

White Arkitekter is one of Scandinavia's leading architectural practices and have been involved in the Swedish development of socially environmentally and economically sustainable urban design over some 70 years. We have been closely involved in the development of the world renowned Hammarby Sjöstad in Stockholm, Bo 01 in Malmo and are today involved in many sustainable urban designs in Sweden. In the past years we have been keen to share our knowledge and learn from other contexts and have developed a studio in the UK which has been successful in helping develop sustainable development there.

White arkitekter AB have collaborated with ACDF architects to help develop a viable masterplan from the PPU proposal for the Groupe MACH development on part of the overall Lachine masterplan. At the Lachine Est, our approach to design development of the PPU have attempted to embrace all the themes defined while improving on some of its aspirations.

When developing the scheme, we have focused on creating secure and climatically favorable public realm. Ensuring that the heritage assets of the scheme are embraced and used appropriately without working against a sustainable residential environment. The goal has been to create a framework that is a part of a welldefined and recognizable part of Montreal rather than making urban design gestures which are not grounded in historic urban design references of the City. We have also focused on a deliverable and rational accessible scheme that can develop over time and allows flexibility of development while supporting good quality semi-public space. The overriding approach has been to define a highquality public realm as a starting point.

The document attached is a result of our attempts to embrace the PPU proposal and all its qualities.

Best regards,
Marie-France Stendahl

Mémoire

INTRODUCTION

White Arkitekter is one of Scandinavia's leading architectural practices and have been involved in the Swedish development of socially environmentally and economically sustainable urban design over some 70 years. We have been closely involved in the development of the world renowned Hammarby Sjöstad in Stockholm, Bo 01 in Malmo and are today involved in many sustainable urban designs in Sweden. In the past years we have been keen to share our knowledge and learn from other contexts and have developed a studio in the UK which has been successful in helping develop sustainable development there.

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The following comments are a result of our attempts to embrace the PPU proposal and all its qualities.

We value that the PPU proposal:

- has a high ambition to create a biodiverse and climatically positive public realm.
- has a good understanding of the site conditions and the city's aspiration to create a resilient ecological development is clear.
- creates generous green spaces (Canal and

Sulpiciens promenade) as you would expect from an eco-neighbourhood

- that it creates a main public space (Place des Antennes) at the centre of the project, combining the heritage aspect of the site with its user experience
- that there are a variety of forms and typologies to create a dense development that gives the opportunity to create a viable plan.
- Uses preserved and enhanced heritage elements in the 'Overhead Crane Park' creating an authentic character for the future community

CRITIC

The proposal as part of the city

The development of the area must be perceived as part of the city. To do this it should be developed from the rectilinear street structure that makes up for the majority of Montreal city and surrounding suburbs. Unusual forms in street layout and building form make for exclusive rather than inclusive development. We do not support the curved forms shown in the PPU proposal as these are alien to Montreal. We understand these forms are derived from the traces of industrial heritage however they have created a public square out of scale with the residential use and can be detrimental to the success of this future part of the City.

Public Realm

The PPU proposal has the ambition to create high quality public space and pedestrian streetscape. We are concerned that the main park spaces are exposed to wind and potentially overshadowed. The promenade des Sulpiciens is narrow and although proposed as a pedestrian green space, it is crossed by traffic circulation at regular intervals. Perhaps making this space wider would allow greater recreational opportunities.

We value that the PPU approach to infrastructure is innovative e.g. using bio-retention through vegetated ponds and percolation to ensure the resilience of the eco-neighbourhood. We believe this can be further developed to create fully inclusive and accessible public realm.

Built form

The building forms of the PPU proposal are very determined and do not freely allow future flexibility. Along with the curved forms of buildings, some typologies, such as town houses, are indicated on the plan and therefore are dictating road placement. This is very questionable as it is both predicting the specific type of property and guiding the infrastructure and accessibility related to it.

Although town houses are indicated to introduce a human scale, these are potentially overshadowed by the towers placed to the south. There is also a question regarding the viability and affordability of this type of property due to the need for environmental remediation on the site.

There is an uncertainty created in developing privately owned space adjacent to public space. Successful socially inclusive urban design needs to provide a clear framework that is easily understood by the future community. Combining different social groups within a urban design proposal can be positive. However, this needs to be considered as a projects business plan and structure of affordable housing is developed. Defining typologies at an early stage which in turn define street structure to support a specific typology can create limitations in the developing plan. Simply stated it is potentially to early and predictive with the introduction of terraced houses adjacent to St Joseph Boulevard. A similar typology should be included in the development however we believe that this could be better combined with other typologies throughout the development. Either as elements within each block or the use of duplex and triplex units

surrounding courtyards.

The freestanding tower blocks are also questionable as a typology. The use of freestanding tower blocks in urban plans will create an area of undefined and unusable semi-private space surrounding the towers. It is a well know phenomena that this typology even used in small numbers will have a negative impact on the overall quality of the development. These blocks are created through the placement of the Sulpiciens promenade and the width of site used by the for mentioned terraced houses.

Heritage

Although the PPU has development of a strategy towards heritage buildings it is felt that this is predicting the form of space rather than the quality of space throughout the development. le Retaining all buildings and features will effect the quality of the urban realm. An example of this is the position of the heritage buildings along St Josephs Boulevard. The street section is limited and its section will not be able to support the full functions required of this key connection through the development. Additionally, retention of all the heritage buildings around the place des Antennes will determine the spatial qualities rather than allowing good quality spatial characteristics to be defined through the design process. It is important that a balance is met between setting the character of place and disrupting the quality of an urban room. A full study of the heritage assets of the area should be further considered to best integrate and represent the history of the proposed development.

Mobility and accessibility

The road structure and accessibility of the proposal should be further considered. As stated above as the Promenade Sulpicien is proposed as car free additional pressure is placed on other infrastructure to provide access to the terraced houses and the towers lining the Lachine Canal Park. We would propose that a more general approach to accessibility is used. The viability of the scheme relative to the remediation needed could mean that the density may increase with the goal of making the housing provision more affordable. This over time will also put pressure on the need for greater accessibility and the inclusion of a vehicles along the Sulpicien promenade. This

is an hypothesis made from understanding the general development of urban designs over time.

Daylight

- The Swedish National Building Code (BBR) and the Building Research Establishment (BRE) from the UK have been used as a reference to assess the daylight conditions in the PPU. The method utilized is called VSC (Vertical Sky Component) and it measures the proportion of daylight that reaches a facade under an overcast sky. It is the methodology used in the Scandinavian context to assess the probability of room compliance in the later stages of the design process. This makes it a good reference for projects in Montreal which is located more southernly.
- According to the simulation (Figure 1), inner corners can generate lower daylight access in some cases. Although the height of the blocks is low, the proximity between some of the buildings can decrease the daylight access in the lowest floors. Apartments with limited daylight access have fewer chances to provide good daylight conditions in all the rooms in a later stage of the

design.

- The yellow spots in the facades represent areas where attention might be needed. Rooms in these spots might need to have a shallower depth and larger openings. On the other hand, the red spots show where there is limited daylight access and rooms in these places might not comply with the minimum levels of daylight (1% daylight factor according to the Swedish standard).
- When it comes to view out, courtyards that are open towards north can limit the view access to the main streets where there is more motion happening. Pedestrian movement and views to the water can be desirable in many cases, specially towards the Lachine canal.
- Buildings with deeper plans and lower ceiling heights, such as the complex facing the main square (curvy building), need to be carefully planned to guarantee minimum levels of daylight. Long facades towards south require also shading strategies to minimize the heat gains in the summer months.



Figure 1: PPU – VSC simulation.

Sunlight

- As for the sunlight assessment, the Swedish building code (BBR) states that in a dwelling; a room or a separate part of a room where people are staying more than temporarily must have access to direct sunlight. There is also a strong advice that the windows in a room are placed so that you can follow the daily and yearly time variations. The European standard (EN): Swedish standard SS-EN 17037:2018 Daylight in buildings) recommends that living rooms should receive at least 1.5 hours of direct sunlight during spring and autumn equinoxes.

- Those buildings which are facing straight north have limited or no access to sunlight (Figure 2). Apartments placed in these facades might have a challenge achieving a desirable level of sunlight hours.
- Tighter courtyards contribute to the decrease in sunlight levels because of mutual shading, especially those that are open towards north.
- Lower sunlight levels are specially noted in the west side of the development where the buildings rest close to each other.
- Regarding sunlight availability in the ground (Figure 3), a few areas presented zero hours of sunlight during the equinox. They happen usually where the courtyards are enclosed to the north.

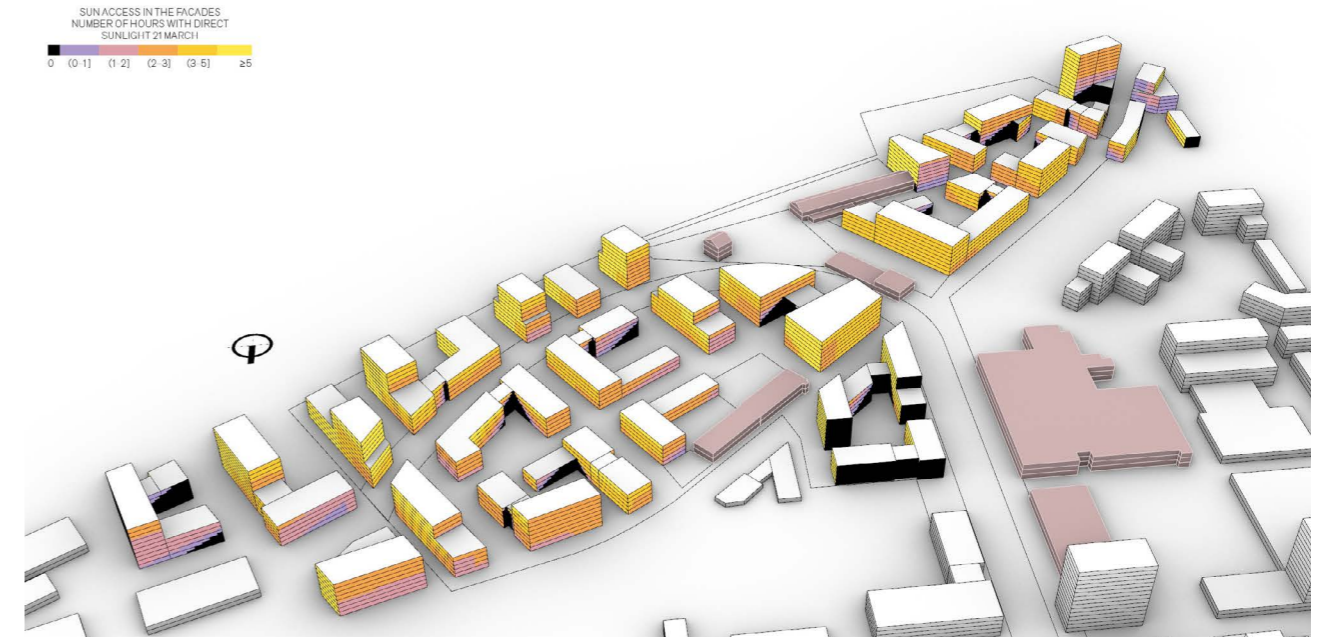


Figure 2: PPU – Sunlight simulation.



Figure 3: PPU – Sunlight simulation on ground.

Microclimate

- The microclimate tool developed by White evaluates thermal comfort according to typical climate data, average wind speed and exposure to direct sunlight at a given point.
- Light wind occurs for 1/3 of the year (Figure 4). The velocity of these winds ranges from 3 to 5m/s and according to studies, the wind starts to become annoying at the latter speed as it can disturb hair and clothing. Therefore, open spaces should receive special attention, especially if they are used often by pedestrians whether to reach destinations or to gather.

- Open spaces offer a challenge in relation to thermal comfort as wind velocities can pick up in the winter and high solar exposure can happen in the summer months. The microclimate study shows that the open space in the center of the development has sunlight access during 30% of the hours along the year (Figure 5), especially in the summer, which can cause moderate heat stress (10% of the time).
- The lack of sunlight access coupled with winds coming from the west/southwest can induce a strong cold stress in the winter months for 23% of the time (Figure 6). Entrances to the nearby buildings in the surroundings can also be uncomfortable since the wind can possibly accelerate in the square and channel through the streets in the vicinity.

General response to proposed public realm.

Our initial observation is that the overall structure of the PPU proposal will create adverse wind conditions particularly at the place des Antennes and surrounding the tower structures lining the Lachine Canal. Overshadowing will also be a potential negative impact on the promenade des Sulpiciens.

We note that **La place des Antennes** needs a better sense of enclosure for it to work socially and climatically. We noted on a site visit that the site immediately adjacent to the heritage building 104 had a value and microclimate which could be developed into the main social space. This place also has an historic quality while being protected from the wind today due to the warehouse building to the West.

La Promenade Des Sulpiciens does not strictly follow the historic route of the original canal – while the placement in the PPU plan means that the typologies to the south of the promenade become tower blocks. Isolated tower blocks can be challenging in creating good inclusive public realm since the ground level surrounding these objects will have a negative impact on the public realm.

The width of the promenade is also prohibitive to its use as a recreation space, while the curve of the route means that it becomes an indirect route to the train station.

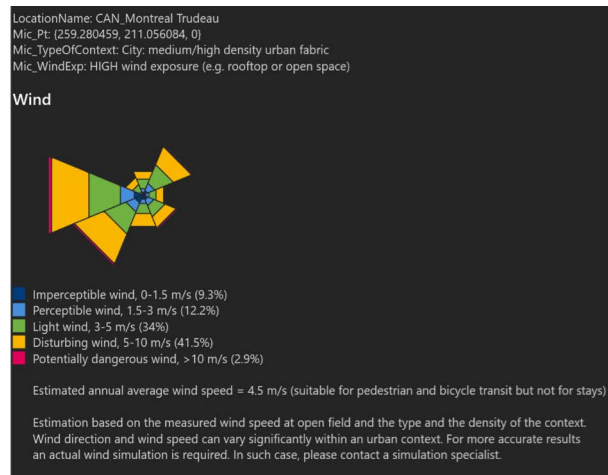


Figure 4: Wind rose for Montreal, Canada. Estimated wind speeds in the analysis point.

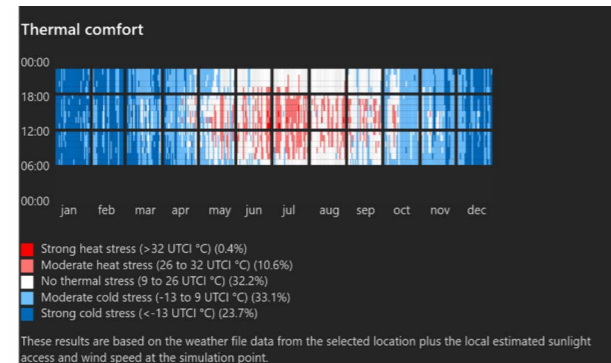
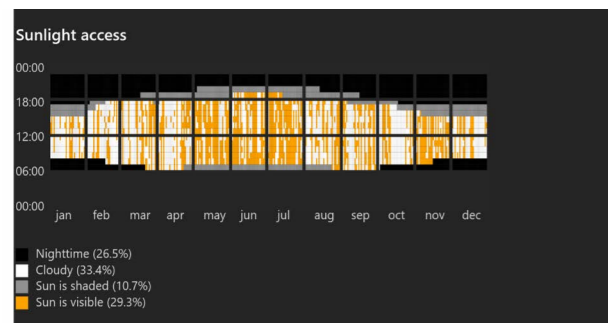


Figure 6: Thermal comfort assessment in the analysis point.



in the analysis point.