surroundings.

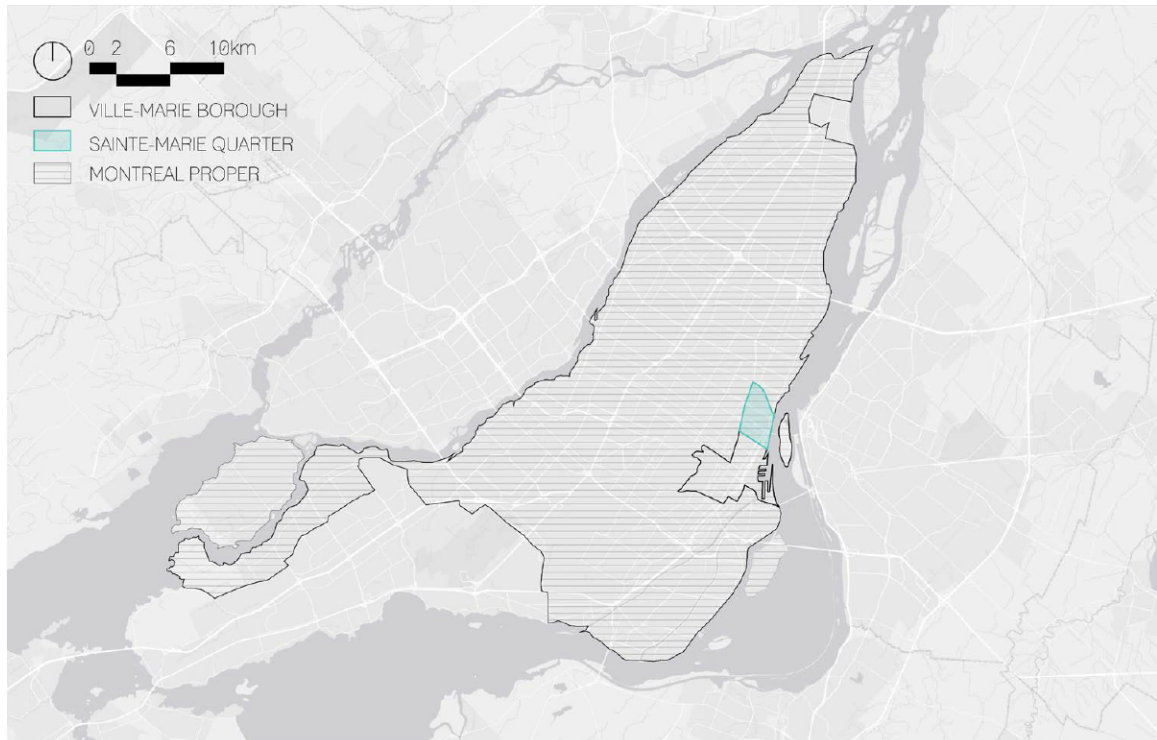


Fig. 1: Metropolitan Montreal. Location of Sainte-Marie neighborhood on Montreal Island (base map from ArcMap (version 10.4) 2016)

The Molson Brewery is located in a neighborhood that has suffered post-industrial decline. Sainte-Marie has seen its manufacturing base erode over the past 40 years and, juxtaposed with Montreal's efforts to modernize the area with large scale infrastructure projects, the neighborhood is now a fragmented entity, its parts cut-off from one another. This situation is ironically present at the Molson Brewery complex as well. The Brewery's current architectural configuration reveals that it does not function efficiently, in a linear fashion, as

one would expect from an industrial operation. Analogous to its urban context, the facility's whole is a self-contained and fragmented series of buildings. This fragmentation is further complicated by the brewery's immense scale, roughly equivalent in footprint to 12 typical Montreal residential city blocks. In essence, the Molson Brewery can be analogized as a city.



Fig. 2: Location of Molson Brewery in Central Montreal. (base map from ArcMap (version 10.4) 2016)

The adaptive reuse strategy for this thesis draws upon the theories of Team 10 to introduce a system of hierarchy and connectivity to the facility, transforming its self-contained parts into a linked system of connected elements. Large scale adaptive reuse projects that incorporate a diversity of program support the argument that the Brewery's rehabilitation should incorporate a range of activities supporting the needs of the Sainte-Marie neighborhood and the city of Montreal. Lastly, the brewery redevelopment must physically link back to its urban context. This system of physical and programmatic connectivity will transform the Molson Brewery into an urban microcosm – a city within a city.





Fig. 3: View of Molson Brewery from Jacques-Cartier Bridge showing proximity to Saint-Lawrence river and existing condition of railway obstructing waterfront access.

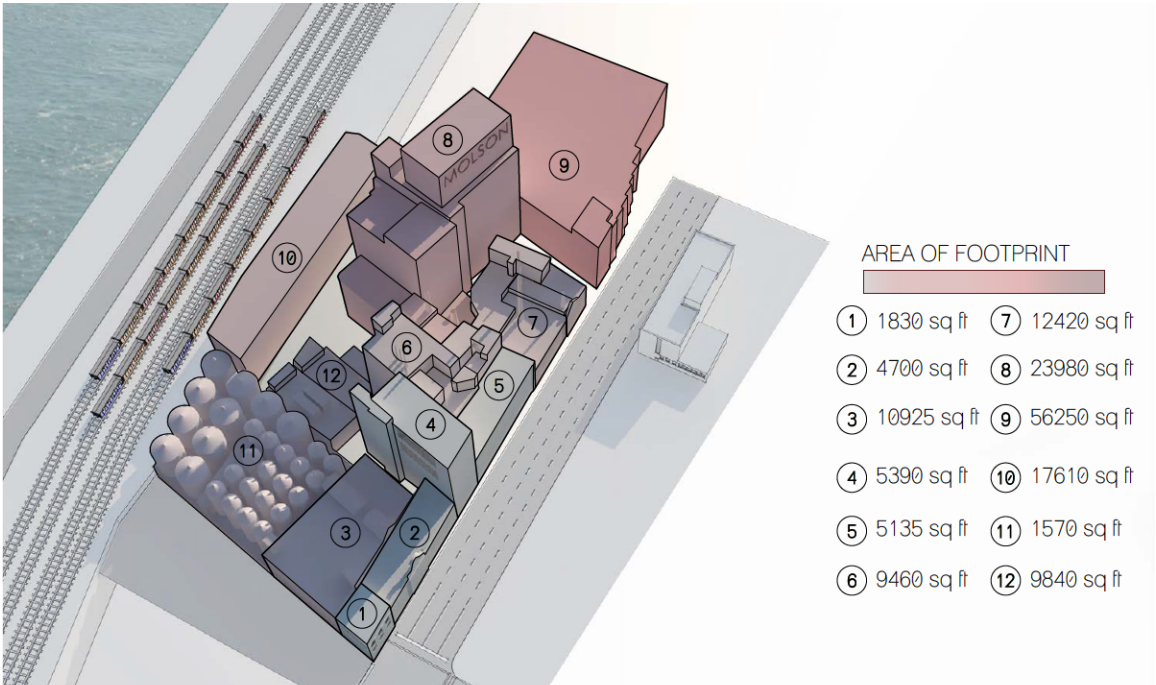


Fig. 4: Axonometric View of component buildings and footprint areas

## 1.2 Molson Brewery in Montreal

### A History



Fig. 5: Map of Montreal 1801. Molson Brewery is located outside of city proper. (base map by Charland and Courval 1801, available via Bibliothèque et Archives nationales du Québec (BANQ))

Montreal's Molson Brewery is a large complex of building elements that have been added and subtracted over the past 150 years. The site occupies roughly 170,000 square feet and can accommodate a wide variety of program relating to neighborhood, city and beyond. It's development is closely related with that of its urban context.

The Molson Brewery's history reveals several key phases in its development which encompass key architectural and urban strategies. The Brewery was founded in 1786 on its current site. At this point, around the turn of the 19th century, the site was situated outside of Montreal proper (see figure 5). Montreal was an established colonial trading centre of 9000, surrounded by a series of "faubourgs" or suburbs situated outside of the city's fortifications. By the mid-19th century, Montreal was transitioning from colonial centre





Fig. 6: Fire of 1852 Demolishes Brewery. (Historical Imagery: Library and Archives Canada 2011)



Fig. 7: Map of Montreal 1881. Brewery is absorbed into urban web. New CP Railway installations run between Brewery and St. Lawrence River. (basemap by Goad 1881, available via BANQ)

to industrial city. The study of the Molson Brewery begins in earnest with the Great Fire of 1852, which effectively razed the brewery buildings on site, as well as the surrounding neighborhood (see figure 6).

The Molson Brewery was rebuilt on its site during the second half of the 19th century as Montreal was rapidly urbanizing, absorbing its surrounding faugbourgs into a ring of industrial wards around the city centre. Large industrial firms, such as the Molson Brewery, in the Sainte-Marie ward, were clustered close to the city's new shipping port and were linked by the new CP railway running along the Saint-Lawrence river (see figure 8). Figure 9 reveals Montreal's rapid urbanization and Figure 8 illustrates important urban gestures in the architecture of the newly reconstructed Molson Brewery. The brewery features the formation of a new street front façade, addressing the urban context beyond. Conversely, the brewery's rear façade is comparably less composed, as it faced the new railway and shipping port installations, obstructing the waterfront beyond.

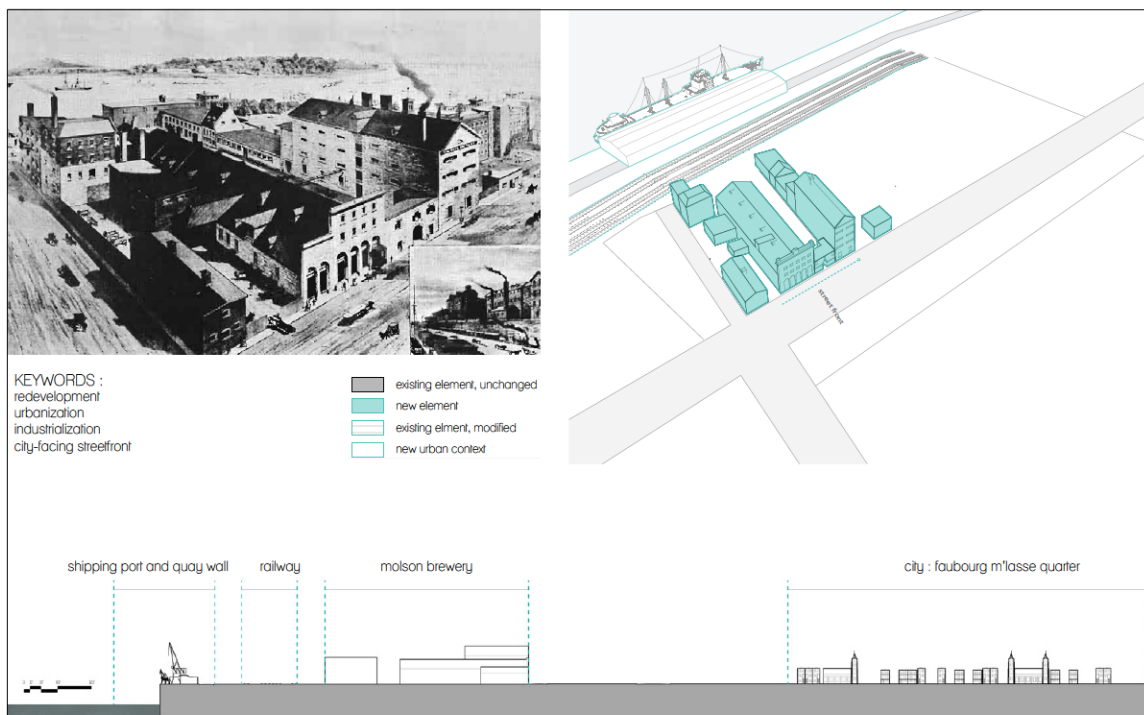


Fig. 8: Post-Fire Redevelopment 1852-1900. Formation of new facade addresses urban context. (Historical Imagery: BAnQ 2015)

The early 20th century marked further expansion for the Molson Brewery along with the city of Montreal. As Montreal's economic prowess grew, so did the Brewery's footprint, with the extension of its street façade and the addition of a building at the prominent



Papineau St. intersection. In another notable urban gesture, the building's architectural composition wraps around the corner (see figure 9).



Fig. 9: 20th Century Expansion, 1900-1913 (Historical Imagery: BAnQ 2015)

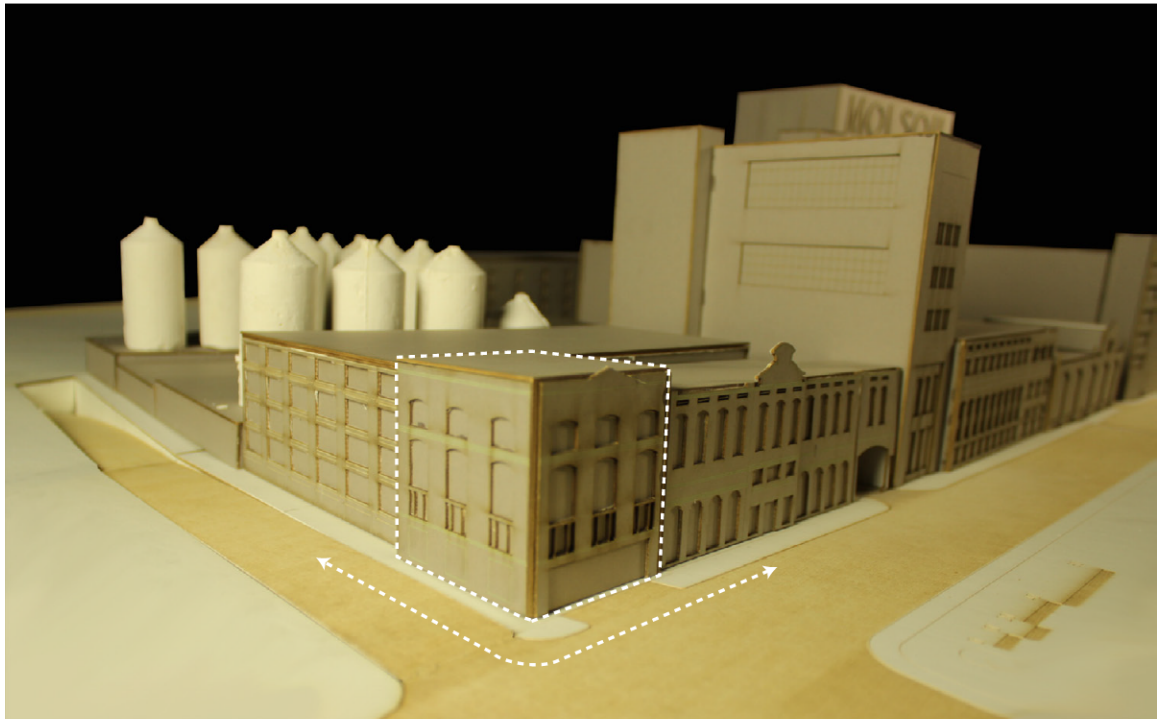


Fig 10: Present day urban corner condition depicted on physical model.

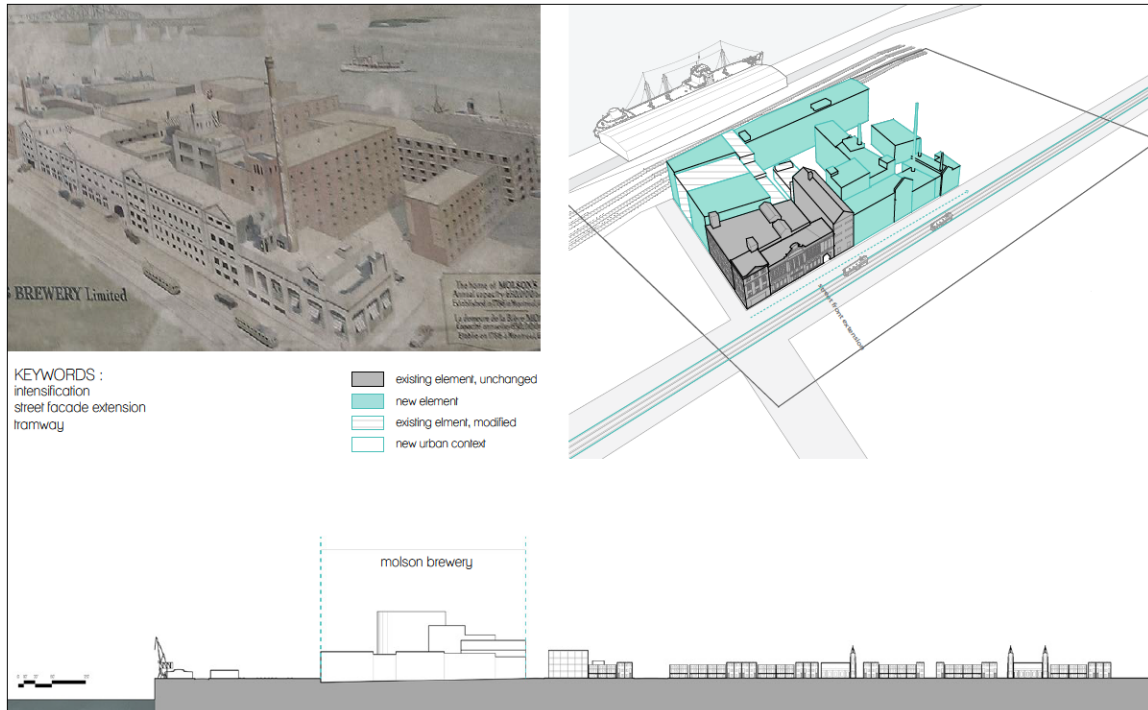


Fig 11: Post-Prohibition Expansion, 1922-1930 (Historical Imagery: BANQ 2015)



Fig. 12: Present day street facade condition depicted on physical model.

During the post-prohibition period of the late 1920s and early 1930s, the brewery expanded again. With the addition of new fermenting and boiler rooms, the street façade continued its westward progression (see figure 11).

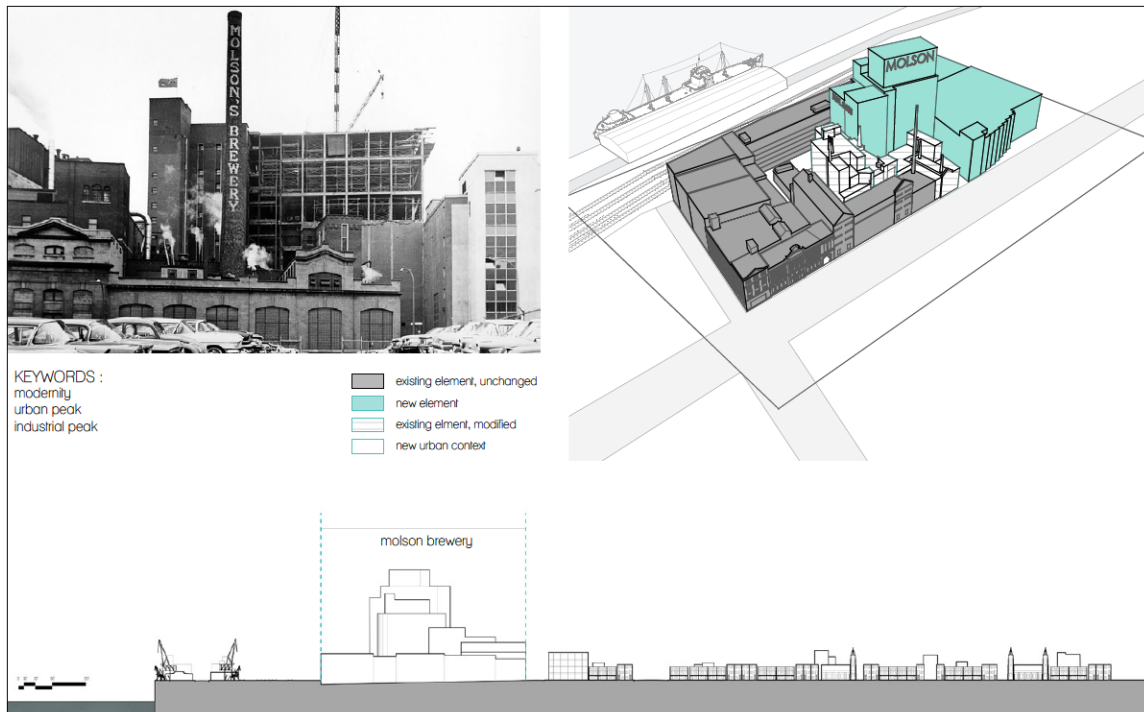


Fig. 13: Post-World War II Expansion, 1950-1965 (Historical Imagery: Maher 2015)

The post-World War II period marked Montreal's industrial peak. This period saw Montreal's port become the largest grain port in the world. Not to be outdone, during this period of growth, the brewery's largest and most recognizable building elements were added, taking their place in Montreal's evolving skyline (see figure 13).

From the 1970s onward, The Brewery made key modifications to existing buildings, but no major additions. These modifications included the partial demolition of 4 cellar storage buildings and their conversion into fermenting rooms, capped with distinctive cylindrical tanks. This slow-down in growth mirrored that of Montreal. Built in 1959 to facilitate direct maritime travel from the Atlantic Ocean to the inland ports of the Great Lakes, the Saint-Lawrence Seaway had the effect of weakening Montreal's shipping port operations, as inland-bound vessels no longer had to dock there before continuing to the Great Lakes. As such, the shipping port in the city's old quarter is relocated in 1976, shifting focus to handling containers. For the first time, the Molson Brewery's less composed rear façade is exposed to the river (see figure 14).

As Montreal's industrial sector declined, its economy diversified and the city undertook major modernization efforts, building large arterials to accommodate motor vehicles.

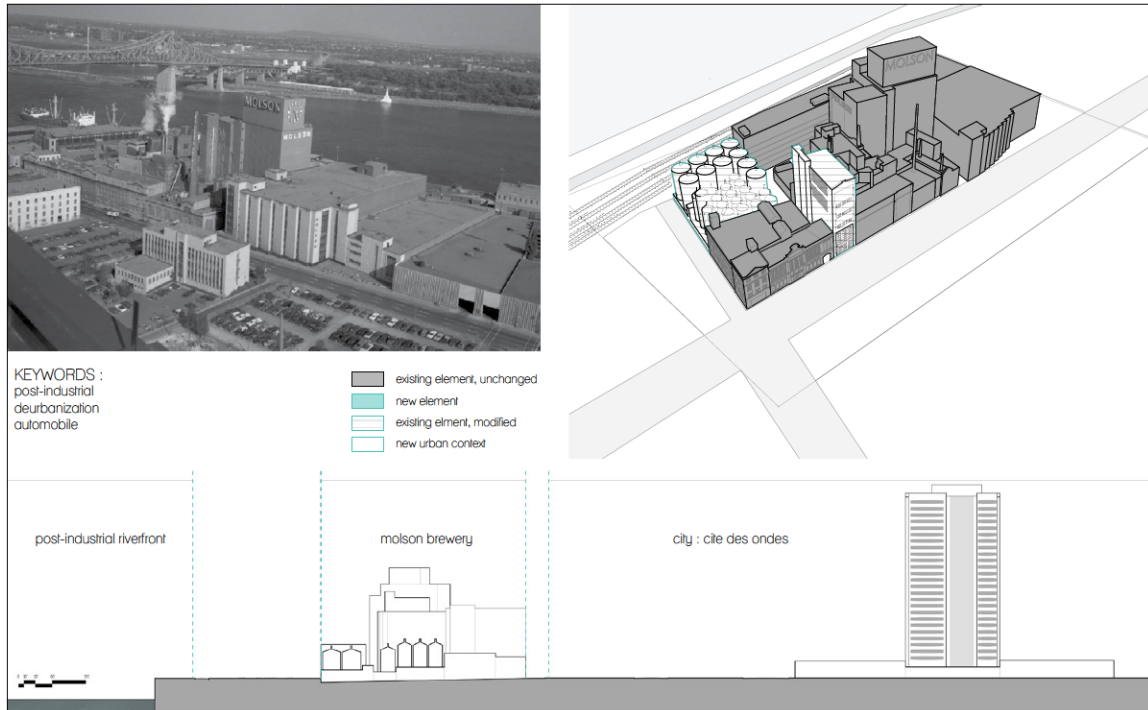


Fig. 14: Further Modernization, 1970-present (Historical Imagery: BANq 2015)

These arterials tore through the Sainte-Marie neighborhood, obliterating several city blocks. Major building projects in the area surrounding the Molson Brewery, such as the CBC/Radio-Canada tower exacerbated the neighborhood's fragmentation. (see figure 15) The Sainte-Marie neighborhood bore much of Montreal's industrial decline and while Montreal has largely transitioned its economy, Sainte-Marie's urban landscape of large thoroughfares and large building complexes replacing demolished factories and workers' dwellings epitomizes its decline (see figure 16). At present, the brewery's demands have outpaced its aging facility's ability to meet them on its current site without major modernization efforts in a context in which Montreal's remaining industrial clusters and support services have decentralized. As such, the Molson Brewery will build a new, modern, efficient facility on another Montreal site, vacating the site on which it has been located for generations.

### 1.3 Molson Brewery: Current Conditions

The Molson Brewery is intrinsically linked to Sainte-Marie and Montreal. The decline of industry and subsequent local modernization efforts have left its urban context fragmented. Seeking greater efficiency, the Molson Brewery is relocating, vacating its site of over 250



years. Based on the architectural information obtained, dissecting the current program distribution suggests that the brewery's layout does not allow it to function as an efficient industrial machine (see figure 15). Production, distribution and cellar storage facilities are not organized in a linear fashion as one would expect. Rather, they appear dispersed across the site without any functional coherence. It appears that circulation from brewing to fermenting to cellar to bottling facilities is difficult. The connections between building elements facilitating different programmatic needs are not evident, resulting in a fragmented industrial model. Furthermore, building sections reveal that many adjoining buildings have offsetting floors, furthering the notion that the facility is a fragmented complex of self-contained buildings (see figure 20), ironically analogous to its immediate urban context.

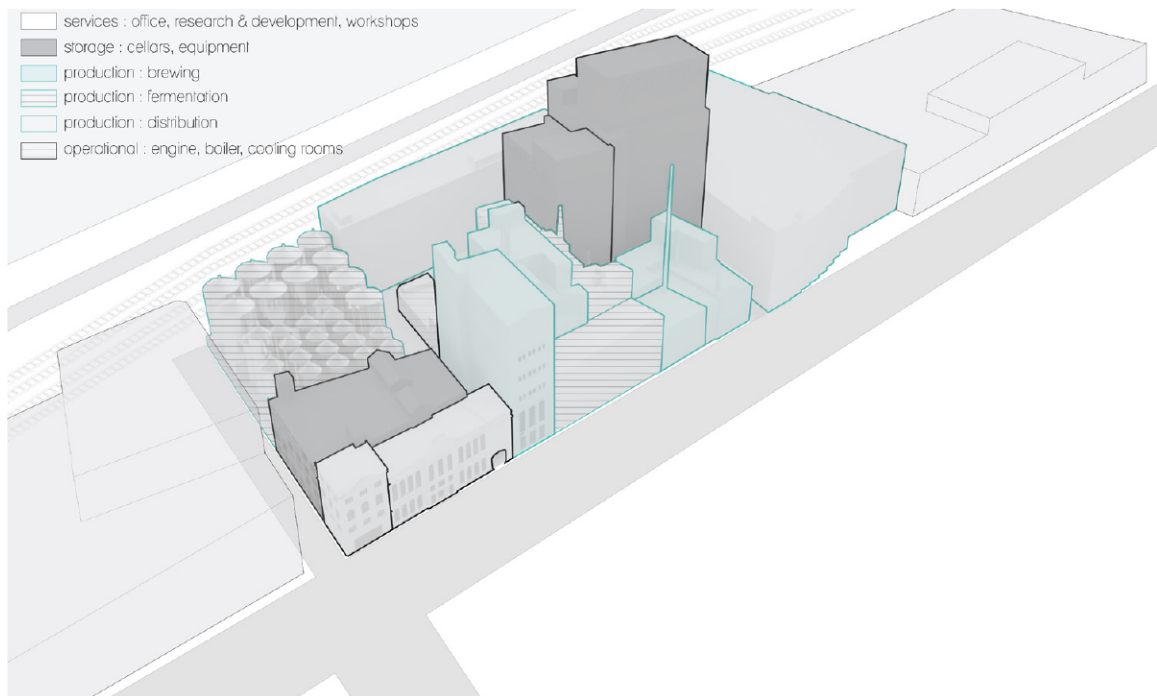


Fig. 15: Molson Brewery, Current Program Distribution

Therefore, as the Molson Brewery prepares to vacate its site, how can its adaptive reuse connect its fragmented elements to one-another, while addressing the needs of Sainte-Marie and Montreal?

#### 1.4 Montreal: Present and Future

In order to plan a meaningful redevelopment of the Molson Brewery that responds to its context, it is crucial to contextualize the present and future of Montreal and Sainte-Marie.

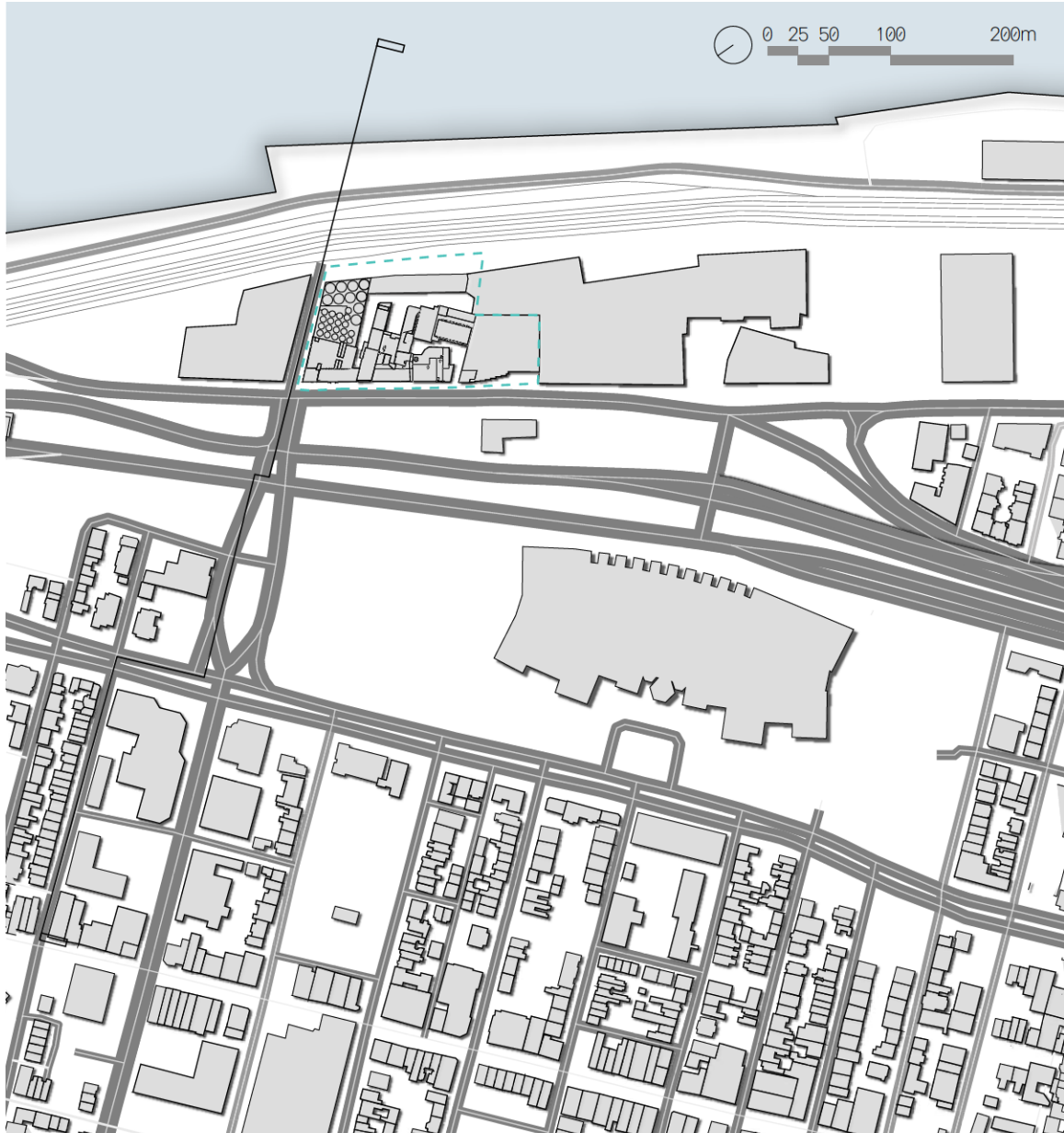


Fig. 16: Location Plan of Molson Brewery in Sainte-Marie with section corresponding to figure 17.

### **Smart City**

Montreal's industrial economy has largely transitioned to a service-based economy centred around finance, aerospace, pharmaceutical and creative industries. It was selected as one of 21 world "Smart Cities" by the Intelligent Community Form in 2014 (Ville de Montreal 2014), reflecting its significant start-up culture and its position as the largest university city in Canada with over 170,000 university students and 350,000 post-secondary student (CongresMTL 2011). Montreal is actively seeking to build upon its embedded talent pool

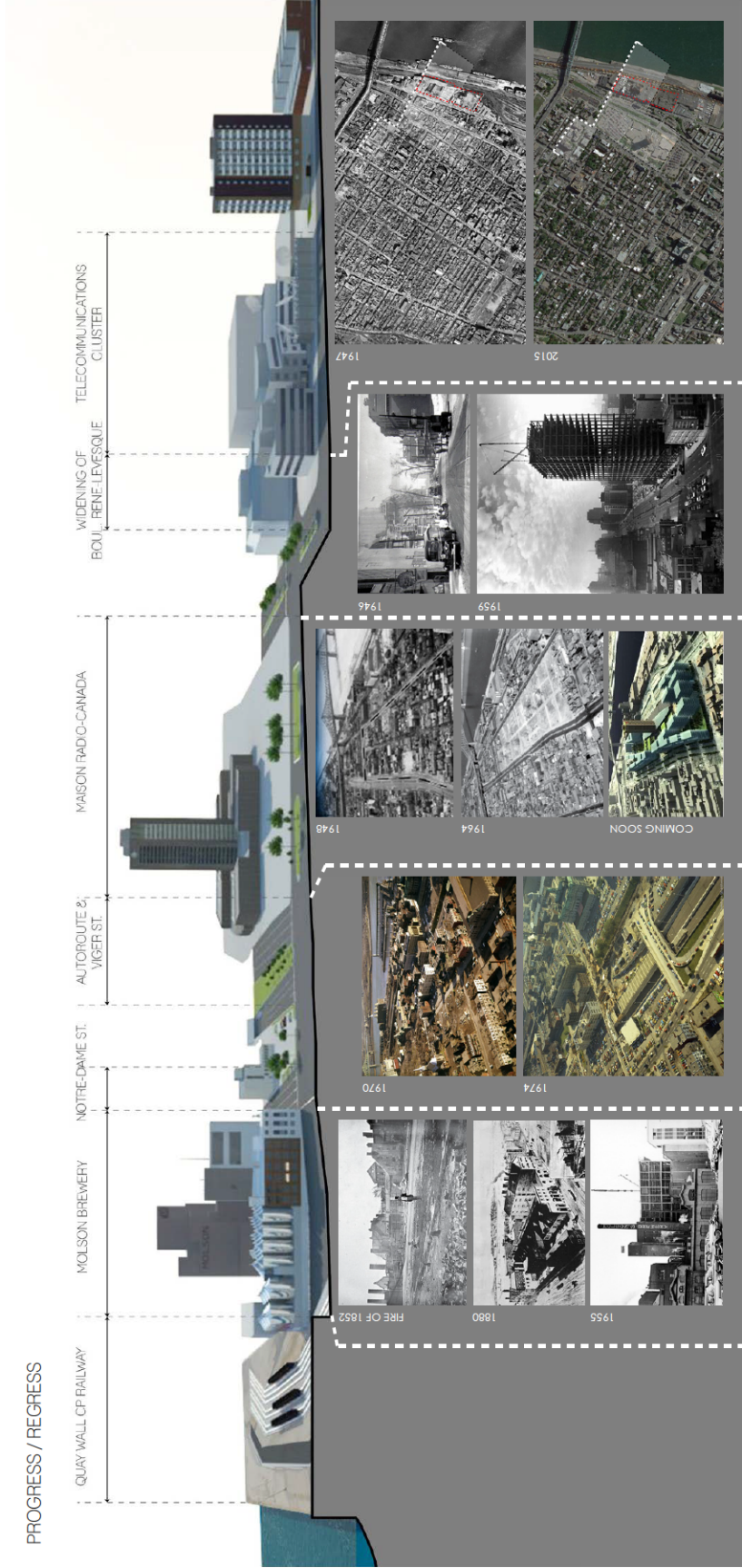


Fig. 17: Location Section through Southern Sainte-Marie showing Molson Brewery context, with timeline of urban barriers and decay



through the *Smart and Digital City Initiative* which seeks to:

- Develop smart infrastructure, water and environmental management systems
- Support start-up industries and stimulate innovation and creativity
- Use public spaces as test laboratories for innovative technologies
- Promote the creation of learning centres throughout the city

(Ville de Montréal, 2014)

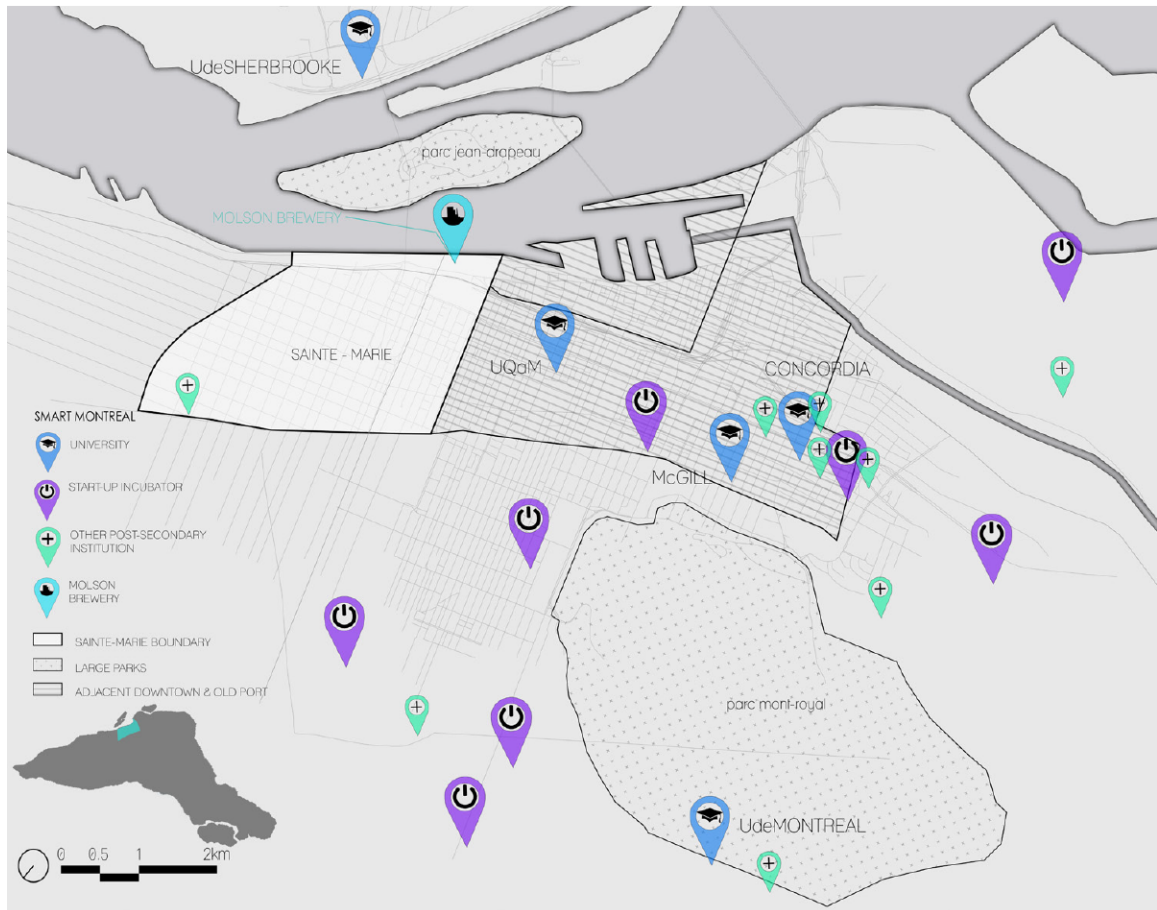


Fig. 18: Montreal's smart city network, mapping all post-secondary institutions and start-up incubators in Central Montreal.

## Recreation

Montreal has an extensive network of recreation along the Saint Lawrence riverfront, a vital aspect to the city's public realm. At the heart of this network is the linear promenade at the Old Port. After the shipping port relocated downstream in 1976, the city completed the first section of a linear park along the port quay in 1981 (Old Port of Montreal 2015). This promenade has since expanded to reach the famous Clock Tower and Cold-Storage Warehouse, two industrial icons that have been converted to new vocations (Old Port of



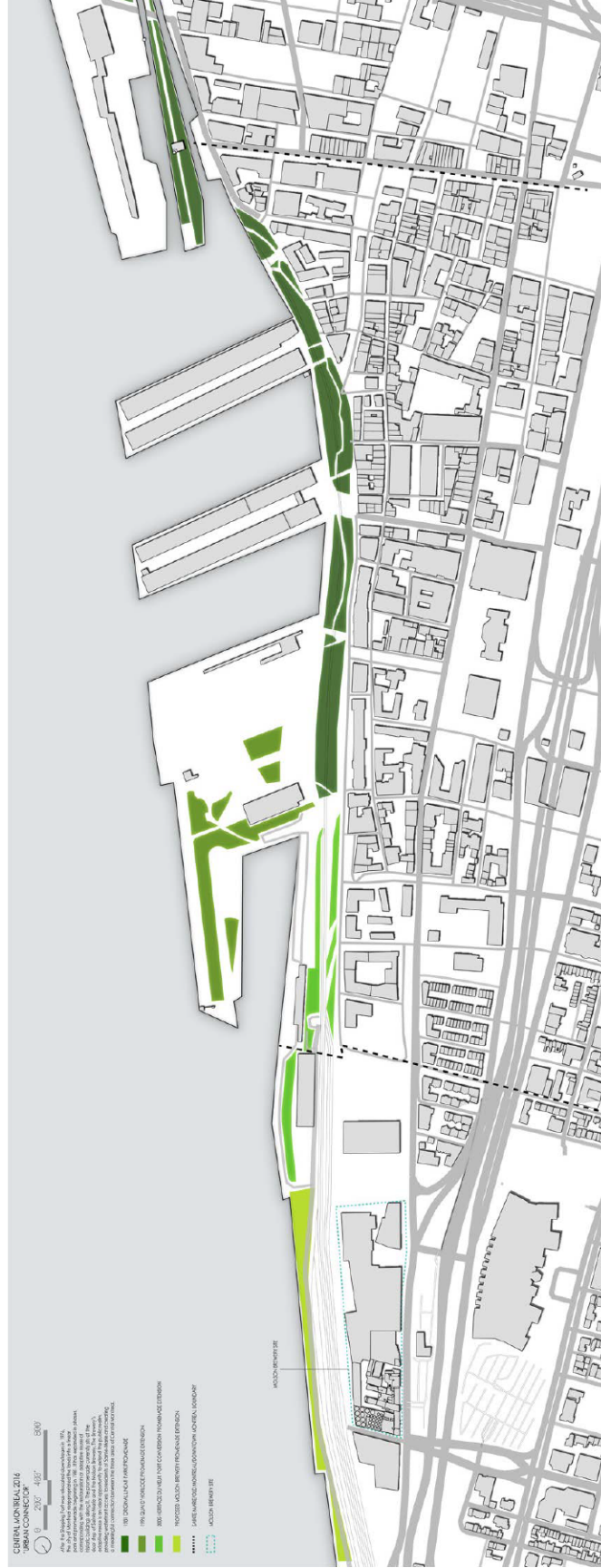


Fig. 19a: The linear park promenade connects the three quarters of Central Montreal. The time is right to expand it into Sainte-Marie and the Molson Brewery redevelopment provides an ideal opportunity to do so.

Montreal 2015). This linear path now reaches the very doorstep of Sainte-Marie and the Molson Brewery and form a crucial link between the city and any redevelopment efforts (see figure 16a). As the city's 375th anniversary approaches, the time is right for such an investment in the public realm. One crucial barrier exists, however. The less-frequented CP Railway tracks block access to the waterfront, behind the Molson Brewery. With the decline of industry in Sainte-Marie, it is time to examine the situation of some of its post-industrial infrastructure. Although the railway tracks are still in use and cannot be demolished, the municipal opposition party, Project Montreal, suggests submerging and covering the tracks with a concrete slab, above which a pedestrian promenade could be created. As seen in figures 19b and 19c, they have commissioned a feasibility study into how this would be accomplished. This thesis will adopt this approach to remove a crucial barrier and facilitate pedestrian access to the waterfront.

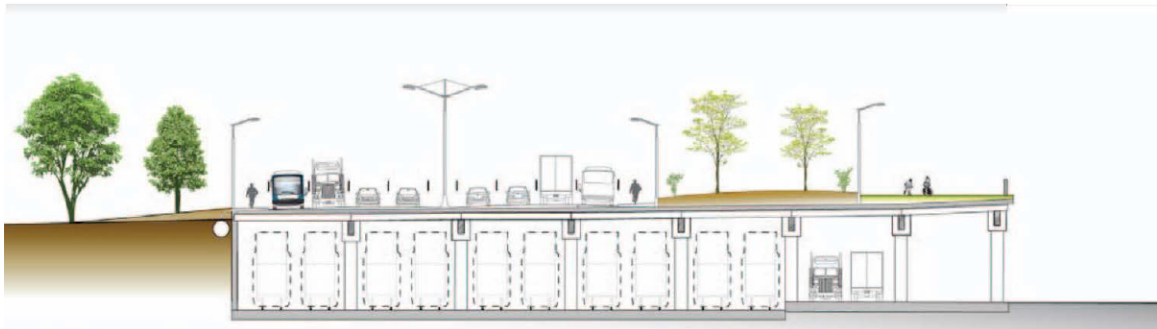


Fig. 19b: Schematic section of a slab built over existing CP railway to allow for activity above (Projet Montréal, 2011)

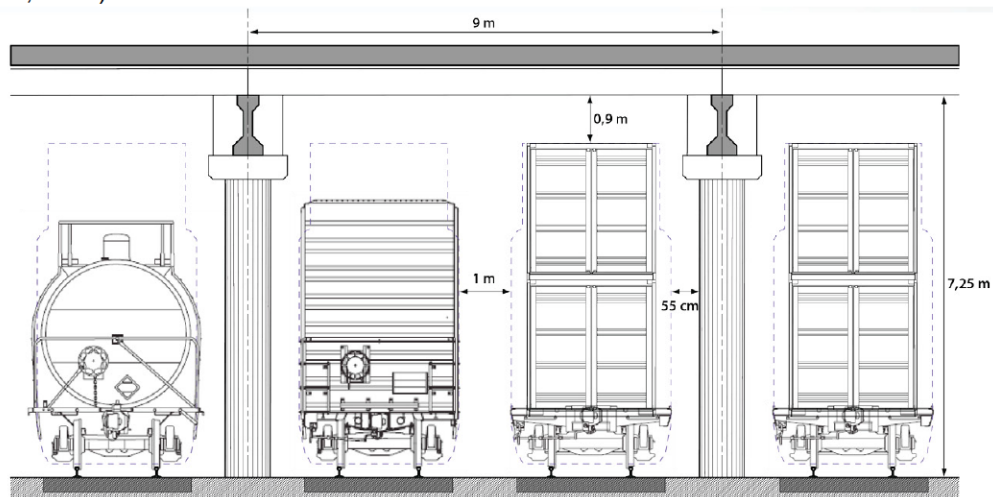


Fig. 19c: Schematic detail of slab built over existing CP railway (Projet Montréal, 2011)

## Creative Transition

Sainte-Marie's urban landscape is one of transition. It is evident that the neighborhood



Fig. 20: Map of creative and cultural enterprises in Sainte-Marie, including Cité-des-Ondes



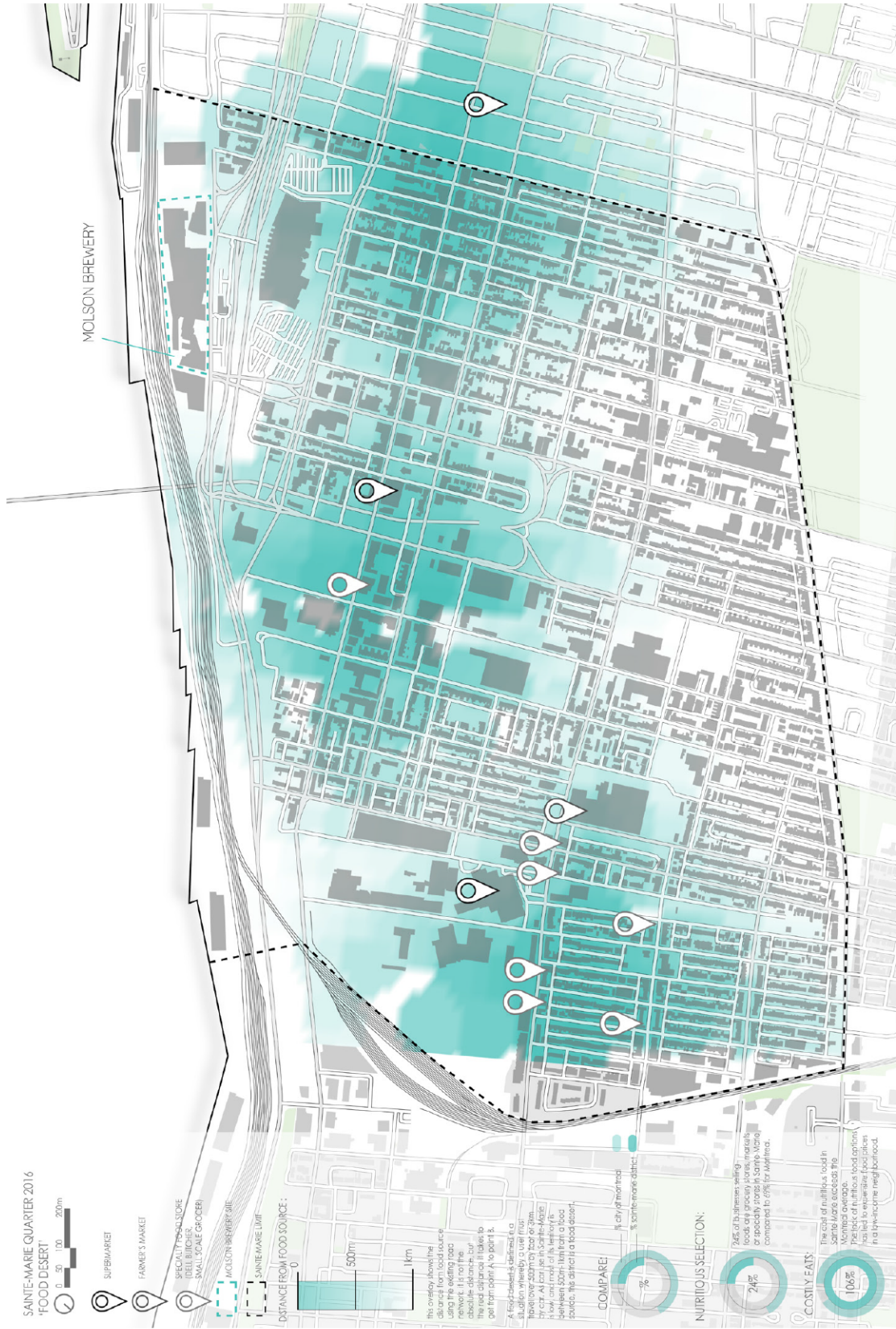


Fig. 21: Map of food security in Sainte-Marie. Large parts of the neighborhood qualify as a food desert.

has had difficulty adjusting to the slow disappearance of its industrial base. Interestingly, this transition began in the 1960s with the creation of a telecommunications district known as Cité-des-Ondes (City of Radiowaves). Most of the city's telecommunications outlets are based here, in the area between the Molson Brewery and residential Sainte-Marie. These are city-scaled buildings that do not address the neighborhood context. Recently however, Sainte-Marie's resilience has become evident as smaller, more local arts and culture enterprises have clustered around the Cité-des-Ondes (see figure 20). Sainte-Marie's economy has benefited from the transition to the increased presence of cultural enterprises. This transition should be encouraged, by implementing cultural and creative facilities spaces as part of the Molson Brewery redevelopment.

### **Food Security**

One local concern in Sainte-Marie is food security. Only 24% of businesses selling food are grocery stores, markets or specialty food stores (delis, butchers etc.) compared with 69% for Montreal. While the access to nutritious food is limited, the average price of food is actually higher in Sainte-Marie (a low-income district) than the Montreal average, reflecting the lack of food options. A food desert is defined as a situation in which a user must travel over 500m by foot or 3km by car to access nutritious food (Office de Consultation Publique de Montreal 2011). As can be seen in the figure 21, much of Sainte-Marie can be defined as such. As Sainte-Marie continues to attract new residents, the strain on this system will be exacerbated.

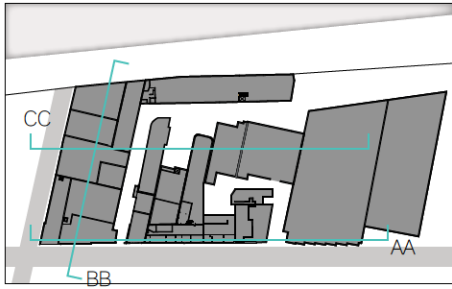
## **1.5 Conceptual Strategies**

### **Scale**

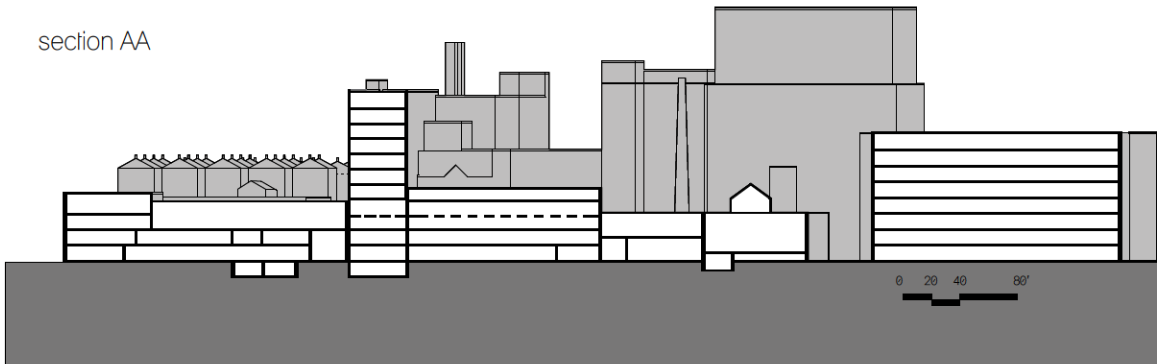
The first challenge when analyzing the Molson Brewery is scale. It is an immense industrial complex some 865 feet long and 375 deep. Its footprint is similar to 12 Montreal city blocks. Its gross floor area is mid-way in between that of Place Ville-Marie and the Empire State Building (see figure 23). Therefore, it is fitting to analogize the brewery as a city in scale.

### **Program**

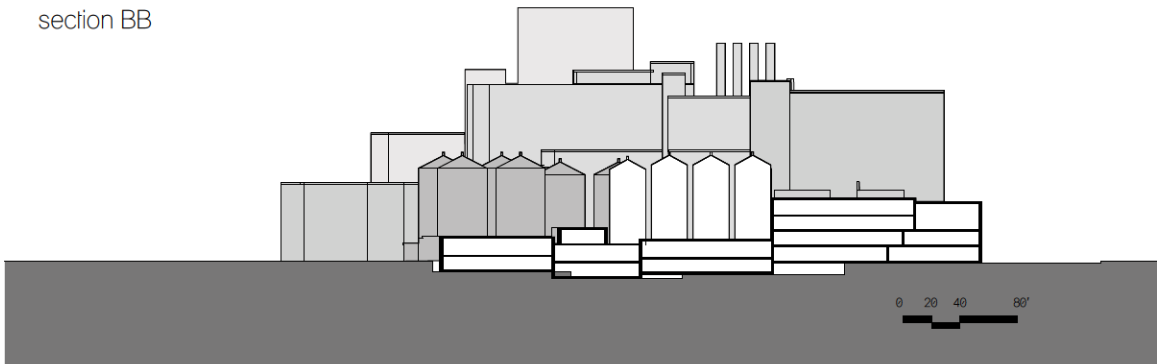
The immense scale of the brewery complex and its analogy of *building-as-city*, raise the question of what program will be addressed as part of its redevelopment. The complex is



section AA



section BB



section CC

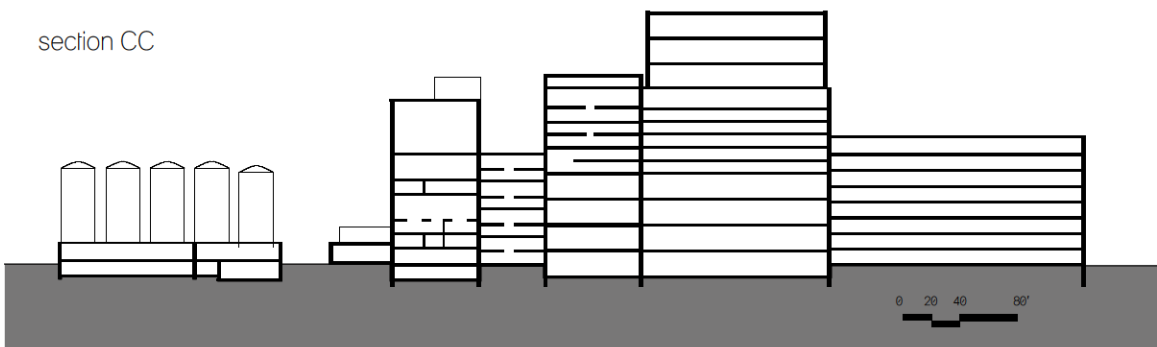


Fig. 22: Existing Building Section depicting offsetting floor condition at several building junctions

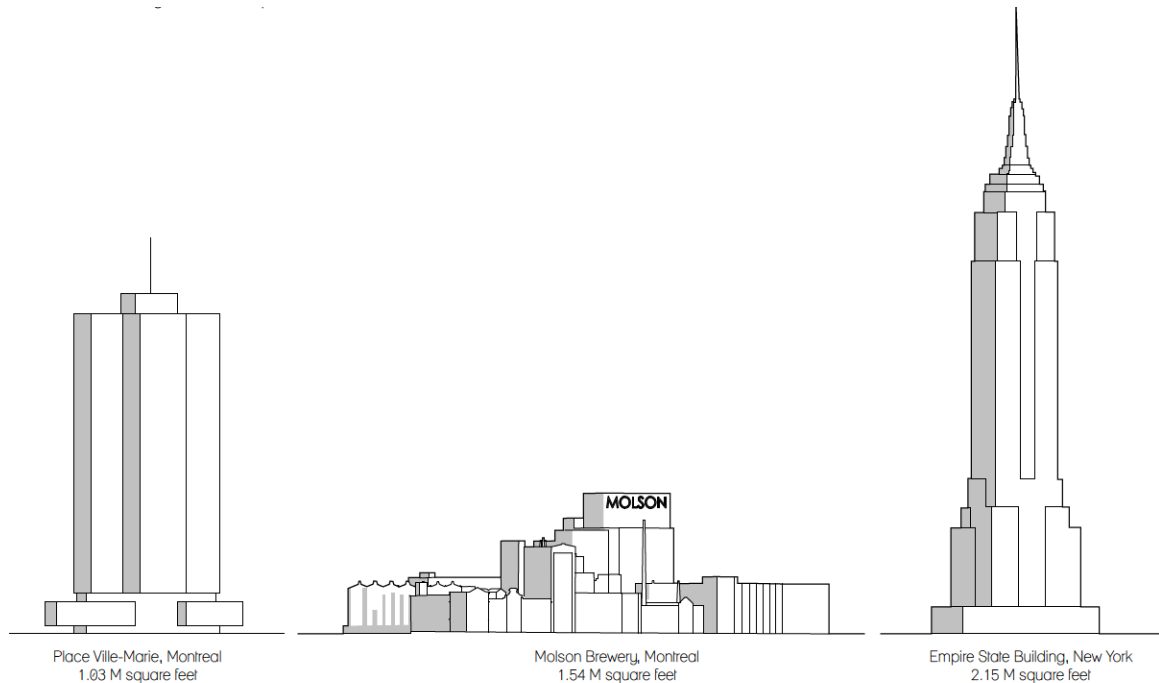


Fig. 23: Molson Brewery Scale Comparison

far too large to accommodate a single program, so many different programmatic elements must be introduced. In order for this redevelopment to address the needs of its context, it must incorporate a diversity of programs to support the current and future needs of Montreal and Sainte-Marie. The redevelopment will address Montreal's *Smart City Initiative* by incorporating technology start-up incubator spaces, test laboratory spaces for innovative technologies, co-working spaces and spaces for congress. These programs interact well with additional programs support Sainte-Marie's burgeoning creative scene, such as gallery spaces, an auditorium and a media library. A public market, vendors' stands for local artisans and producers as well as retail space can address the neighborhood's food security issue. Affordable and market rate housing can ensure that this redevelopment is active around the clock while providing housing for the area's growing population. Lastly, housing for the Molson Archives as well as a "Brewseum" will remind the public of the Brewery's legacy in the city.

### Fragmentation and Connectivity

Analogizing the Molson Brewery to a city reveals more than just its scale. The brewery complex is current a series of fragmented, self-contained buildings. This thesis must connect the parts in order to give identity to the whole. The elements of the brewery



must be connected to one another via a system of linked units. Furthering the analogy of *building-as-city*, the brewery complex will be broken down into a hierarchy of constituent districts and buildings linked together a corresponding hierarchy of urban infrastructure elements, also linking the brewery to the urban web beyond. Each district will house a different but complimentary program to another, ensuring cross-activity and interaction across the site.

## 1.6 Case Studies

### Incorporating Program: Battersea Power Station

The Battersea Power Station is a London industrial landmark and has become iconography in popular culture. It is currently undergoing a massive adaptive reuse project to transform the decommissioned coal-fired power plant into a “mixed-use neighborhood” (Batterseapowerstation 2014). Although the overall masterplan includes several phases of additions, the redeveloped power station itself will accommodate residential, retail, cultural, recreational and office facilities within its walls (Batterseapowerstation 2014). Some useful conclusions can be drawn from this project with respect to the Molson Brewery redevelopment. While the Power Station’s approach of integrating a wide range of programme is undoubtedly a strength, most of this program is housed in the many new additions (see figure 24), which is not an option for the brewery redevelopment. Thus, the Battersea Power Station’s adaptive reuse does not make it a city-building in and of itself.



Fig. 24: The Battersea Power Station is only a small part of the overall project and can not be described as a ‘building-as-city.’ (Batterseapowerstation 2014)



## Redvelopment of The Industrial Monument: De Meelfabriek Mill

The De Meelfabriek Mill in the Dutch city of Leiden is a large scale industrial complex of buildings dating back to 1896. The complex is currently being redeveloped by Peter Zumthor as part of a large urban renewal projects. Several parallels can be drawn between the Molson Brewery and De Meelfabriek. Both have great heritage values to their respective locales and both are being redeveloped as the industrial base of their locales has eroded around them. Like the Molson Brewery, De Meelfabriek stands as “a monument in the townscape” (Zumthor 2010). Furthermore, similar to the Molson Brewery, De Meelfabriek is cut-off from its surrounding urban context and closed to the public.

Zumthor's masterplan consists of eliminating six of the thirteen buildings on site and erecting 4 new structures. (Zumthor 2010). All industrial buildings remain, as they represent a diversity of industrial building types while secondary buildings are demolished (Zumthor 2010). The architectural treatment of the remaining industrial buildings consists of removing all of their facades and preserving all interior structure. As can be seen in figure 25, the urban renewal project seeks to incorporate residences, a hotel, cultural facilities and retail (Overview of De Meelfabriek 2016).

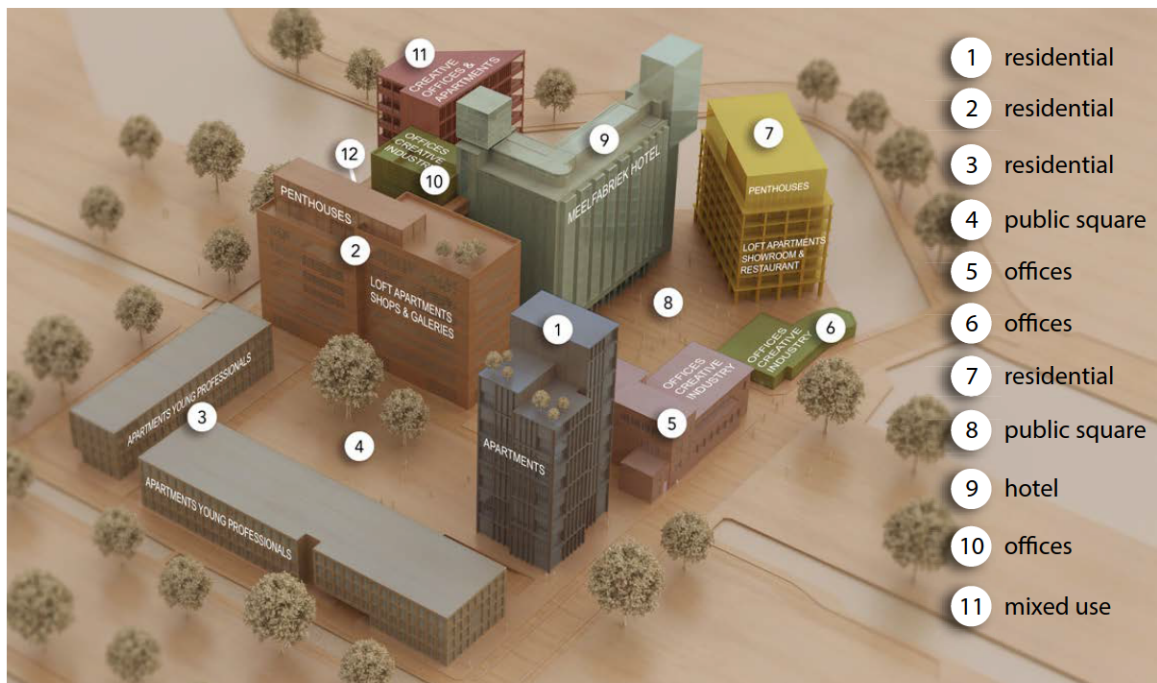


Fig. 25: Programmatic Axonometric of De Meelfabriek Redevelopment (Overview of De Meelfabriek 2016)

## Building-as-City: Amsterdam Orphanage

The analogy of building-as-city within the architectural field is not new. Aldo Van Eyck spoke of his Amsterdam Orphanage as “a small urban study” (Fracalossi 2011). It was to simultaneously be a home for children and the plan of a small city.

He created a decentralized urban node with many points of interaction within the plan. He created a building with many in-between conditions to break down the hierarchy of spaces. (Fracalossi 2011)

Upon analyzing the plan of Van-Eyck’s orphanage, a system of connectivity and hierarchy of spaces is clear. The public, central artery of the orphanage acts as a street through the building off of which both large and small courtyards connect. The large courtyards are the organizing elements for large program blocks (or districts), whereas the small courtyards feed into the more intimately-scaled children’s spaces around them. The courtyards also provide entry and exit to and from the building and grounds.

The entrance and administrative spaces connect with the street, the large courtyard, as well as with residential units. Van Eyck avoids creating a central point within the Orphanage by allowing for such fluid connections between all spaces. (Fracalossi 2011)

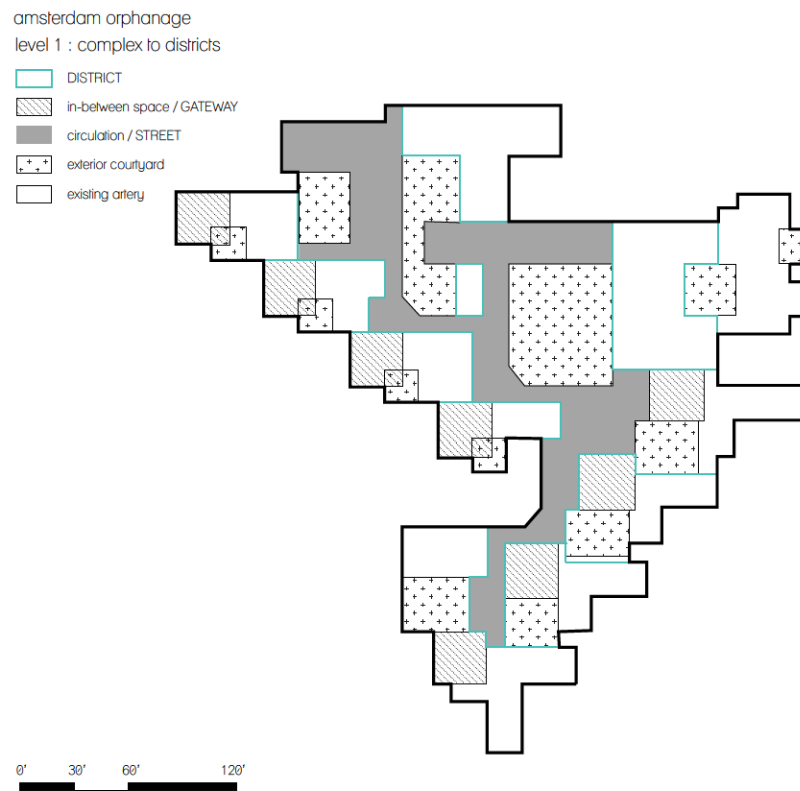


Fig. 26a: Diagram of Amsterdam Orphanage hierarchy. The ‘street’ connects all program blocks (districts) via large and small in-between spaces corresponding to the size of the program block.

By comparison, The Molson Brewery features one main trajectory feeding in from Notre-Dame street, accessing the perimeters of most building elements. This trajectory has the potential to act as the public artery in Van Eyck's orphanage does. It can become the main organizing element of the site off of which other key connections are made.

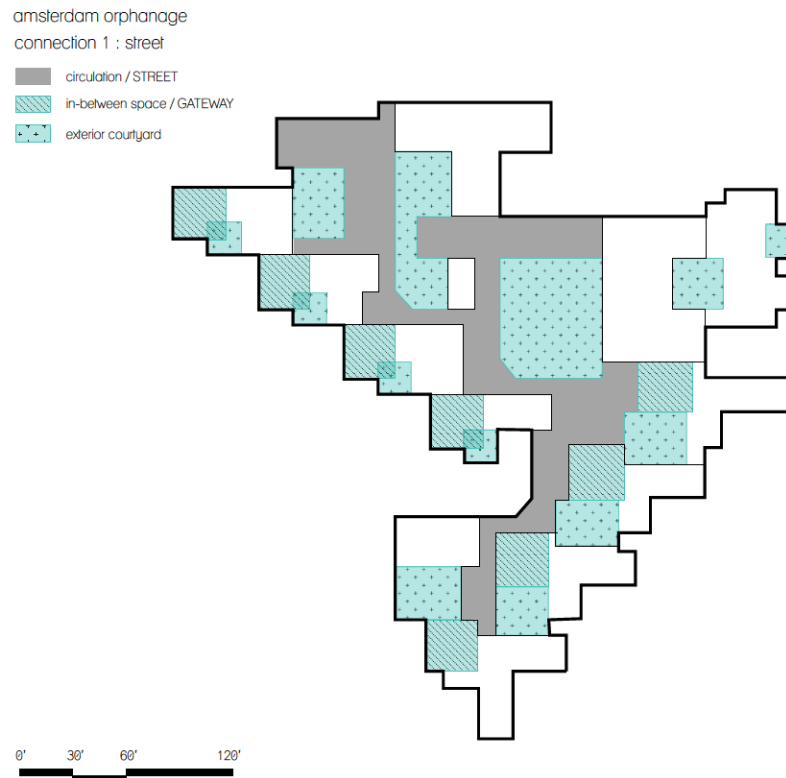


Fig. 26b: Diagram of connective elements (gateways) of the Amsterdam Orphanage. Large and small elements connect the street to the program areas.

### Building-as-City: The Venice Hospital

The Venice Hospital, by Le Corbusier and Guillermo Jullian de la Fuente, an attendee of Team 10 meetings, is an unbuilt hospital project that epitomizes the building-as-city paradigm, in that it has two distinct hierarchical levels and two connective hierarchies (see figure 27). Some Team 10 strategies are apparent in this project and, as such, parallels can be drawn between the Venice Hospital and Van Eyck's Amsterdam Orphanage.

Similar to the Amsterdam Orphanage, the first level in the Venice Hospital's hierarchy features distinct care units (districts within the hospital "city"). Each district corresponds to a particular treatment area within the hospital (Fabrizi 2014). Within each district, there are four smaller care units, corresponding to the second level of the hospital hierarchy. Once again, similar to Van Eyck's orphanage "city," each district is organized around a square,

corresponding to the focal point at which the hierarchical level changes. At the first level of the hierarchy, large circulation streets connect each district via their central squares. At the second level of the hierarchy, smaller streets connect elements within each sub unit. It is important to mention that these circulation streets function the same way at both levels of the urban hierarchy. The first order streets connect the each district in the complex via their squares and a system of larger outdoor courtyards (see figure 27a). The second order streets connect each sub-unit within a district via smaller squares (see figure 27b). The streets' principle of connectivity is the same at each hierarchy, only scaled appropriately.

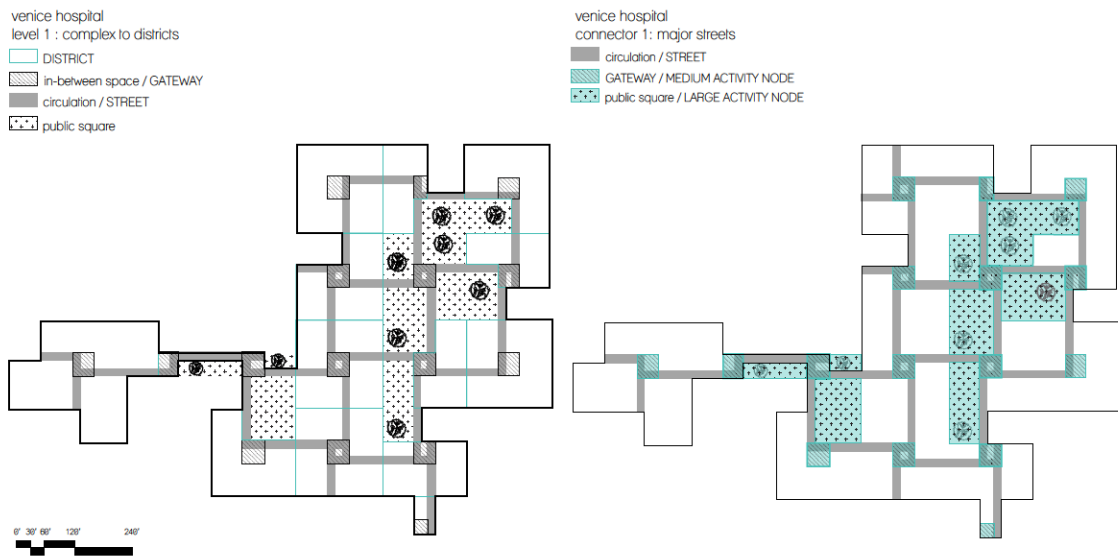


Fig. 27a: First hierarchical level showing “districts” within “the city” (left). This level is connected via a system of circulation streets and central squares (right).

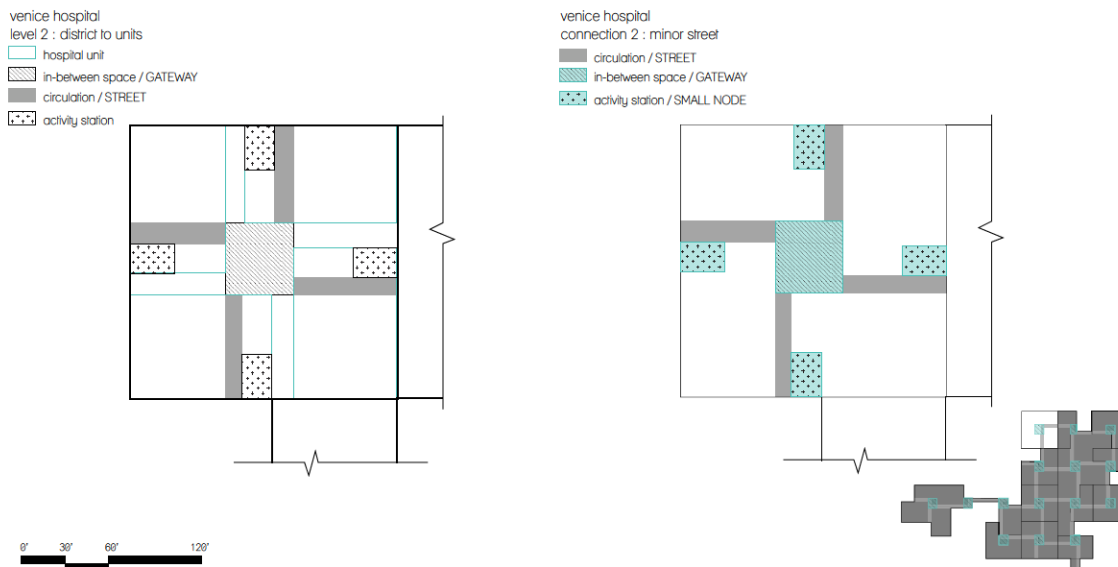


Fig. 27b: Second hierarchical level showing sub-units within the “district” (left). This level is connected via smaller circulation streets and squares (right).

## CHAPTER 2: THESIS STRATEGY

The Molson Brewery, seen analogous to a city, will be broken down into constituent districts, each addressing a different but complimentary general programmatic need relating to the needs of Montreal and Sainte-Marie. The districts will in turn be broken down into their constituent buildings, housing specific programs. The existing fragmented condition of the Molson Brewery will allow for the systematic identification of districts, to be unified by an urban motorway condition. The terms town, community and building are not to be taken as absolutely literal. They are ideas for expressions of the brewery complex as an urban microcosm.

### 2.1 Theoretical Framework

#### The Urban Web

It has been shown that the Molson Brewery is of a similar scale to a small town, and this thesis proposes that it function as an urban microcosm. As such, it is necessary to analyze theory on urban design. Urban Web Theory, as put forth by Nikos Salingaros in conjunction with the works of Christopher Alexander and Jan Gehl, stipulates that an urban setting at any scale can be broken down to a hierarchy of human activity nodes and their connections to one another (Salingaros 2005, 10). A node is anything that “serves to reinforce human activity” (Salingaros 2005, 19). Thus, a node can be a large programmatic element, like a library, which can in turn be broken down into small constituent nodes like meeting rooms, individual workstations or seating for quiet reading. The placement of activity nodes generates connections between them, ultimately creating architecture in the urban web. When the urban web reaches a point of critical mass, a hierarchy of connections at different scales must be developed to sustain it (Salingaros 2005, 33). Creating a functional urban microcosm within the Molson Brewery (analogous to a town) has implications on a larger scale. If a successful urban web can be created out of a fragmented post-industrial complex, then the same principles can be applied on a larger scale, such as the fragmented Sainte-Marie Quarter.

The large scale complexes in the Sainte-Marie Quarter act as vacuums for local activity, as most large scale buildings do. This centralizing force destabilizes the balance of the



surrounding urban web, siphoning activity away from other areas. The Molson Brewery is a complex composed of several constituent buildings of varying scale, of which there is a necessity within a proper urban hierarchy (Salingaros 2005, 72). To embody the *building-as-city* idea, The Molson Brewery must be decomposed into smaller units supporting a range of complimentary programs.

### **Team 10 Theory of Connectivity**

Traditionally some large-scale thing or some unique configuration was the thing that made the whole community structure comprehensible and assured the identity of the parts within the whole. Our most obvious failure is the lack of comprehensibility and identity in cities, and the answer is the 'Urban Motorway' lifted from an ameliorative function to a unifying function. (Smithson 1968, 48)

Team 10 proposes that the aim of urbanism is clarity of organization (Smithson 1968, 48) at all building scales – from the whole to the parts and that the primary unifier of these elements is the street, appropriated today to signify large scale circulation infrastructure. The street is capable of unifying the parts of the city, its sub-divisions, each of which must be different from the other to facilitate interaction between them. This forms the basis of three key definitions of “associational elements” put forth by Alison and Peter Smithson:

- 1) The city implies an intellectual contact community.
- 2) The district implies an acquaintance contact community.
- 3) The street implies a physical contact community. (Smithson 1968, 48)

Moving forward, these definitions will convey ideas for analogous expressions, and not literal realities. Therefore, using these ideas, it is possible to conceive of a community as a linked-system of these associational elements, each of which is expressed architecturally in order to give identity to the parts within the whole, as stipulated by Team 10. The urban system consists of a hierarchy of elements. The town, divided into constituent districts which can in turn be divided into constituent buildings. The districts are unified by a large scale urban infrastructure, “the urban motorway,” to form the town. The buildings are unified by smaller scale urban infrastructure, “the streets,” to form their respective districts. This argument forms the basis of the urban strategy for this design thesis.

The studies of association and identity led to the development of systems of linked building complexes which were intended to correspond more closely to the network of social relationships rather than the existing patterns of finite spaces and self-contained buildings. (Smithson 1968, 52)

## 2.2 Hierarchy of Elements

The Molson Brewery “city” redevelopment will have two levels of hierarchy, districts-within-the-city and buildings-within-the-district from largest to smallest. There are two hierarchical levels of “streets” connecting the two levels of urban hierarchy.

### City

The city refers to the brewery complex in its entirety, in the same way that the Venice Hospital and Amsterdam Orphanage are buildings-as-cities. It is its own urban web within a much larger system. As such, it must be sub-divided into constituent districts.

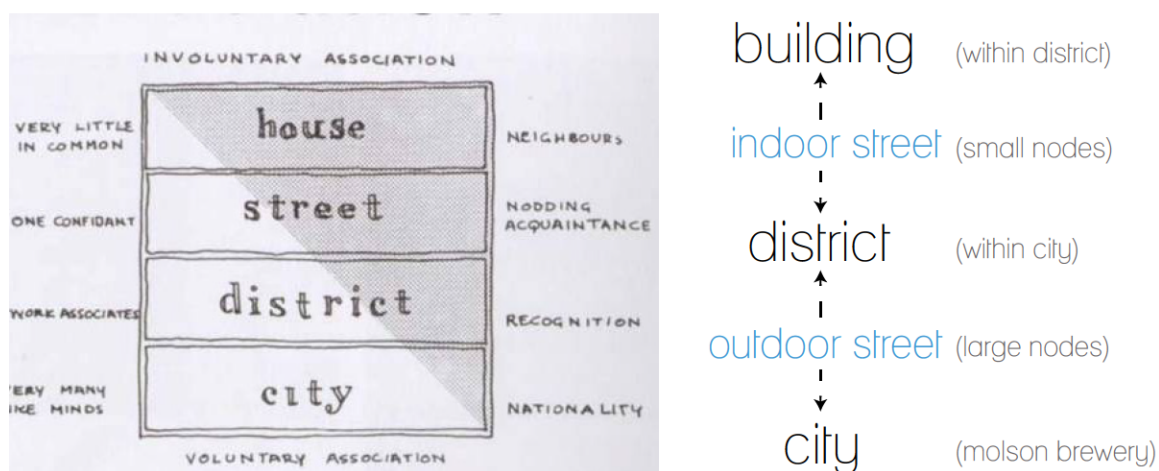


Fig. 28a (left): Alison Smithson, Levels of Association in the urban hierarchy from smallest level to largest level (Smithson, 1968)

Fig. 28b (right): Molson Brewery levels of association from smallest level to largest.

### District

The concept of a balanced, self-contained community is both theoretically untenable and wasteful. (Smithson 1968, 79)

A district is defined by Team 10 as an acquaintance community (Smithson 1968, 48). A district is a collection of adjacent buildings of similar characteristics within the Molson Brewery complex. In determining the district boundaries, several characteristics were taken into account, similar urban typology (see figure 30a), shared historical period, current programme (see figure 15) and shared ground floor (see figure 30b). Each district must be complimentary to but different from the next, as outlined by Team 10. Were a district to be completely self-sufficient, interaction between two districts would not occur and a functional urban microcosm could not be achieved.

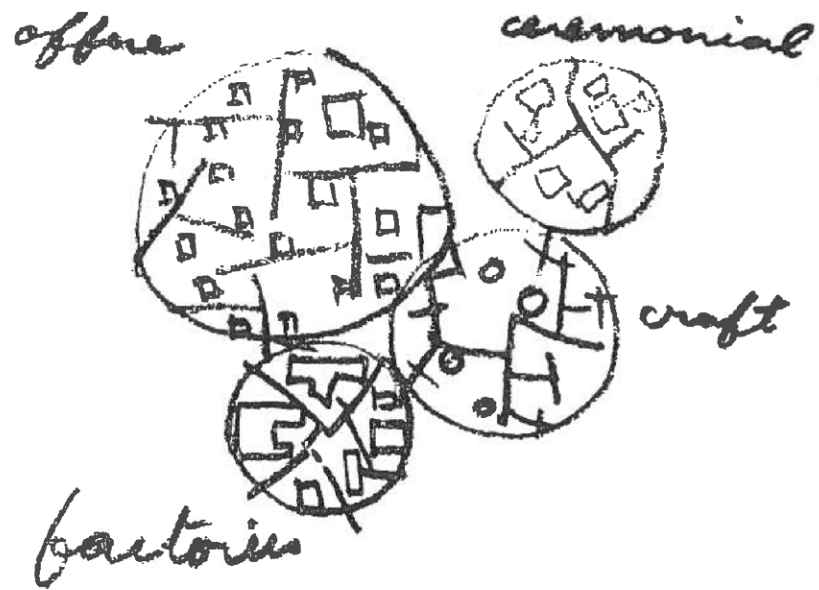


Fig. 29: Alison Smithson, Pattern of Association - Each district with a different function (Smithson, 1968)

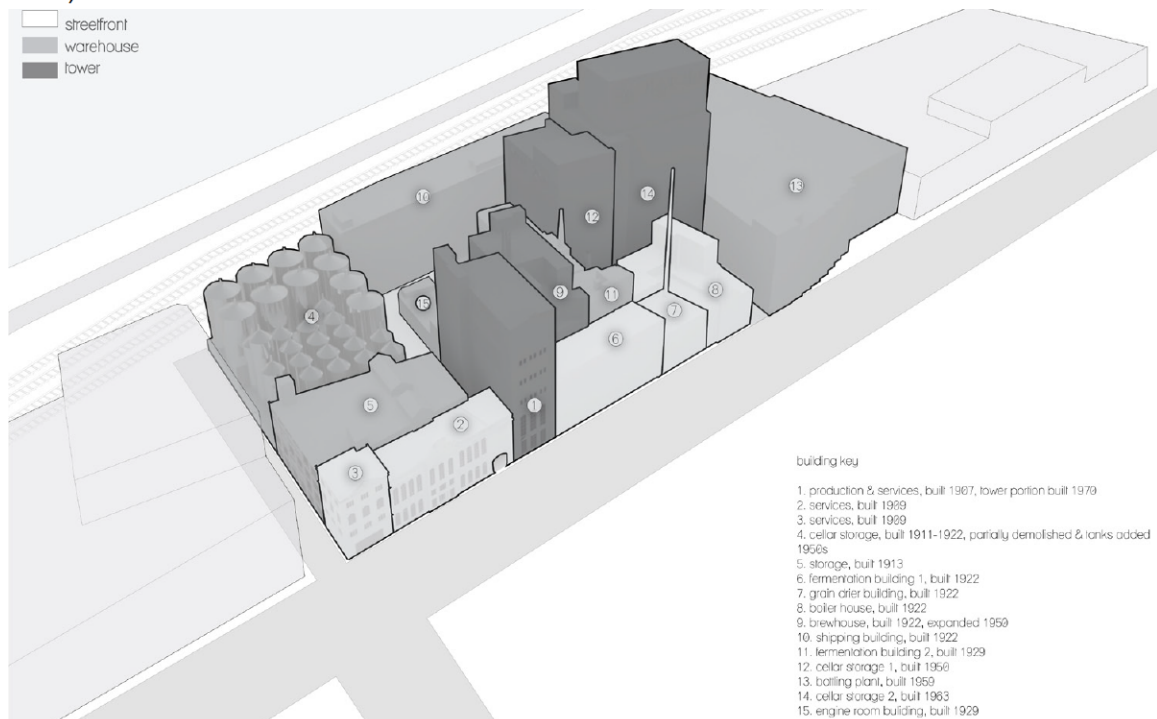


Fig. 30a: Existing Condition: Urban Typology

Each district has a distinct programme overview, corresponding to the needs of Sainte-Marie and Montreal. Programme is assigned to districts based on the constituent buildings' existing architectural compatibility. Figure 31 depicts the composition of the urban districts of the Molson Brewery complex.



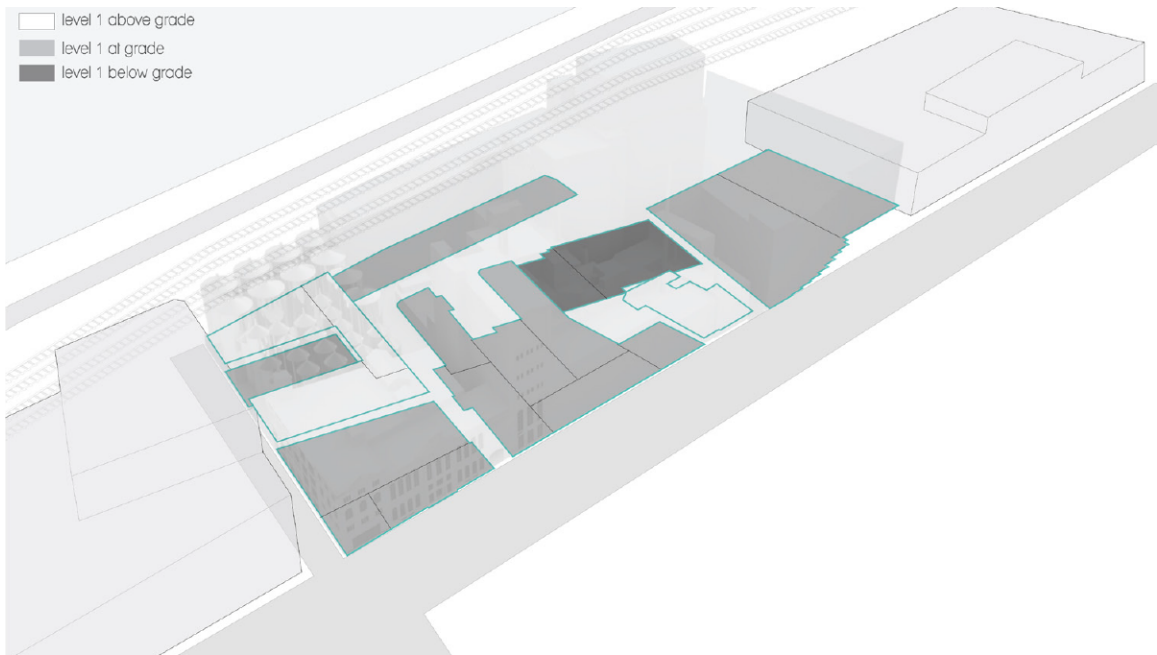


Fig. 30b: Existing Condition: Shared Ground Floor

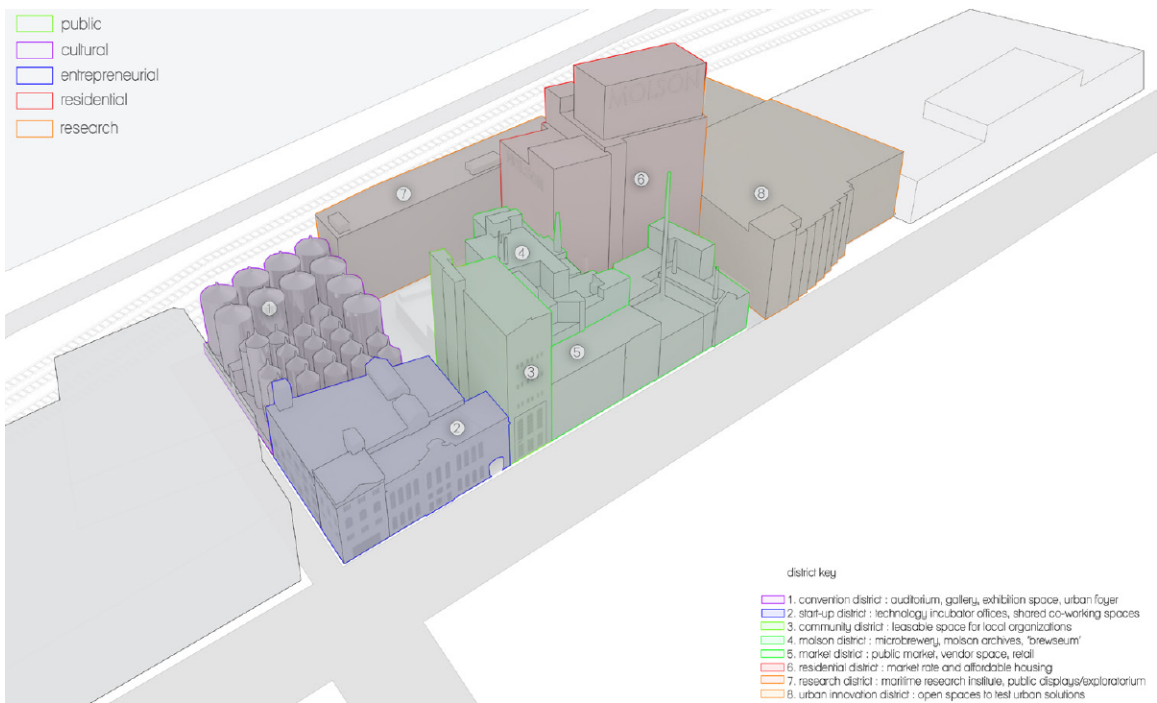


Fig. 31: Urban Districts Breakdown

## Building

A building within a district corresponds to an individual construction. Each building has a specific program within its district's general function. It is the smallest unit of Molson Brewery redevelopment, analogous to the house in figure 28a.

## 2.3 Connections

Much like the Venice Hospital, the Molson Brewery redevelopment will have two hierarchical levels of connective streets, the outdoor street and the indoor street. These streets are brought together by a system of in-between “gateway” spaces, joining the two connective systems (districts-in-city, buildings-in-district).

### Connecting City to Districts: The Outdoor Street

The Outdoor Street is the first level of connection. It is the primary unifying element. Referred to as the *Urban Motorway* by Alison and Peter Smithson of Team 10, the outdoor street connects the brewery to the city beyond and provides an inner perimeter do each district (see figure 32). This street is the re-appropriation of the existing artery within the brewery into a living street motorists are subservient to pedestrians and cyclists. In order to facilitate the circuit, an existing truck tunnel will be reimagined for shared circulation. As can be seen in figure 34, the outdoor street passes through the brewery complex to connect to the extend waterfront promenade. The outdoor street is activated by two public squares which act as large scale activity nodes.

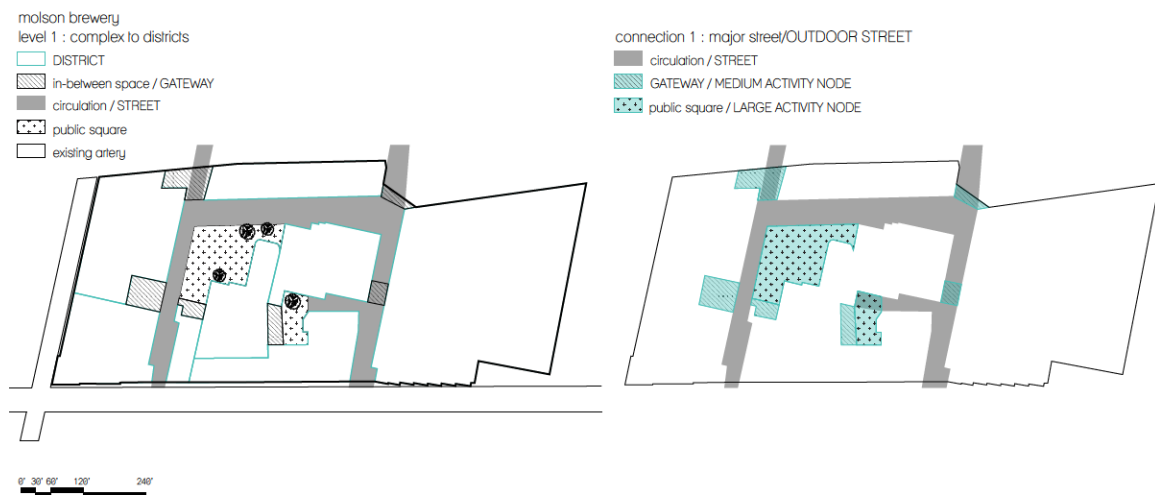


Fig.32: The outdoor street as primary unifying element connecting brewery complex to city beyond. The complex is broken down and organized into districts within the city (left). This organization is connected via the outdoor street and a system of gateways (right).

### In Between Places/The Gateway

Transition must be articulated by means of defined in-between places which induce awareness of what is significant on either side. An in-between place provides the common ground where polarities can again become twin phenomena. (Van Eyck 1968)

The Gateway typology acts as a unifier between districts, analogous to the courtyards in Van Eyck's Amsterdam Orphanage and the squares in Le Corbusier's Venice Hospital. The Gateway is the location at which the level of hierarchy changes, as both the large scale outdoor street and more locally scaled indoor street have direct interaction with it. The Gateway is conceived of as a large scale activity node, engendering interaction between the users of adjacent districts. It is a shared entrance opening onto the outdoor street encompassing vertical circulation and levelling any offsets between the floors of adjacent districts. The Gateway is a typology in terms of the functions that it performs and the program that it encompasses. Its architecture is by necessity localized due to the constraints of this adaptive reuse project. Placement of the gateways make use of existing building layouts as well as their existing structure and vertical circulation. No two gateways are identical, although they share same programs and perform the same function.

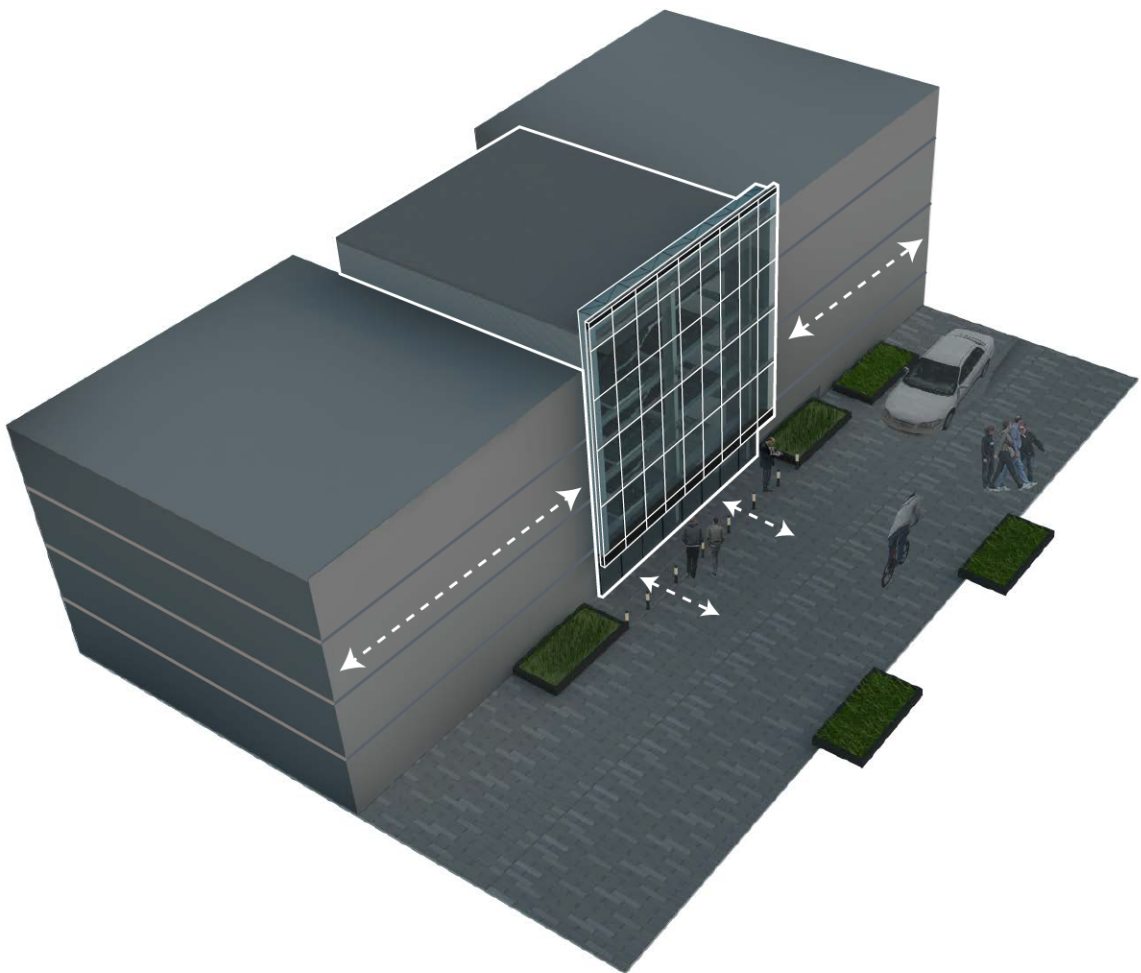


Fig. 33: Gateway typology connecting adjacent districts to one another and to outdoor street.



Fig. 34: Level 1 Masterplan showing connection of brewery 'city' to urban web beyond and to districts via outdoor street and gateways



molson brewery  
master section  
gateway

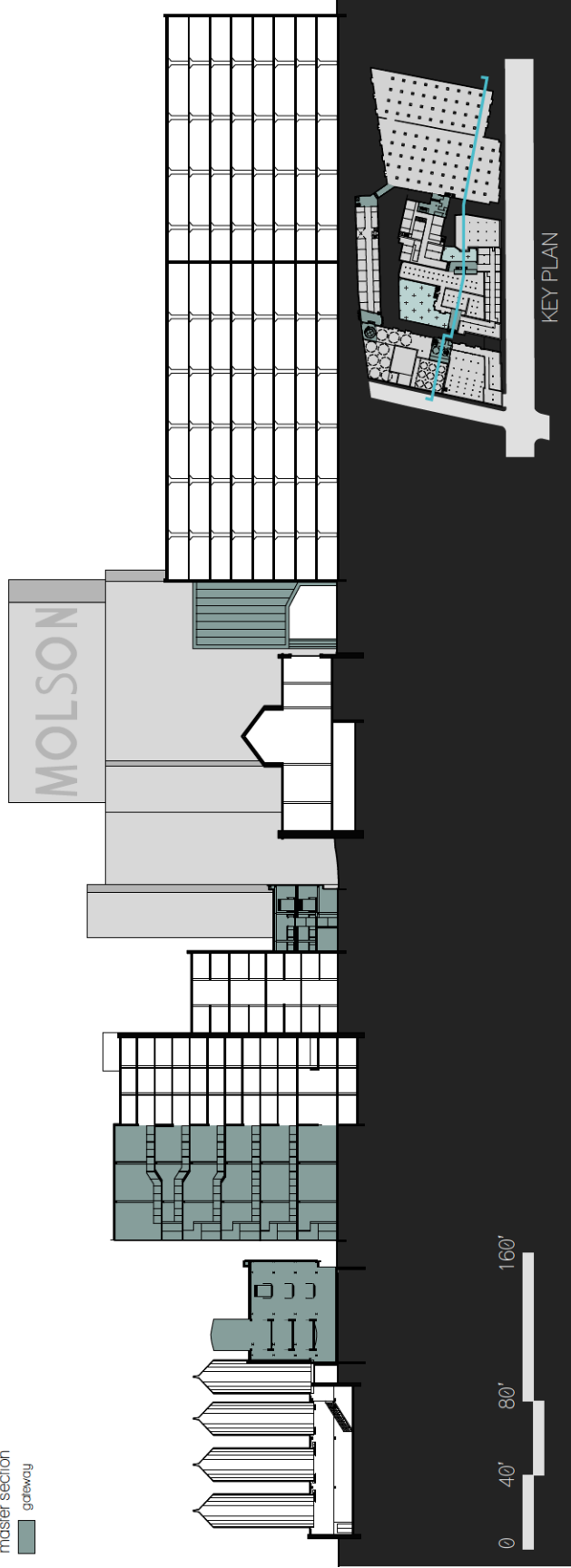


Fig. 35a: Master Section depicting connectivity between gateways and urban districts.

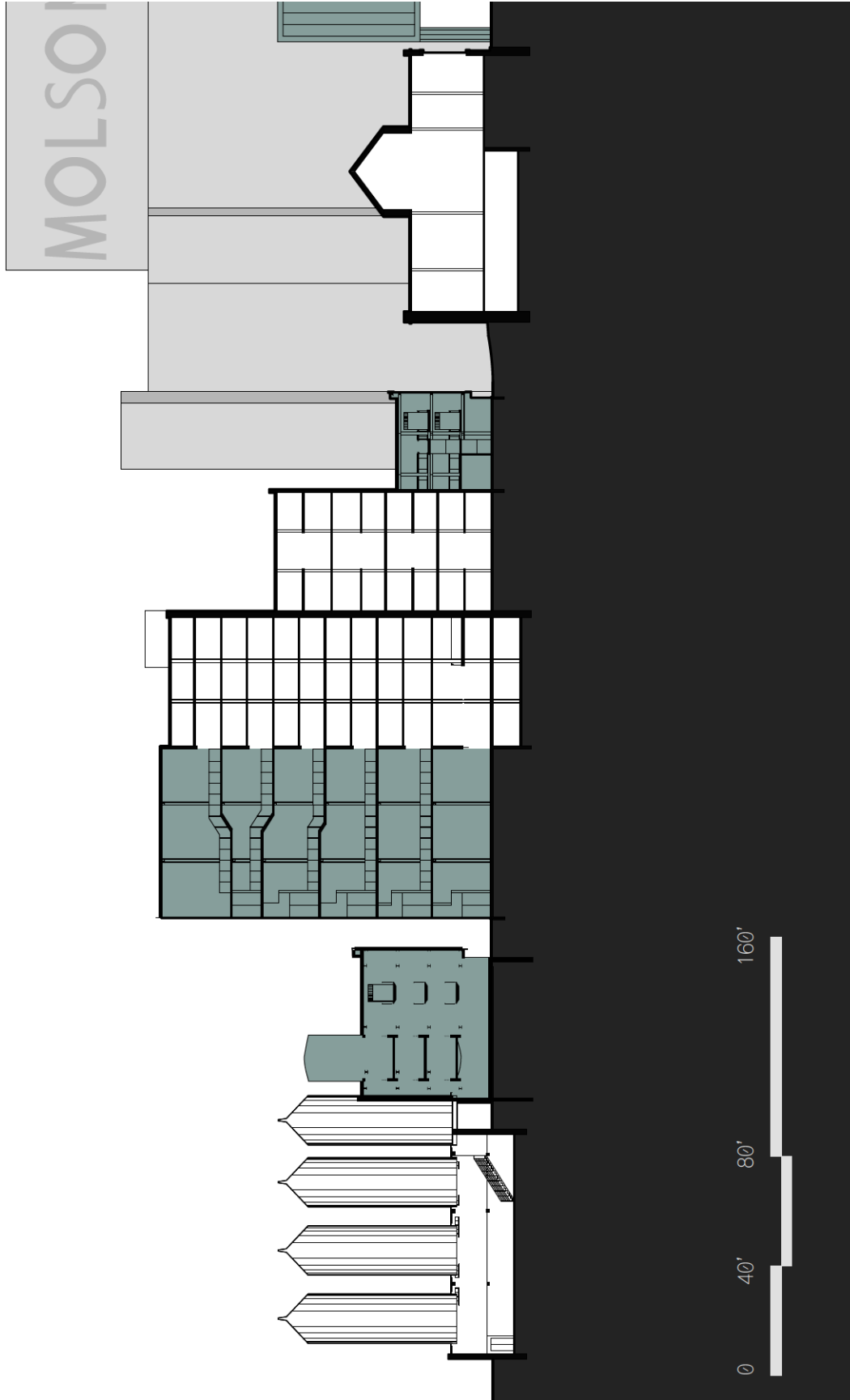


Fig. 35b: Partial enlarged Master Section.

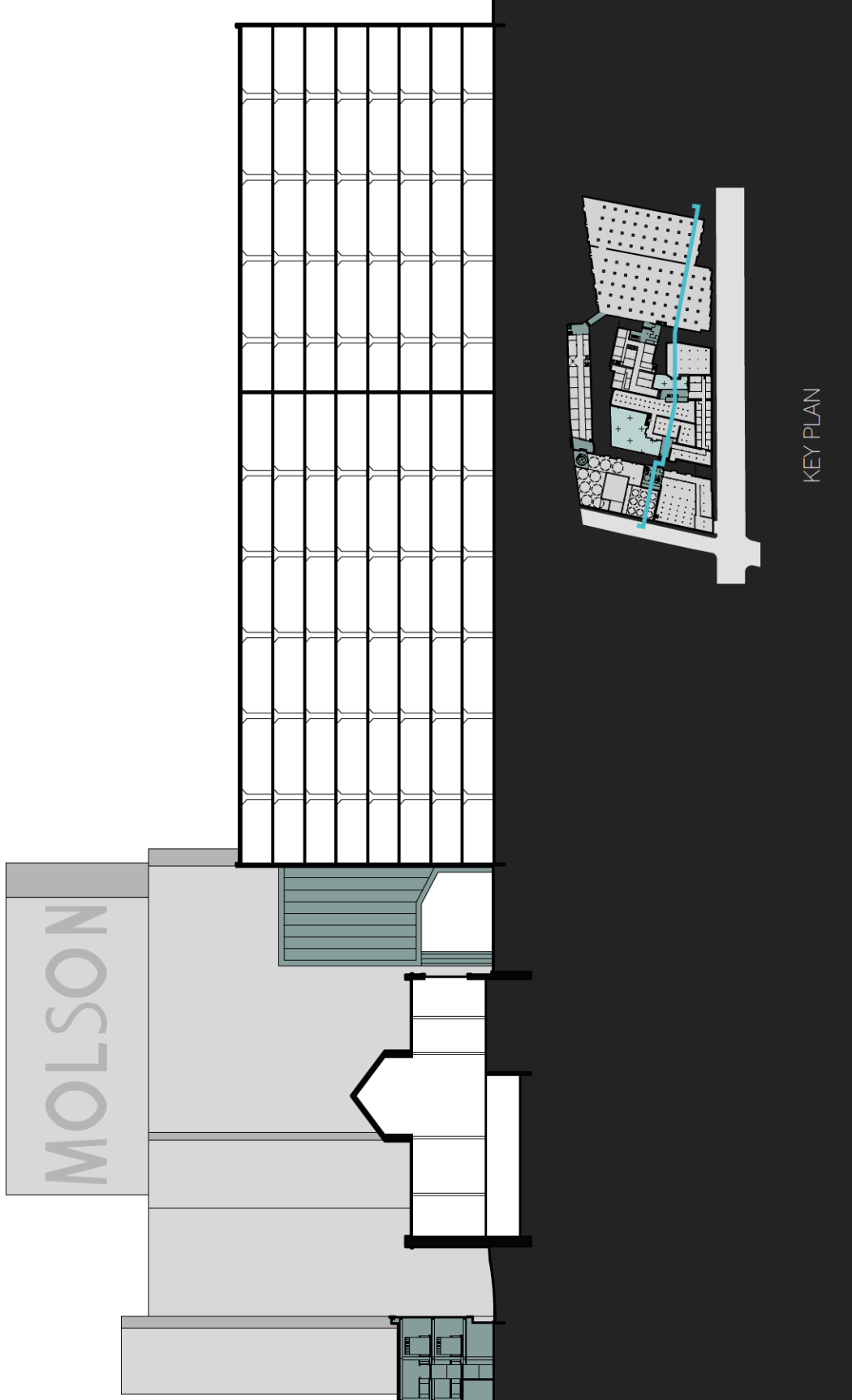


Fig. 35c: Partial enlarged Master Section.

The entrance level of the gateway typology features a café/bar node and seating areas, as well as the through-passage of the indoor street. Mezzanine levels feature other activity node areas in addition to horizontal circulation between districts (see figure 62). The Gateway also features a concentration of service functions such as washrooms and storage space for adjacent districts.

### Connecting Districts to Buildings: The Indoor Street

The indoor street is the second level in the complex's connective hierarchy. The indoor street is an artery through the district connecting constituent buildings (see figure 36). It runs from gateway to gateway and is activated by smaller activity nodes along its perimeter, much like the outdoor street is activated by larger nodes along its perimeter. The small perimeter nodes increase foot traffic and engender interaction within the district. As can be seen in figure 37, the indoor street forms a network much like the outdoor street. It provides an inner public perimeter to various programs within districts. The indoor street's trajectory negotiates buildings' existing structure as well as strategic access to program areas.

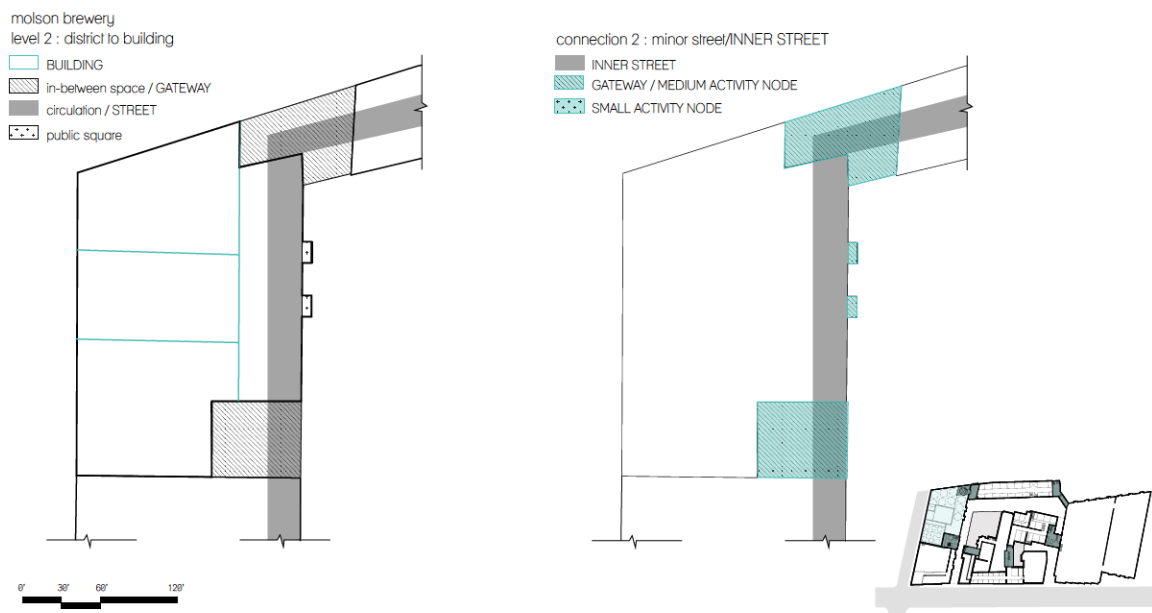


Fig. 36: The indoor street is the secondary unifying element in the Brewery city, connecting buildings within a district. The convention district is broken down and organized into constituent buildings (left). This organization is connected via the indoor street running between two gateways and activated by small activity nodes along its perimeter (right).



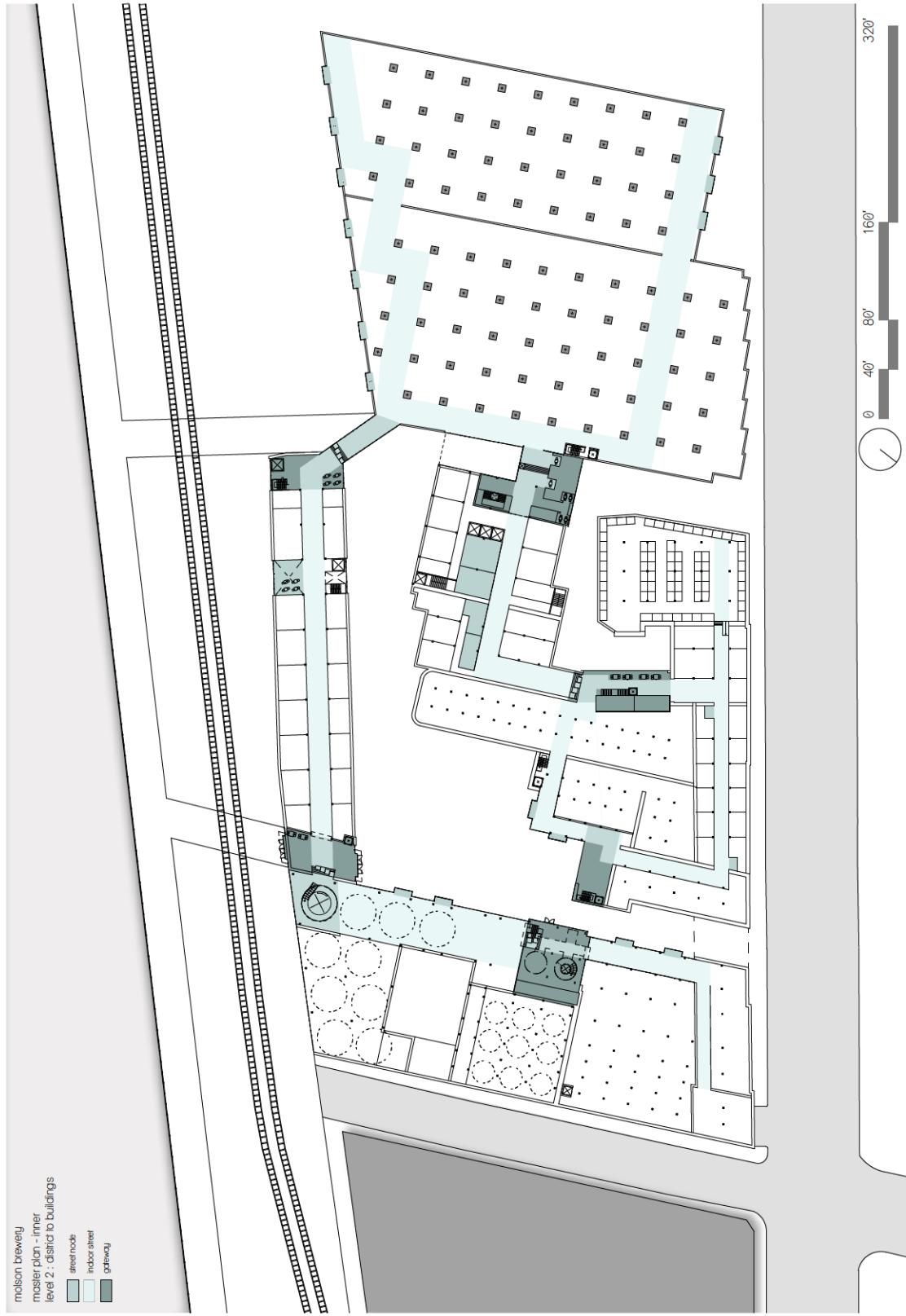


Fig. 37: Level 2 Masterplan showing connection districts to buildings via gateways and indoor street network.

## 2.4 Site Strategies

### Subtractions

The existing engine room building is no longer of need and will be demolished to create a public square opening onto the outdoor street.

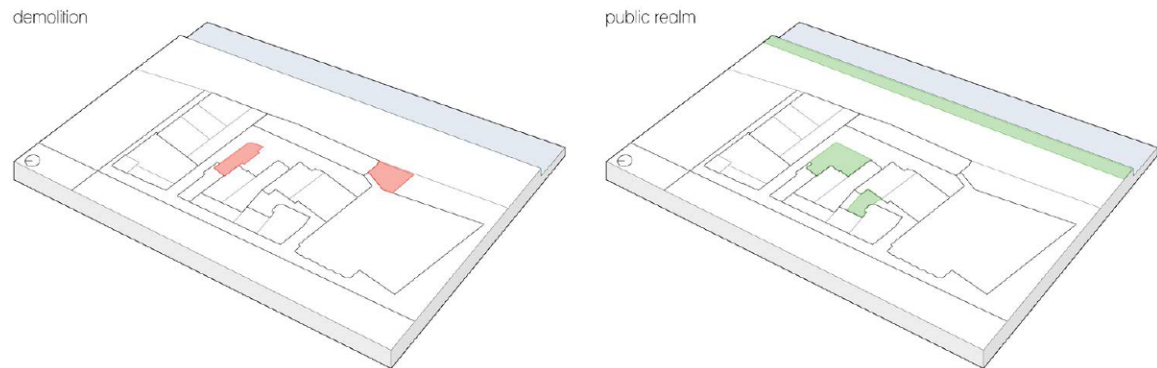


Fig. 38a (left): Demolition of superfluous elements

Fig. 38b (right): Recreational elements on-site. Main public square is created from footprint of demolished engine room building

Future subtractions can be studied to further connect the complex to the city. This thesis takes the position that a wide range of programme can be accommodated in the existing buildings on site, which are integral to the strategy of creating a connected urban system.

### Facade Preservation

While the Notre-Dame St. facade has been carefully crafted and is now cemented into Montreal's collective memory, the brewery's inner perimeter is not open to the public and thus is largely unknown. As such, its facades are the appropriate places for architectural innovations, whereas the outer perimeter should remain largely unchanged. Streets on the ground level of districts opening onto the circuit should emphasize transparency.

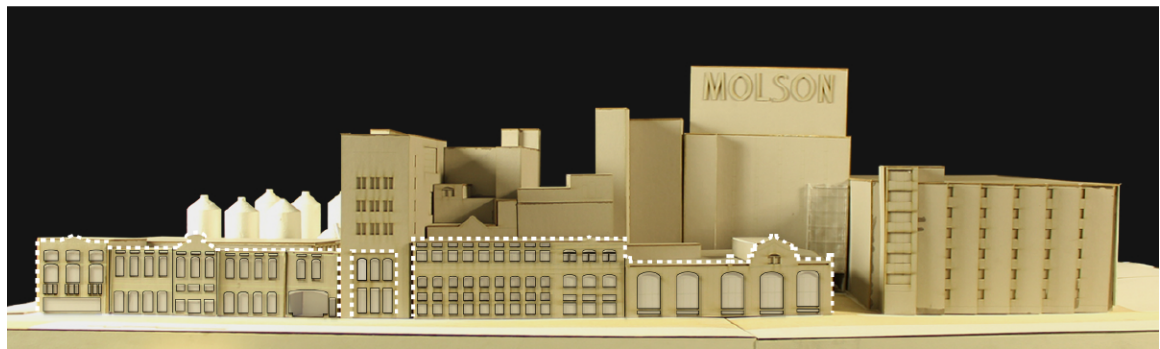


Fig. 39: Main facade on physical model. The facade must remain largely unaltered.

## 2.5 Adaptive Reuse

As mentioned, the Molson Brewery revitalization faces many of the same issues as De Meelfabriek. Peter Zumthor speaks of his proposal by saying, “one must be clever enough not to destroy,” (Zumthor 2010). This is the approach that this thesis seeks to take, by not demolishing any building elements other than those that are completely superfluous. The mass-demolitions of the 1960s and 1970s in the Sainte-Marie neighborhood serve as an important anti-precedent. Furthermore, Sainte-Marie is an area of great need, which can be accommodated in the existing building elements of the Molson Brewery. A future study could investigate opening up the brewery site via demolition, however this thesis urges caution before eliminating more elements of Sainte-Marie’s already scarred urban fabric.

## 2.6 Distribution of Program

Program is distributed according to the existing architectural quality of existing buildings, based on architectural information obtained. The program corresponds to needs identified at the local Sainte-Marie scale, and the Montreal-city scale as well as program addressing the adjacent Saint-Lawrence river.

### Convention District

At the rear of the site are four buildings fitted with distinctive fermentation tanks. These buildings were four-floor cellar storage facilities. They were partially demolished and fitted with the fermentation tanks, giving this part of The Brewery a distinct presence in the urban landscape. The convention district will house cultural and congress facilities supporting Sainte-Marie’s transition to a creative and cultural economy.



Fig. 40: View of distinctive fermentation tanks of Convention District.

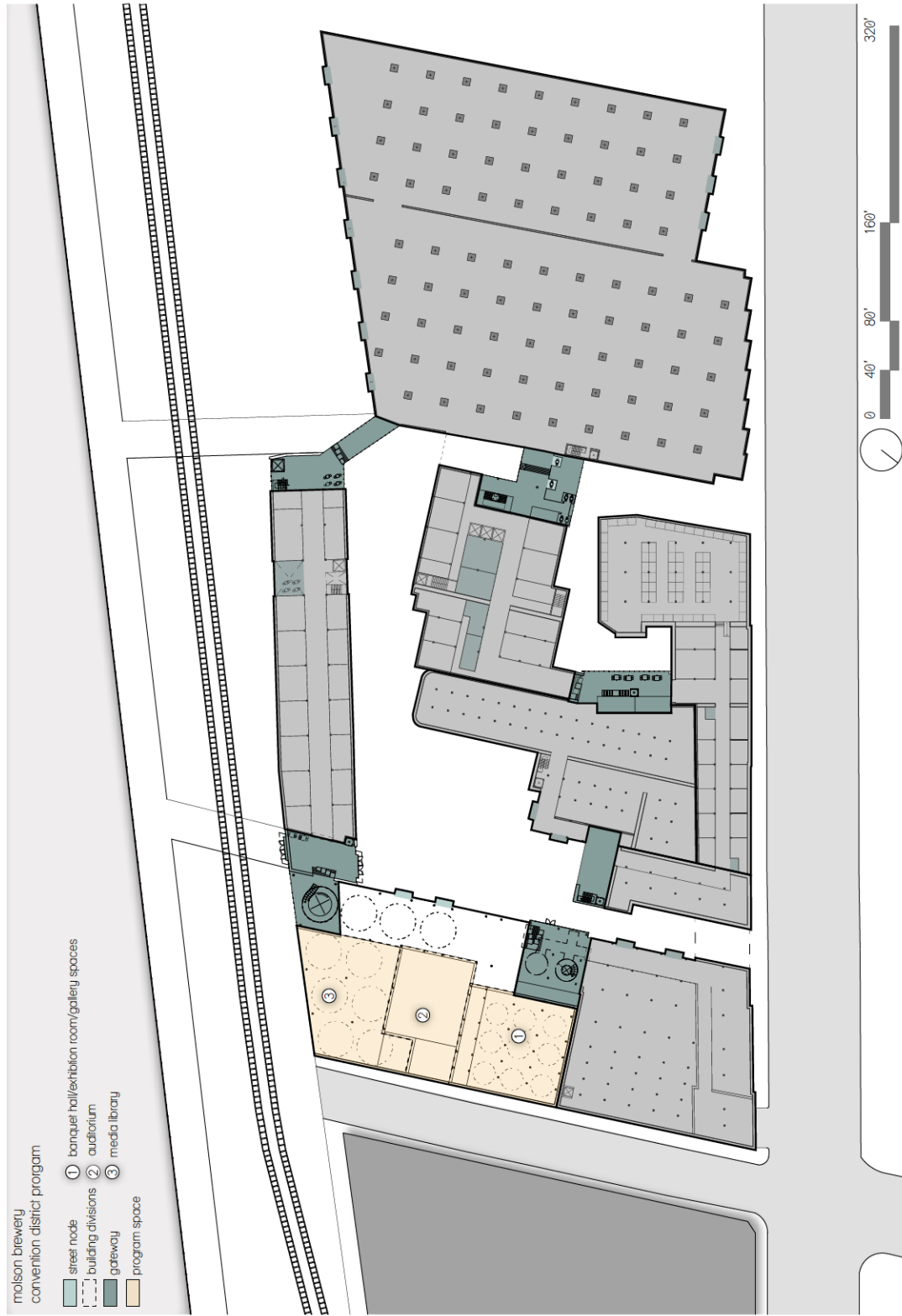


Fig. 41: Programmatic key plan of Convention District within brewery complex.



## Start-up District

Adjacent to the Convention District, the Start-up District is comprised of three buildings at the corner of Papineau street and Notre-Dame street. This district will provide co-working spaces and studios to ambitious entrepreneurs and artisans as well as office space for start-up incubator firms. Buildings one and two are already used as office space, and as such, their conversions would not be intensive. Building three is an early 20th century masonry industrial building with minimal interior partitions. It has large spans and fenestration on two facades. It could be easily adapted into flexible co-working spaces and studios.



Fig. 42: View of Start-up District.

## Maritime Research Facility

The shipping building is located at the back of the site, closest to the waterfront. It has 5 above-ground floors and minimal interior partitions. Its structural grid is expressed in its long facade. This district would house a research facility focused on the well-being of the Saint-Lawrence river and other river systems beyond. It would feature laboratory spaces, office and meeting facilities as well as a public exploratorium. Research forums could be held at the adjacent Convention District's auditorium space, illustrating the complimentary nature between districts.

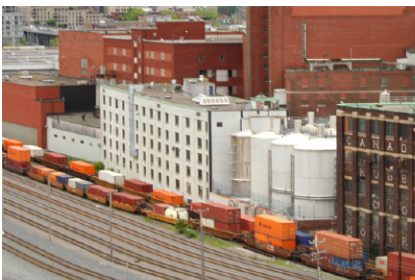


Fig. 43: View of Maritime Research District.



Fig. 44: Programmatic key plan of Start-up District within brewery complex.

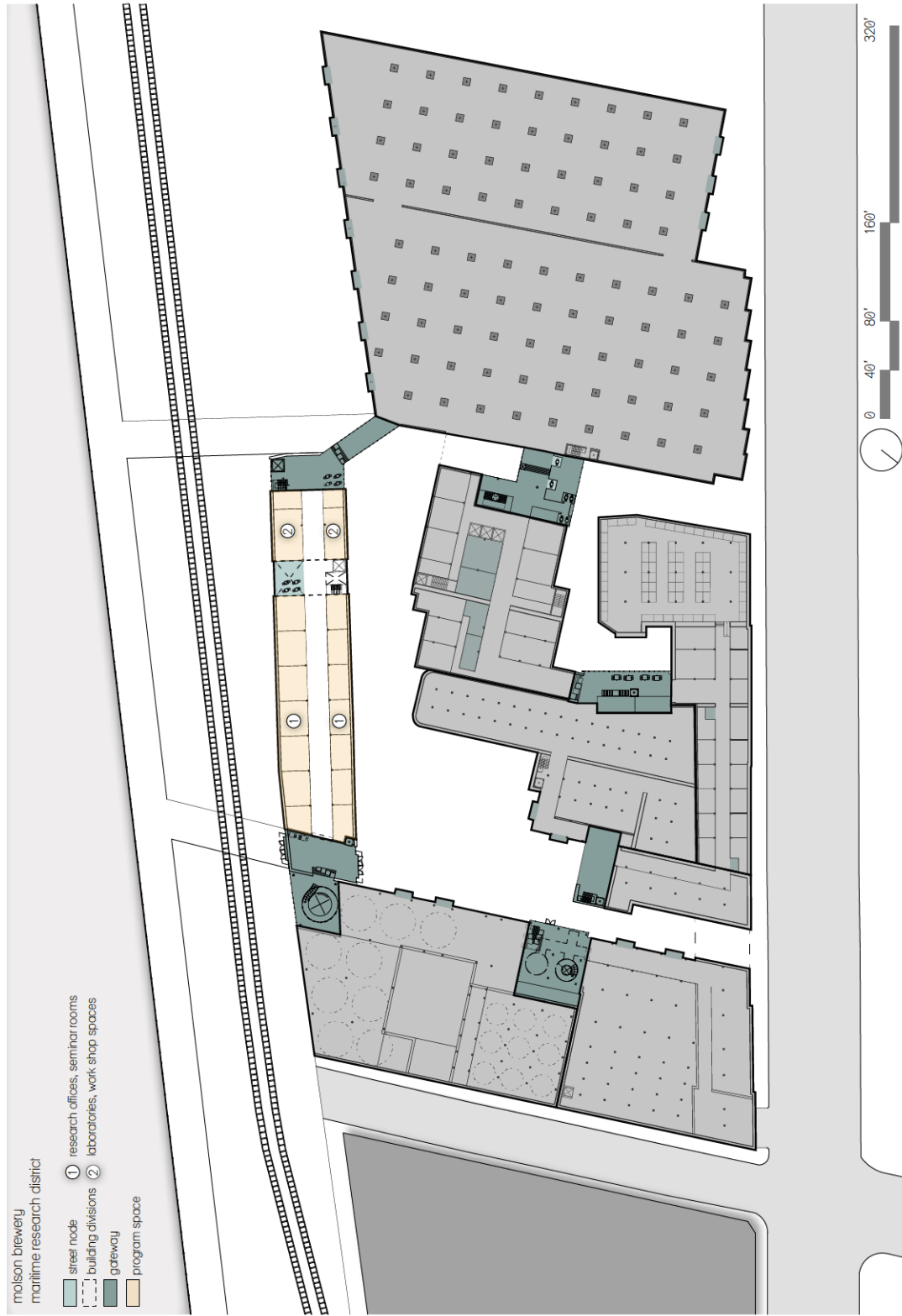


Fig. 45: Programmatic key plan of Maritime Research District within brewery complex.

## Community District

This prominent tower type building opening onto Notre-Dame St. would house community organizations from Sainte-Marie and neighbouring quarters.



Fig. 46: View of Community District

## Market District

The market district is comprised of the three remaining buildings that make up the Notre-Dame St. facade. This district addresses the food-desert condition in Sainte-Marie by housing a public market, vendor-spaces and retail. The buildings in this district have high floor-to-ceiling heights and mezzanine spaces previously occupied by brewing equipment. These would adapt well to the needs of a market facility.



Fig. 47: View of Market District buildings.



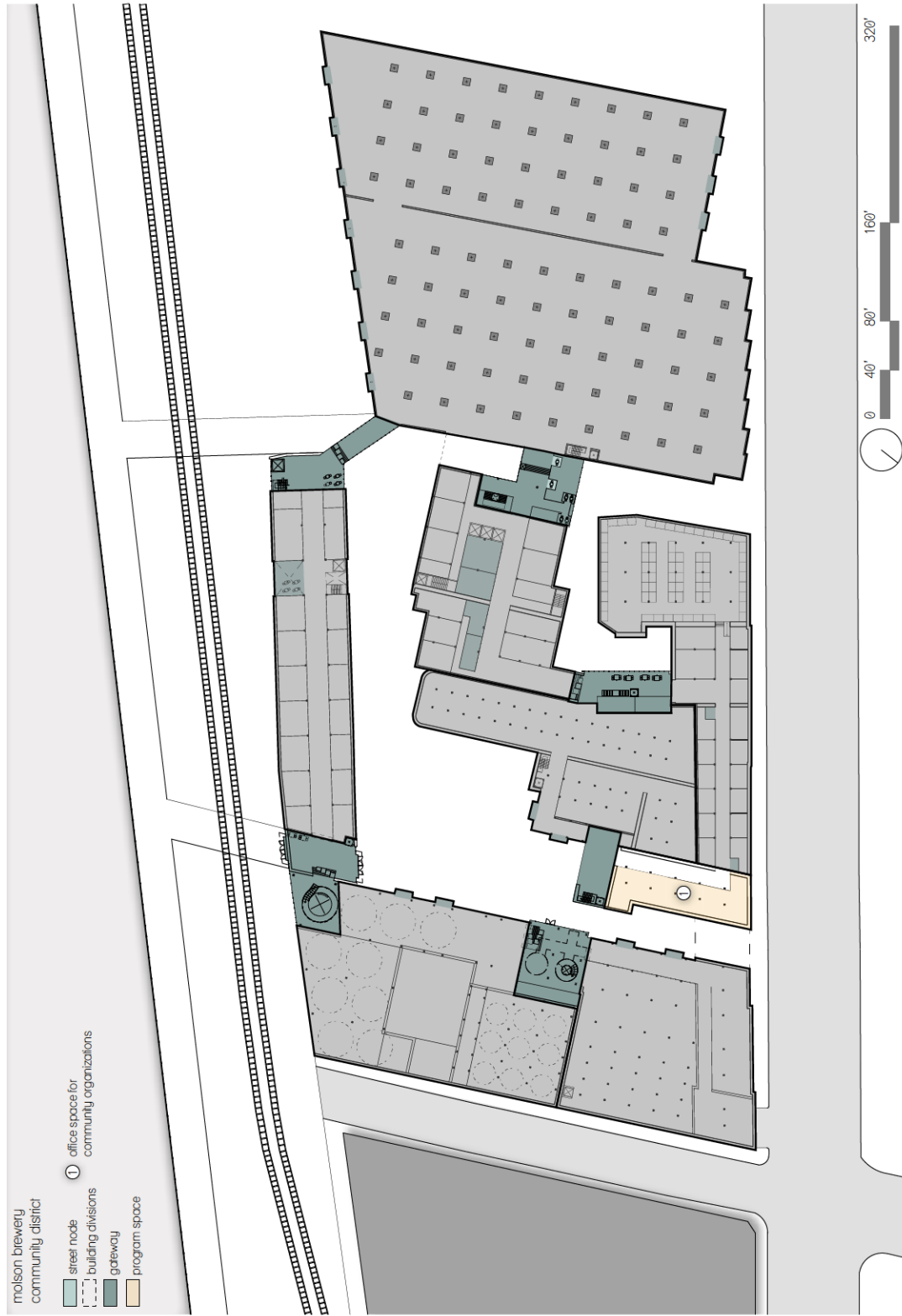


Fig. 48: Programmatic key plan of Community District within brewery complex.

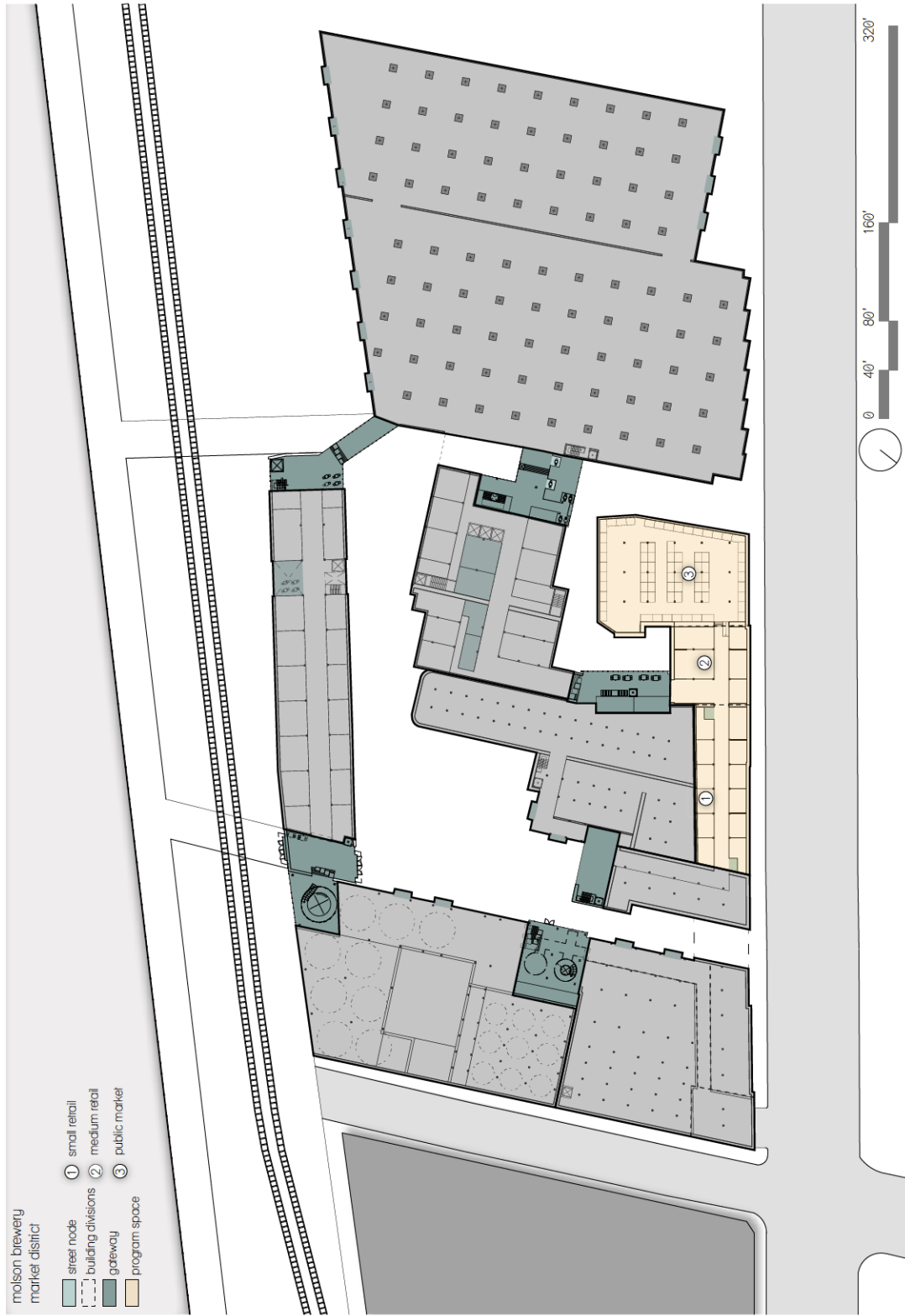


Fig. 49: Programmatic key plan of Market District within brewery complex.

## Molson District

The Molson District is comprised of the brewhouse and adjoining fermentation building. This is the symbolic heart of the brewery facility and would house a micro-brewery and a 'brew-seum' (brewery museum) in addition to the Molson Archives.

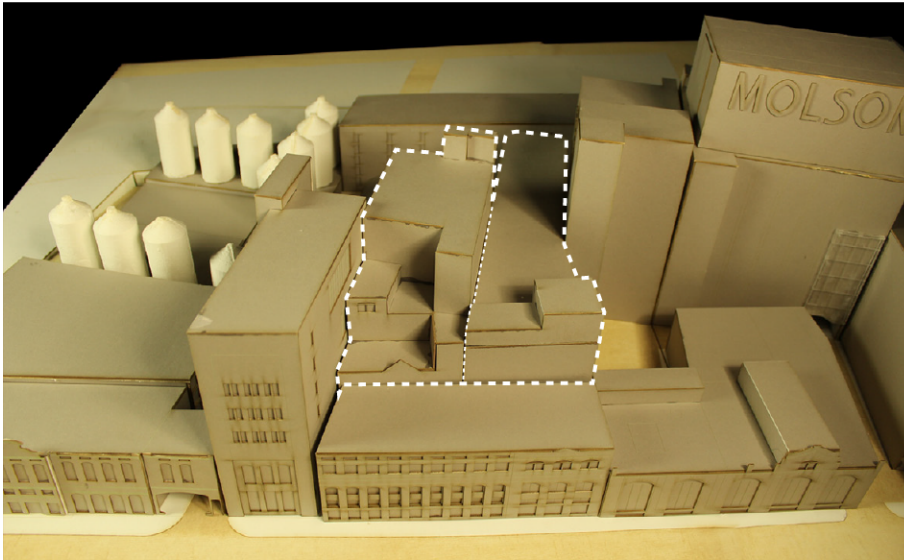


Fig. 50: Physical model depicting location of Molson District at the heart of the brewery complex.

## Residential District

The two towering cellar-storage buildings would be adapted to residential uses. They feature high floor-to-ceiling heights and some mezzanine spaces. Their high density on site would allow for a high number of inhabitants to ensure that this redevelopment is truly a city-within-a-city, with twenty-four hour program. This district would house its own recreational facilities for residents.



Fig. 51: View of Residential District buildings (Imagery: Global News 2015).

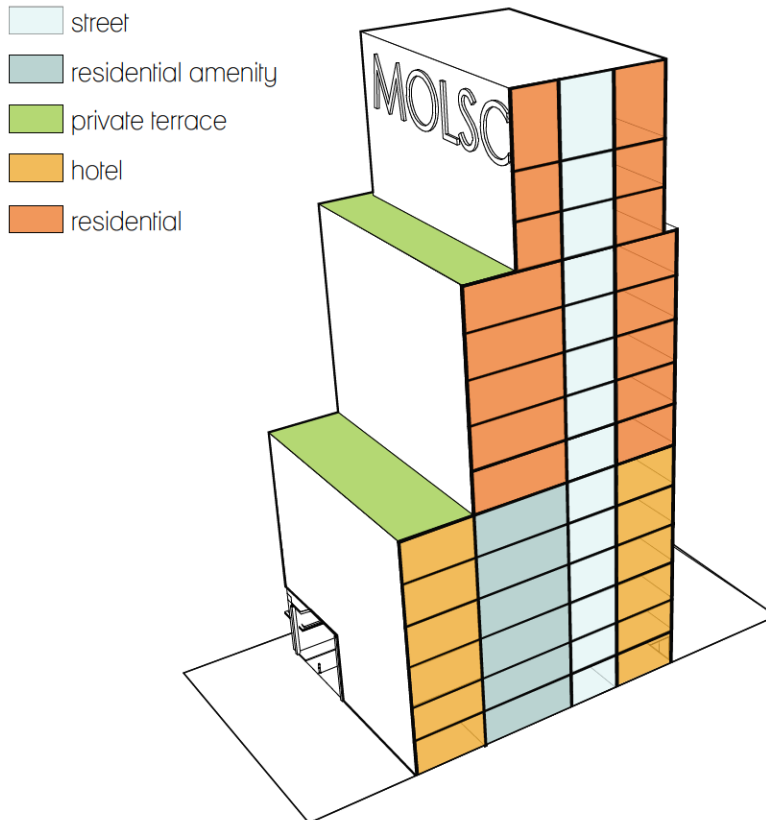


Fig.52: Sectional axonometric of residential district revealing program

### Urban Innovations District

The bottling plant at the site's Western boundary would become the urban innovations district. The immense volume features open floor plans with minimal interior partitions and a robust concrete structure on which solutions to urban issues could be tested. It would be, in essence, a large scale physical laboratory.



Fig. 53: View and key plan of Urban Innovation District (Imagery: Exp.com 2016)



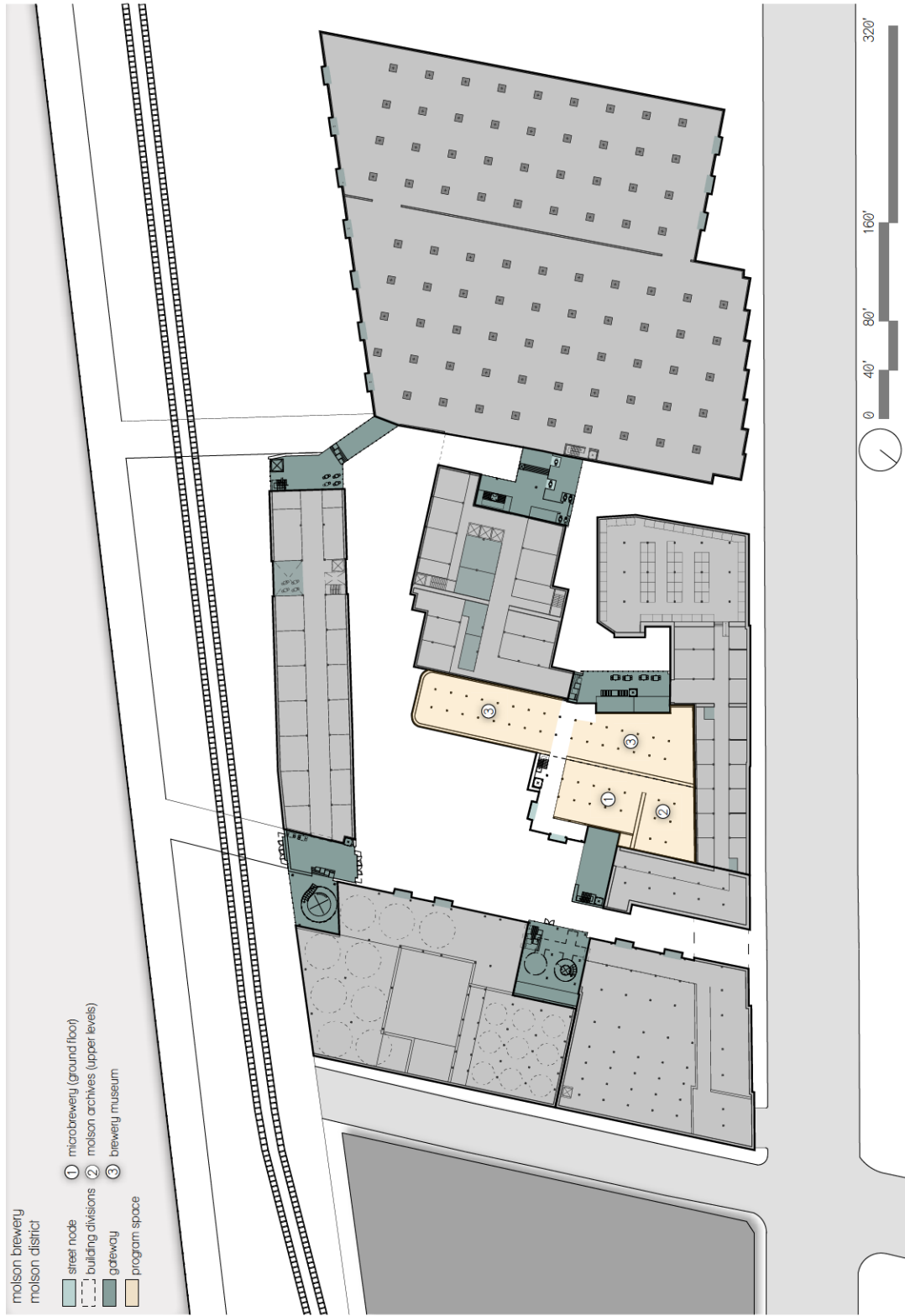


Fig. 54: Programmatic key plan of Molson District within brewery complex.

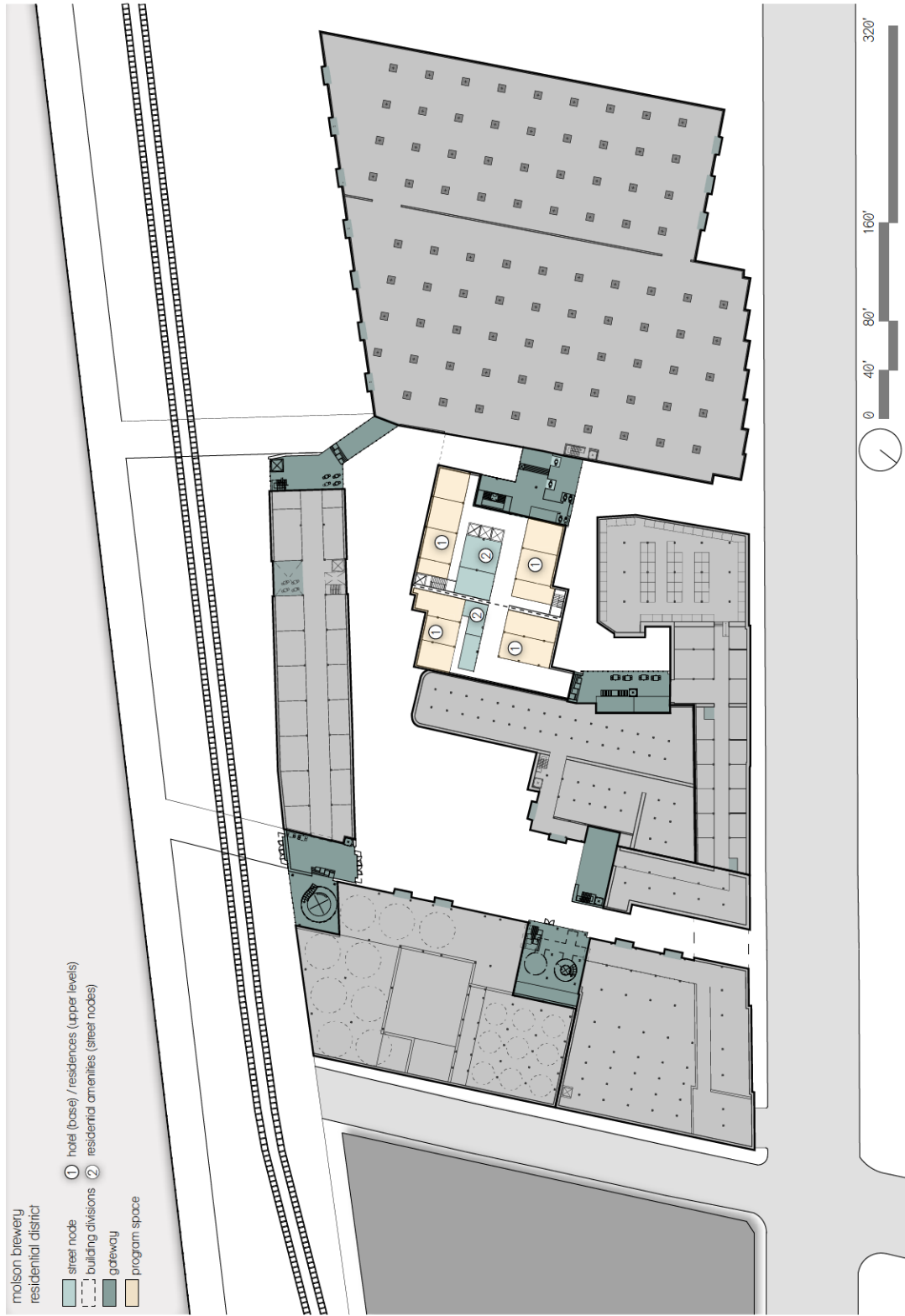


Fig. 55: Programmatic key plan of Residential District within brewery complex.

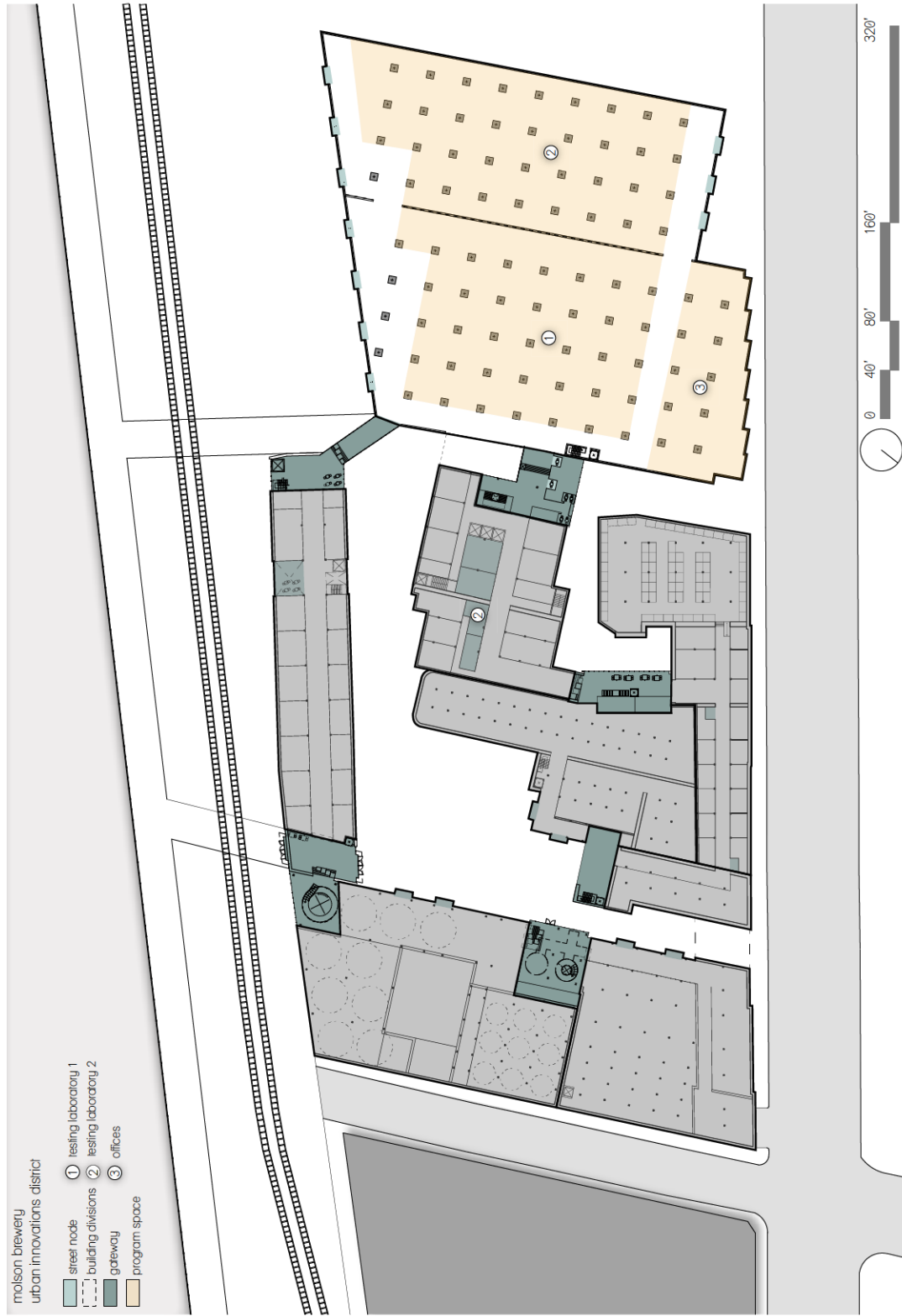


Fig. 56: Programmatic key plan of Urban Innovations District within brewery complex.

## **CHAPTER 3: DESIGN**

### **3.1 The Outdoor Street**

The outdoor street is the re-appropriation of the existing artery within the brewery into a living street motorists are subservient to pedestrians and cyclists. It passes through two Gateway adjacent to the Martime Research District to connect with the extended linear park promenade at the riverfront.

#### **Living Street**

The living street abides by the principles of the woonerf, which allows the street to become part of the physical and social environment of pedestrians (Ben Joseph 1995). The street will be open to automobile traffic but several speed calming measures will be taken. Bollards and planters will prevent porous barriers for pedestrians and cyclists but hard barriers for motorists. These will be implemented around gateway entrances, which will also be given differential paving treatment within a 5 foot radius, allowing for social space at the entrance.

#### **Tunnel**

In order to facilitate a circuitous outdoor street, an existing truck tunnel is enlarged and reimagined for shared traffic (see figure 57). The tunnel derives its form from the offsetting floors between the residential district and the urban innovations districts. The atrium space above is a gateway, linking the two. Because the tunnel is enclosed, with less clearance, traffic is separated here. The underside of the tunnel is clad in reflective tile, increasing its illumination. The East wall of the tunnel will be a concrete frieze incised with imagery of brewery's historical development.

### **3.2 The Gateway**

The Gateway is an architectural addition at the juncture point or two or more adjacent districts. It is conceived as a vertical element in the brewery landscape. Its transparent glass façade compliments and contrasts the brick and stone materiality of the surrounding industrial architecture. The Gateway is conceived of as an interior square, facilitating activity and through circulation. Its design emphasizes flexible elements that can simultaneously



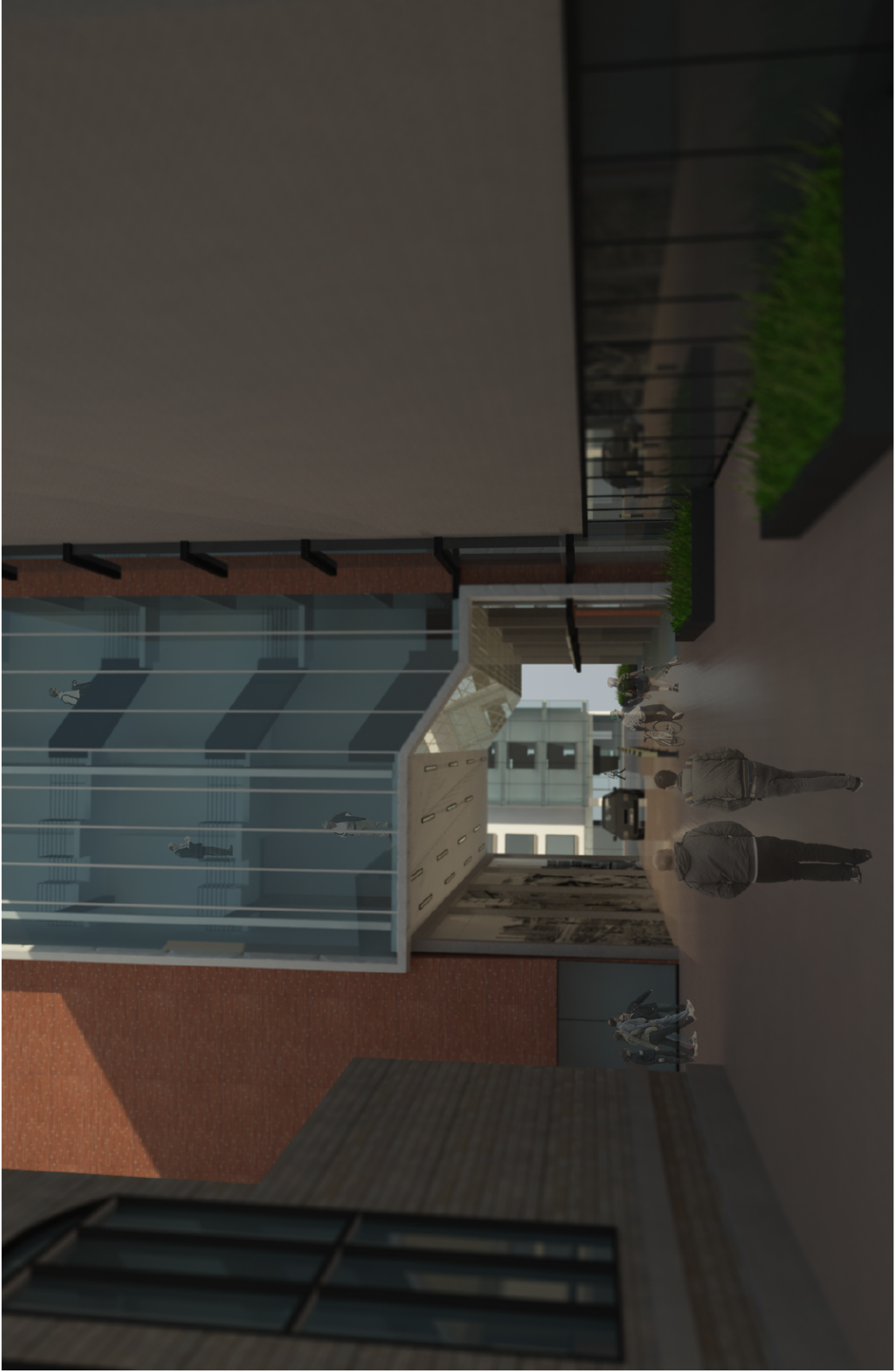


Fig. 57: Perspective visualization of the Outdoor Street passing through the residential district via a reimagined tunnel converted into a living street.

double as circulation spaces and activity nodes, such as the large barrier free ramp at the entrance level, which provides seating opportunities along its steps (see figure 58). The main façade is a glass curtain wall, seemingly detached from the main volume, which appears to hang above users passing below it.

The minimalist architecture of the Gateway makes use of the existing structural grid where possible. The structure is left exposed as the mezzanine levels of the gateway are more void than solid (see figure 59), allowing light to fill the volume.

There are two typologies of Gateway, Atrium and Bridge, based on their interaction with the outdoor street.

### **Atrium Typology**

The Atrium typology occurs when the Outdoor Street runs parallel to the Gateway (see figure 61a). The main curtain wall façade is passed under as pedestrians enter the Gateway. The Gateway volume is offset slightly from the adjacent district volumes, protruding onto the Outdoor Street.

### **Bridge Typology**

The Bridge typology occurs when the Outdoor Street runs through and below the Gateway, connecting to the city beyond as seen in figure 60. Pedestrians enter the Bridge on the side and pass above the Outdoor Street on the Gateway's mezzanine levels (see figure 61b).

## **3.3 The Convention District**

The existing fermentation buildings at the rear of the site best embody the existing fragmented condition of the brewery and thus have the greatest potential for a design intervention. Four buildings, unified by the distinctive tanks, form the Convention District, supporting Sainte-Marie's transition to a cultural and creative economy, as well as Montreal's position as a leading convention city in North America. The Convention District opens onto the newly extended linear park via the Gateway adjacent with the Maritime Research District (see figure 62).

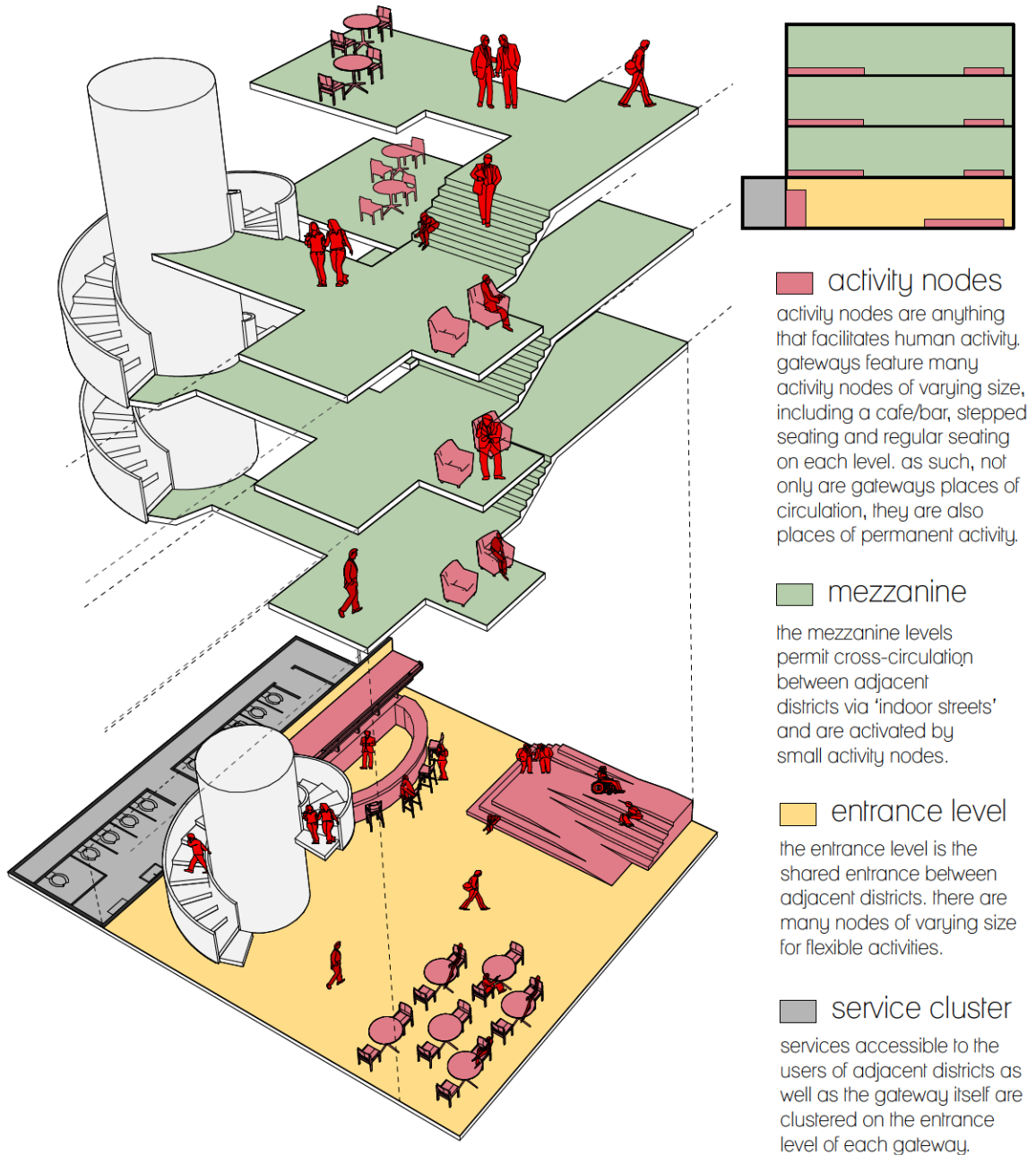


Fig. 58: Gateway Typology exploded axonometric revealing programmatic breakdown and activity nodes.

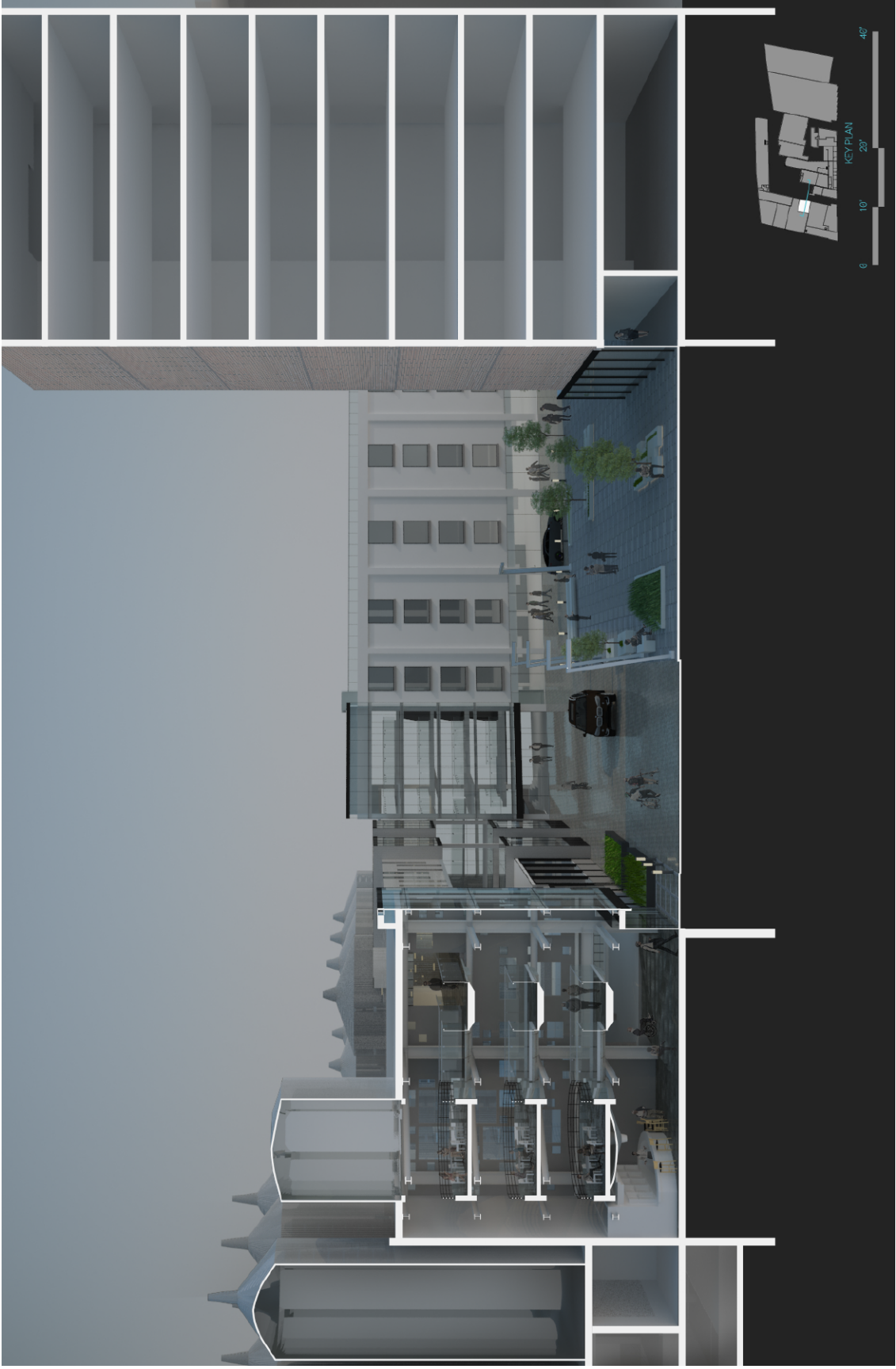


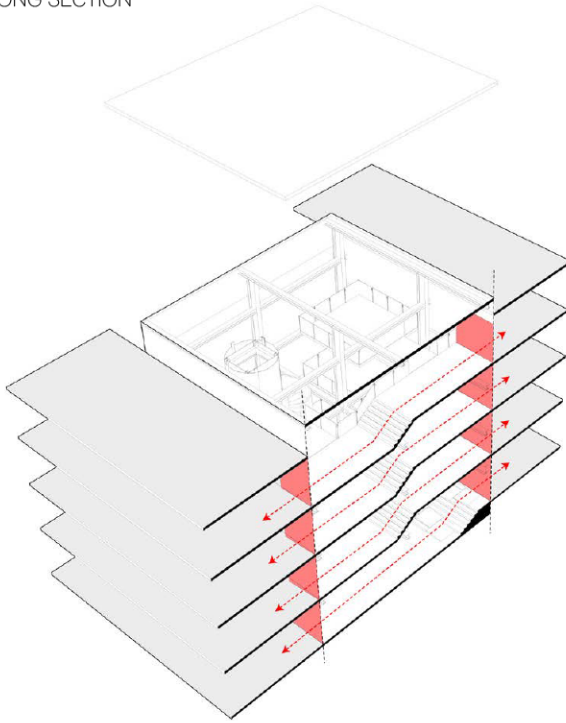
Fig. 59: Section perspective through Gateway between Convention District and Start-up District revealing interior programmatic possibilities.



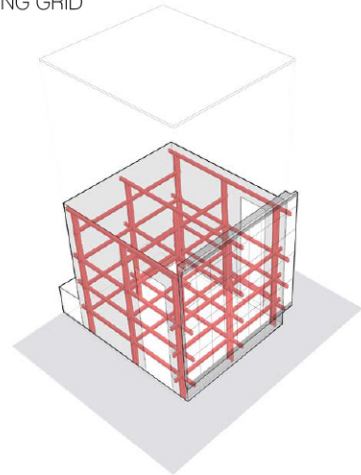


Fig. 60: Perspective visualization of Bridge Gateway connecting the Maritime Research and Urban Innovations districts.

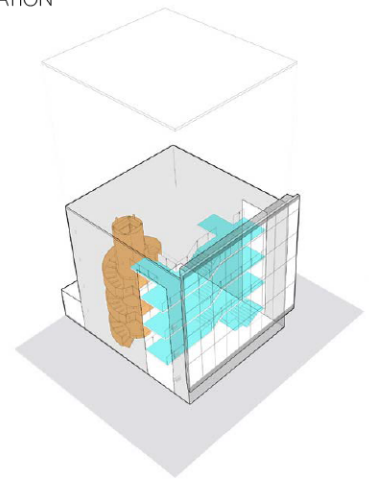
LONG SECTION



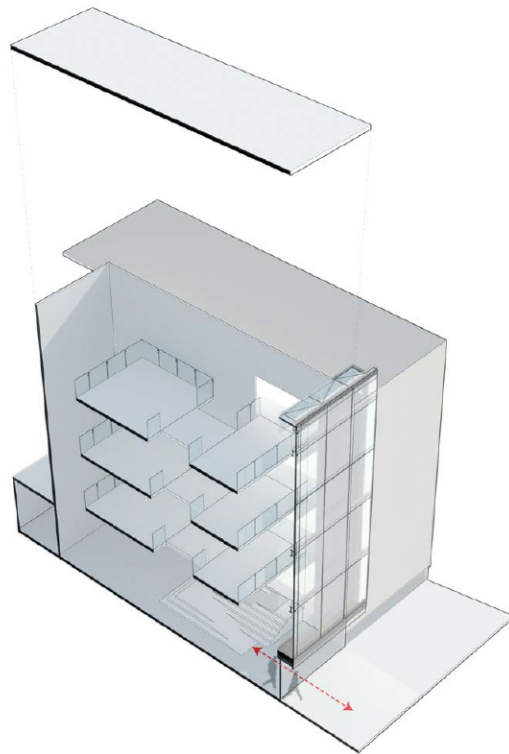
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CIRCULATION



TRANSVERSE SECTION



PROGRAM

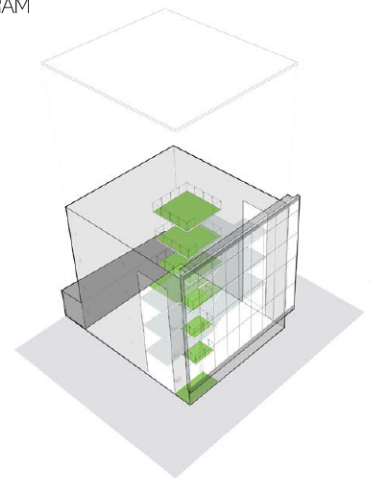
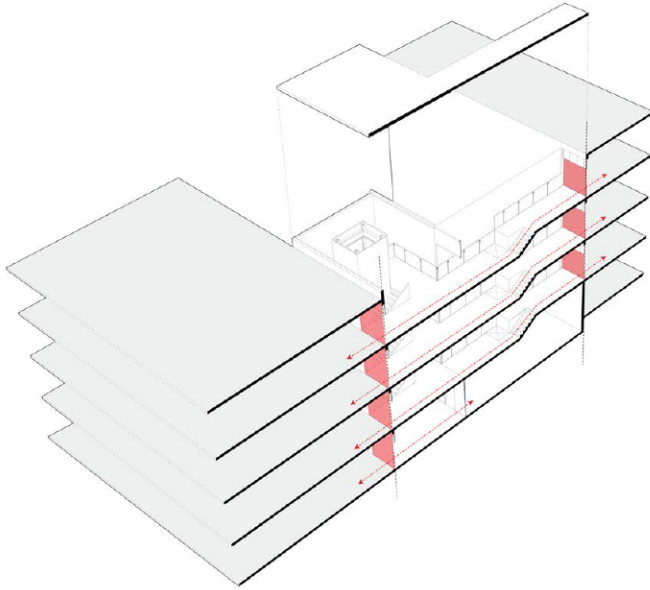
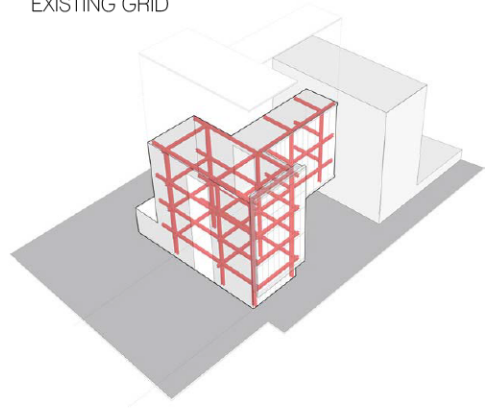


Fig. 61a: Gateway Atrium Typology sections, structural, circulation and program diagrams

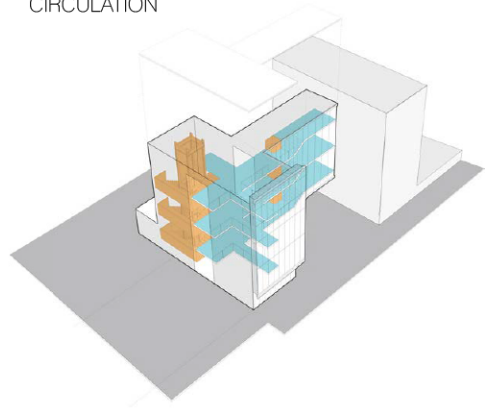
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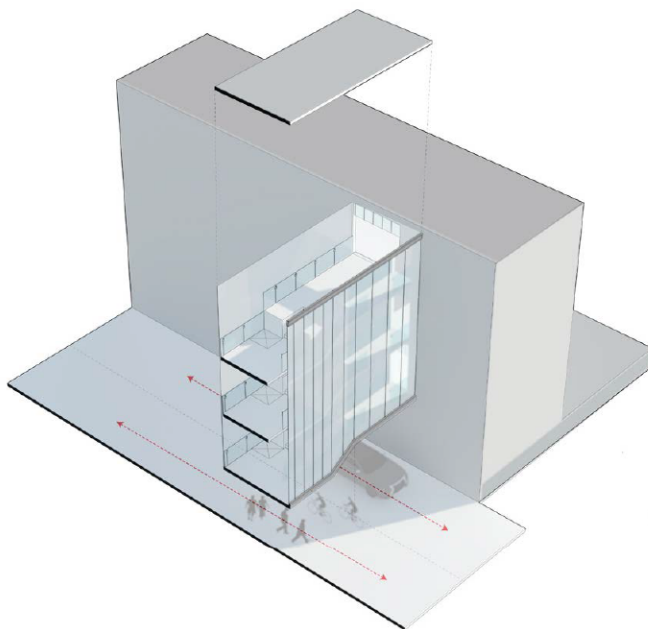
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CIRCULATION



TRANSVERSE SECTION



PROGRAM

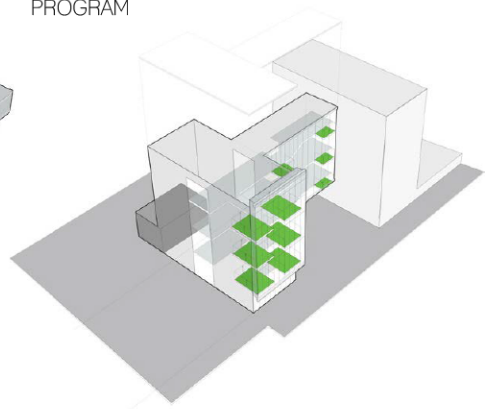


Fig. 61b: Gateway Bridge Typology sections, structural, circulation and program diagrams



**Program:**

Three constituent buildings in the Convention District will house specific programs while the fourth, a linear volume parallel to the Outdoor Street (see figure 63) will become the district's indoor street. The three programmed buildings are all double height, as they are partially below grade. This adapts well to the programs of event, exhibition and gallery spaces, a small 200-person multi-purpose auditorium and a media library to each be housed in a separate building. Figure 41 illustrates this programmatic organization.

**Indoor Street:**

The indoor street running parallel to Outdoor Street and connecting two Gateways (see figure 63) is made transparent and is punctuated by two small activity nodes protruding outward. These nodes are sized to accommodate seating and reading spaces. The indoor street is most pronounced on the upper level (see figure 65), where it interacts directly with fermentation tanks as light installations and vertical circulation as best viewed in figure 66.

**Adaptive Reuse:**

The adaptive reuse strategy makes use of the existing structural grid and conserves structure wherever possible, to provide flexibility in the future. Wherever possible, and in most areas, the existing two-foot thick structural walls are preserved.

**Tank Artifacts:**

The architecture of the convention district emphasizes industrial artifacts such as the fermentation tanks as totems that inform space. The hollow stainless steel tanks currently sit inset into the ceiling and are intentionally left unprogrammed in this redevelopment. Nonetheless, they serve many functions. As seen in figures 67 and 68, fermentation tanks can serve as vertical circulation spines. Interior LED lighting can interact with incisions made in the tanks' skin to create dramatic lighting sculptures as seen in figure 66. The overhead tanks have the ability to inform space below, a condition apparent in the media library (see figure 64), in which the library's stacks are organized below the tanks with group seating spaces in the negative spaces between the tanks. Tanks can also be used to inform activity nodes, be it a large café node or a circulation desk beneath.



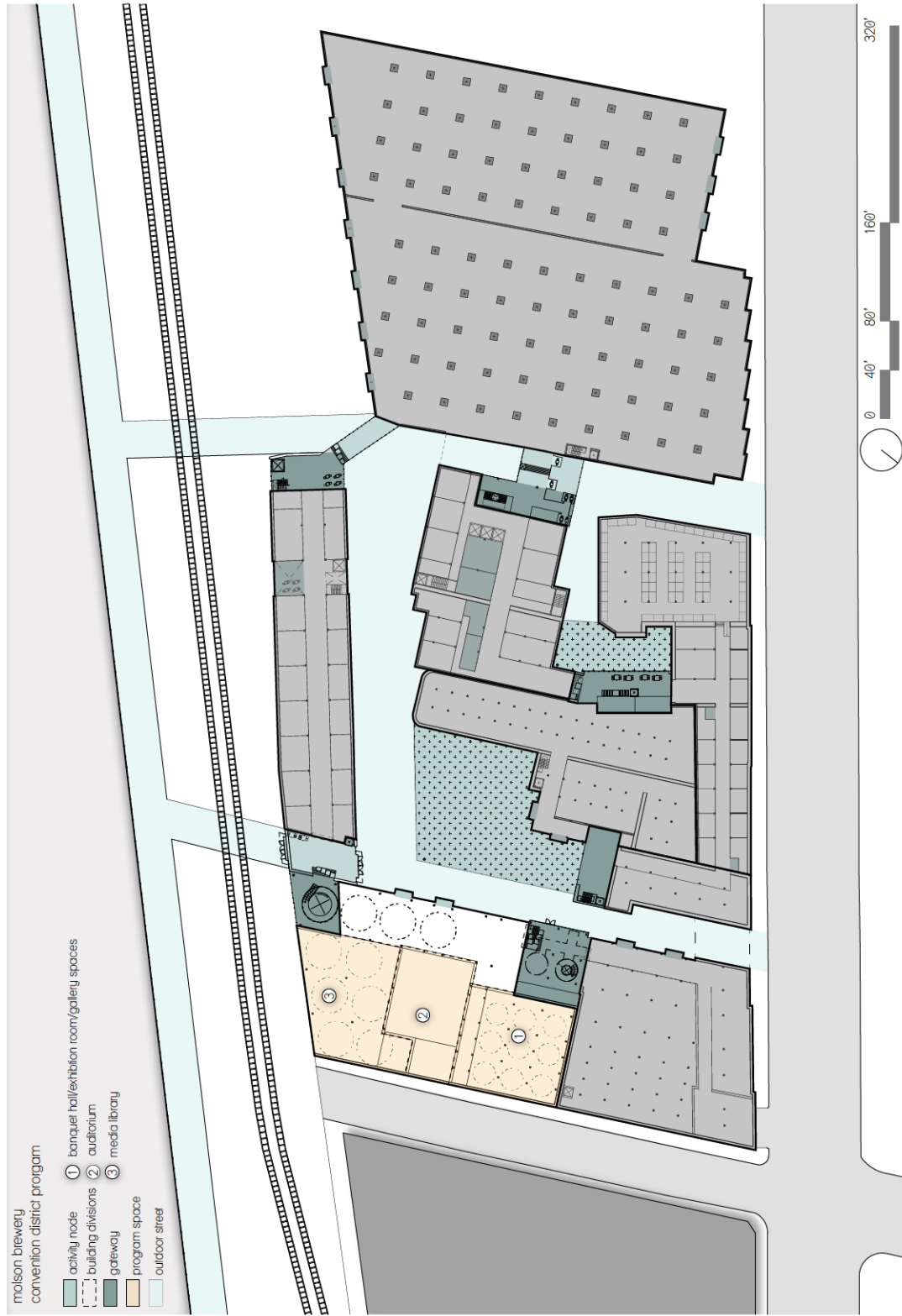


Fig. 62: Programmatic key plan of Convention District within brewery complex.

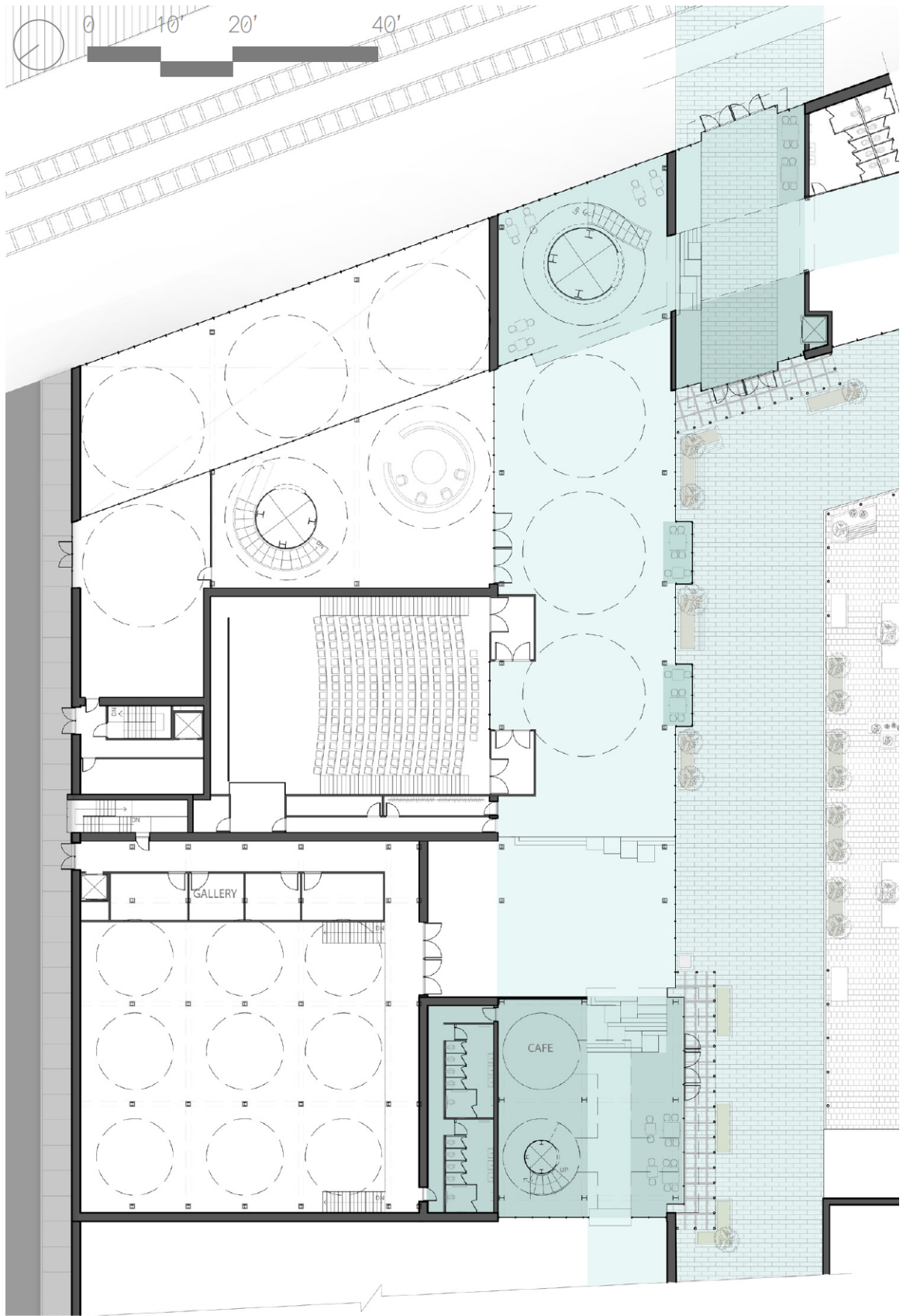


Fig. 63: Convention District, ground level plan

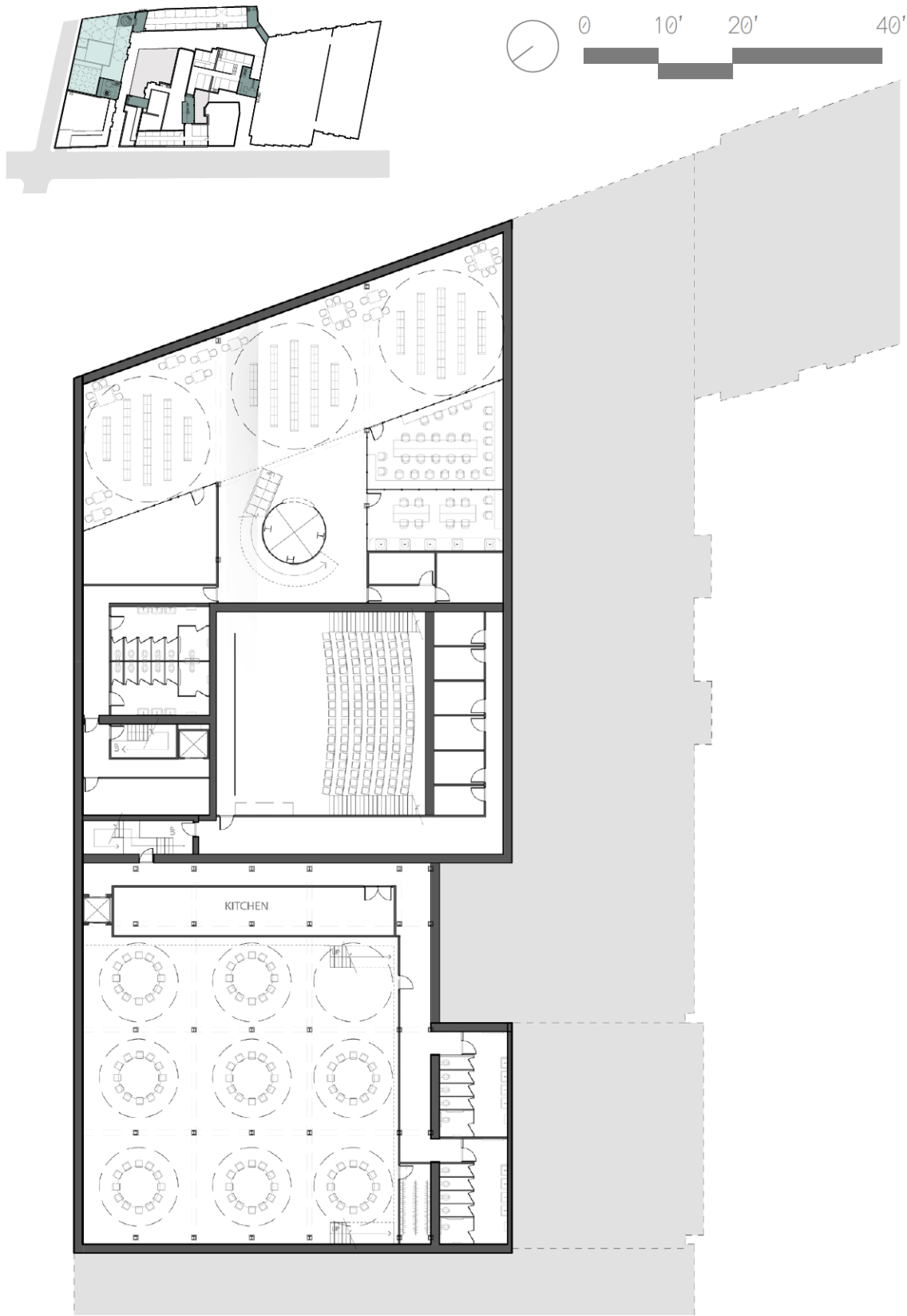


Fig. 64: Convention District, -1 level plan

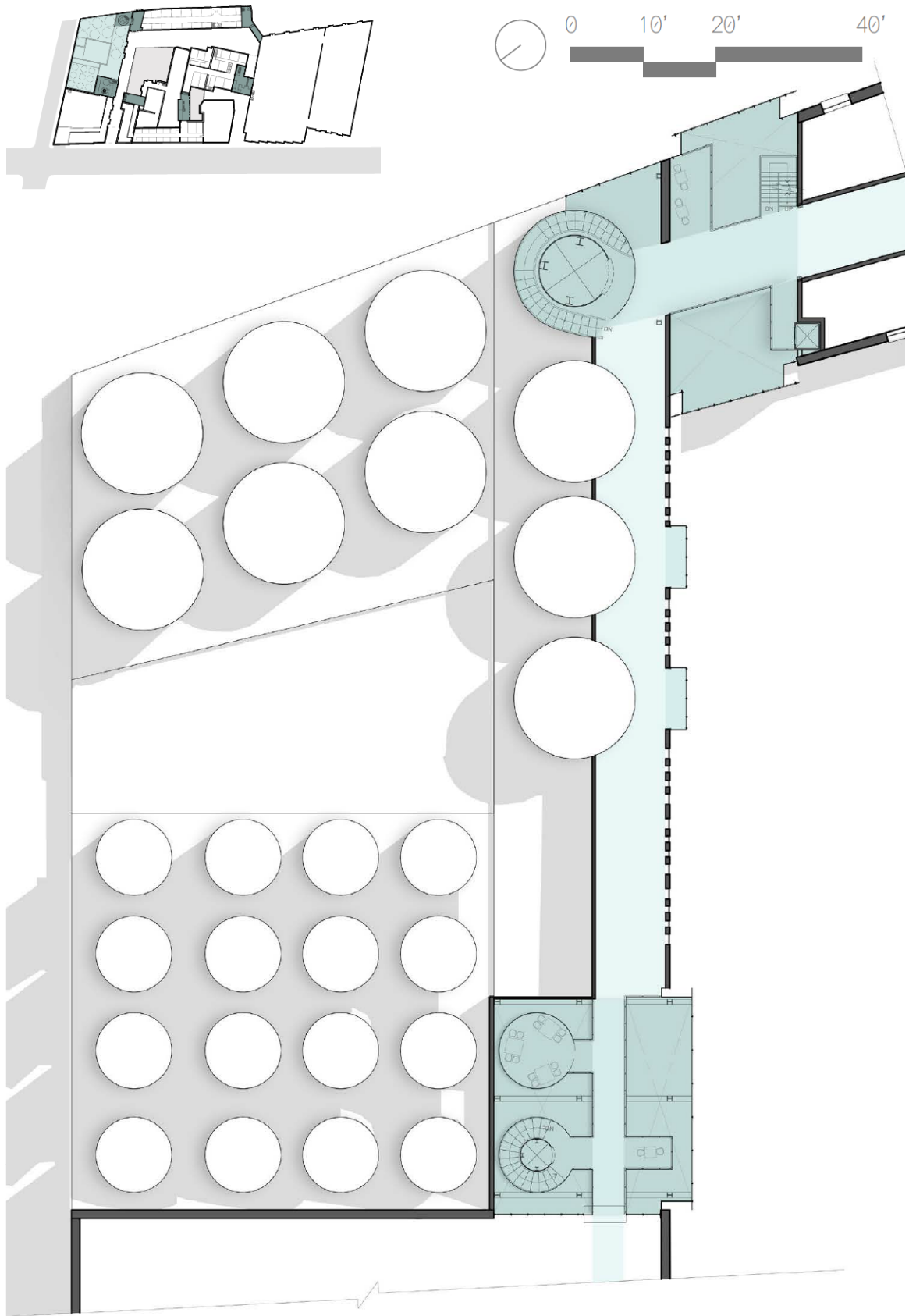


Fig. 65: Convention District, +3 level plan



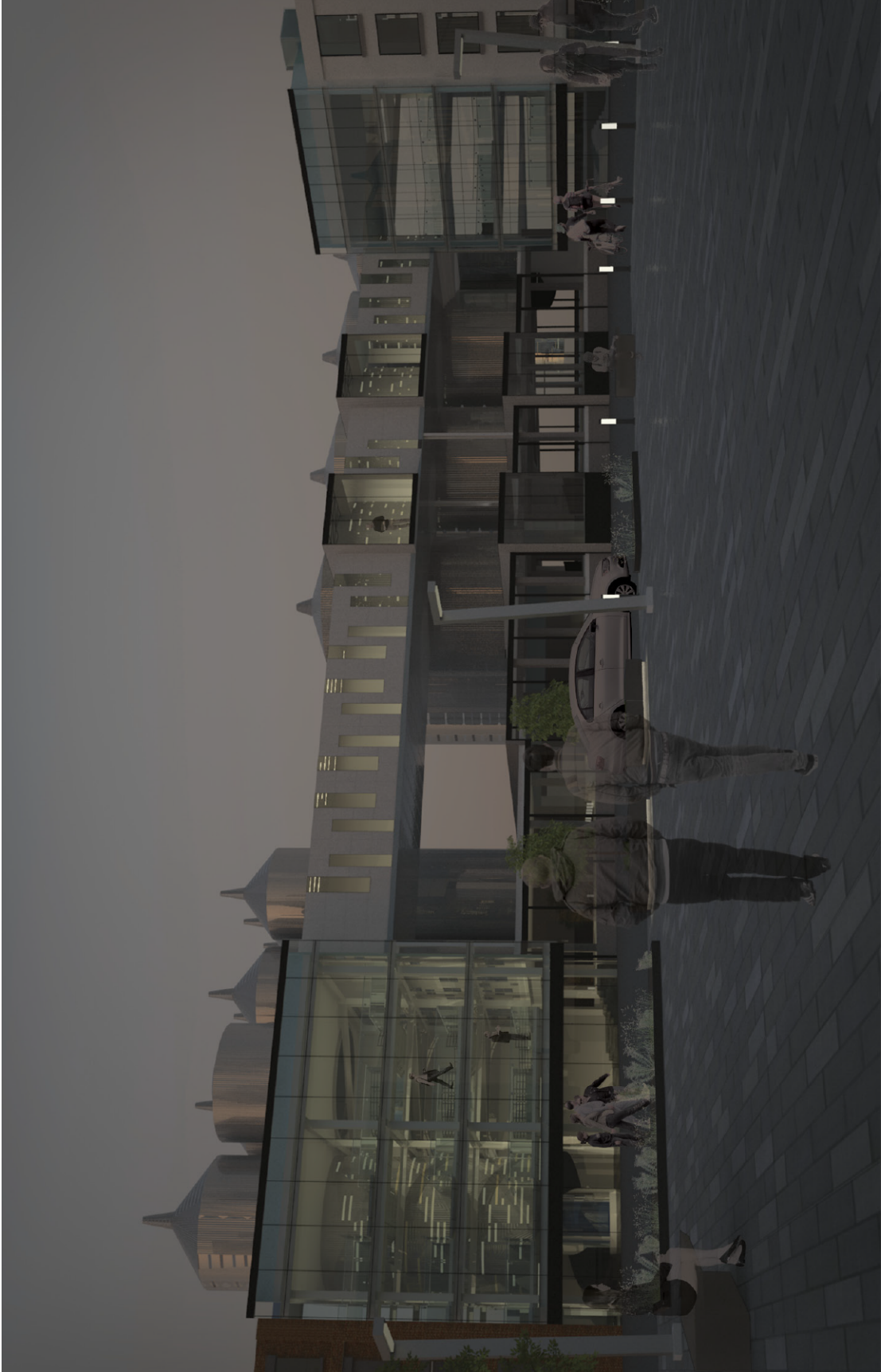


Fig. 66: Perspective visualization of Gateway and Convention District from public square..

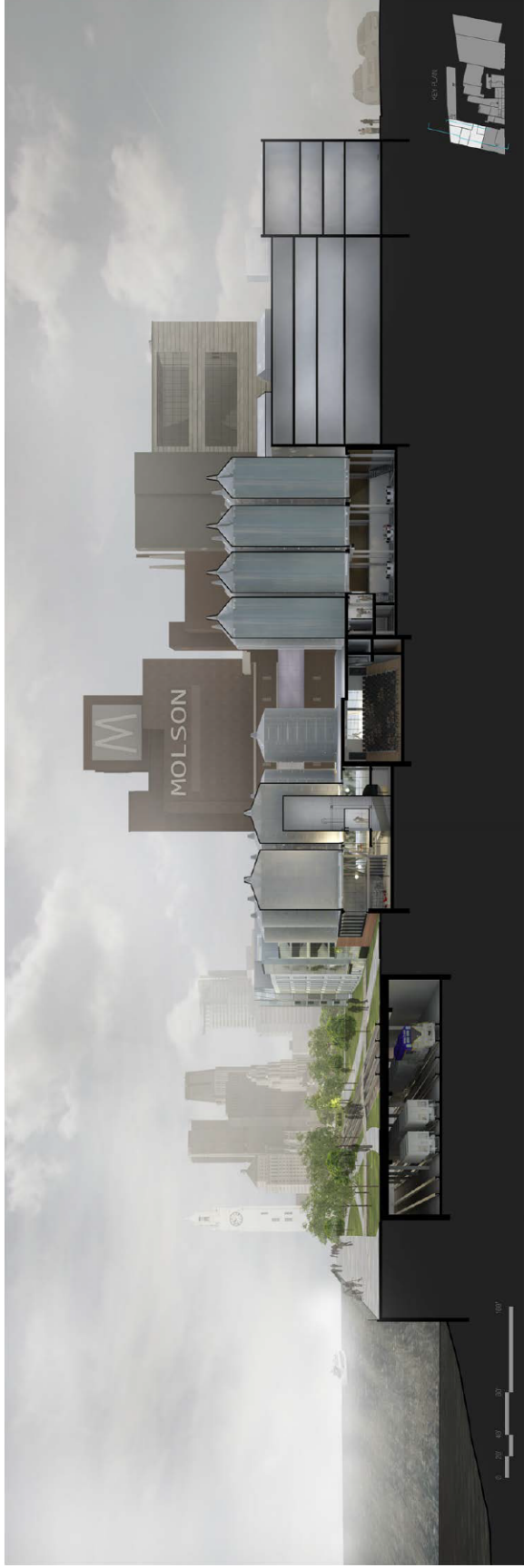


Fig.67a: Complete section through Convention District and Linear Park beyond, showing implementation of program and recreational strategies.



Fig. 67b: Partial enlarged section through Convention District and Linear Park beyond.



Fig. 67c: Partial enlarged section through Convention District and Linear Park beyond.



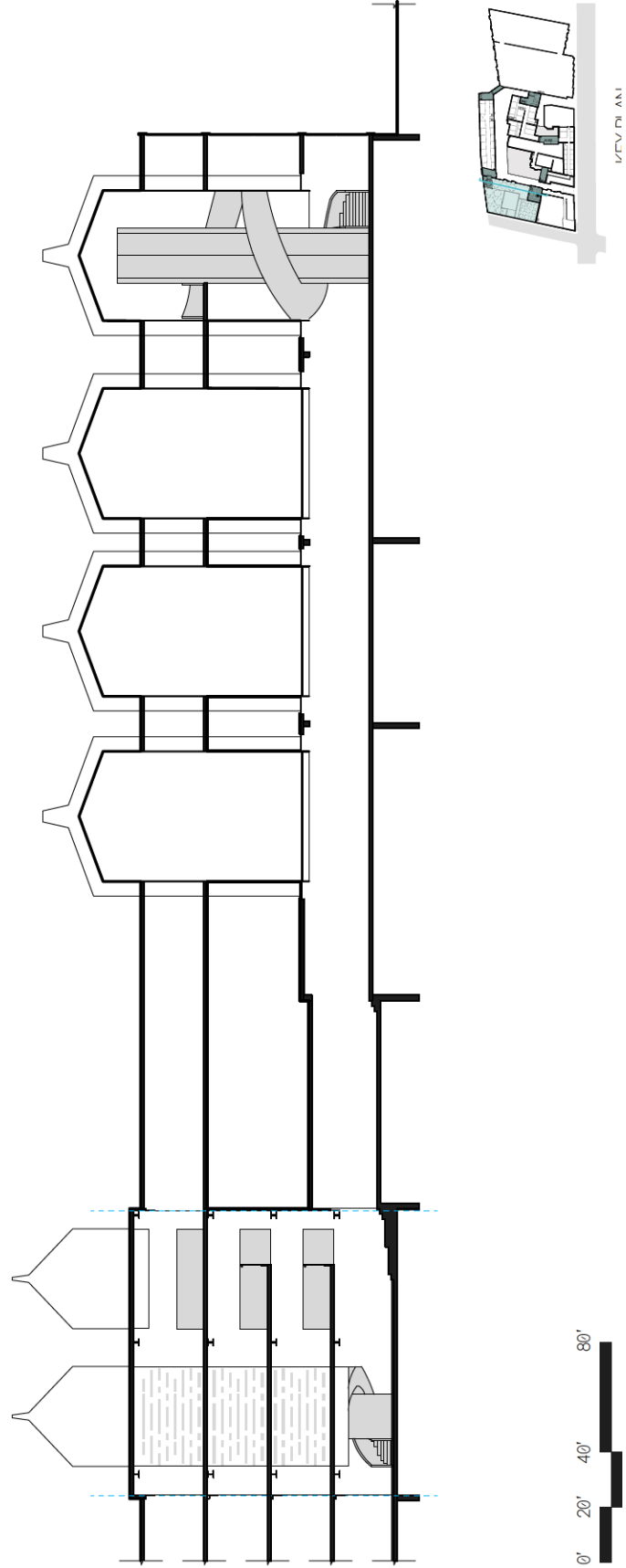


Fig. 68: Section through indoor street of Convention District revealing treatment of fermentation tank artifacts.

## CHAPTER 4: CONCLUSION

This thesis proposed to revitalize Montreal's iconic Molson Brewery into a city-within-a-city by implementing a system of connectivity and hierarchy to the massive complex of fragmented buildings. The theories and works of Team 10 were analyzed and adapted to this study. The city-within-a-city approach was also explored by analyzing the brewery's history and urban context in order to develop a programmatic strategy that could address the needs of the city of Montreal and the Sainte-Marie neighborhood. The building-as-city approach connects the new Molson Brewery redevelopment to its context both physically and programmatically, both of which are meaningful.

A redevelopment on such a massive scale would likely be carried out in phases over a long period of time. Each phase would be impactful in its own right and would address which building elements to preserve or demolish. This thesis strategy is relevant in addressing the futures of large post-industrial complexes of which there are many in modern cities that have transitioned away from an industrial economy.

These post-industrial behemoths are true monuments in the urban landscape and leave a lasting legacy. They are cemented in the collective memories of citizens. As such, this thesis advocates preservation over demolition where not warranted. Therefore, in dealing with these large building complexes, just as with cities, a systematic vision on an urban scale is necessary in order to harmonize interventions on an architectural scale.

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