

Grandmother's House:
a self-sustaining community for Indigenous seniors in Edmonton's urban core.

by
Krysten Nicoll

A thesis submitted to the Faculty of Graduate and Postdoctoral
Affairs in partial fulfillment of the requirements for the degree of

Master of Architecture

Carleton University
Ottawa, Ontario

© 2018
Krysten Nicoll

ABSTRACT

Edmonton, Alberta has the second largest urban population of Indigenous people in all of Canada. Unfortunately, the city also has significant discrimination against Indigenous people. Discrimination is one of the factors in the large Indigenous homeless population, which includes many seniors who are the sole caretakers of children. There is a need to house three-thousand urban Indigenous seniors, their children, and grandchildren within Edmonton. Case studies of a current Métis seniors housing in Edmonton, friendship centers in Vancouver, and a multi-generational housing unit in the Netherlands shed light on what is currently available for Indigenous seniors and what models are working elsewhere that should be integrated into Indigenous seniors housing in Edmonton. While accounting for Edmonton's existing and proposed infrastructure as well as the city's settlement patterns, is it possible to create a culturally appropriate Indigenous community within Edmonton's downtown core?

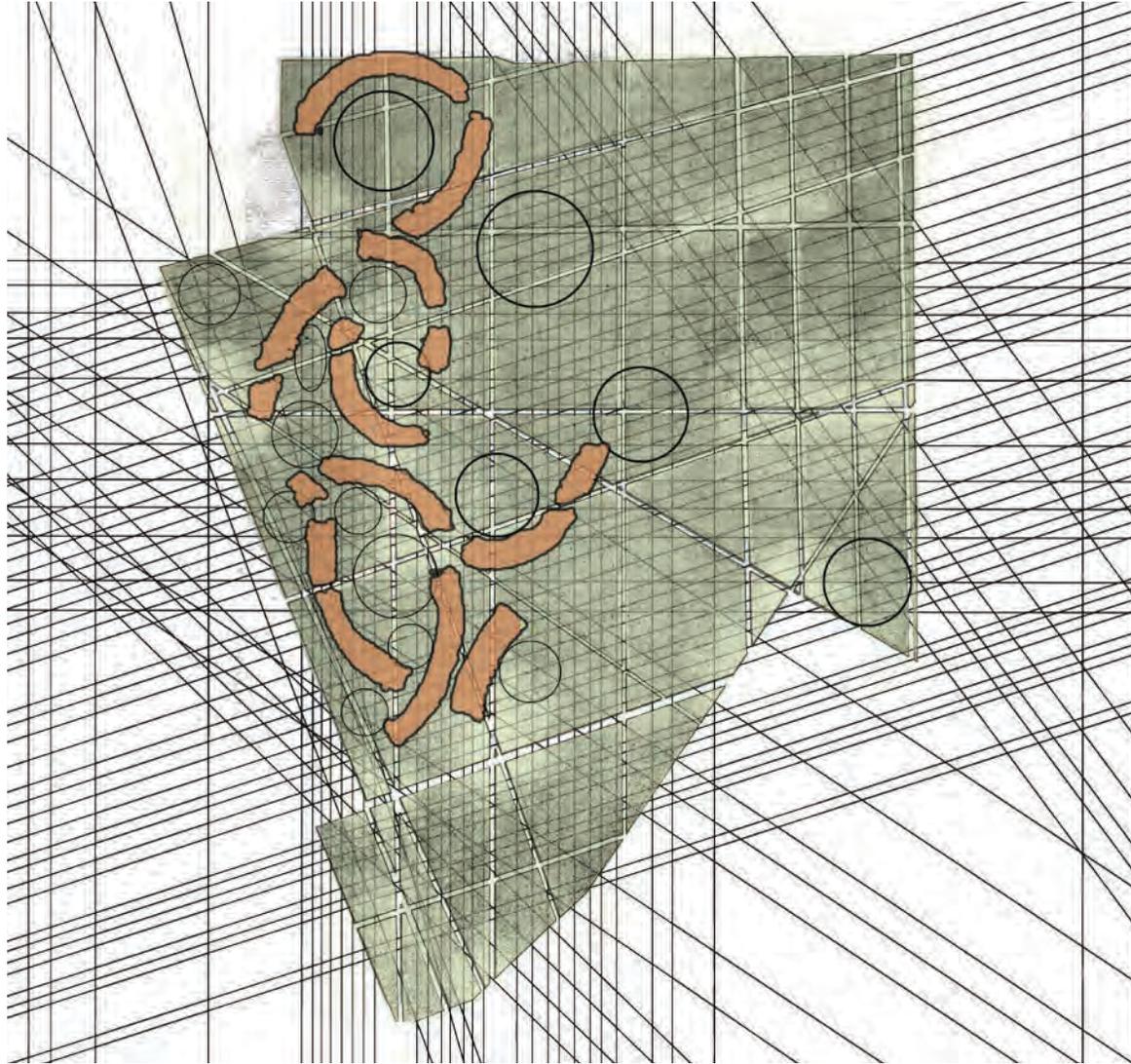


TABLE OF CONTENTS

2	ABSTRACT
4	TABLE OF CONTENTS
5	DEFINITIONS
7	INTRODUCTION
12	SOVEREIGNTY THROUGH AGRICULTURE
19	UNDERSTANDING EDMONTONIAN MENTALITY
26	INDIGENOUS SENIORS IN EDMONTON
33	CASE STUDIES
42	THESIS PARAMETERS
44	PROPOSED SITE
66	INTEGRATING LAND-BASED LIVING INTO AN URBAN ENVIRONMENT
113	CONCLUSION
116	APPENDIX
123	REFERENCES

DEFINITIONS

Reinvented and specified terminology

SENIORS- over the age of 55

ELDERS- are not of a particular age but are recognized by their community as being knowledgeable in tradition and culture. They are trusted to impart that knowledge to others.

CHILDREN- under the age of 14

ACTIVE CORE- where residences can walk or bike to amenities and work

TRANSIT SUBURBS- where residences can easily take public transit to amenities and work

FOOD SOVEREIGNTY- the ability and the right to be able to feed one's self, one's family, and one's community in the present and the future through establishing a re-connection to the land. This considers cultural, political, and environmental aspects of the food system

SUITABLE- something that is stable, affordable, safe from crime and discrimination, and culturally appropriate

LAND-BASED LIVING- a symbiotic relationship where one cares for and is provided for by the land

COURTYARD

– circumscribed area, surrounded by raised buildings either fully or partially, that is open to the sky. The primary uses are vegetable and public gardens for the surrounding buildings.

CULTURALLY APPROPRIATE

– family: housing accommodates the Indigenous values of family be it having more than one generation living in the same unit, or being able to house family and friends in time of need.

– self-sustaining: the ability to provide all the needs of the community culturally and economically

– sustainable: the integration with the land in a closed loop ecosystem where people, plants, and animals help sustain and nourish each other

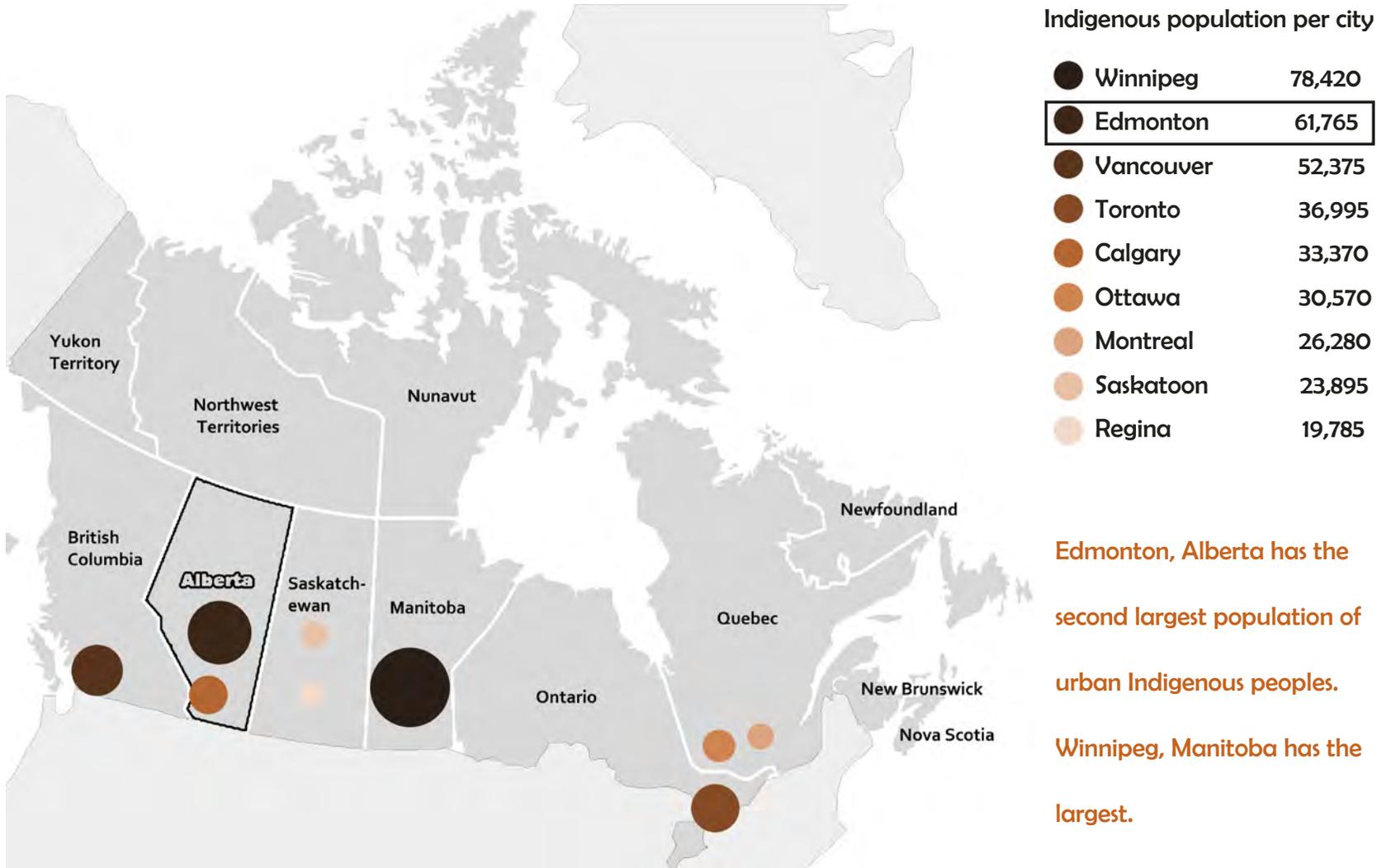
INTRODUCTION

This project explores the integration of land-based living into the heart of a city for the remediation of the land alongside the requirement to aid Indigenous peoples and culture within the city. Within Canada, the province of Alberta is renowned for its oil industry and its farmlands. The capital city of Alberta, Edmonton, was built on the coal industry and then the oil industry. Currently, 97% of Edmonton's growth is suburban stretching the city's infrastructure and amenities thin as it attempts to keep up with the sprawl. Between the industrial sections of the city and the ever-growing suburbs, the province's most fertile soil is being displaced, contaminated or paved over.

Edmonton also has the second largest indigenous population in the country, yet, it also has the highest perceived discrimination towards Indigenous peoples¹. Many Indigenous people live within the active core and transit suburbs of Edmonton, populating its core thus pressuring municipal leaders to keep amenities in the city that otherwise are being closed and moved to the suburbs. Likewise, 48% of Edmonton's homeless population is Indigenous and many are those without permanent, stable homes are seniors and the sole caretakers of children. One sub-factor of this homelessness is the lack of suitable housing for multi-generational households, whereby "suitable" must be defined as safe from crime and discrimination, affordable, and close to their community.

1 Crookshanks, John Douglas, PhD. "Aboriginal Seniors Housing in Edmonton," <://homewardtrust.ca/wp-content/uploads/2016/12/Aboriginal-Seniors%E2%80%99-Housing-in-Edmonton.pdf>.

2011 URBAN INDIGENOUS POPULATION IN MAJOR CITIES IN CANADA



The Homeward Trust completed extensive interviews of Indigenous people in Edmonton and other major cities across Canada. Many answers to such as the definition of happiness and success were indistinguishable from other ethnicities and cultures with the exception of the perceived amount of discrimination and how that affected their daily lives, such as the ability to rent a home. Discrimination was also studied from the viewpoint of non-Indigenous people and revealed that there is a lack of personal experience with Indigenous peoples and that stereotypes have been handed down amongst European descendants from generation to generation². As such, Indigenous people in Edmonton, although proud of their heritage, do not feel safe to express their culture and that condition affects how that culture is passed down to younger generations.

The Homeward trust interviews also revealed that the Indigenous population in Edmonton desires to establish a hub or village, similar to the existing little Italy or Chinatown, that would more closely reflect the collective aspects of Indigenous culture and traditional living styles³. **A designated Indigenous space such as this would not only allow for a safe space for Indigenous people to openly practice their culture, but to be able to celebrate it with the rest of the city.**

2 “2006 Aboriginal Population Profile for Edmonton,” Statistics Canada, www.statcan.gc.ca/pub/89-638-x/2010003/article/11077-eng.pdf, (February, 2010).

3 Crookshanks, John Douglas, PhD. “Aboriginal Seniors Housing in Edmonton,” [://homewardtrust.ca/wp-content/uploads/2016/12/Aboriginal-Seniors%E2%80%99-Housing-in-Edmonton.pdf](http://homewardtrust.ca/wp-content/uploads/2016/12/Aboriginal-Seniors%E2%80%99-Housing-in-Edmonton.pdf).

Looking at case studies of a Métis senior's housing project in downtown Edmonton the triumphs and flaws help to identify what works within Edmonton and the Indigenous community and what does not. There is also a senior's center in Norway that has experimented with multi-generational living on a limited scale but with great success and could be implemented in an Indigenous senior's residence in Edmonton to help alleviate some of the failures of existing seniors residences in Edmonton. Last, successful friendship centers in Vancouver, BC both government funded and internally funded, helped to explore how Indigenous culture could be shared with the outside community while simultaneously serving the Indigenous community.

By creating an Indigenous village near the existing Indigenous population that caters to the cultural needs of Indigenous peoples, Edmonton can simultaneously increase its inner-city population while creating suitable homes for Indigenous peoples. Focusing on a relationship with the land will allow Indigenous peoples to have a land-based living situation that goes hand-in-hand with their values and helps to teach younger generations. Returning stewardship of the land to the Indigenous people will help to rejuvenate the paved-over city soil, grow enough herbs and vegetables to provide food-sovereignty to the community, and can create a bridge to non-Indigenous cultures based on a commonality to all cultures: the preparation and enjoyment of food.

SOVEREIGNTY THROUGH AGRICULTURE

“It was decided that agriculture would be the instrument by which the assimilation of Aboriginal people into Canadian society would occur”

-Eric Tang⁴

4 Tang, Eric. “Agriculture: The relationship Between Aboriginal Farmers and Non-Aboriginal Farmers,”



PRE-COLONIZED NORTH AMERICA



Future province of Alberta

Indigenous tribes categorized by

linguistic groups:

- Eskimo Aleut
- Athabaskan
- Algonquian
- Siouan
- Iroquoian
- Uto-Aztecan
- Other

Before European settlers came in 1750, the site of the province of Alberta was home to numerous distinct nomadic tribes.

Before colonization, the land that Edmonton sits on was part of the Great Plains. Before the prevalence of the western notions of borders and land ownership, the area was inhabited by almost twenty Indigenous bands, some containing multiple nations. Unlike Indigenous tribes to the west or those of the east, the tribes of the Great Plains did not build permanent shelters but were nomadic. Tribes would break off into smaller groups in times when food was scarce, such as winter, and come together when food was plentiful. Many tribes would also come together at certain places for trade and ceremonies. Shelters were teepee structures that could be dismantled and moved in order to hunt different animals or forage in different areas as different roots and vegetables came into season⁵.

European settlers did not understand Indigenous cultures and therefore viewed them as “savage”. As the colonizers attempted to force the Indigenous people to become more “civilized” they enacted multiple laws and treaties that had the goal of assimilating them into western culture. As the colonizers moved further west into Canada and into the plains, they upset the balance that the Indigenous population had maintained with the land. **The buffalo, the main staple in Indigenous plains tribes, was almost eradicated⁶.**

5 First Nations in Alberta, Indian and Northern Affairs Canada, 2009eng/1100100014265/1369225120949

6 Tang, Eric. “Agriculture: The relationship Between Aboriginal Farmers and Non-Aboriginal Farmers,”

In order to help assimilate the Indigenous peoples, the Canadian Government decided to use the food shortage to their advantage and teach western farming techniques. Teaching the Indigenous how to farm, it was believed, would change the traditional nomadic lifestyle to a sedentary one that would ease the Indigenous into full assimilation with the colonial lifestyle to the point where treaties would no longer be needed⁷. In the prairies, the Indigenous populations thrived with western farming techniques as they used it to build upon their already vast knowledge of Indigenous plant life and growing cycles. The Indigenous communities, however, did not follow the western ideals of ownership and instead shared workloads and the cost of equipment. As the Indigenous farmers succeeded, the Canadian Government enacted policies to help the struggling non-Indigenous farmers and therefore sabotaged the success of the Indigenous farmers⁸.

7 Tang, Eric. "Agriculture: The relationship Between Aboriginal Farmers and Non-Aboriginal Farmers,"

8 Tang, Eric. "Agriculture: The relationship Between Aboriginal Farmers and Non-Aboriginal Farmers,"

The policies were enacted against Indigenous peoples only and, the policies limited land ownership to individuals rather than communities, controlled the sale of produce off reserves, and even restricted the passage of Indigenous peoples off reserves. **Not being able to work as a community as was their lifestyle, crop productions suffered.**

In order to become self-sustaining, an unrestricted source of food and trade is required for any community. Within Edmonton, returning the ability to produce food as a community for the community would give the Indigenous population a chance to take back their food-sovereignty. An unlimited source of nutrient-rich food would also help the Indigenous peoples become self-sustaining as well as teach younger generations traditional gathering and farming techniques that existed before colonization.



<http://ifarmboxford.com/event/permaculture-gardening-through-the-season-afternoon-aug-17/>



<https://www.axs.com/best-corn-mazes-in-the-new-orleans-area-25852>

Companion Planting vs. Western Crop Farming

INDIGENOUS FARMING TECHNIQUES TO BE USED THROUGHOUT THE THESIS DESIGN

Companion Planting

Traditional Indigenous agriculture is embodied by the

Three Sisters gardening method:

In Iroquois culture, three sisters take care of each other and are always together: Corn, beans, and squash.

Corn is the oldest sister and holds up the beans. Beans put nutrients into the soil for next year's planting.

Squash lays low on the ground keeping moisture from evaporating and weeds from growing.

Water Harvesting

Storing rainwater run-off in cisterns or bioswales, especially in the prairies, in order to keep the soil moist and plants from going into distress.

Agroforestry

The blending of Forest into agriculture to develop microclimates that protect crops against extremes. The trees also store carbon while sheltering against the wind, sun, rain, hail, and soil erosion.

Inter-cropping

Sowing more than two crops simultaneously creates biodiversity which attracts beneficial insects while minimizing pests, increases soil organic matter (creating better topsoil), and suppresses weed growth.

Polyculture

Growing many plants of different species in the same area imitating nature is more adaptable to climate extremes as well as all the benefits of inter-cropping.

UNDERSTANDING EDMONTONIAN MENTALITY



Paul Kane's Fort Edmonton, 1846

<http://www.thecanadianencyclopedia.ca/en/article/fort-edmonton/>

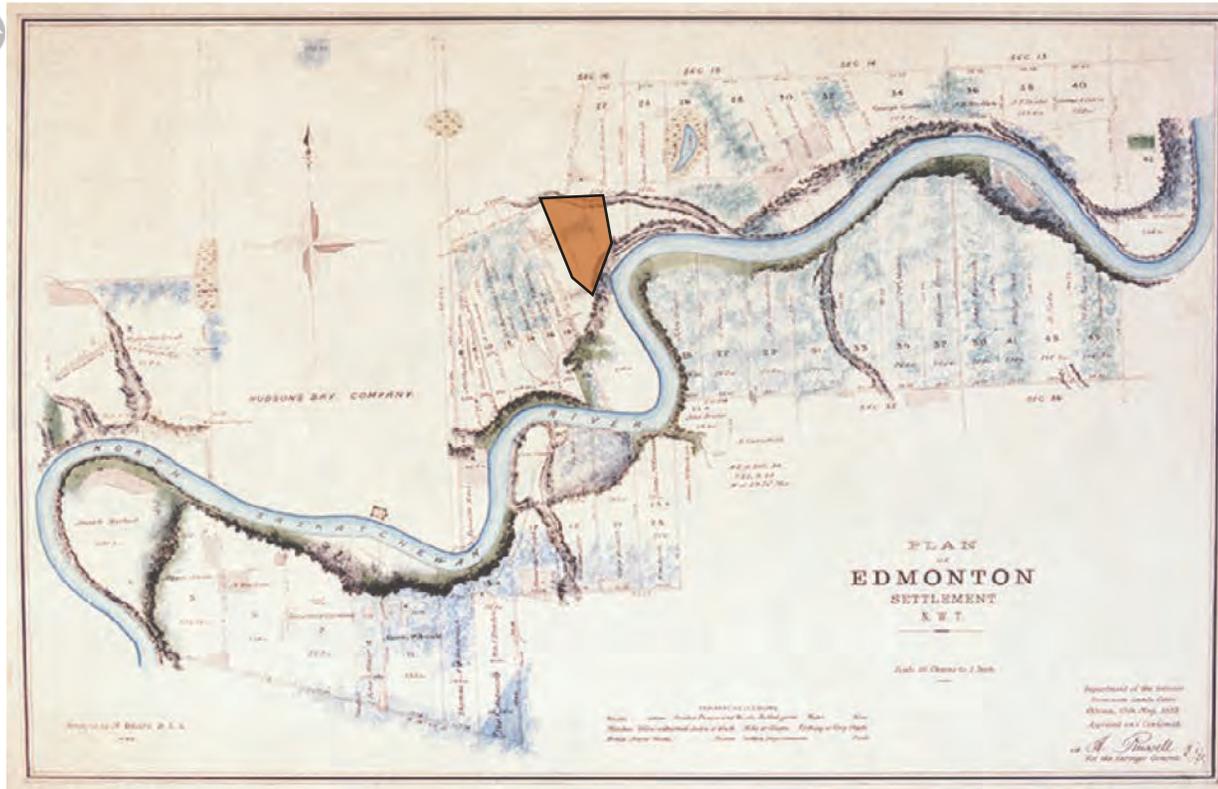
The Plains Cree know Edmonton as Pehonan, “waiting place”, as it was a prominent meeting post between other tribes as well as the location of a burial ground. Tools from campsite have been found dating back between 500 and 3000 BCE. The Hudson’s Bay Company built the first trading post in what is now known as Edmonton in 1785. This trading post quickly became the dominant center of western fur trade and settlers began to build on and cultivate the surrounding land. **Edmonton flourished because of the fertile soil it sits on** and started an Agricultural Fair in 1879 that still exists today as the site of Northlands Park⁹.

⁹ <http://www.thecanadianencyclopedia.ca/en/article/fort-edmonton/> 20

Edmonton became a city in 1904. In the 1930's Edmonton's economy received a boost from meatpacking and processing plants for agricultural produce. During the Second World War, Edmonton became the strategic center for northern military operations and became a processing center for the petroleum industry. Edmonton became the fastest growing city in Canada until the 1980's. The majority of the population growth was due to people immigrating from all over Canada as well as from Europe and after the 1980's immigrants were mostly from East and South Asia. People came to Edmonton for the abundance of labour that was in high demand¹⁰.

In 2001 Edmonton's continued dominance in the petroleum industry steadily increased the city's population, however, 93% of that growth is in the suburbs. In 2011 a census shows that 22% of Edmonton's population is East and South Asian while 5% is Indigenous, one of the largest urban Indigenous populations in all of Canada. In 2014 the oil market crashed and the seemingly unending need for labourers came to an abrupt halt.

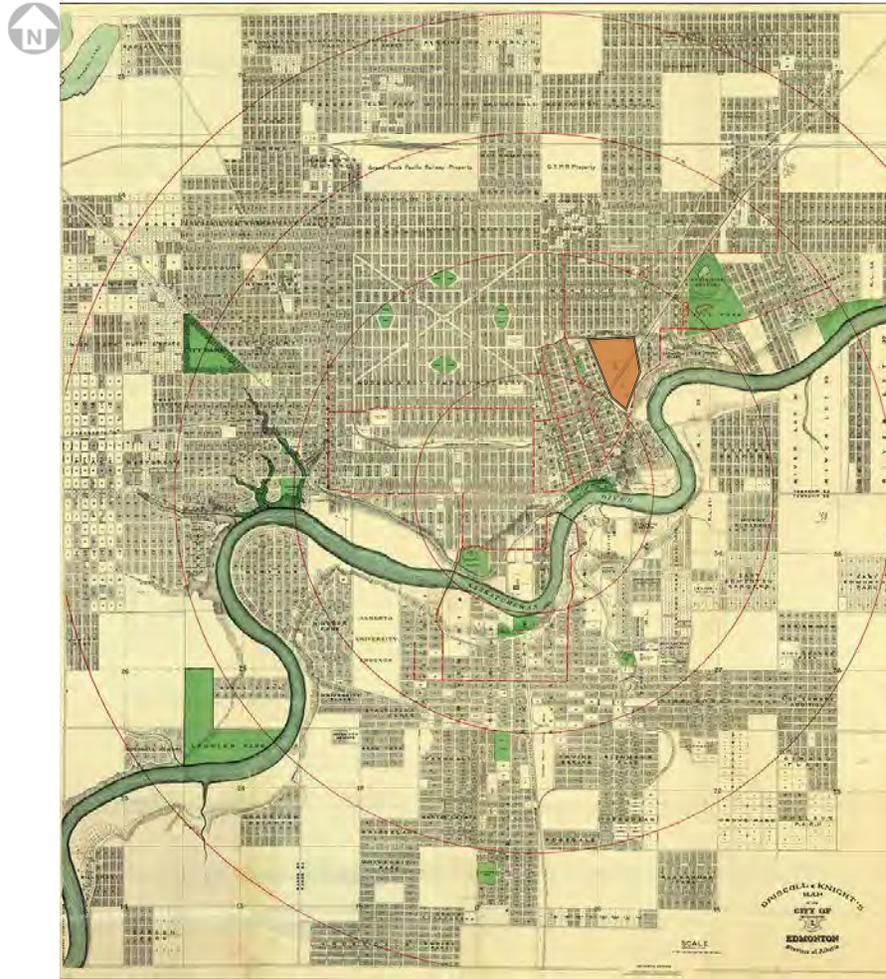
¹⁰ <http://www.thecanadianencyclopedia.ca/en/article/fort-edmonton/>



Map of Edmonton in 1882

https://www.edmonton.ca/city_government/edmonton_archives/mining-in-beverly.aspx

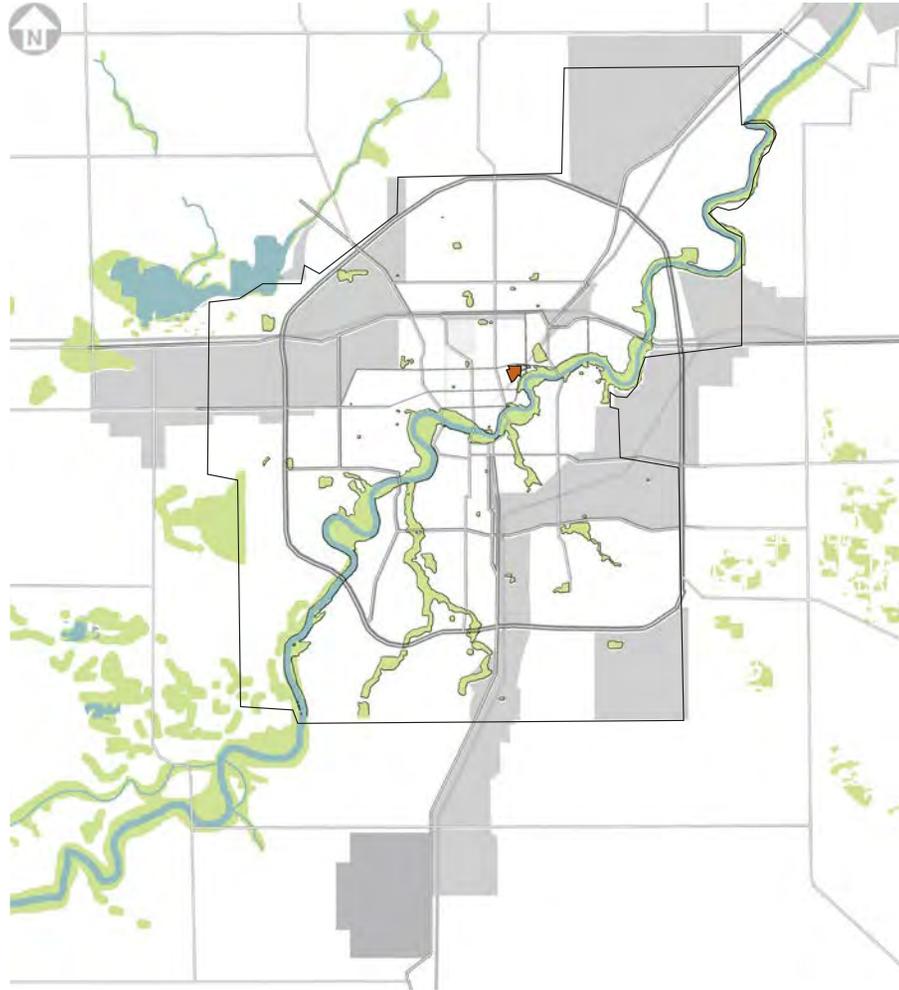
 Proposed site for thesis



Map of Edmonton in 1912

<https://citymuseumedmonton.ca/2016/03/15/the-edmonscona-plan/>

 Proposed site for thesis



Map of Edmonton in 2018

 Proposed site for thesis

 Edmonton city limits

 Parklands

 Industrial

Edmonton is called both the “Gateway to the North” as well as “Canada’s Festival City”. These nicknames reflect the duality that exists within the city. “Gateway to the North” refers to Edmonton’s key location in the oil and gas industry in Alberta. Edmonton was built on agriculture, coal, and the oil industry and is home to people from across the country and the world who perform hard physical labour and take pride in their work. After working hard, Edmontonians also like to play hard. With so many different cultures living together in one city expressing and celebrating differences turns into city-wide festivals. Edmonton is home to the oldest and largest Fringe Festival in Canada, the Edmonton Folk Music Festival, Heritage days, the Edmonton International Jazz festival, and the Works Arts and Design Festival making it “Canada’s Festival City”. **The festivals all have different themes but they always have three things in common: the enjoyment of different foods, being immersed in multiple forms of art, and the celebration of cultural diversity, which is known to dictate the successfulness of the festival.**

If Edmonton is already culturally diverse and actively celebrating these cultures, why is Indigenous culture still so foreign and unwelcome? By creating a center of Indigenous food and art can Indigenous cultures become more approachable?

INDIGENOUS SENIORS IN EDMONTON



Indigenous grandmother and grandchild

<https://www.pbslearningmedia.org/resource/native-americans-image-gallery2-pbslm/portraits-native-american-civilizations-us-history/#.WsD9ii7wa00>

According to Statistics Canada's 2011 census information, there are over sixty-one-thousand people identifying as Indigenous living in Edmonton¹¹. Out of that, over six-thousand are seniors. **Having a smaller percentage of seniors to younger generations, studies tend to focus on the younger generations, leaving the senior community to fall through the cracks**¹². The treatment of Aboriginal seniors sometimes doesn't even get noticed by the younger Aboriginal generations¹³. **There is a rift between the generations** much like any non-Aboriginal culture is facing but amplified because of the "stolen generation" that was taken to residential schools and carried through to another generation with Indigenous children in the care of Child Welfare Services¹⁴. As such, two generations or more have not been taught Indigenous peoples' respect for elders or their kin while the elders go beyond their economic means to care for their children and grandchildren¹⁵. As seniors struggle to care for the younger generations there is an urgency to find suitable housing. **Multi-generational housing an adjustment that needs to be accommodated in Indigenous senior housing in order to begin to bring the generations back together.**

11 Shelly Anderson, "Edmonton Community Plan Urban Aboriginal Strategy," Alberta Native Friendship Center's Association

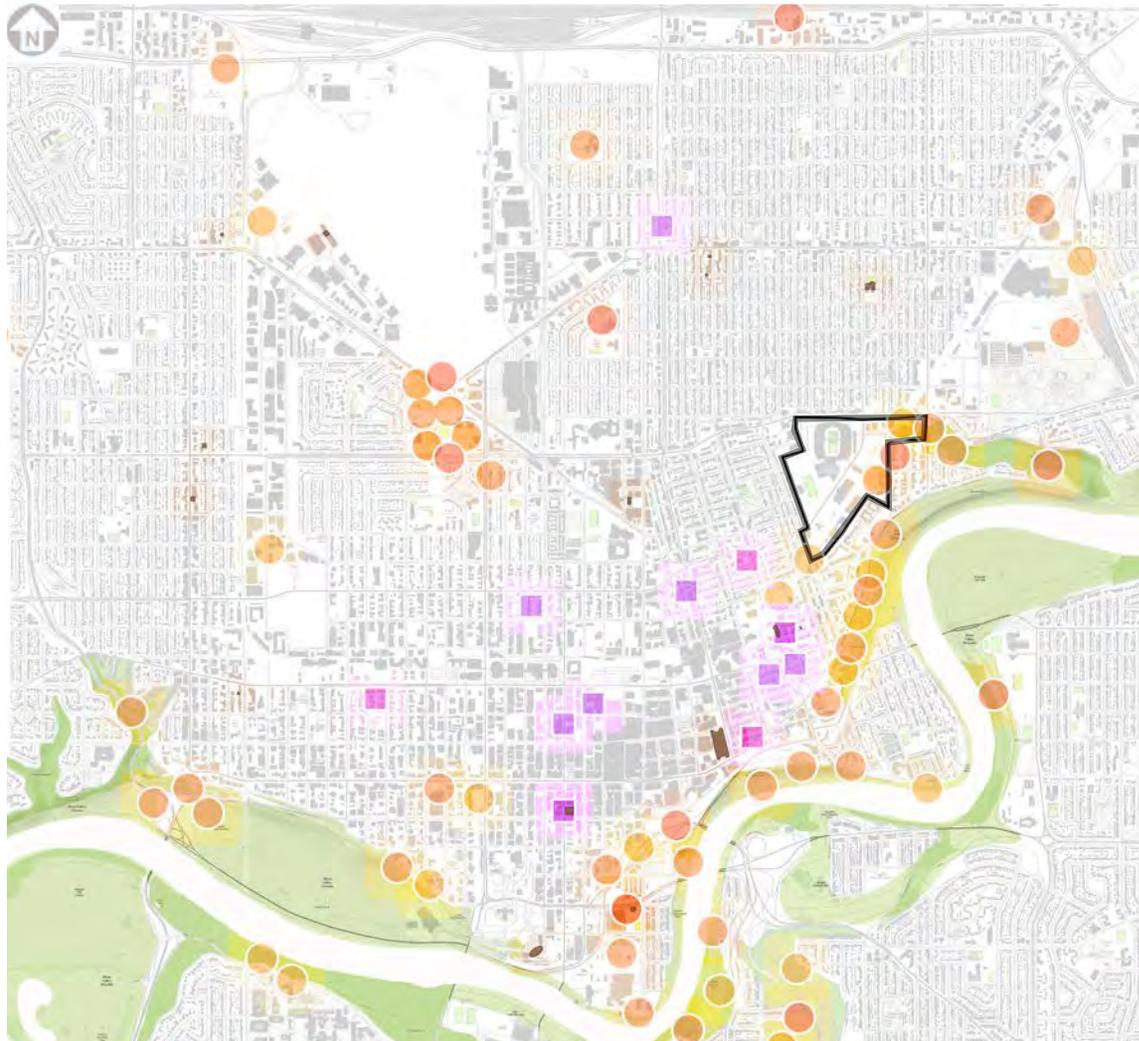
12 John Crookshanks, "Aboriginal Seniors' Housing in Edmonton," Homeward Trust

13 John Crookshanks, "Aboriginal Seniors' Housing in Edmonton," Homeward Trust

14 John Crookshanks, "Aboriginal Seniors' Housing in Edmonton," Homeward Trust

15 John Crookshanks, "Aboriginal Seniors' Housing in Edmonton," Homeward Trust

EDMONTON HOMELESS CAMPS



 Proposed Site

 Winter shelters

 Indigenous centers

Homeless camps sites cleaned up
by the Edmonton police:

 Summer campsites

 Fall campsites

There is a lack of homeless shelters in
Edmonton nevermind shelters that cater
to Indigenous seniors and their families.

The 2012 study by Homeward Trust found that Indigenous peoples account for 46-48% of Edmonton's homeless population and Indigenous seniors account for 25% of the senior homeless population. Significantly, 61% of the Indigenous homeless population are main caregivers for children. The Indigenous seniors who are not homeless still have unsuitable housing for raising children and fostering a community¹⁶.

Housing options for Indigenous seniors include living with family, nursing homes, and buying a home. Living with family is not always a stable housing situation and a nursing home is no place to raise children. Buying a home would be ideal, but when that is unattainable renting becomes the only option. Renting a home in Edmonton is not as simple as having a source of income and good references from past landlords for people of Indigenous heritage. **Discrimination stops many non-Indigenous landlords from renting to Indigenous peoples¹⁷.**

16 John Crookshanks, "Aboriginal Seniors' Housing in Edmonton," Homeward Trust

17 John Crookshanks, "Aboriginal Seniors' Housing in Edmonton," Homeward Trust



Indigenous multi-generational family

Image Source: http://www.virtualreferencelibrary.ca/detail.jsp?Entt=RDMDC-TSPA_0024057F&R=DC-TSPA_0024057F&searchPageType=vrl

Homeward Trust's interviews are full of reports of Indigenous people hiding that they are Indigenous in order to be able to rent a place, being turned away at the door after having an online application accepted, and being told that "this is not a day-care" when a grandmother had her children over for the afternoon. It is inherent in many Indigenous cultures, if not all, that one cares for one another and always let friends and family share one's home when they are in need. It is very hard to foster Indigenous culture when the ability to house oneself and one's community is impeded¹⁸.

Using data from Statistics Canada and Homeward Trust it is found that Edmonton has over 2,100 Indigenous seniors who are in need of a stable, suitable home. There are currently only 130 homes that are specifically for Indigenous seniors. That leaves over 1,970 seniors to find affordable housing that will accept Indigenous cultures and customs, which includes hosting family for extended periods and caregiving for children. At least 500 Indigenous seniors need a space that will allow them to raise their grandchildren.

Having an affordable housing complex owned and run by the Indigenous community in Edmonton would ensure that no one is homeless because of discrimination, and children have a safe, stable home in which to grow up. By integrating multi-generational units families can live together and have the benefit of the wisdom of their elders to help bridge the gap that was created earlier by residential schools.

18 John Crookshanks, "Aboriginal Seniors' Housing in Edmonton," Homeward Trust

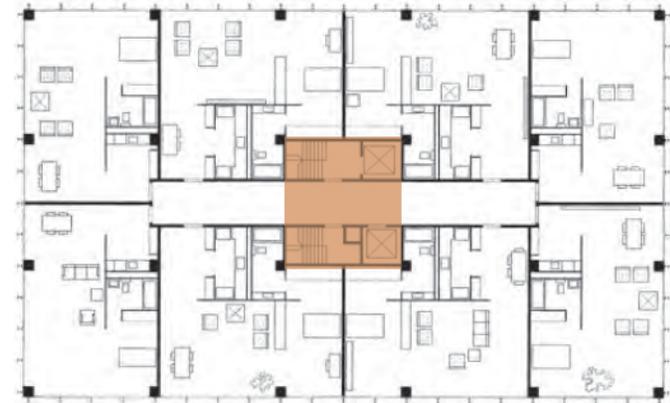
CASE STUDIES

RENAISSANCE TOWER EDMONTON, AB 2013

A 55+ Métis residence in North Central focusing on sustainability



Source: https://www.edmonton.ca/projects_plans/quarters/boyle-rennaissance.aspx



Source: <https://www.archdaily.com/59487/ad-classics-860-880-lake-shore-drive-mies-van-der-rohe/5037dd7f-28ba0d599b000069-ad-classics-860-880-lake-shore-drive-mies-van-der-rohe-typical-floor-plan>

 Public gathering spaces

RENAISSANCE TOWER EDMONTON, AB 2013

A 55+ Métis residence in North Central focusing on sustainability



SUSTAINABILITY: -Co-generation power and heat shared with a YMCA
-Green roof
-Roof-top solar panels

CULTURE: -Spiritual Gathering Room

FUNDING: -10,000sq ft. ground floor commercial space



SUSTAINABILITY: -None of the systems are visible or interactive

CULTURE: -No intergenerational aspects or sharing of culture with outside community

FUNDING: -Commercial space is all still for lease after 5 years



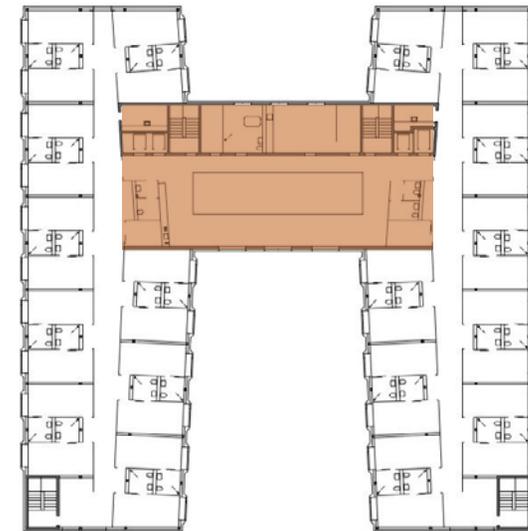
-Integrate sustainability into daily life
-funding through commercial space run by the Aboriginal residences
-in-house cultural spaces

HUMANITAS RETIREMENT HOME DEVENTER, NETHERLANDS 2013

A retirement home who faced government funding cut-backs with multi-generational living



Source: Google Maps



Source: <http://daphman.com/retirement-house-plans/>

 Public gathering spaces

HUMANITAS RETIREMENT HOME DEVENTER, NETHERLANDS 2013

A retirement home who faced government funding cut-backs with multi-generational living



SUSTAINABILITY:-Community garden for food and activity for the seniors

CULTURE: -Intergenerational living with university students. Students hold classes from social media to spray painting.

FUNDING: -students trade rent for volunteer work



SUSTAINABILITY: -No other systems

CULTURE: -Only 6 students for 160 seniors, only 1h/ month with every senior

FUNDING: -students can only rent out vacant rooms



-Integration of solar panels, water catchment and, organics into a community garden

-intergenerational living sharing culture across generations as well as having the young taking care of the seniors.

FIRST PEOPLES' HOUSE VICTORIA, BRITISH COLUMBIA 2010

A school for Indigenous studies at the University of British Columbia



Source: <https://inhabitat.com/salvaged-cedar-longhouse-inspired-by-native-architecture/first-peoples-house-6/>



Source: <https://www.archdaily.com/403556/first-peoples-house-formline-architecture-urbanism/51e7490de8e44ead9d000007-first-peoples-house-formline-architecture-urbanism-site-plan>

 Public gathering spaces

FIRST PEOPLE'S HOUSE VICTORIA, BRITISH COLUMBIA 2010

A school for Indigenous studies at the University of British Columbia



SUSTAINABILITY: -Designed to achieve LEED Gold standards by maximizing natural sunlight, natural ventilation, using natural, salvaged, and local materials.

CULTURE:-Form is designed after a traditional Coast Salish Long House
-Program includes classrooms for Indigenous studies but also elder lounges and ceremonial spaces.



CULTURE: -Space is associated with the university and with the government and would be unapproachable to some Indigenous people.

FUNDING: -Government funding puts limits/conditions on programs that Indigenous people may need but the government does not want to fund. Therefore the community has no say in how the building is run or what programs it could hold.



-Integration of building with the land, honour traditional building techniques without imitating, using the environment to enhance the building both in terms of materials and in terms of the elements (sunlight, wind, water, etc.)

ABORIGINAL FRIENDSHIP CENTER VANCOUVER, BC 1963

A community-made friendship center on the east side of Vancouver near a shipping yard



Source: <http://www.vafcs.org/about/>



Source: <http://www.vafcs.org/about/>



Source: <http://www.vafcs.org/about/>

ABORIGINAL FRIENDSHIP CENTER VANCOUVER, BC 1963

A community-made friendship center on the east side of Vancouver near a shipping yard



CULTURE: -Provides a full range of services from children's camps to drug and alcohol addiction rehabilitation
-Off-site homeless shelter
FUNDING:-Catering business as well as rents out its hall



SUSTAINABILITY: None
CULTURE: -Off-site homeless shelter
-No affordable housing
FUNDING:-Friendship centers must apply for government funding but only if they qualify based on government terms. Those terms may not be what the community needs and therefore the friendship centers either do not receive funding or has programs that are not in use.



-This center is governed by the Indigenous community
-The catering business allows it to function as the community needs, not as the government thinks it should

THESIS PARAMETERS

HOUSING



-2,000 seniors

2,000 rooms

14,000-40,000m2

-500 seniors caring for children/
grandchildren

500-1,000 rooms

10,000-20,000m2

-Total: 3,000 rooms

24,000-60,000m2

SHARED AMENITIES



Laundry facilities:

-300 machine sets (1,150m2)

-rooftop laundry drying

-Kitchen: 8,050-24,500m2

-Feast area: 2,787m2

-Lodge for ceremonies:

individual (1 person) 4m2

small (6 people) 26m2

medium (60 people) 245m2

large (3,000 people) 12,000m2

LAND-BASED AMENITIES



-Greenhouse for seed starting and
winter garden

-Garden

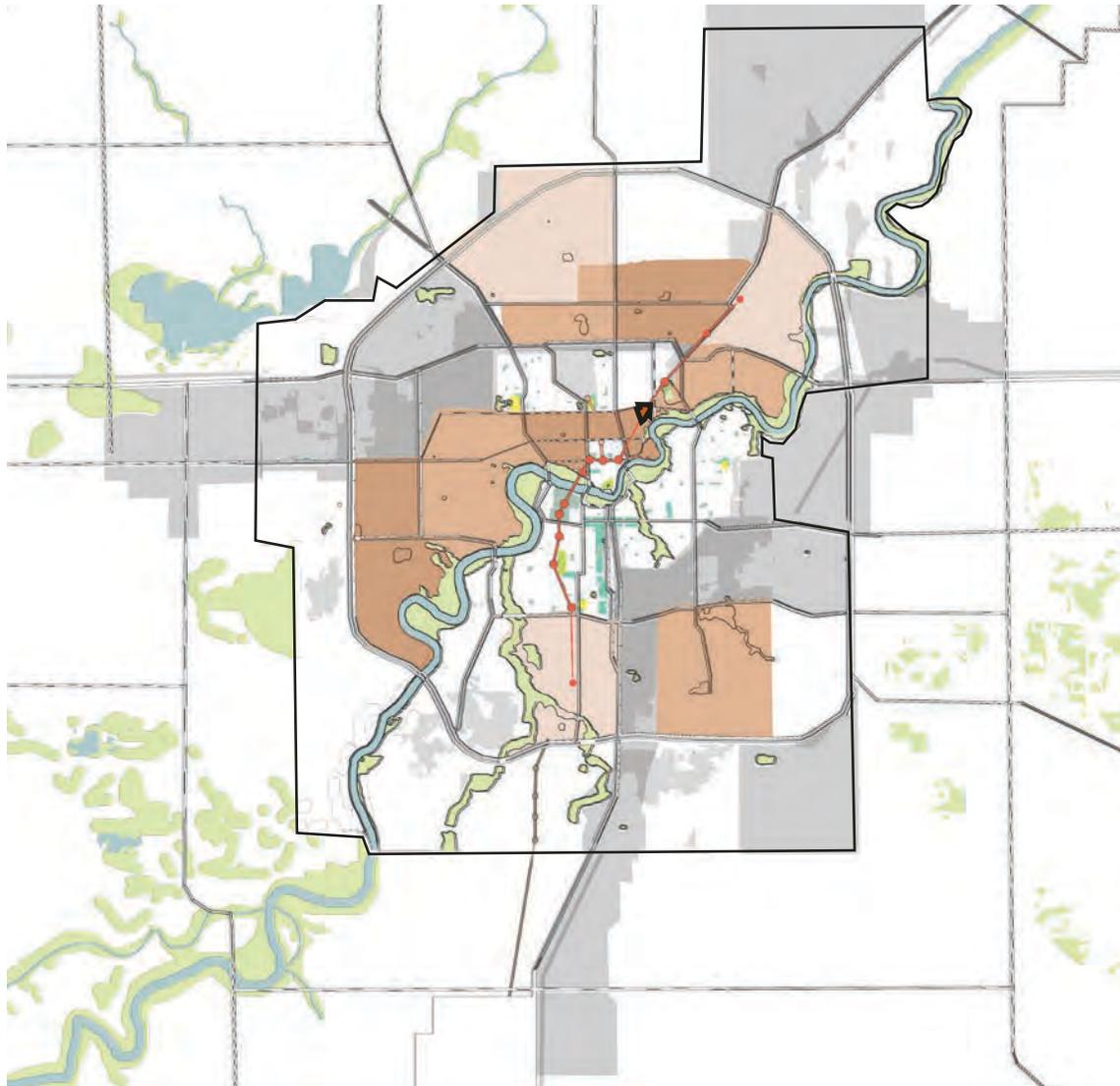
vegetable 1,115m2

medicinal 22m2

phytoremediation

-Outdoor Market Space

PROPOSED SITE



 Proposed Site

Indigenous Population per

neighbourhood

-  0-500
-  501-1,000
-  1,001-1,500
-  1,501-2,000
-  2,001-2,500

 Edmonton city limits

 Parklands

 Industrial

 Current LRT line

2011 Urban Indigenous Population in Edmonton per Neighbourhood



Neighbourhoods and Amenities Surrounding Proposed Site



Building Types:

-  Residential
-  Public Recreation
-  Public Service
-  Schools
-  Commercial
-  Business
-  Industrial

LRT Lines:

-  Above ground LRT
-  Below ground LRT
-  LRT stop



-  Proposed Site
-  Indigenous magnets
-  Public magnets
-  River valley connection
-  Water connection
-  LRT

Proposed site as the center of a hub that services Indigenous and non-Indigenous people, the flow of water, and greenspaces.



Image source: Google Earth

Renaissance Tower is a newly built apartment building for Indigenous seniors. There are over ninety seniors living in this building. Being on the cusp of an industrial area, the residences need a better connection to visiting and local friends and family.



The proposed site can start to act as a hub that connects all the different spokes of existing Indigenous community magnets.



Image source: <http://bentarrow.ca/>

Bent Arrow Traditional Healing Society took over a closed school building and grounds. It has services from cultural gatherings to off-site housing project for teen moms and those struggling with child services. There is a need for more housing units for the society's various services.

The proposed site was incorporated into the first drawn map of the area now known as Edmonton and was first the site of an isolation hospital and then used to hold a federal penitentiary until WWI¹⁹. In 1930 twenty-five acres were leased to the city of Edmonton for baseball, football, soccer, and cricket fields²⁰ and another thirty-five acres turned into an industrial zone straddling a rail line. There have been two different open air football stadiums on the site since 1939, but each stadium has constantly been in need of expansion and eventually rebuilt to hold more seating and more program. Despite strong opposition from residents and community groups in the area, the existing commonwealth stadium was built for the 1978 Commonwealth Games and its seating was expanded for the 2002 Commonwealth Games²¹. Currently, Edmonton has a bid for the 2026 Commonwealth Games and has plans for a new, larger stadium to be built in the adjacent Northlands Park.

The City has put in motion a plan to transform both Northlands Park and the downtown Ice District into the main sports and entertainment centers of the city. This would leave the existing Commonwealth stadium to be torn down and put in a landfill.

19 https://www.edmonton.ca/attractions_events/commonwealth_stadium/history.aspx

20 https://www.edmonton.ca/attractions_events/commonwealth_stadium/history.aspx

21 https://www.edmonton.ca/attractions_events/commonwealth_stadium/history.aspx



Image source: <http://www.rogersplace.com/renderings/view11-aerial-context-ghosted-a/>

Ice District in downtown
Edmonton centers on a new
hockey rink (Rogers Place).
Upon completion it will be
Canada's largest mixed-use and
entertainment district.



Proposed Site LRT Line — Public magnets

With the elimination of the existing Commonwealth Stadium,
there will be a need for a new public magnet along the LRT.



Image source: <http://everydaytourist.ca/2016/2016/5/2/stadiumarena-the-debate-has-just-begun>

Northlands Park
redevelopment to include a
new stadium, a new festival
site on the existing horse racing
track, new hotels and high rise
apartment buildings.



Image source: <http://www.rogersplace.com/renderings/view11-aerial-context-ghosted-a/>

Ice District in downtown
Edmonton centers on a new
hockey rink (Rogers Place).
Upon completion it will be
Canada's largest mixed-use and
entertainment district.



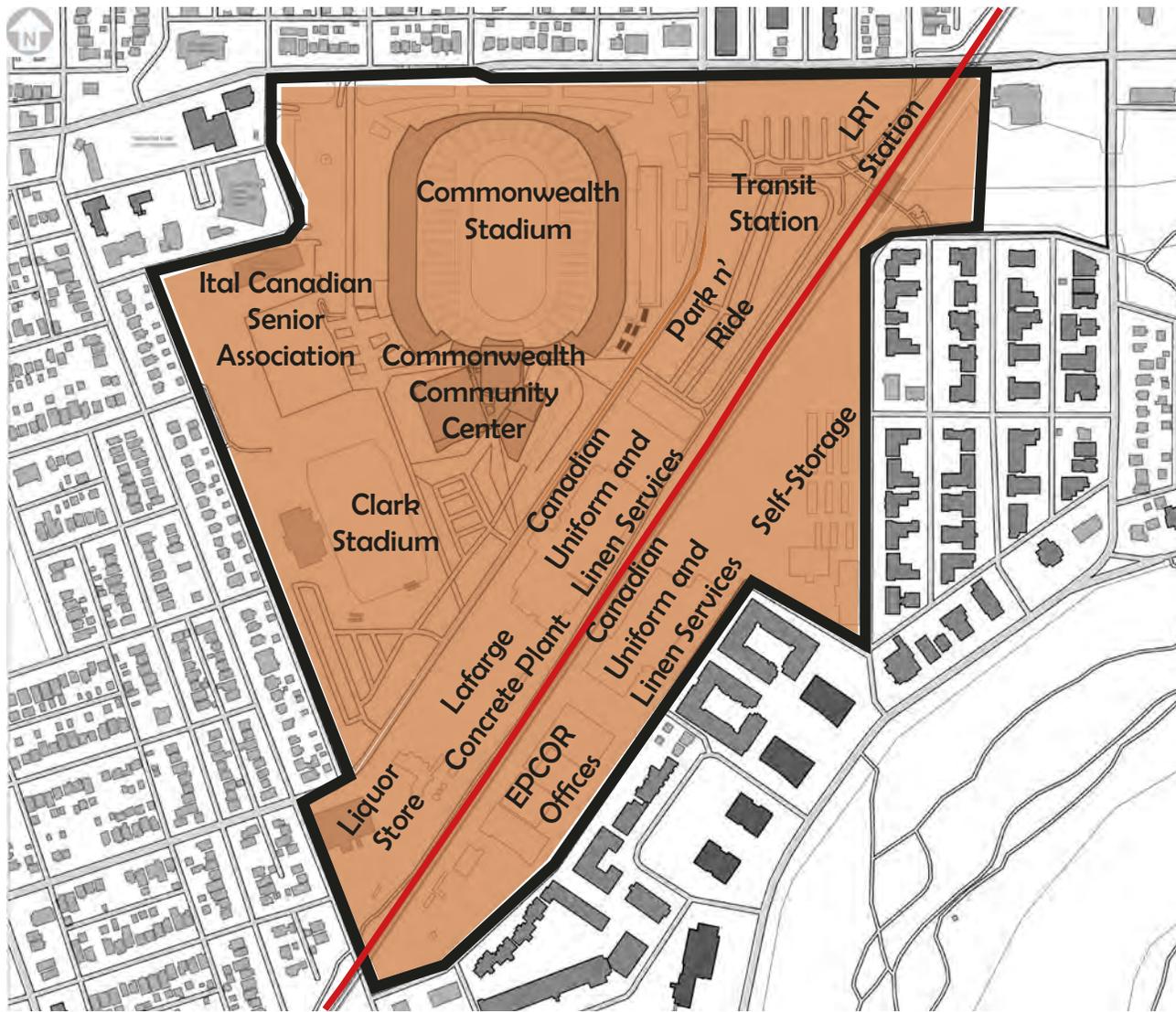
Proposed Site LRT Line — Public magnets



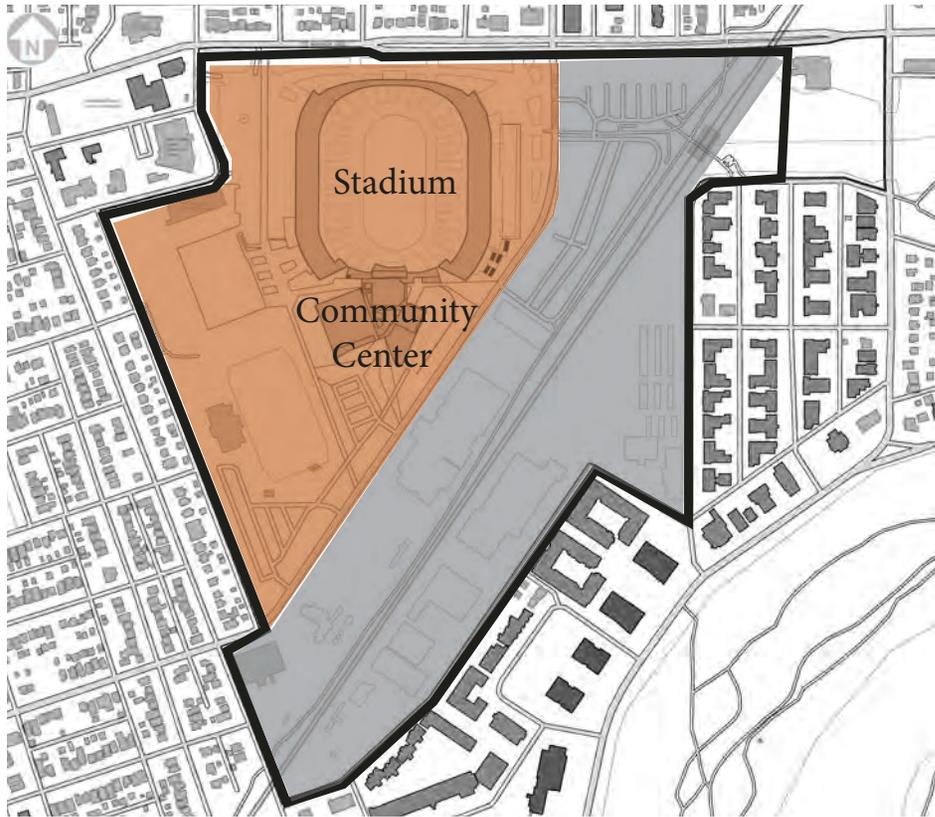
Image source: <http://everydaytourist.ca/2016/2016/5/2/stadiumarena-the-debate-has-just-begun>

Northlands Park
redevelopment to include a
new stadium, a new festival
site on the existing horse racing
track, new hotels and high rise
apartment buildings.

With the elimination of the existing Commonwealth Stadium,
there will be a need for a new public magnet along the LRT.



The site for this thesis study is over sixty acres located at the North-East tip of North Central.



Building Heights:

4m to 100m

Existing Site Program:

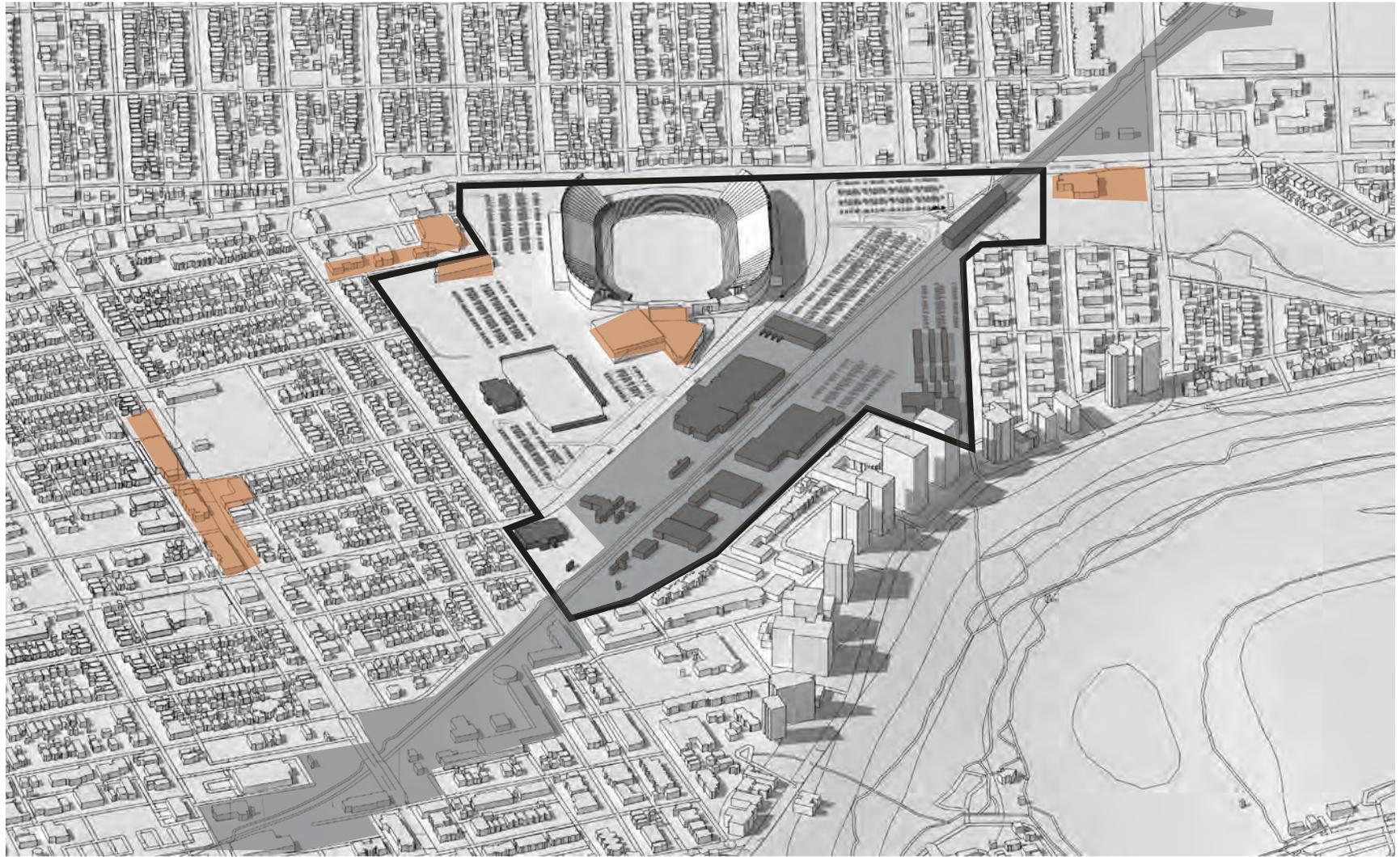
Community Industrial



Proposed Site

Zoning:

The site currently has two different zones one on either side of the LRT tracks: light-industrial to the East, community oriented to the West. In the center of the community side is a new community center, Commonwealth Community Center, catering towards engaging children in sports and physical activity during the colder winter months. Attached to the community center is a football stadium, Commonwealth Stadium.



Proposed Site



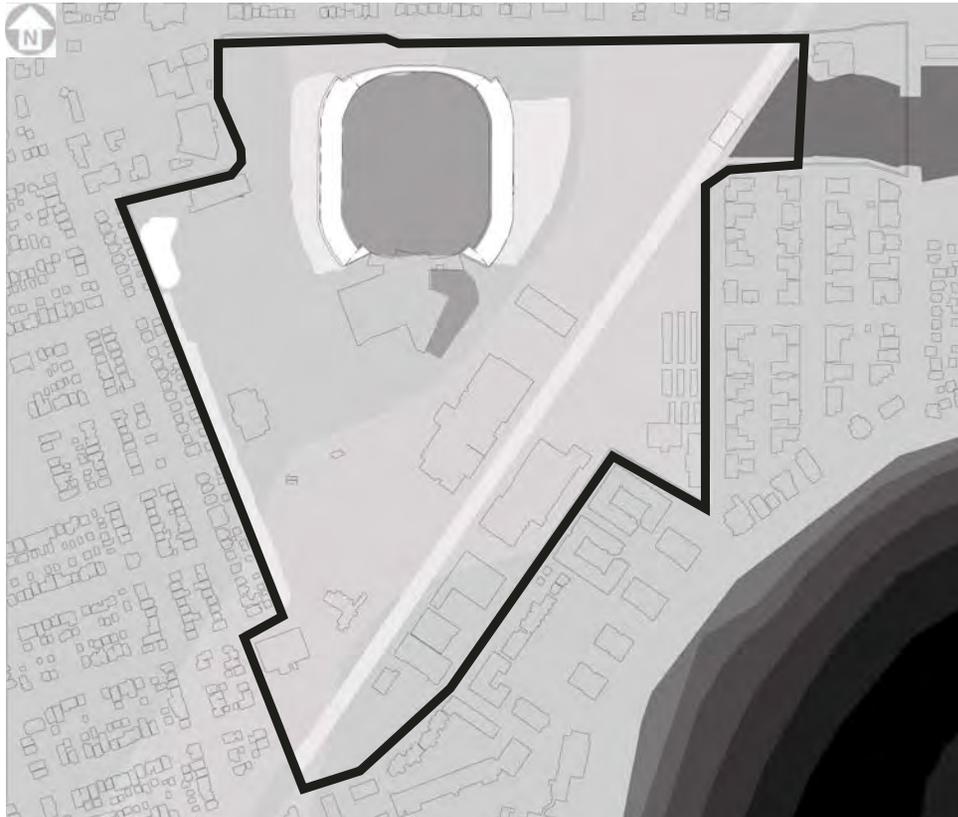
Buildings to be demolished in redesign



Community centers to connect to



Industrial



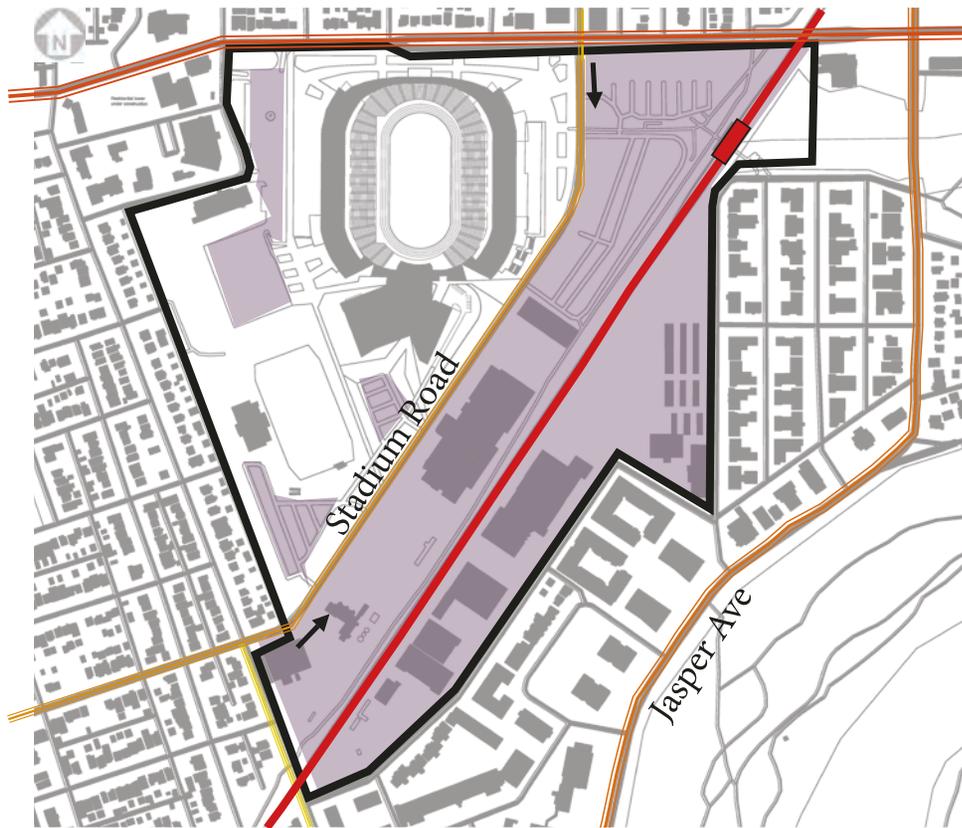
Topography:

The topography on the site is completely artificial from the paving over of the industrial strip, the construction of the stadium (where the field is carved out four meters below grade), and the construction of the community center. The site has been mostly flattened although there is a slight slope from East to West. The soil that was disposed for the stadium and the community center is piled on the Western edge of the site and acts as a buffer between the site and the residential area beyond.

Site topography:
 +4m grade -4m

River valley topography:
 -10m (River bed) -60m

Proposed Site



Vehicular Circulation:

Currently there is only one street through the site, Stadium Road, which runs South-West to North-East. Traffic on this road is mainly industrial and delivery vehicles during the day, rush hour traffic of cars turning off Jasper Avenue in the mornings and evenings, and light traffic whose destination is the community center. Over half of the site is currently paved over for parking spaces for the stadium, the community center, the transit station, and the industrial buildings.





 Proposed Site

Parking lots 

LRT Line 

Roads: slow  high traffic 



Pedestrian Circulation:

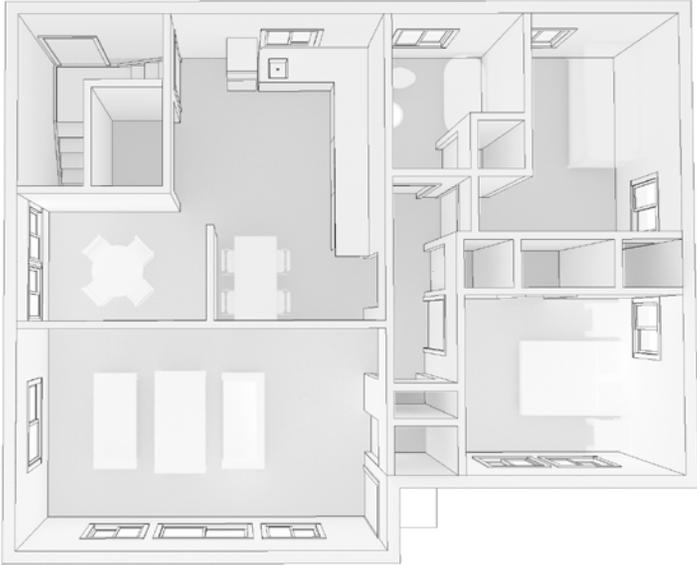
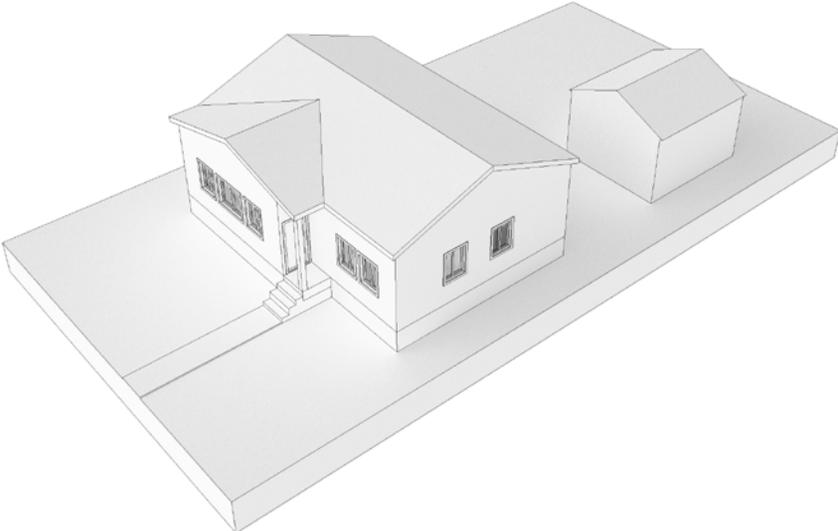
Pedestrian traffic mostly centers on the destinations of: the transit center, the community center, and Little Italy to the West of the site. Circulation is limited by the crossings over the LRT tracks, and currently the only one is inside the LRT station. There is currently no connection to the existing path system of the river valley.

Pedestrian traffic:

LRT Line — Community — Commuter — Leisure —

 Proposed Site

HOUSING TYPES IN THE AREA



Typical 1930's bungalow in the area to the south-west

DETACHED SINGLE FAMILY HOMES

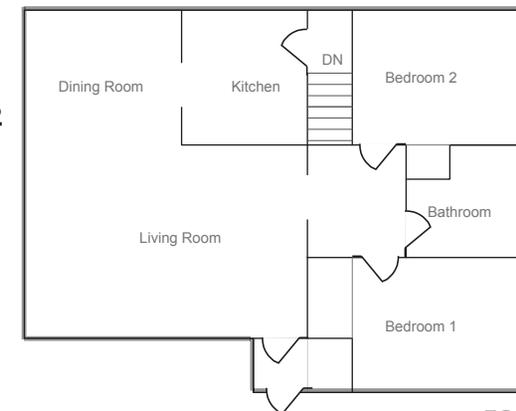


Bungalows and two-storey detached homes with single garages off a back alley

With this neighbourhood's proximity to Downtown and the Rivervalley there are some new construction that has subdivided lots and built new duplexes with an even smaller ground floor footprint and less square footage. A duplex with multiple levels and less bedrooms would be difficult for a multi-generational family to live in.

The typical house in North Central is a two bedroom one bathroom bungalow or a two story three bedroom one bathroom house. Each house exists on a 15.5m wide and 20m long lot surrounded by a fence. In front of the lot is a main road lined with mature trees, and behind is a single car garage facing an alley. Just like western crop farming, the houses are on a grid and each house owns a single plot of land.

Typical layout of a 90m² early 1900's bungalow.



APARTMENT BUILDINGS



Low-rise apartment buildings with large parking lots on grade



High-rise apartment buildings with underground parking.

Very few have commercial space on the ground floor.

There are several apartment in the area as well, mostly low rise but a few high-rise as well. The units range from bachelor to two bedroom two bathroom. The common area for these buildings include a parking lot for the low rise and a parking lot, laundry room and a gym for the high-rise. There is one complex with two buildings that share a courtyard, but the space is always overshadowed by the buildings and the neighbouring high-rise. There is only small patches of grass and small trees in the courtyard.

Typical layout of a 80m² 1970's low rise apartment suite.





 Proposed Site

 Single family homes

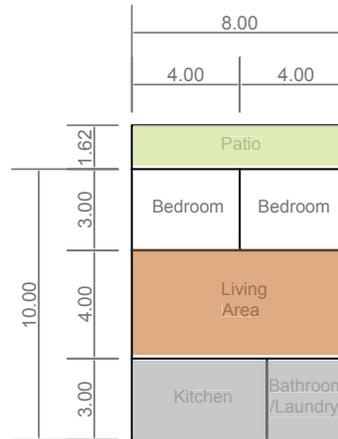
 Multi family residences

Rent for the main floor of a house in this area is about 1,500-1,800\$/ month and the basement level, which may have one or two bedrooms one bath, for 800-900\$/ month. Apartments range from 800\$, for a bachelor, to almost 2,000\$/month, for two bedroom two bathroom. Only the homes with a finished basement would be large enough for a multi-generational family, but then the cost of living would be 2,300\$-2,700\$ per month.

Cost of buying a house in the area starts at about 150,000\$. These houses are however in need of renovations in order to be livable. The higher end is 400,000\$ for four bedrooms two bathrooms. Even though the median cost of housing is less than the city's average of 300,000\$, for some this is still out of reach either because of the down payment needed, cost of renovations, or the limited ability to gain a credit. This is unfortunate because an approximate mortgage cost per month on a 200,000\$ home is around 800\$ per month. Compared to renting an entire home at over 2,000\$ a month.



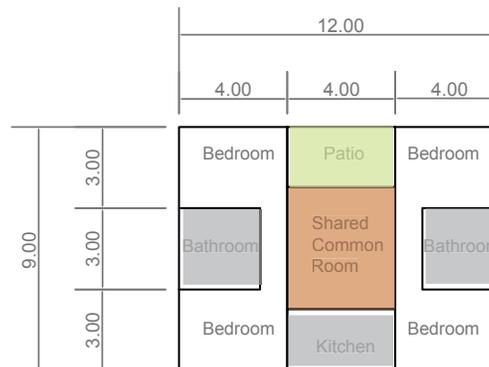
1 bedroom, 1 bathroom
70m² (70m²/ person)



2 bedroom, 1 bathroom
80m² (40m²/ person)



3 bedroom, 1 bathroom
90m² (30m²/person)



4 bedroom, 2 bathroom
100m² (25m²/ person)

UNIT TYPES IN THE AREA

Typical units for housing or apartments

have separate kitchens, living spaces, and dining spaces per one-four bedrooms.

Larger spaces usually involve a house with

two or more levels which with an aging

senior and younger children population

is not ideal. This typology also only allows

for chance meetings and communal

gathering and activities in circulation

spaces and communal spaces such as

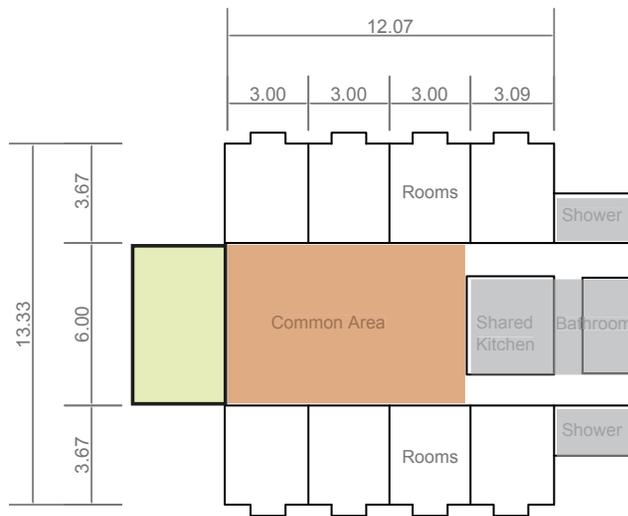
lobbies or neighbourhood parks.

 Public gathering spaces

 Outdoor space

 Service space

PROPOSED UNIT TYPE



8 bedroom, 156m² housing unit with **shared living space, kitchen, dining space, washroom, and laundry.** (19.5m²/ person)

- Public gathering spaces
- Outdoor space
- Service space

If one in every four units is multi-generational then up to five seniors, or pairs of seniors, and one family of parents with children, or just children, could share the same common spaces. If housing units were less like conventional houses or apartments with separate ownership, community engagement during laundry, cooking, and entertainment could be shared amongst the group. This would also allow for larger communal areas and bedrooms would be used only for sleeping. As such this unit type also increases density from the typical units with 70-25m² per person down to 19.5m² per person. **Similar to how, before colonization, Indigenous nations would divide into smaller groups to help care and provide for each other, and then return to one large group, the smaller communal units would also share communal space with all of the units in the complex.** This typology would allow seniors to care for and be cared by younger generations.



 Proposed Site

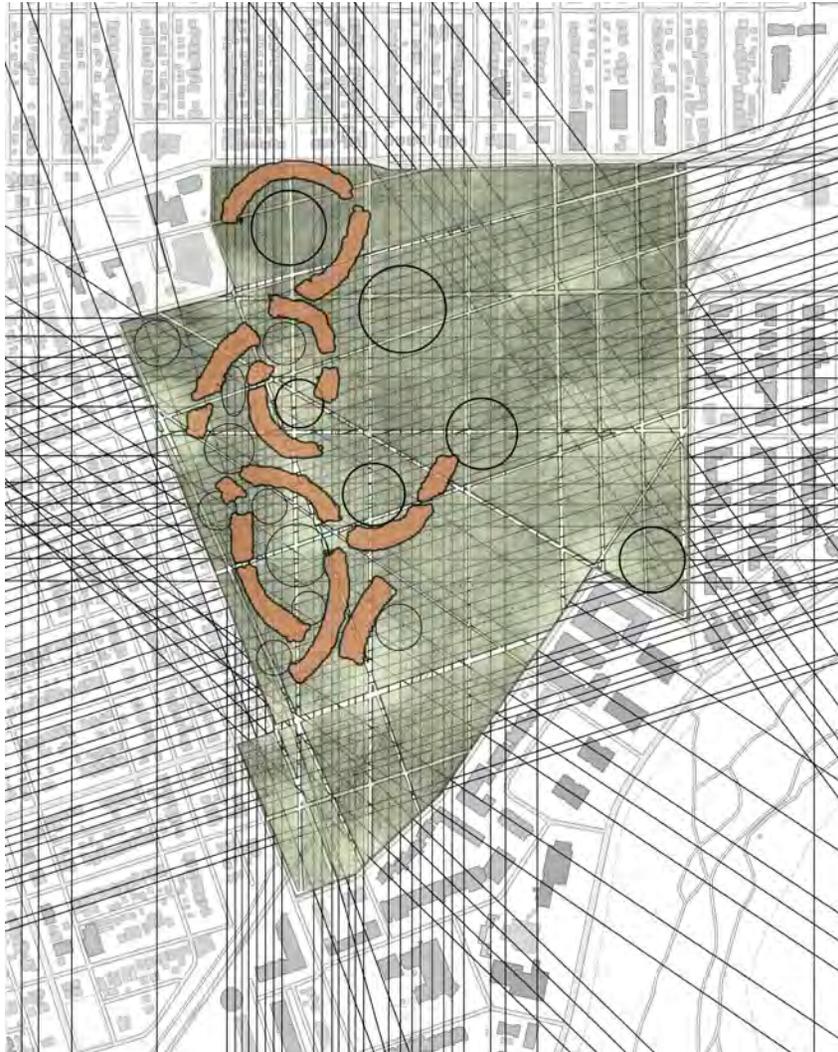
 Single family homes

 Multi family residences

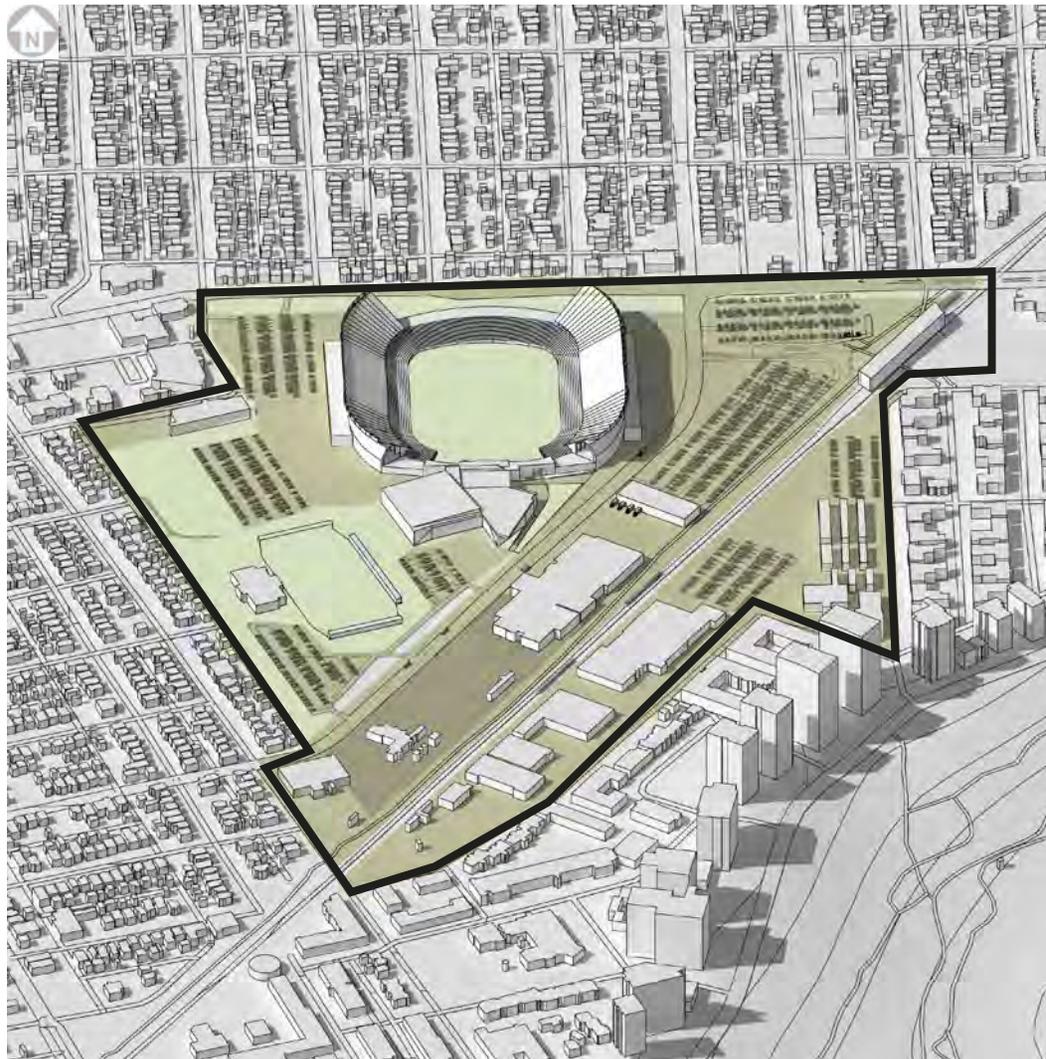
INTEGRATING LAND-BASED LIVING INTO AN URBAN ENVIRONMENT

My proposal for this site is to remediate the land, give it back to the community, and reestablish Rat Creek, which previously began on site and still flows down to the river valley.

The primary component of this proposal is an affordable housing complex for Indigenous seniors and their families, which would be raised off the ground to commit the entire land to be remediated and then used to grow vegetables. The existing Commonwealth Stadium will be transformed into a greenhouse for seed starting and growing food year-round as well as an outdoor market where Indigenous food culture can be shared with all of Edmonton. Half of the existing stadium field will be used to collect rainwater in the summer and as a skating rink in the winter that connects to Rat Creek. The other half will be used as a sheltered Medicine Garden where tobacco, sweetgrass, and sage will grow.



By being sensitive to the different qualities of land, a new housing complex for Indigenous seniors and their families could densify the site in a sustainable way. Wind will be harnessed for passive cooling with comfortable cross ventilation. The architecture will be designed to, in part, block strong Western winter winds thus enabling microclimates for garden areas. Rainwater will be diverted from running off into the sewer system and be used as grey water throughout the complex as well as used to water the farmland on the site. Solar and geothermal energy will be harvested to offset energy usage at peak times and supply the extra to the city. This complex will strive to give back to the land by being water and energy net positive.



 Proposed Site

SOIL REMEDIATION NEEDS BY AREA

 Concrete plant

Remediating the soil through building it up with clean soil and then using phytohydraulics to clean the contaminated soil underneath.

 Paved areas

Reviving the microorganisms in the soil and cleaning contaminants from cars through phytotransformation.

 Green areas

These areas need no remediation and soil from this location, as well as the soil from the new stadium built in Northlands Park, can be used to create wind berms and build up soil on contaminated areas.



 Proposed Site

NEW TOPOGRAPHY

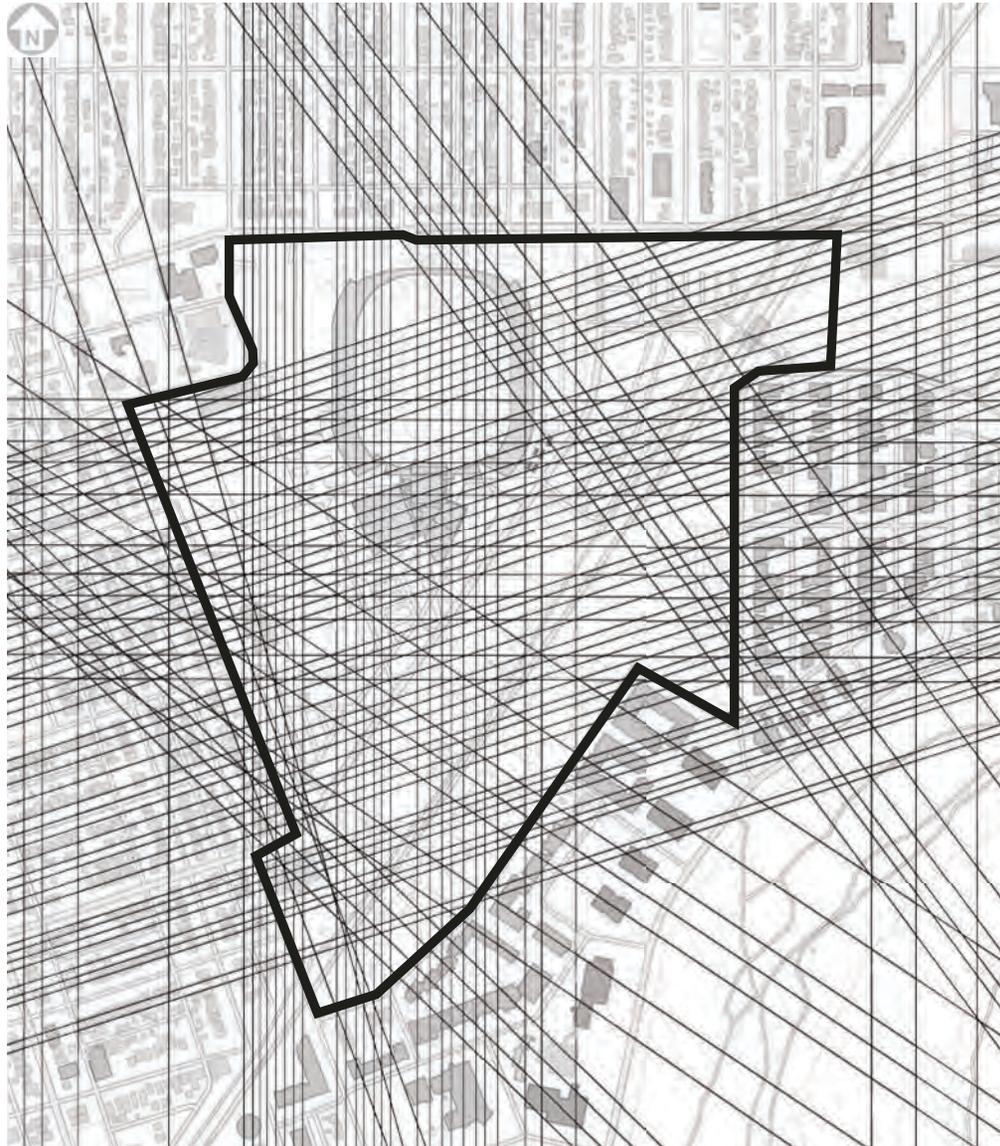
Each courtyard should be able to start growing vegetables and medicinal herbs as soon as possible. As such each courtyard will either dip down, where clean earth has been removed, or built up, where clean soil has been put on top. Berms will also be built up along the perimeter of the site to act as wind and sound buffers from the winter winds, major roads, and LRT tracks.

AGRICULTURE FOR SOIL REMEDIATION, CROPS, AND MEDICINAL GARDENS



-  **Edible gardens**
-  **Phytotransformation: one season of oats, soybeans and rye grass. The following planting season can have edible crops.**
-  **Phytohydraulic trees (Poplar). Vegetables garden will be areas of built up clean soil for immediate usage. After two planting season can grow edible plants on the non-built up soil.**
-  **Phytohydraulic and trees (Poplar). This soil will never be used for edible plants as it will create a soil buffer from the continuous contaminants of the LRT and service vehicles.**



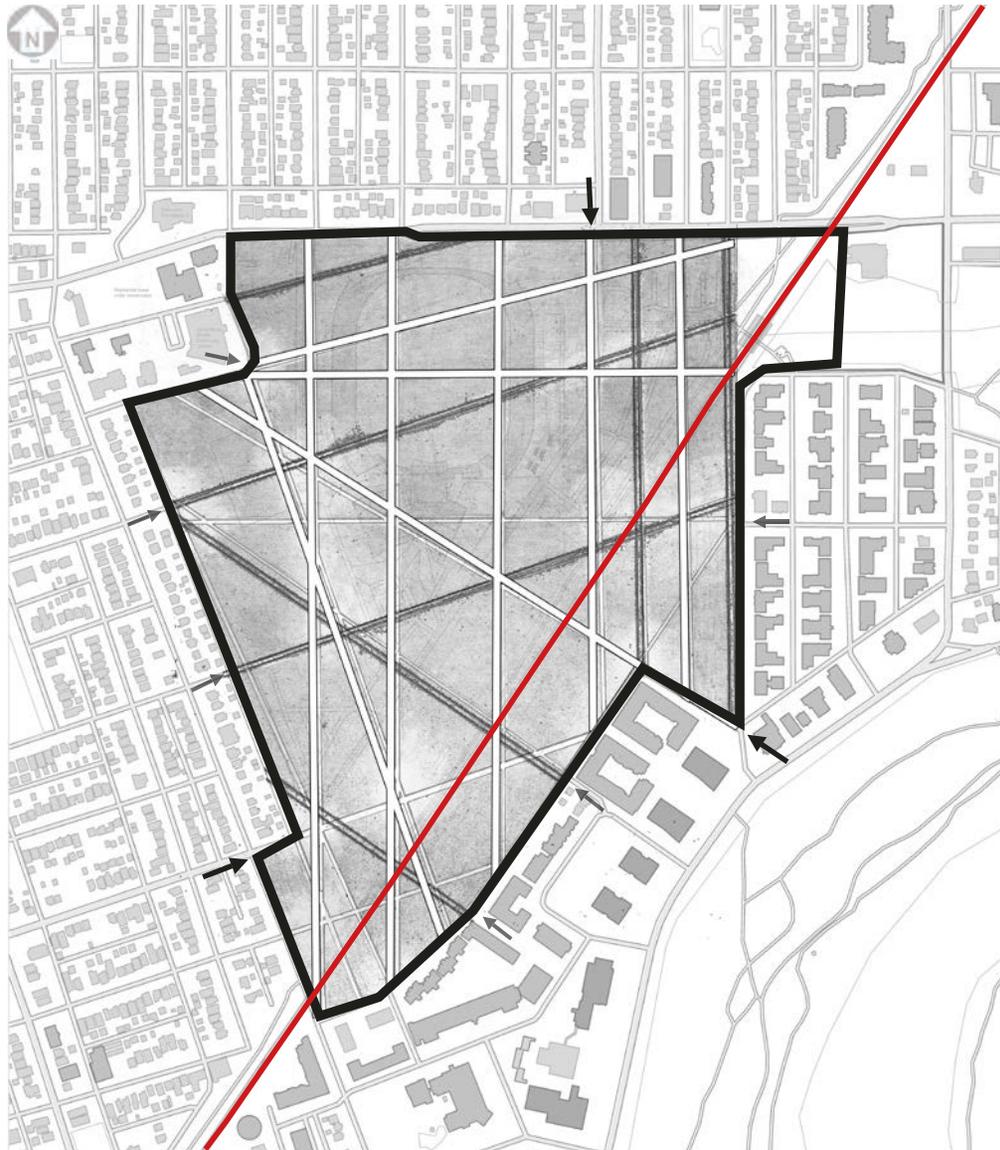


SURROUNDING BUILDING ORIENTATION

The site is a fulcrum for three different building orientations:

- 1- the original settlement orientation of the residential to the west
- 2- the newer cardinal orientation to the north
- 3- the buildings oriented towards the curving slope of the North Saskatchewan River





EXISTING STREETS EXTENDED THROUGH SITE

-  Main roads
-  Proposed main road access
into site
-  Access Roads
-  Proposed access road access
into site
-  LRT Line
-  Proposed Site

NEW STREETS THROUGH SITE



 Main roads

 Main road access into site

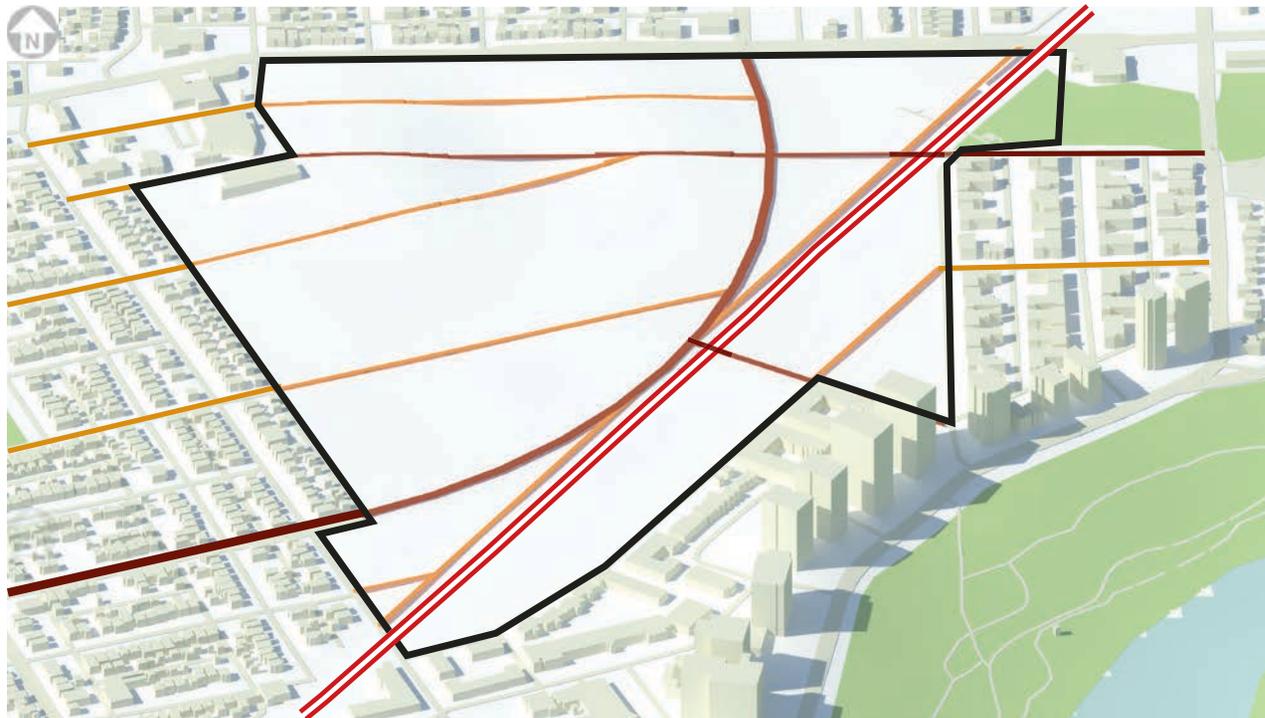
 Access Roads

 Bollarded service road access
into site

 LRT Line

 Proposed Site

NEW ROADS



— Main roads

Only roads that cross the
LRT tracks.

— Bollarded access roads

Roads for pedestrians and
service vehicles only.

== LRT Line

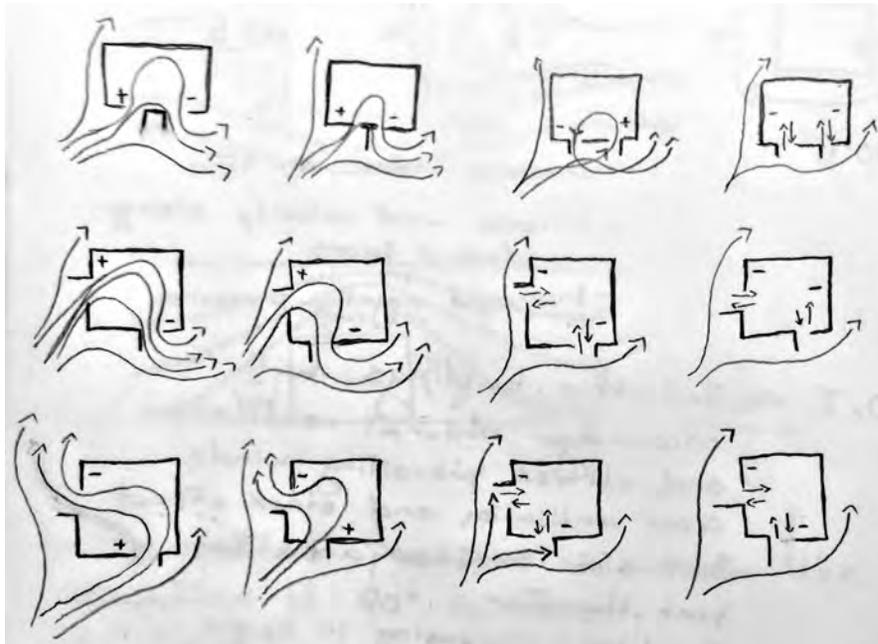
New roads will slow commuter traffic while integrating bike lanes and service roads that also act as pedestrian roads to connect to surrounding communities. This will create a pedestrian and bike oriented neighbourhood, extending the active and transit suburbs of Edmonton.



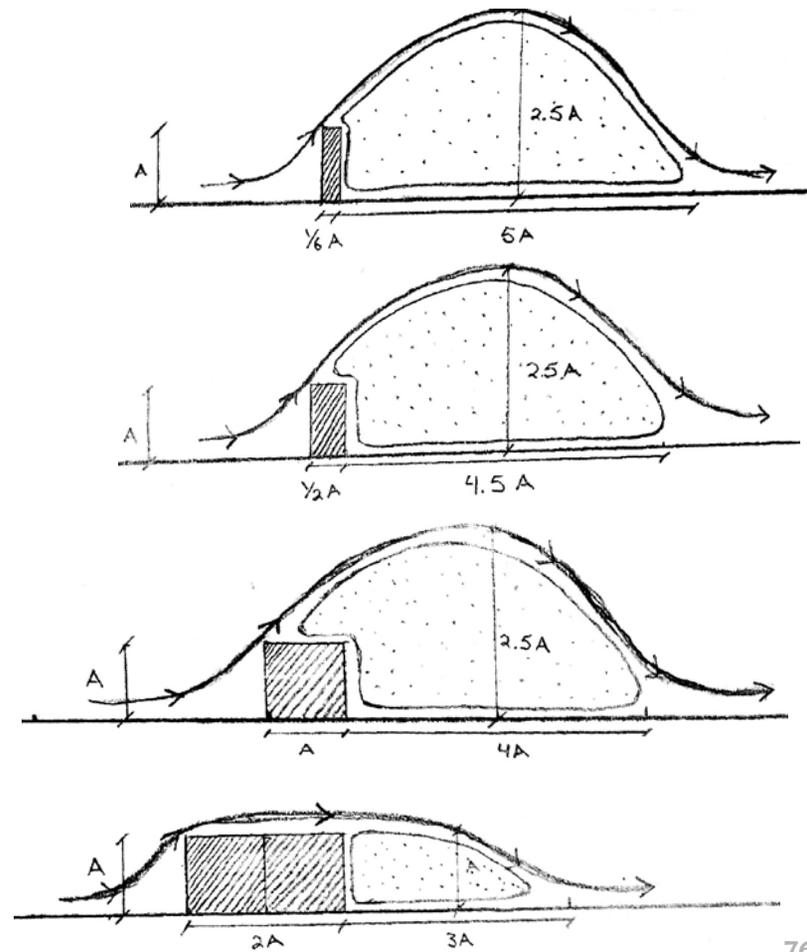
USING THE BUILDINGS AS WIND BUFFERS

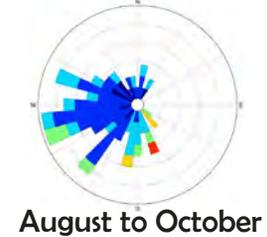
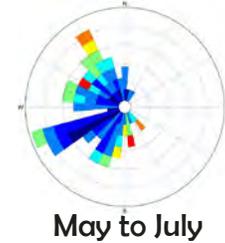
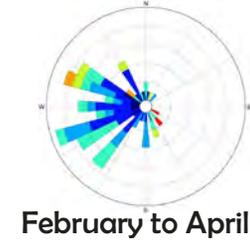
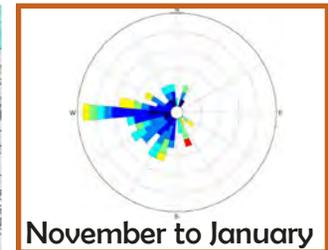
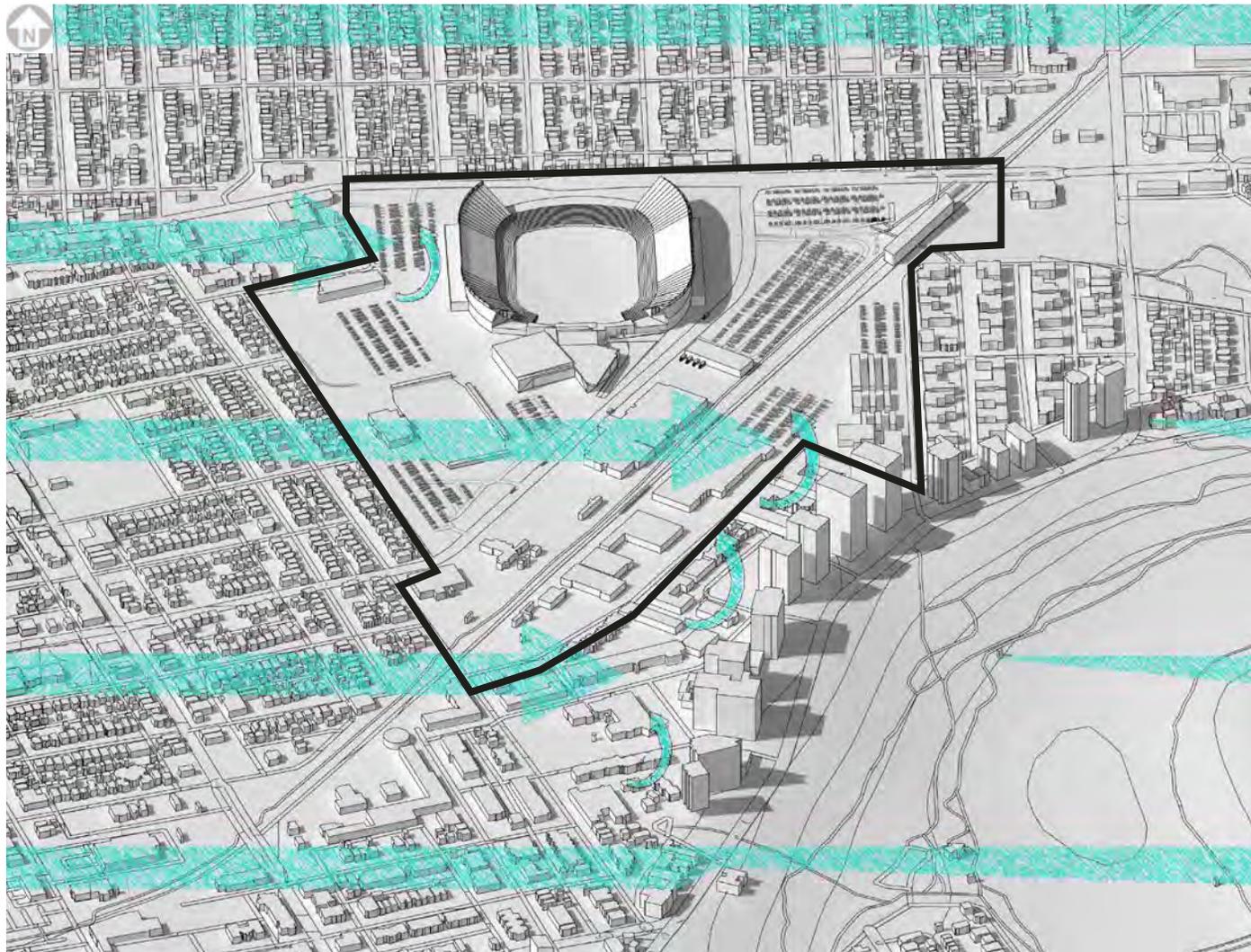
Building should be ninety degrees to the wind for increased wind shadow and natural ventilation.

With a curved building the wind will never be parallel to the western winter winds.



Building height to width ratio for sheltered courtyards:





Western winter winds on existing site.
 As the wind hits the existing stadium and apartment buildings it creates a wind tunnel on the pedestrian level.



Largest building to shelter the entire site from western winter winds.



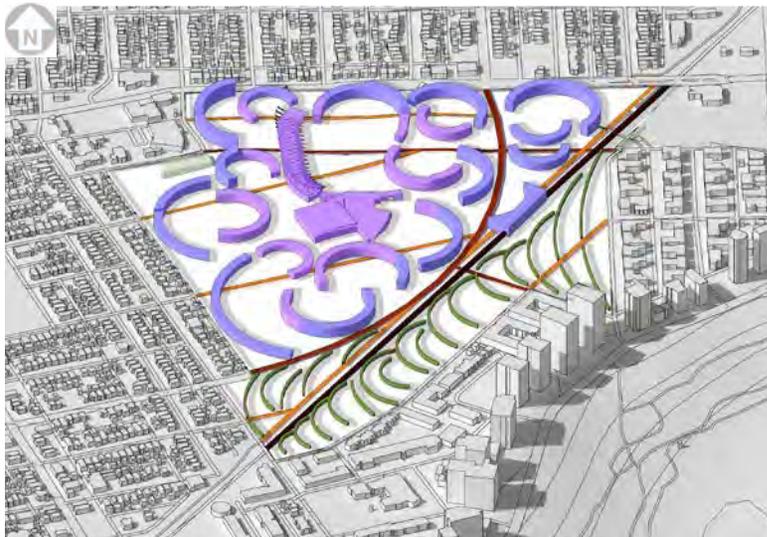
Spreading out the buildings where no building is 2x the height of the neighbouring building. This is to eliminate harsh winds on street level.

- Main wind buffering buildings
- Infill wind buffering buildings



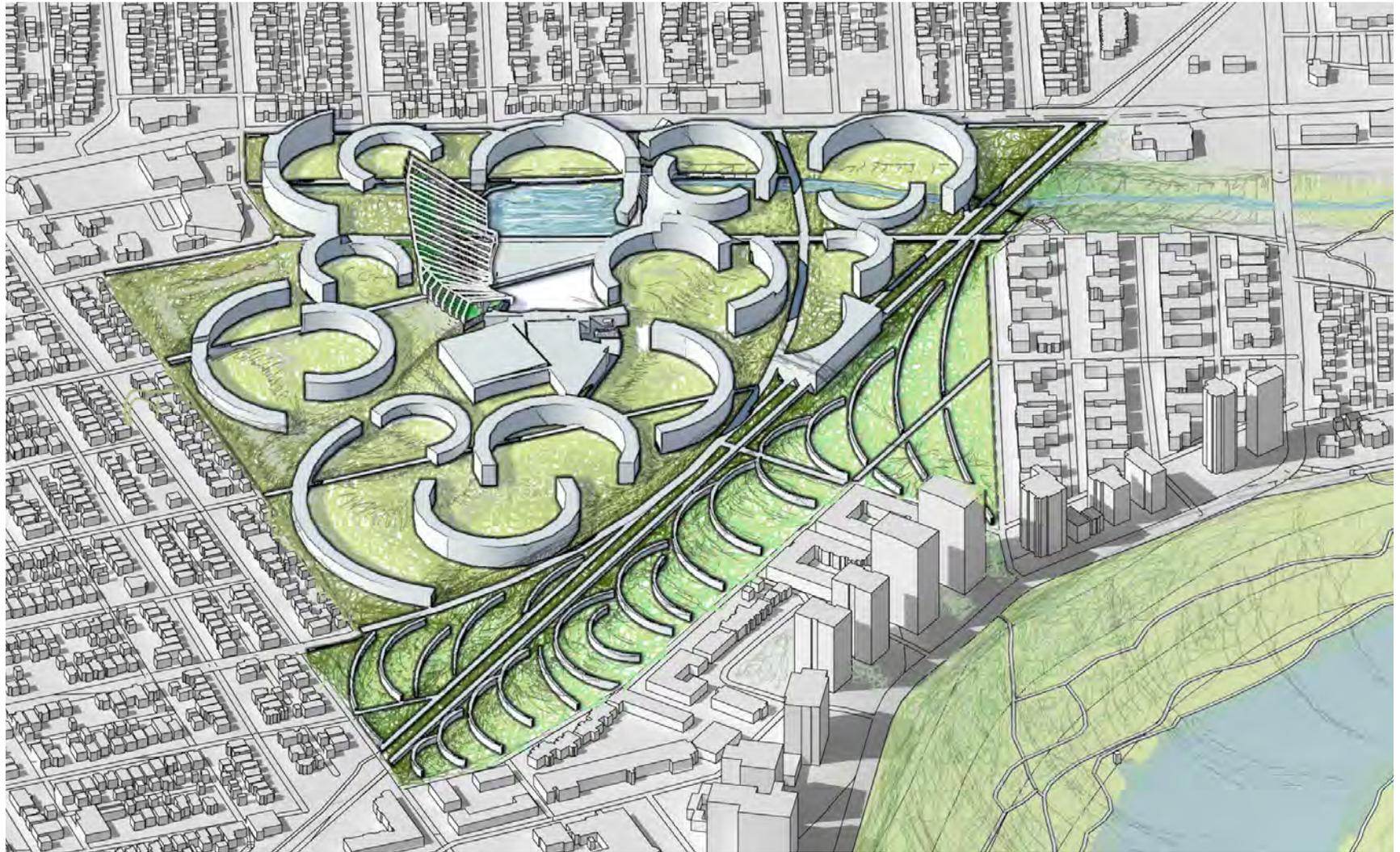
Integrating the existing Ital. Canadian Senior Association, the Commonwealth Community Center, the western side of the Commonwealth stadium, and a new LRT station as wind buffers.

On the south-east side of the tracks wind buffering buildings are replaced by wind buffering trees to shelter the new agricultural land.

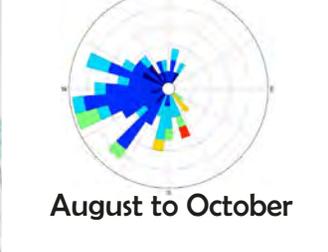
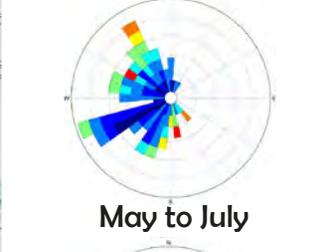
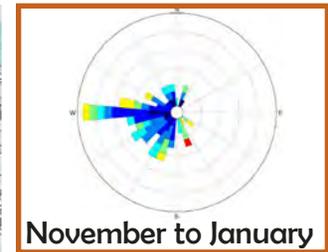


Taking the building heights and distances from each other and the site boundary, the buildings are then curved to create courtyard pockets within the site where more private gardens and playground areas can be situated.

- Main wind buffering buildings
- Infill wind buffering buildings
- Wind buffering trees



Redesigned site



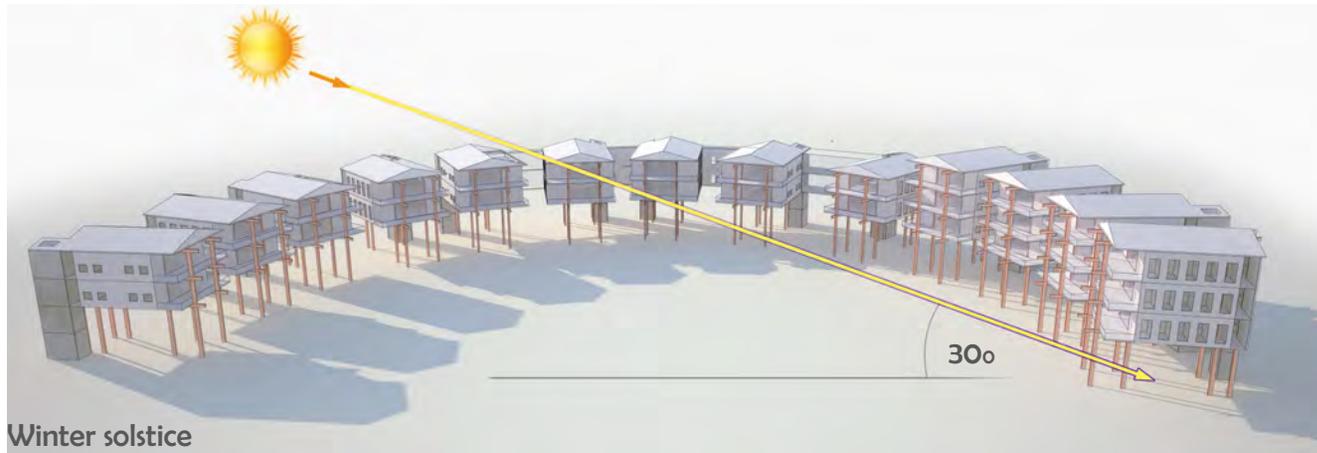
Western winter winds on redesigned site.

Redesigned stadium and new housing units change height and shape to create sheltered courtyards.

 Sheltered zones

 Proposed Site

SUNLIGHT THROUGH THE HOUSING COMPLEX



Housing complexes are lower on the south side to increase solar exposure to the courtyards, under the housing units, and to the housing units on the north side.



The difference in height can be better seen in the smaller housing complexes as there is a need to stagger the heights and the location of the units in order to ensure equality of view and light.



Redesigned site



MASTER PLAN



Trees used for wind shading and Agroforestry



Raised garden beds - companion planting



Garden burms - companion planting



Polyculture garden



Inter-cropping fields



Water harvesting



Rat Creek extension - wetlands



Greenhouse



Playgrounds



Pedestrian entry points



Pedestrian roadways



-  Rat Creek Extension
-  Rain Water Catchment
-  River Valley Connection
-  Rivervalley Gardens
-  Phytotransformation Farmlands
-  Phytohydraulic Farmlands
-  Phytotransformation Vegetable Gardens
-  Phytohydraulic Vegetable Gardens
-  Condensed Agroforestry
-  Public Gathering Spaces
-  Public Parks

HOUSING TYPES

For Cree peoples, the construction of a Teepee is sacred and represents how their communities function:

“In our language, for old woman, we say Notegweu. Years ago we used the term Notaygeu, meaning when an old lady covers herself with a shawl. A tipi cover is like that old woman with a shawl. As it comes around the tipi, it embraces all those teachings, the values of community that the women hold. No matter how many children and great grandchildren come into that circle of hers, she always still has room. ”

-Elder Mary Lee²²

²² Kim Anderson. “Life Stages and Native Women: Memory, Teachings, and Story Medicine.”

INDIGENOUS ARCHITECTURE

The Center for American Indian Research and Native Studies (CAIRNS) prescribes four dimensions to the archetype of Indigenous architecture that reflects traditional Indigenous communities: spacial, social, spiritual, and experiential²³.

In his book “House Forms and Culture”, Amos Rapoport adds ‘modifying’ factors that are “paramount form determinant[s] of Indigenous buildings: technology, climate, economics, social organization, religion, and history”²⁴.

Similar to how not being able to farm in a traditional manner changed the way Indigenous peoples were allowed to live, so too did government housing built on reserves. Forcing Indigenous people to live in a “single-family, rectangular box . . . that so dominated the Euro-American imagination that its substitution for indigenous housing historically become first order of business for governing agents. So consistently has this pattern been followed that indigenous structures has become symbolic of a lost way of life”²⁵.

While the traditional Indigenous teepee symbolizes what was lost does not mean that to bring back traditional ways of life the old architecture must too return. Instead a modern Indigenous architecture should take the spacial, social, spiritual, and experiential dimensions from the past and combine with modern factors of technology.

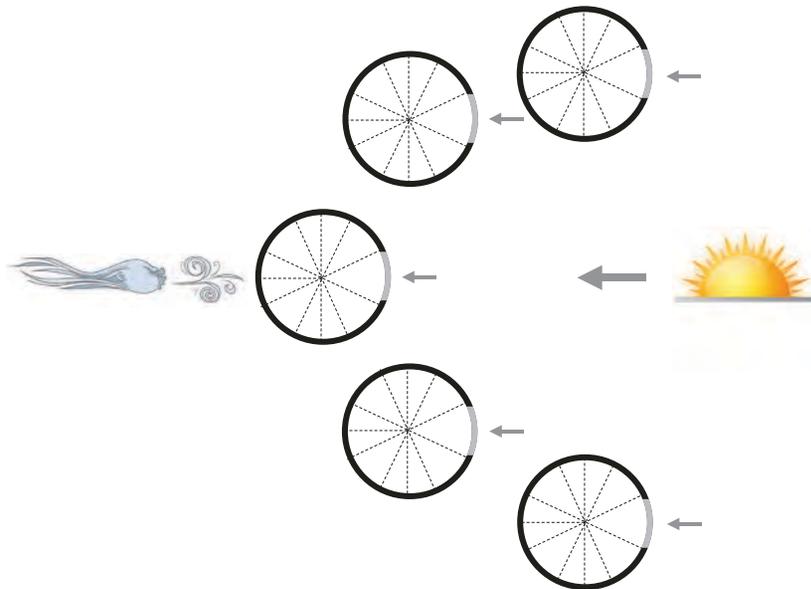
23 Joy Malnar. “New Architecture on Indigenous Lands.”

24 Joy Malnar. “New Architecture on Indigenous Lands.”

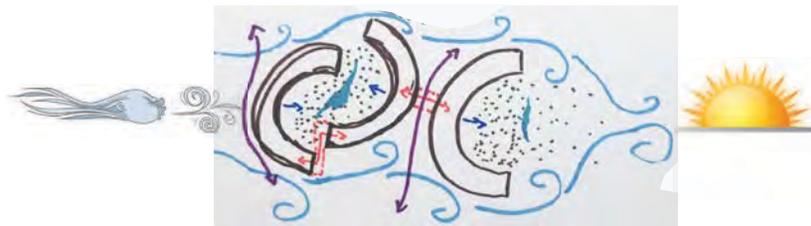
25 Joy Malnar. “New Architecture on Indigenous Lands.”

TRADITIONAL PLAINS INDIGENOUS SETTLEMENTS

Traditional Settlement layout



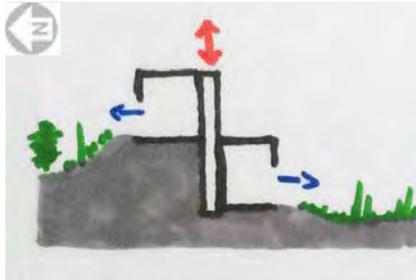
Proposed Housing Complex Layout



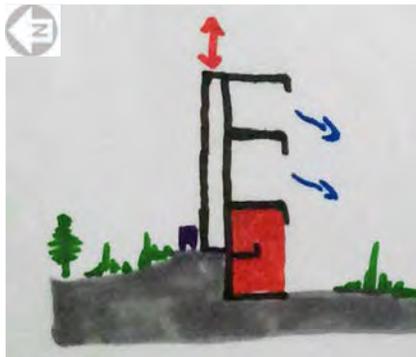
Traditionally, teepees would be set up in a circle with all entrances facing east towards the rising sun. The chief, or elder, would have his/her teepee set up at the Western end of the settlement. Within the teepees themselves, the senior inhabitant would sleep nearest the western edge and the youngest would sleep towards the eastern edge, closest to the entrance. The teepees show their backs to the West where the inhabitants will be sheltered from the winter winds.

The value of entering from the East, placing the elderly, the most important members of the community, to the West, and harnessing the built form to create a shelter from the wind are dimensions from traditional Indigenous architecture that will carry forward in this thesis proposal.

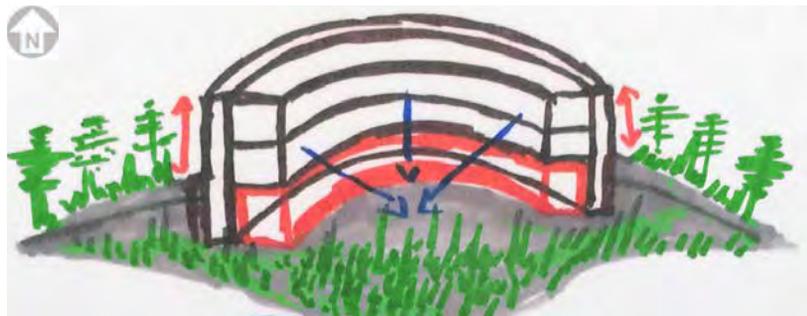
PROPOSED URBAN INDIGENOUS HOUSING



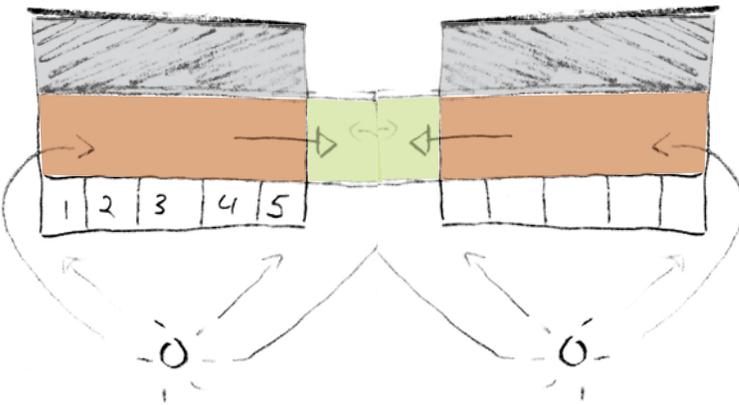
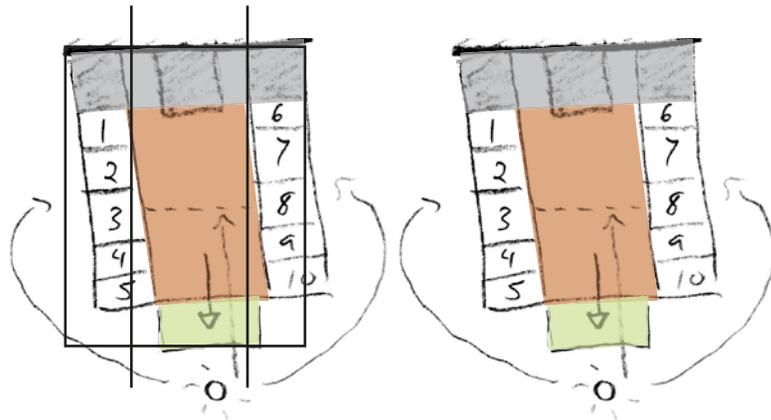
Each residential building will shelter the next and by their proximity and orientation will create and share sheltered courtyards and be connected by pedways to allow to access to every building in winter from the inside.



Each unit should be accessible and have a connection to the land and therefore be no higher than three stories. This scheme, however, means that there is no shared common space inside and separated land connections outside.



A common space on the ground floor, either sheltered or open to the courtyard, as well as facing the units towards the same courtyard creates a common land connection as well as allows for shared amenity spaces. The back of the units act as wind buffers to shelter the courtyard and also hold the vertical circulation.

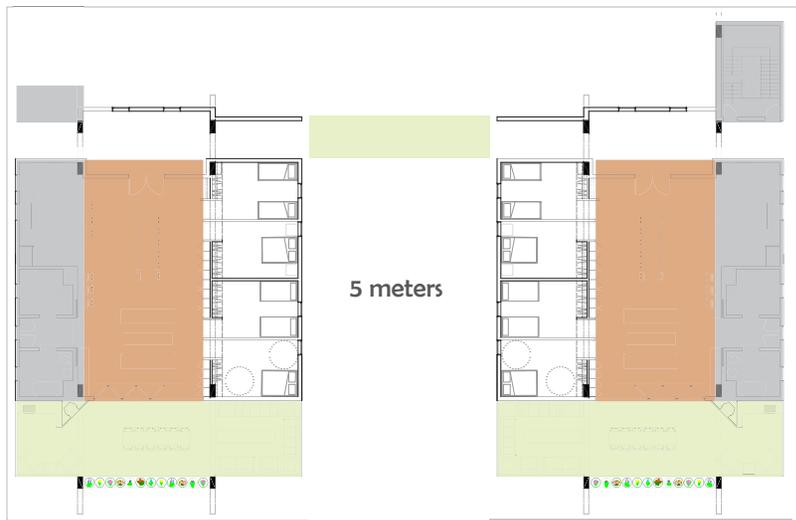


- Public gathering spaces
- Outdoor space
- Service space

Designing a housing unit with more bedrooms than a conventional unit with access to daylight could either be vertical or horizontal.

A vertical layout would minimize the amount of natural daylight that enters the unit as the unit is deeper than it is wide. This layout also gives the common spaces views of the courtyard below while the rooms do not get any views other than their neighbours and therefore no privacy.

A horizontal layout gives hierarchy to individual rooms as they receive the most natural daylight and the best views and privacy. This common spaces within this layout are dark, as they receive very little natural light, but have a connection to the next unit over combining outdoor spaces into a large gathering area. There also needs to be a ratio of rooms to service spaces that is exorbitant.



Public gathering spaces Outdoor space
 Service space

SPACING: - The units are separated on the service side by 3 meters (Edmonton's building code minimum building spacing) and 5 meters on the bedroom side (to allow for more light and more privacy).

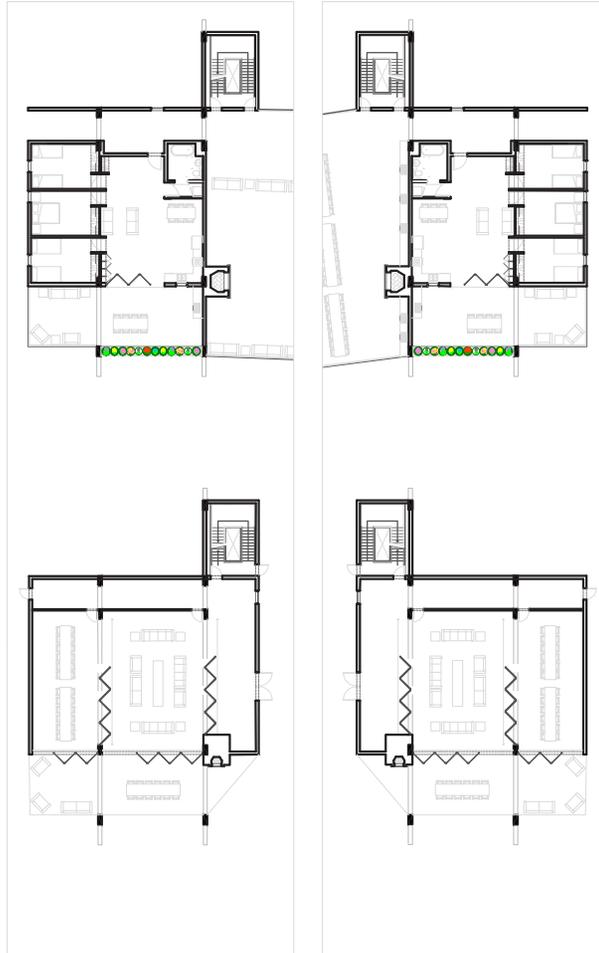
VIEW EQUALITY: -Every unit faces, and has an unobstructed view of the courtyard below accessible from the common areas.

SUNLIGHT EQUALITY: -Every room has a window with a light shelf for daylight.

- Housing units to the south are shorter than the ones to the north to allow more daylight into the courtyard and the units.

PRIVACY: -Each window will be staggered from its neighbour, whether it be on the bedroom side or the service side, to allow for more privacy.

Housing units
small
(3 bedroom
units 3-6
people)
with adjoining
common
balcony



Social spaces
on ground floor
beneath smaller
units facing
roadways. Has
gathering rooms
for feasts and
ceremonies as
well as a place
to wait for
buses.

Housing units
large
(4 bedroom
units 4 to 8
people)



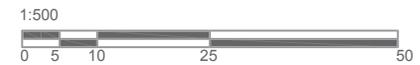
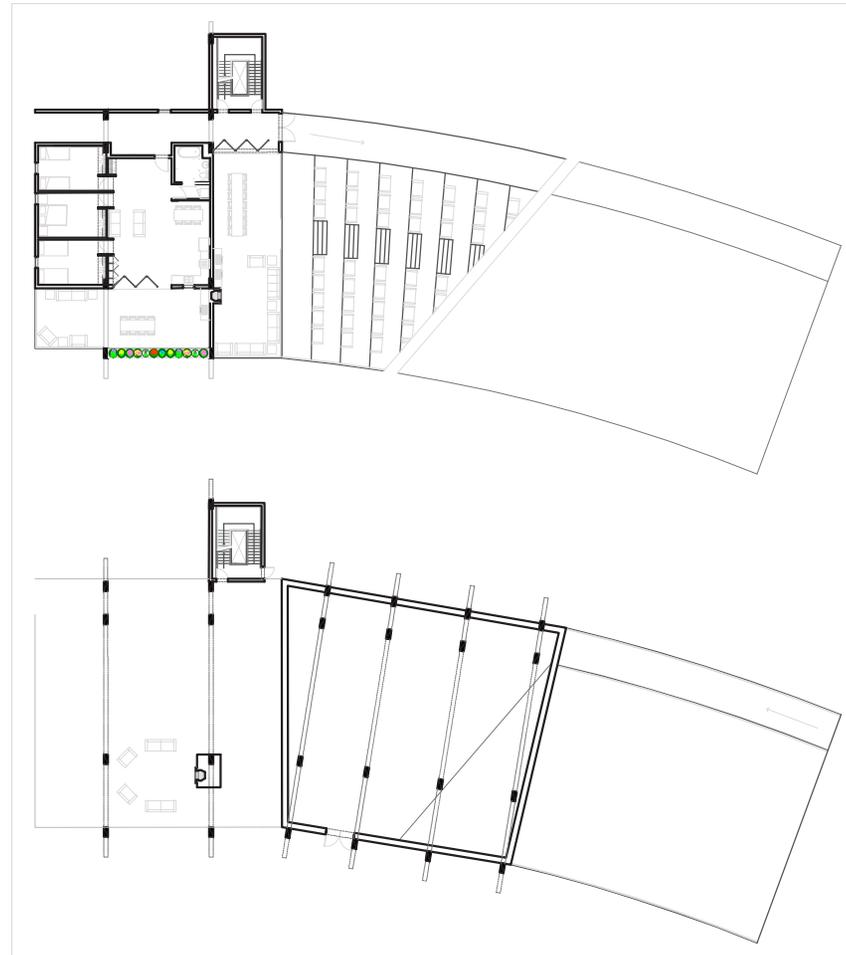
Social spaces
on ground
floor beneath
larger units. Has
outdoor space
for ceremonial
gatherings as
well as warm
shelters in
winter.
Shade garden,
such as herbs,
would also be
planted here.

1:500



At the ends of each housing complex there is a small housing unit with an attached public balcony. This public spaces ramps down from the first floor down to grade. This public ramp is also an outdoor amphitheater space for ceremonies, plays, or sunbathing.

On ground floor beneath ramp is a root cellar to store vegetables and gardening equipment for the sheltered courtyard garden.



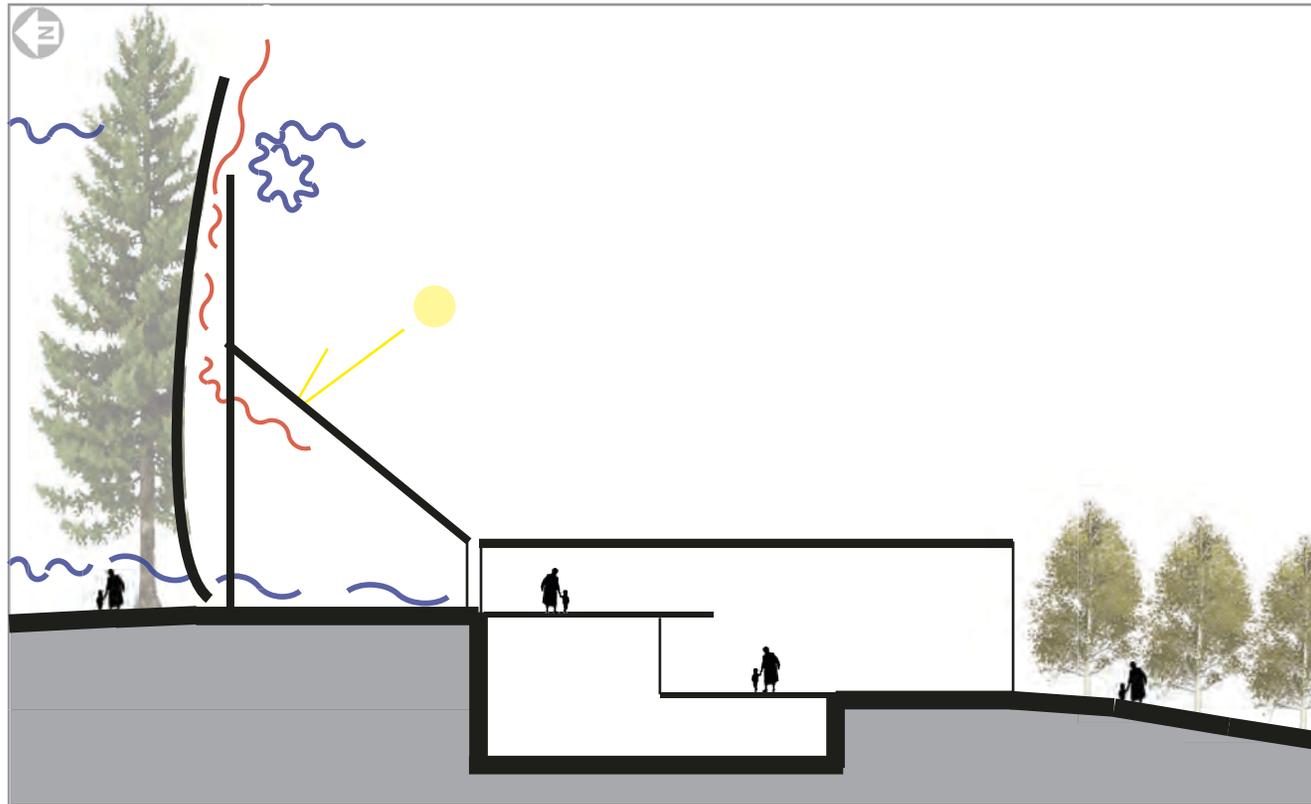
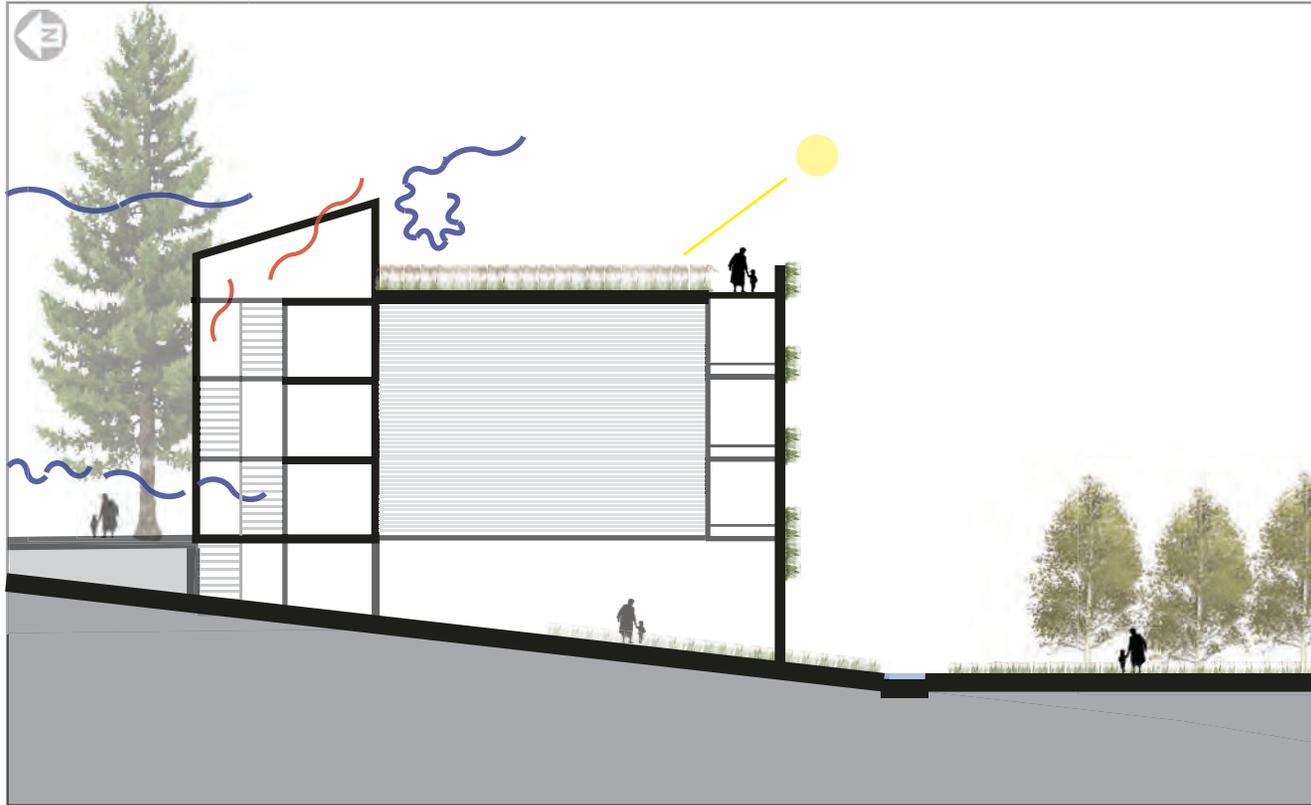


Image source: <https://www.archdaily.com/600641/ad-classics-centre-culturel-jean-marie-tjibaou-renzo-piano/540e0374c07a808f0a000103-ad-classics-centre-culturel-jean-marie-tjibaou-renzo-piano-section>

Case Study: Renzo Piano's Centre Culturel Jean-Marie Tjibaou's form and structure allow it to **harness wind and solar energy**. On the windward side is a large stack that both block the wind and allows for natural cooling inside through a stack effect. The roof of the building is angled to reflect solar gains and to capture solar energy.



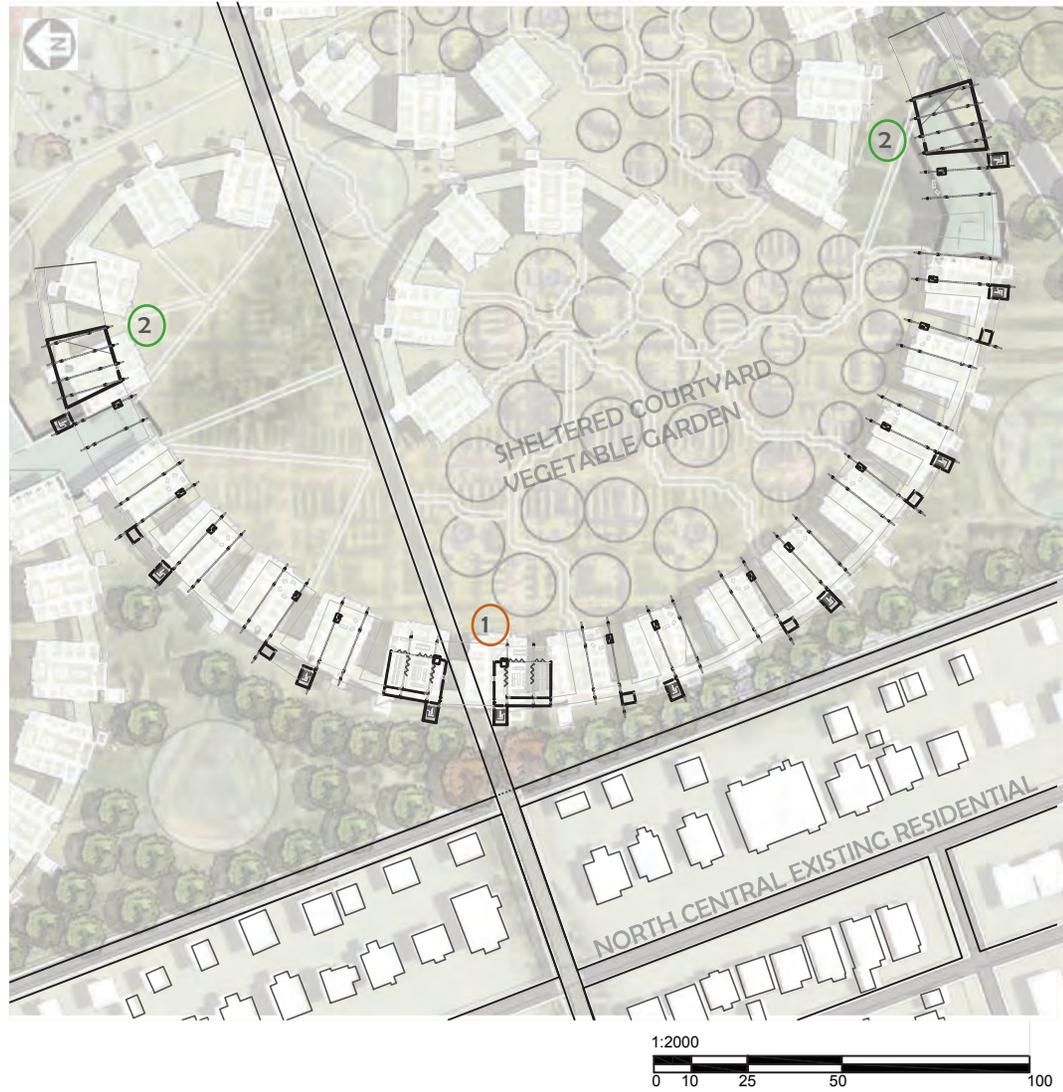
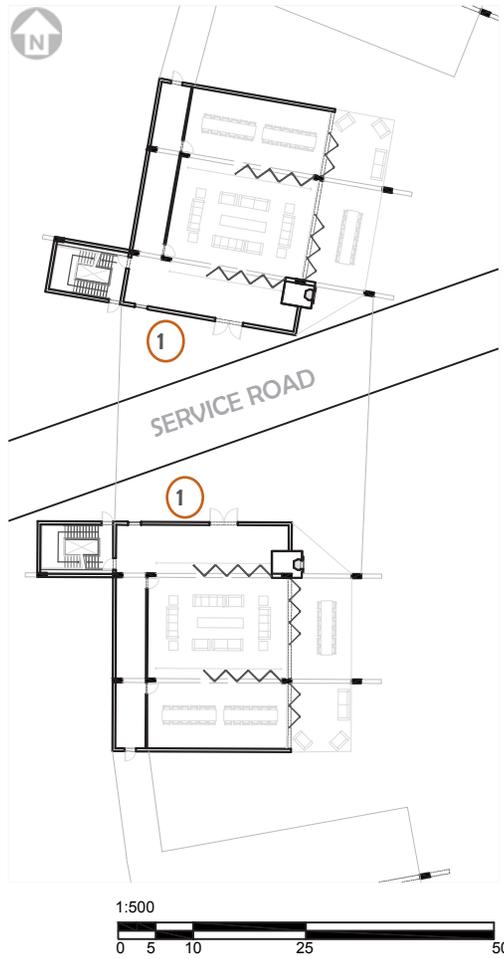
The **proposed housing units'** form and structure will allow it to redirect and **harness wind and solar energy**. On the windward side is a large service core that both blocks the wind and allows for natural cooling inside through stack effect. The southern side of the building is covered in a vertical garden to shade the building and convert solar energy into food.

HOUSING COMPLEXES



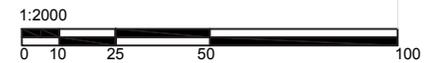
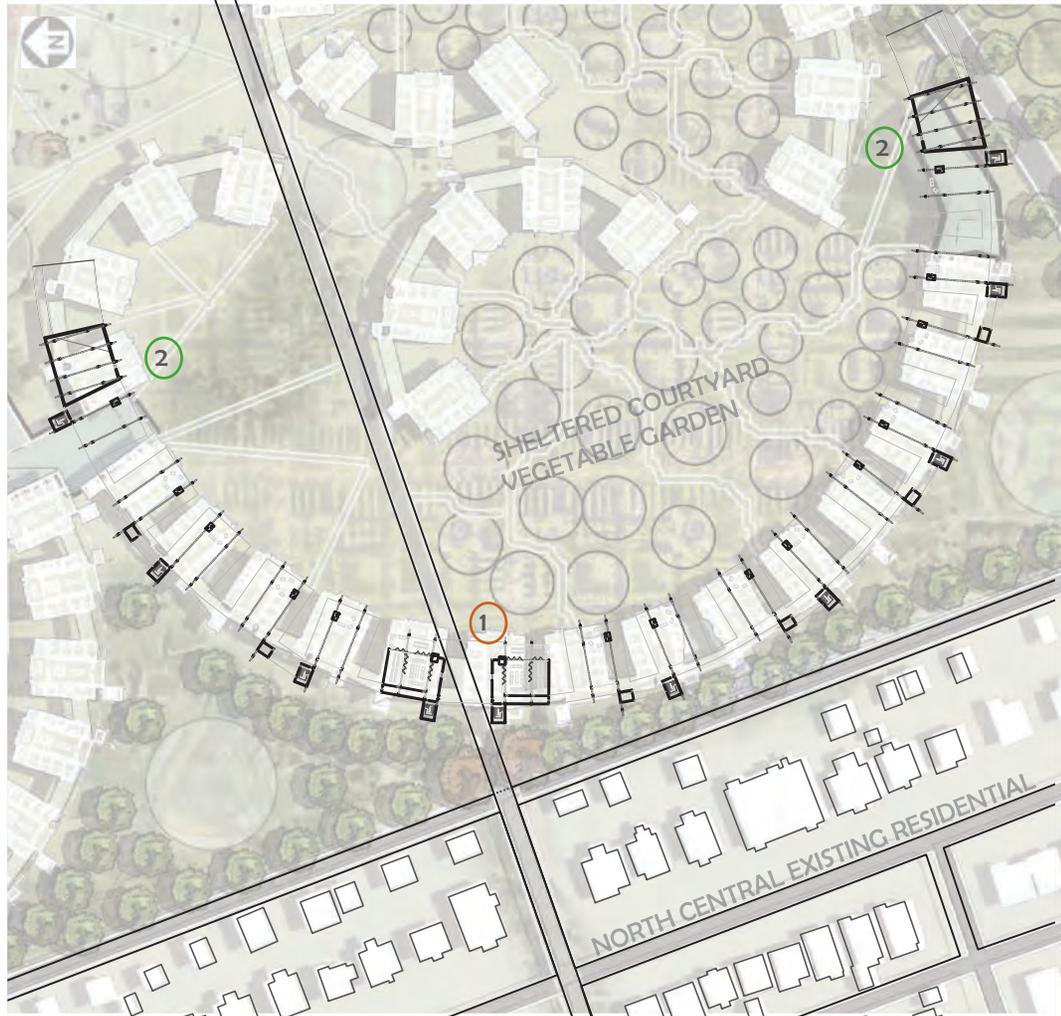
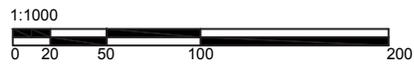
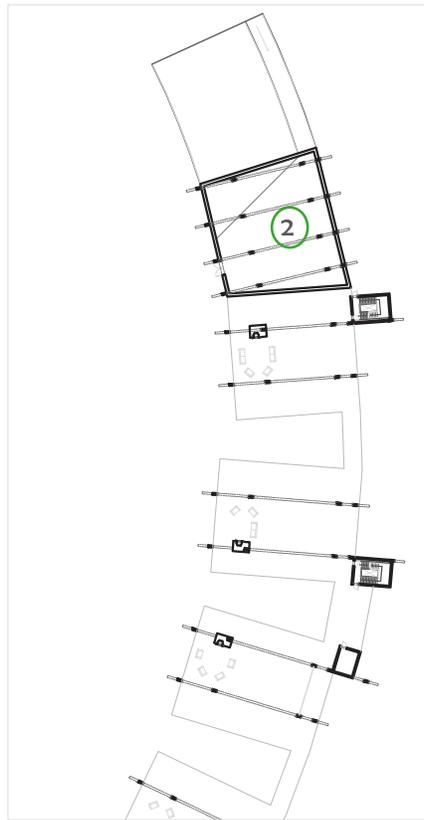
Housing complex on west side that will be expanded upon and used as an example for all the complexes on site

- 1- Public spaces for ceremonies/celebrations, elderly bus and school bus stop pick-up / drop-off.
- 2- Communal Root Cellar for storing vegetables from the vegetable gardens



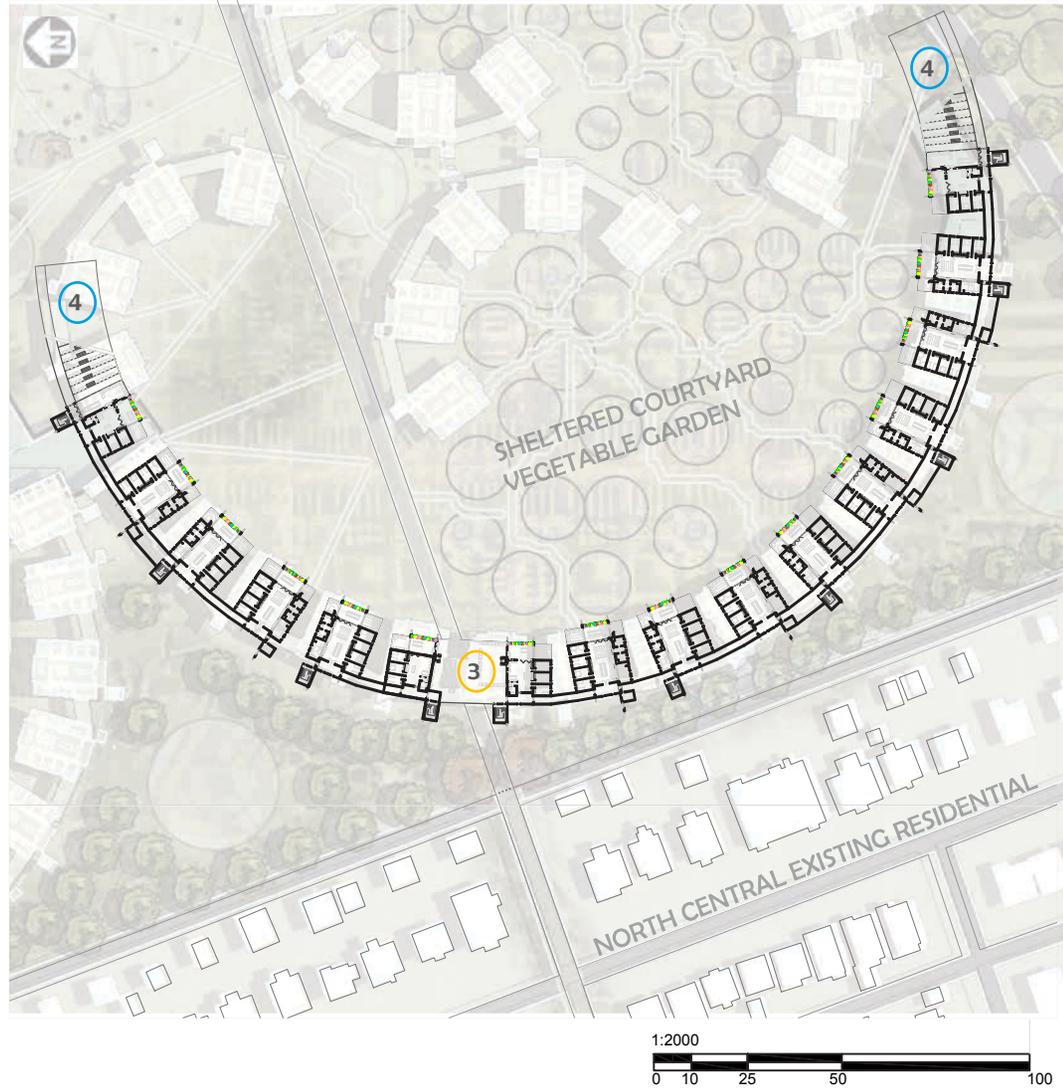
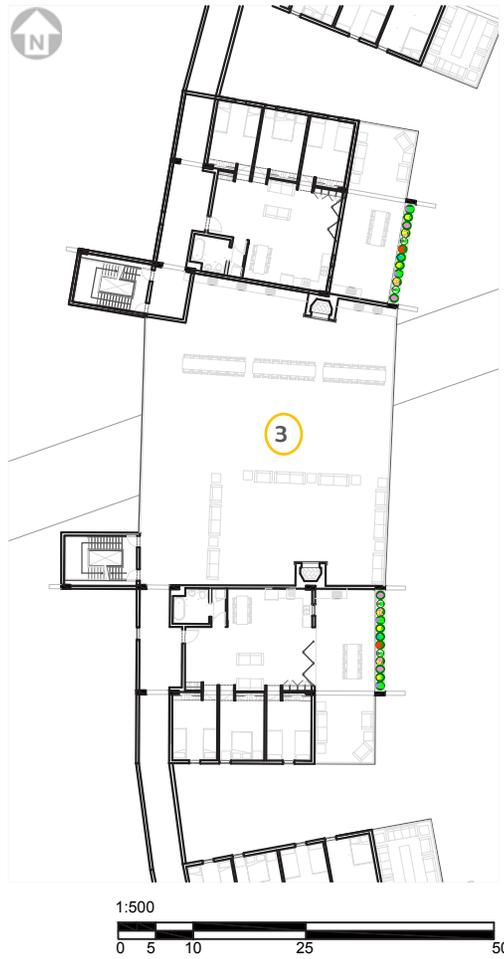
Ground floor plans of housing unit with public space on either side of service road

- 1- Public spaces for ceremonies/celebrations, elderly bus and school bus stop pick-up / drop-off.
- 2- Communal Root Cellar for storing vegetables from the vegetable gardens



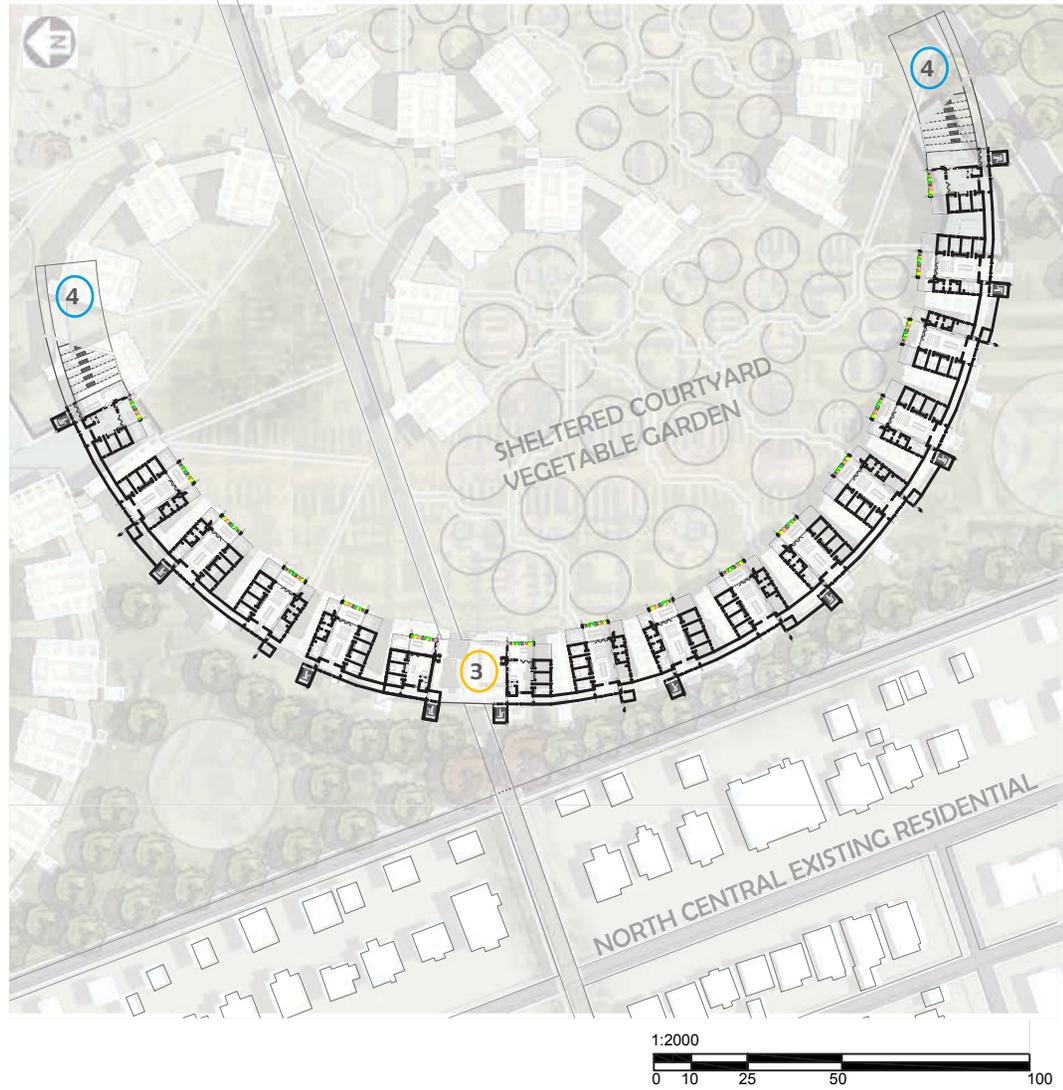
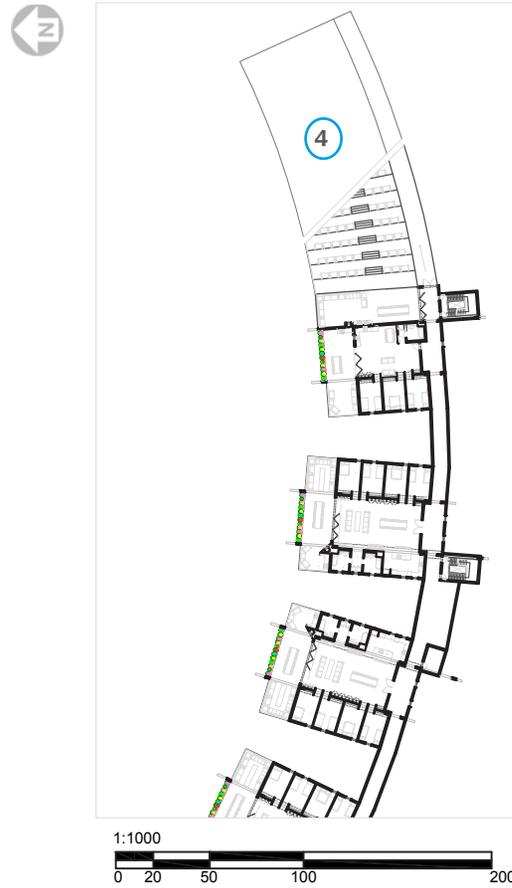
Ground floor plans of housing unit with public space on either side of service road

- 3- Public raised outdoor area for all residents to gather
- 4- Public raised outdoor area that ramps down to ground level as well as provides a small amphitheater.



First floor plans of housing unit with public space over service road and on either end of the housing complex

- 3- Public raised outdoor area for all residents to gather
- 4- Public raised outdoor area that ramps down to ground level as well as provides a small amphitheater.



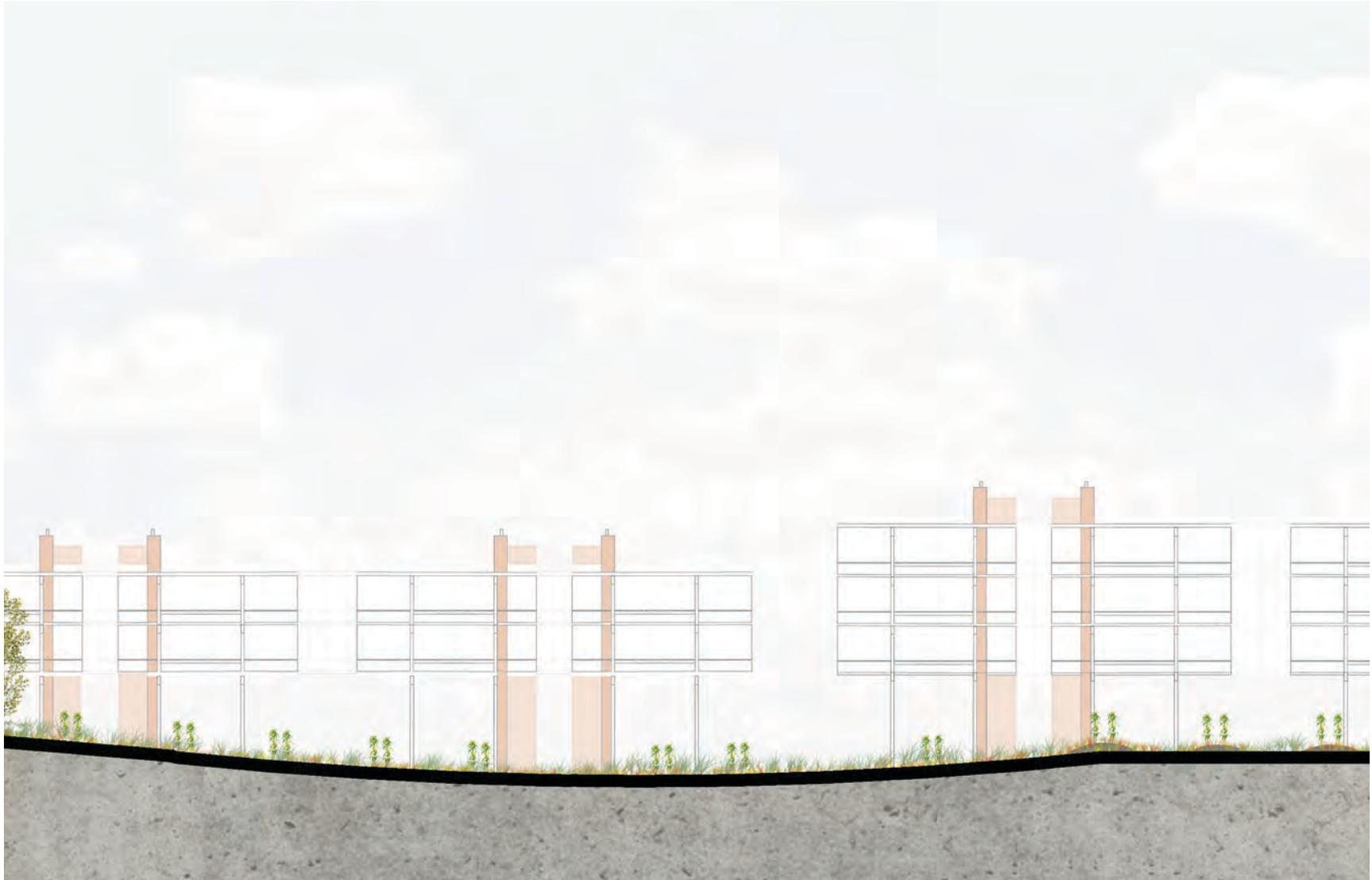
First floor plans of housing unit with public space over service road and on either end of the housing complex



SITE SECTION



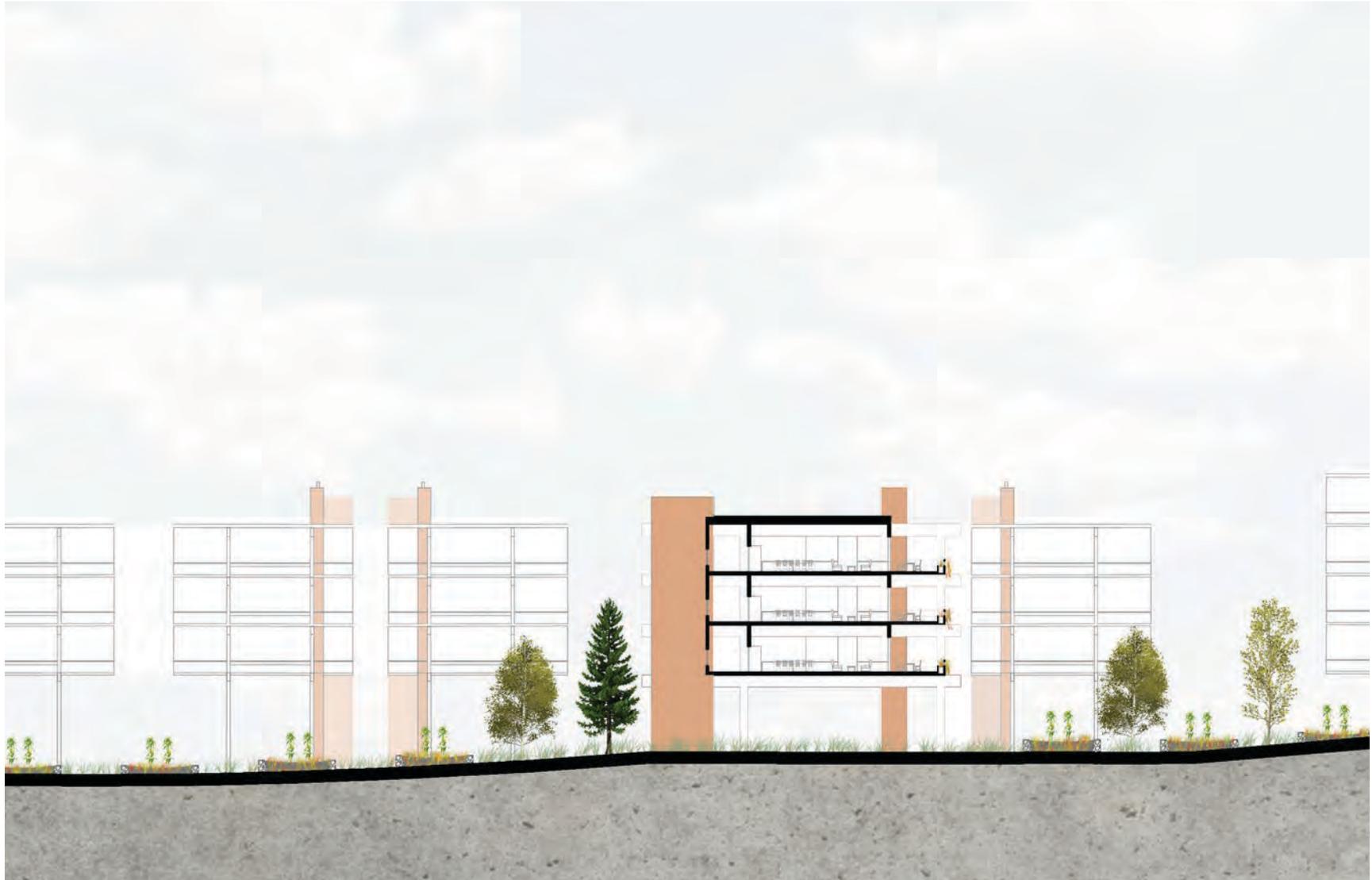
1:500 section through site and river valley



1:500 section through site and river valley continued



1:500 section through site and river valley continued



1:500 section through site and river valley continued



1:500 section through site and river valley continued



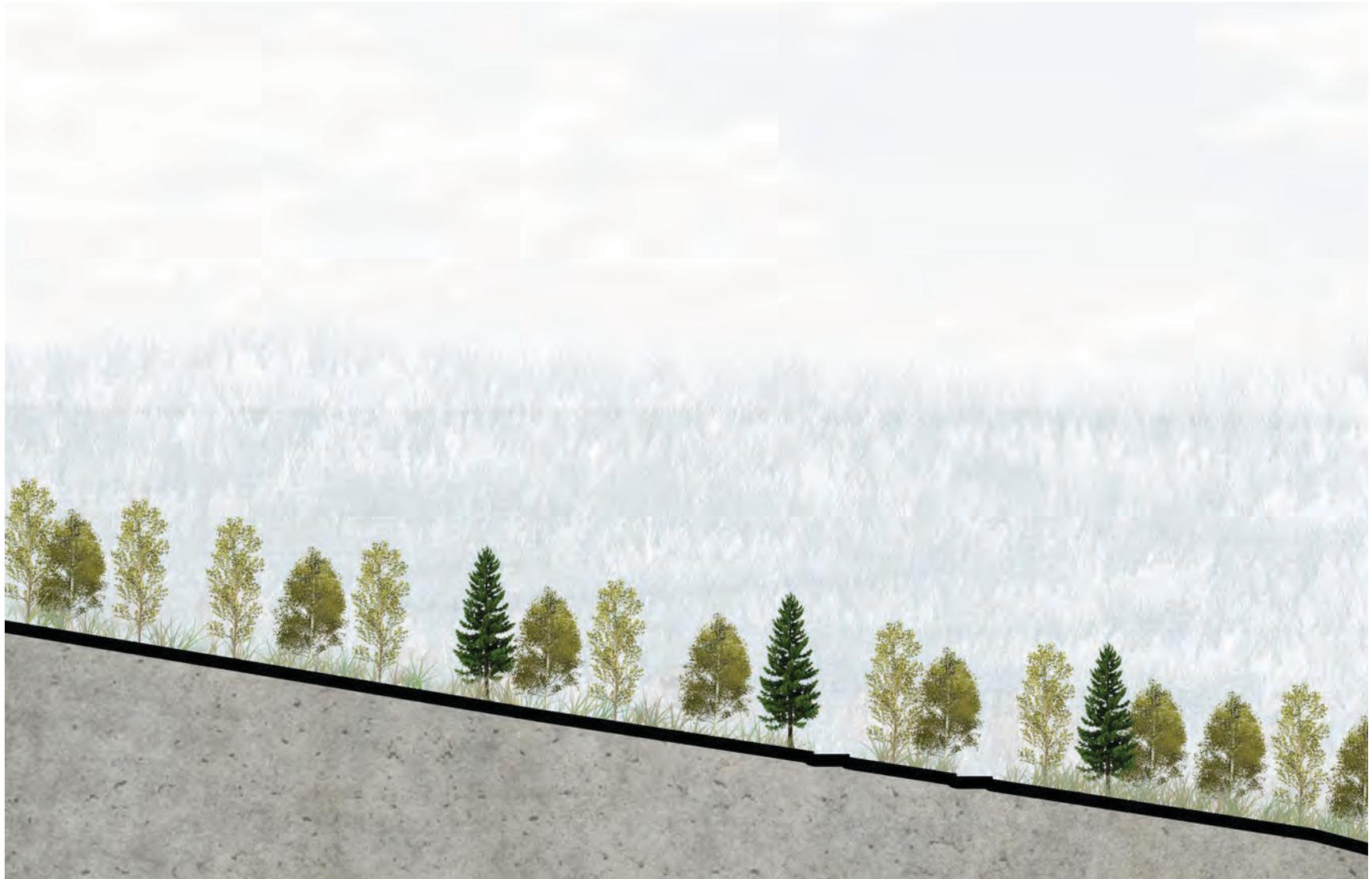
1:500 section through site and river valley continued



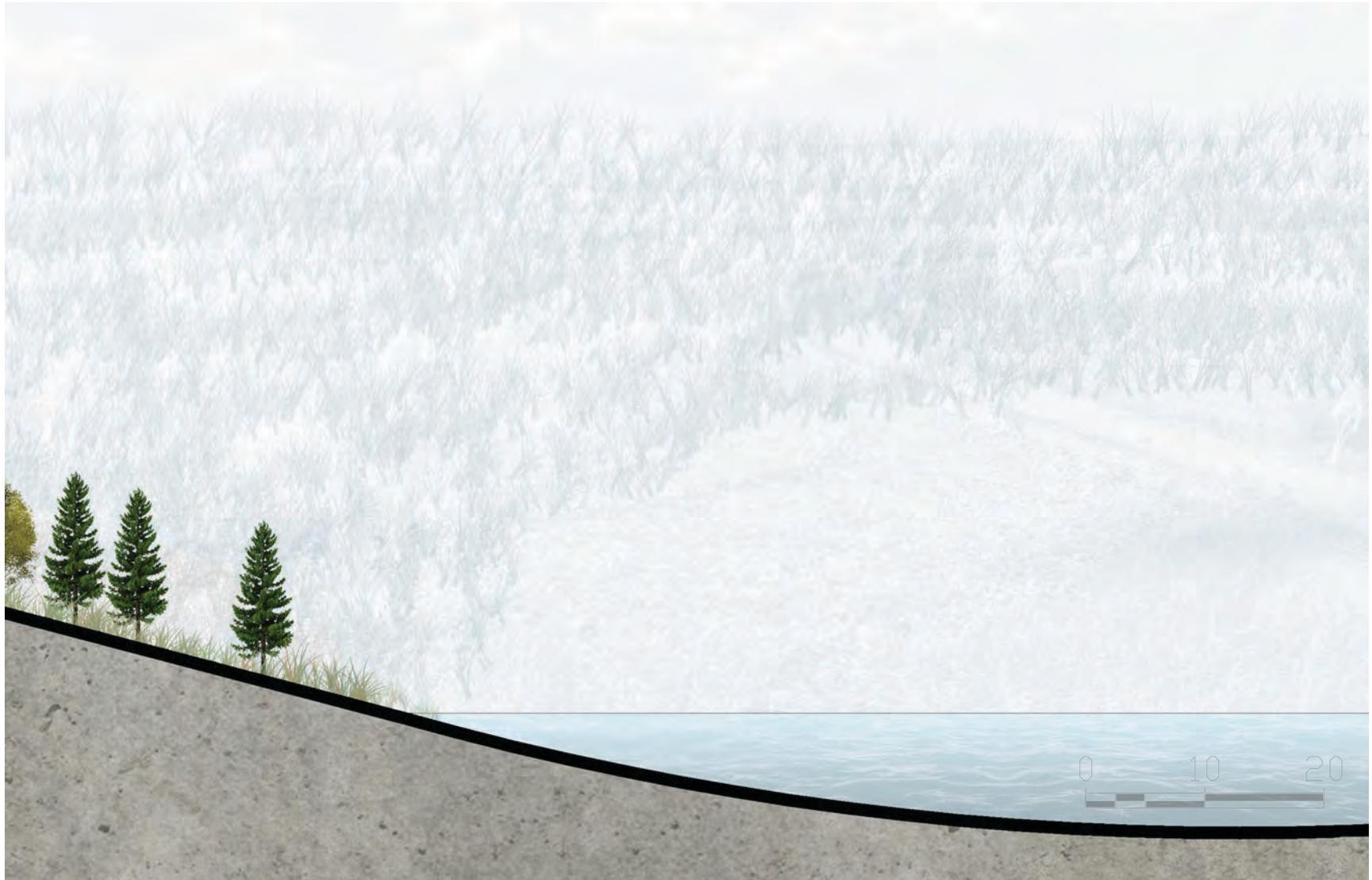
1:500 section through site and river valley continued



1:500 section through site and river valley continued



1:500 section through site and river valley continued



1:500 section through site and river valley continued



Render in existing North Central and looking North-East into the site



Render in courtyard looking at main wind blocking housing unit.

CONCLUSION

This thesis was intended to create an Indigenous hub within Edmonton's existing downtown infrastructure. The chosen site is a fulcrum between three different city grids. Here, an Indigenous housing complex can take advantage of this joining of diverse grids to connect with a new infrastructure. As I do not come from an indigenous heritage, all of my research is based upon academic readings, interviews, and classroom information; as such, I struggle to design through the eyes of a senior belonging to another culture. Through this process came the realization that the question 'what is modern residential indigenous architecture in Edmonton' could be a thesis project all on its own.

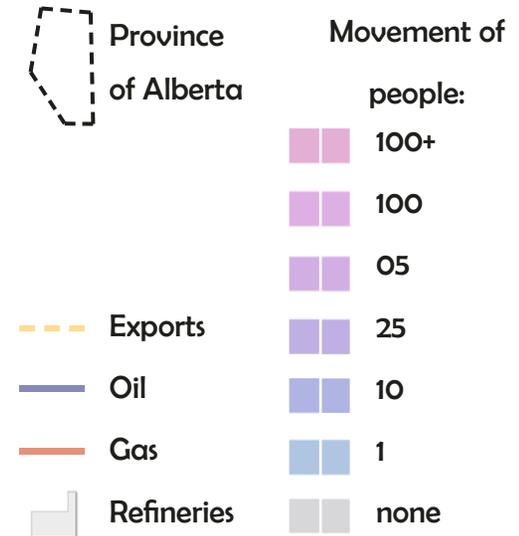
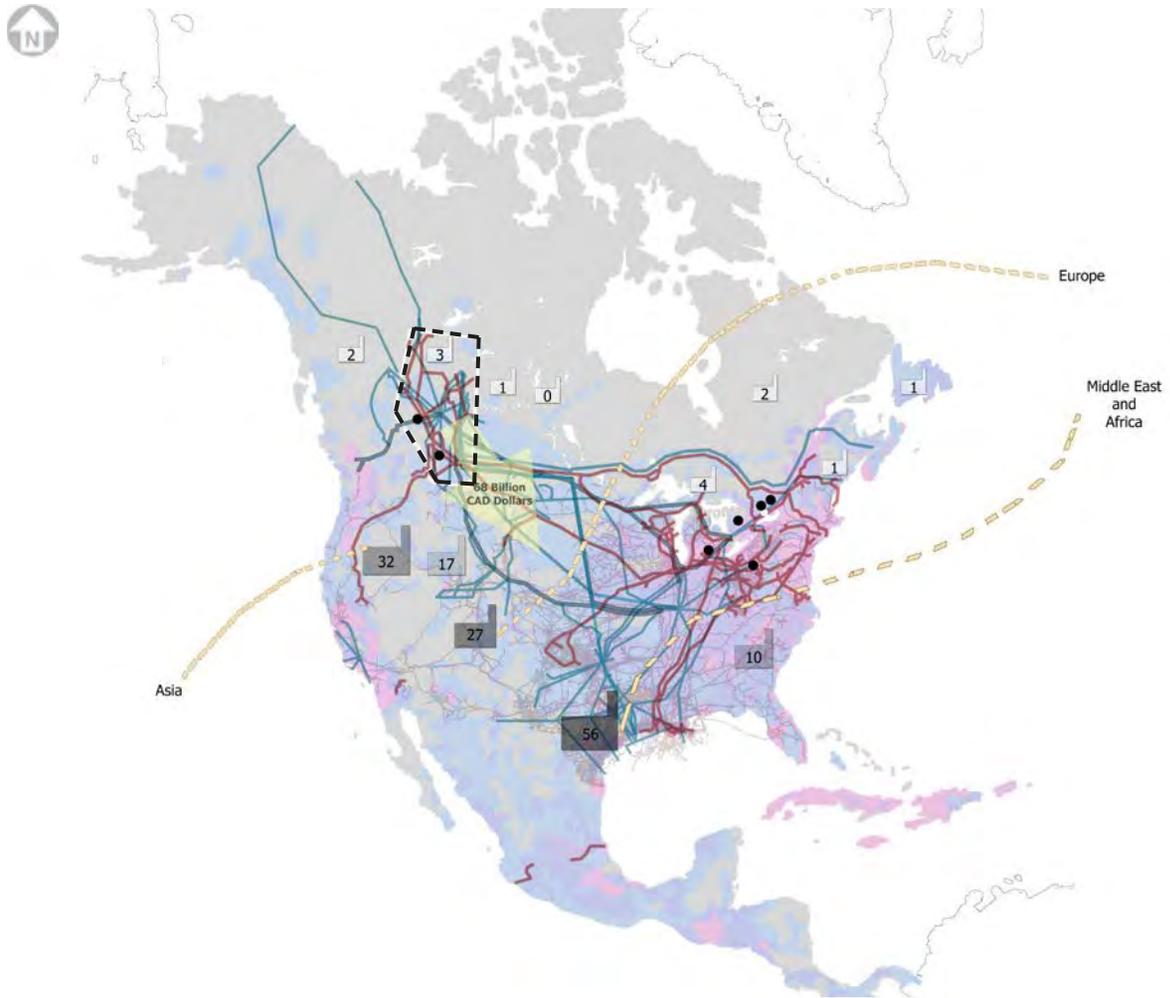
In hindsight, a challenge for this thesis was that in responding to site-specific environmental conditions, the project has partially turned away from the very neighbourhood that it is trying to connect with. By blocking the western winter winds, the design and orientation of the housing complexes on the site are introverted and seem to shut out the adjoining neighbourhood to the west. As such, there is a need to welcome visitors and residences alike without anyone feeling as if they are trespassing or do not belong. By differentiating what is public and what is private amongst the gardens, farms, and outdoor parks, people can walk freely throughout the site and will know to respectfully observe the medicinal garden by a raised walkway or feel invited to grab a handful of raspberries on a winding path through a garden. A pathway system that rises and lowers, winding throughout the site could achieve better integration of residences and visitors at the human scale.

The pathway system has begun in areas such as the ends of each housing unit where a pathway ramps up as well as beside the greenhouse and marketplace that overlook the medicinal garden but never intersect with it. These pathways should continue throughout the site and be integral to both the landscape as well as the housing units.

Integrating indigenous architecture within Edmonton's city centre brought me to question what form a cultural hub should take? What form should affordable housing take? Having looked at many case studies, there is no one answer that stands out. Should this indigenous hub integrate into the urban fabric or should it be identifiable? While I understand the reasons for an affordable housing complex to blend in with its surrounding neighbourhoods, this thesis was about bringing forward issues of sustainability, homelessness, and racial discrimination that need to be noticeable in Edmonton society. Therefore, this thesis proposes an indigenous hub that integrates into the urban fabric but does not conform to it. I believe that this strategy was the correct choice for this city and the proposed clients.

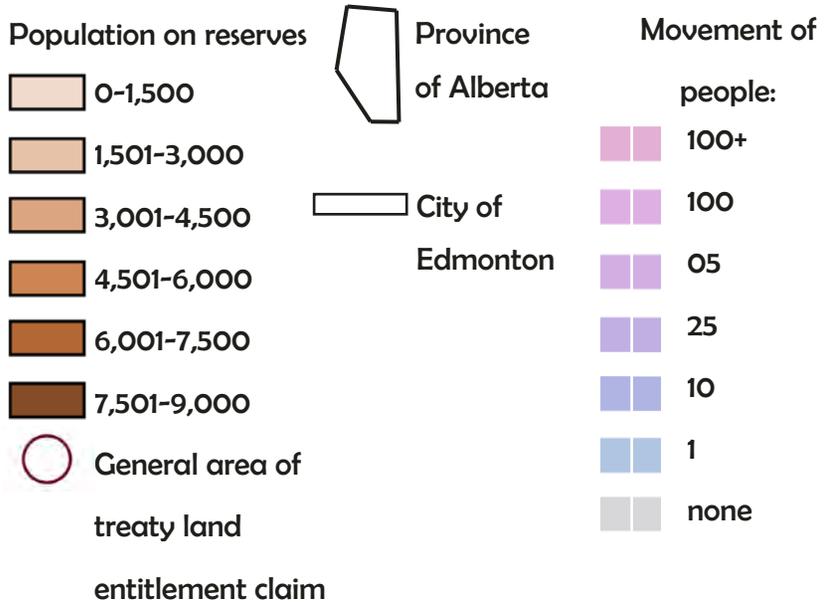
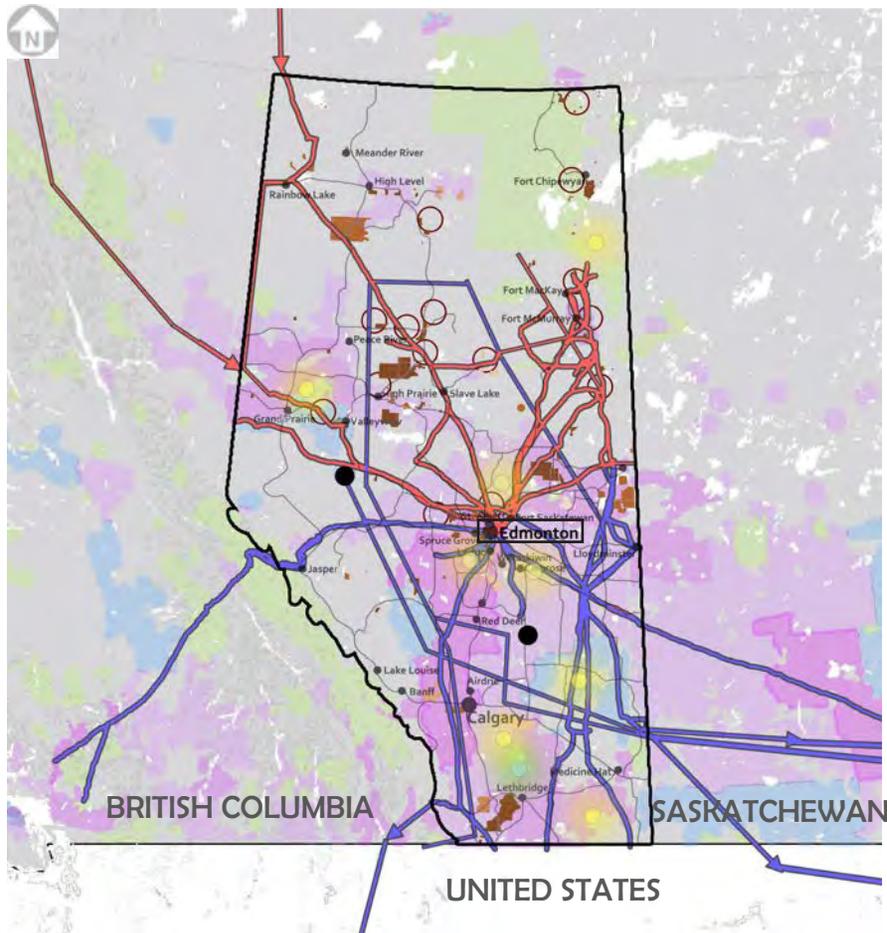
APPENDIX

2013 OIL AND GAS INDUSTRY IN NORTH AMERICA



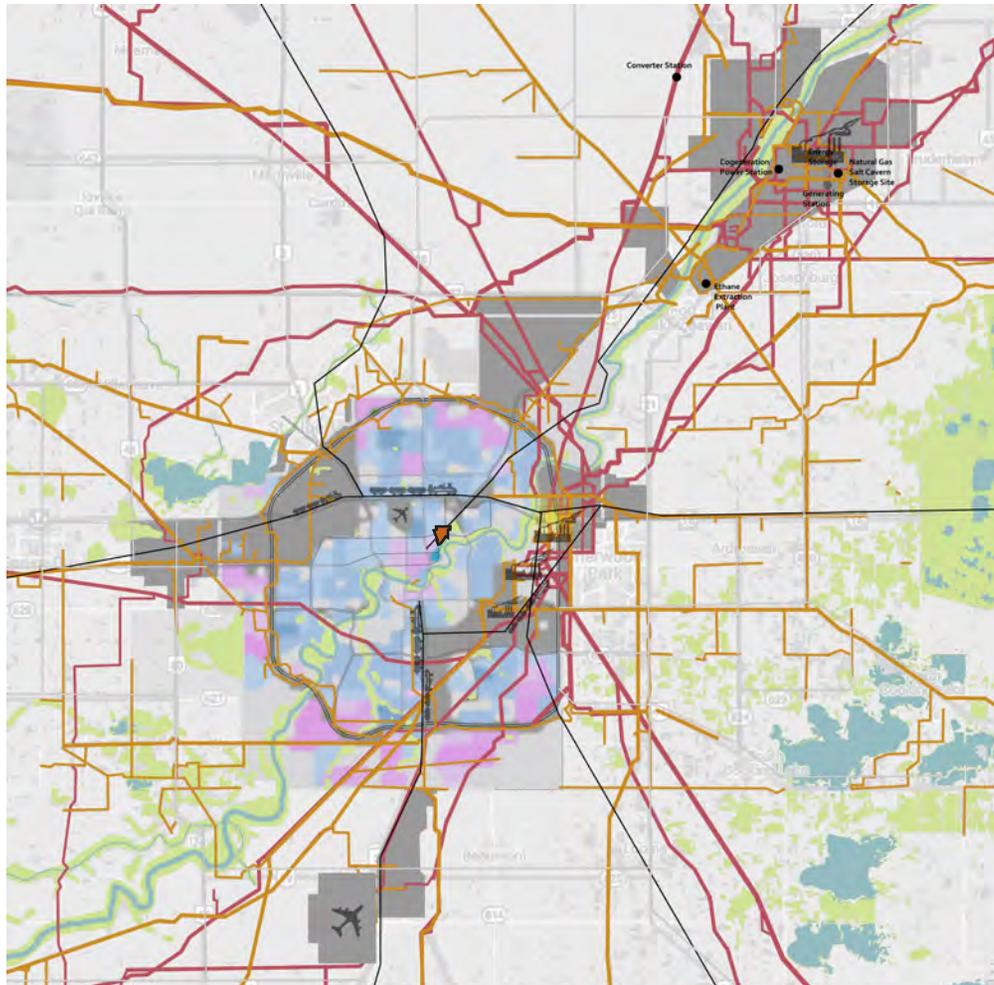
Alberta is one of the three largest oil suppliers in the world. A 68-billion dollar industry in 2013 was suddenly cut in half in 2014 with the oil market crash. This hit Albertans hard.

2013 ALBERTA'S OIL AND GAS INDUSTRY



All the oil and gas from Alberta and BC comes to the capital city, Edmonton, for exportation through Canada and the United States. Edmonton is surrounded by industry for the sole purpose of processing and shipping oil and gas.

2013 EDMONTON'S OIL AND GAS INDUSTRY



 Proposed Site

 Parklands

 Body of water

 Liquids pipeline

 Natural Gas pipeline

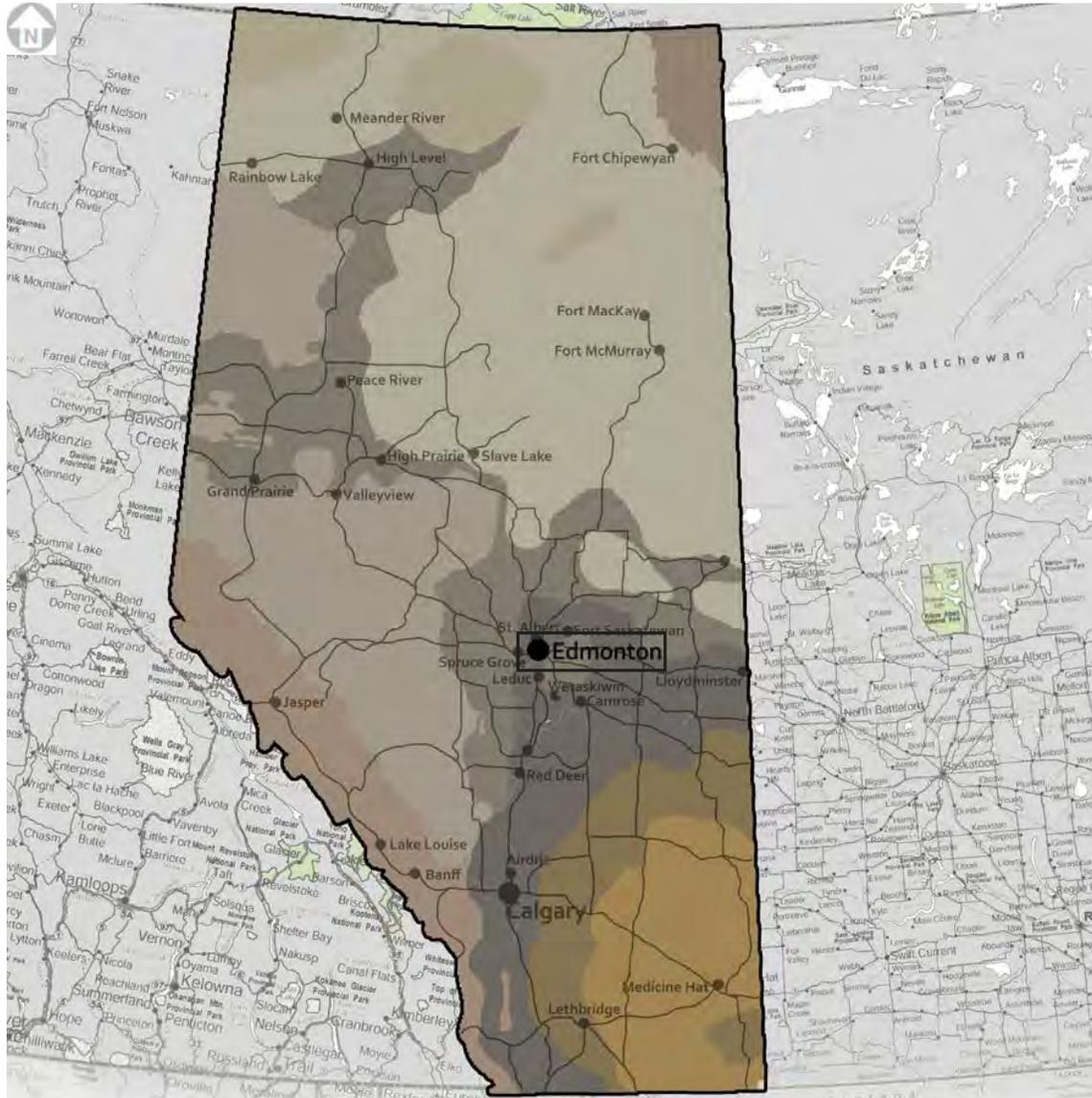
 Trainyards

 Airports

 Refineries

More than 373,000km of pipeline in the Edmonton area called the “Alberta Hub”. It accounts for 65% of all export revenue for the province.

Information Source: https://www.edmonton.ca/business_economy/industrial_development/pipelines.aspx



SOIL QUALITY IN ALBERTA

City of Edmonton

Soils from most fertile to least fertile

Black Chernozemic

Dark Brown Chernozemic

Brown Chernozemic

Dark Grey Chernozemic

Grey Luvisols Organics

Grey Luvisols

Brunisols/ Grey Luvisols

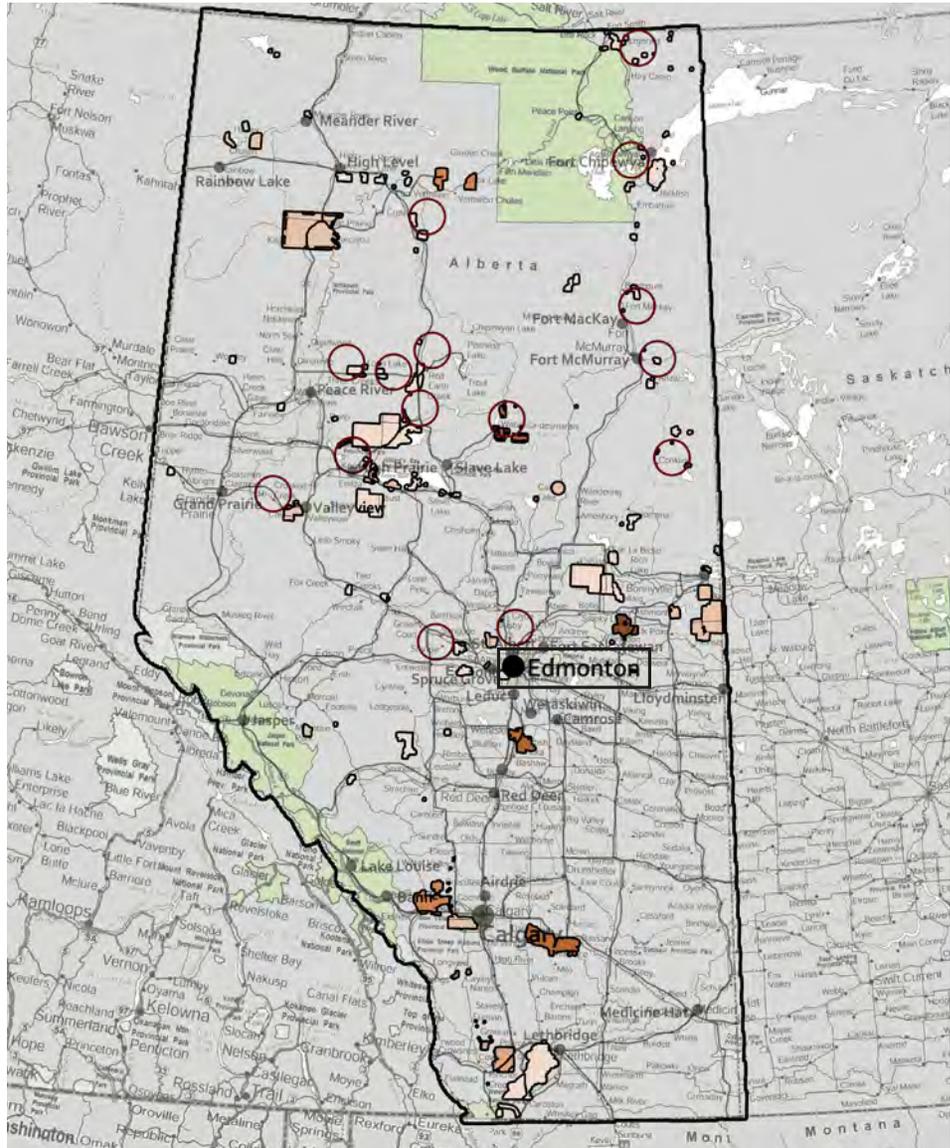
Brunisols

Organic Cryosols

Source: [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/ag-dex10307](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/ag-dex10307)

Alberta has fertile land for crop farming as well as cattle farms. Edmonton sits on some of the most fertile soil in Alberta. 120

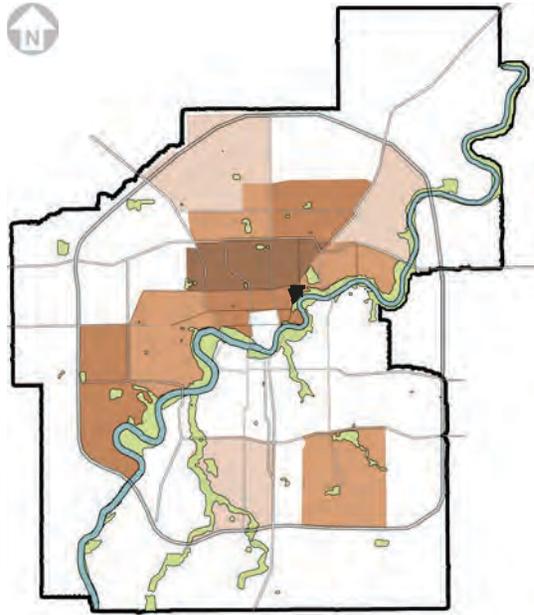
2011 Indigenous Population on Reserves in Alberta



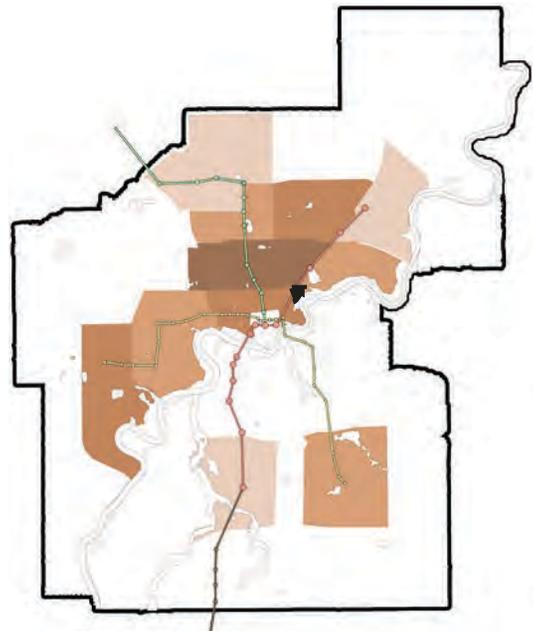
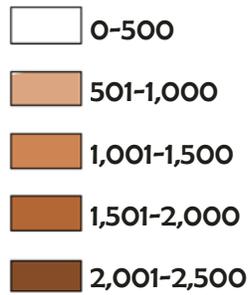
Indigenous population on reserves

- 0-1,500
- 1,501-3,000
- 3,001-4,500
- 4,501-6,000
- 6,001-7,500
- 7,501-9,000
- General area of treaty land entitlement claim

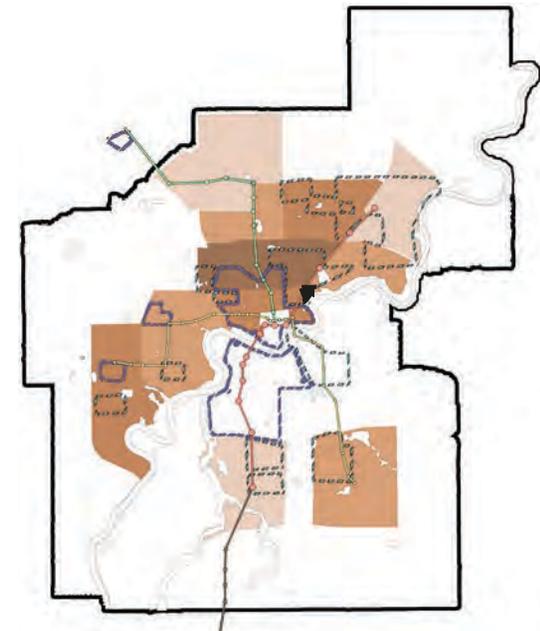
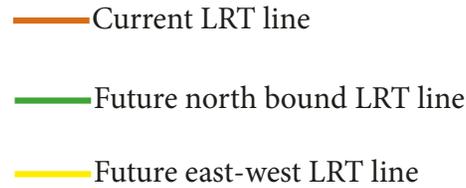
Within the province of Alberta there are 45 different Indigenous nations. Each one has a distinct culture, traditions, and language. Among others similarities, each nation holds the knowledge of how to live symbiotically with their environment.



INDIGENOUS POPULATION PER
NEIGHBOURHOOD IN EDMONTON



PRESENT AND FUTURE LRT LINES IN
EDMONTON



ACTIVE AND TRANSIT ZONES IN
EDMONTON



REFERENCES

Andersen, Chris, Dr. "Aboriginal Edmonton A Statistical Story." 2009. Accessed July 24, 2017. https://www.edmonton.ca/city_government/documents/PDF/Stat_Story-Final-Jan26-10.pdf.

Anderson, Shelly. Alberta Native Friendship Association , Mar. 2015. www.cnfc.ca/uploadedFiles/documents/downloads/Edmonton-UAS-Plan_March-2015.pdf.

Anderson, Kim, and Maria Campbell. "Life Stages and Native Women Memory, Teachings, and Story Medicine". University of Manitoba Press, 2011

Alberta Energy Society of Alberta, "Alberta Solar Performance Data," <https://solaralberta.ca/content/alberta-solar-performance-data>

Crookshanks, John Douglas, PhD. "Aboriginal Seniors' Housing in Edmonton." Edmonton Aboriginal Seniors Center. Home-ward Trust. Accessed July 24, 2017. <http://homewardtrust.ca/wp-content/uploads/2016/12/Aboriginal-Seniors%E2%80%99-Housing-in-Edmonton.pdf>.

Gordon, David, and Isaac Shirokoff. "Suburban Nation? Population Growth in Canadian Suburbs, 2006-2011." Canadian Urbanism. July 2014. Accessed June 20, 2017. www.canadianurbanism.ca/wp-content/uploads/2014/07/CanU%20WP1%20Suburban%20Nation%202006-2011%20Text%20and%20Atlas%20comp.pdf.

Malnar, Joy Monice, and Frank Vodvarka. "New Architecture on Indigenous Lands." Univ. of Minnesota Press, 2013.

Parks Canada Agency, Government of Canada. "The Chronology of Elk Island National Park - Elk Island National Park." Parks Canada Agency, Government of Canada, 1 Apr. 2017, www.pc.gc.ca/en/pn-np/ab/elkisland/decouvrir-discover/chrono.

Statistics Canada, Government of Canada, "2006 Aboriginal Population Profile for Edmonton," February 2010. . www.statcan.gc.ca/pub/89-638-x/2010003/article/11077-eng.pdf.

Tang, Eric. "Agriculture: The Relationship Between Aboriginal Farmers and Non-Aboriginal Farmers." Western Development Museum, Saskatchewan Indian Culture Center, Apr. 2003, <http://apihtawikosisan.com/wp-content/uploads/2012/05/FNAgriculture.pdf>.

Theobald, Claire. "Indigenous homelessness as much spiritual as physical, Homeward Trust gathering in Edmonton told." Edmonton Journal, March 2017. Accessed August 13, 2017. <http://edmontonjournal.com/news/local-news/indigenous-homelessness-as-much-spiritual-as-physical-homeward-trust-gathering-in-edmonton-told>

Ubelacker, Sheryl. "Aboriginal seniors face more challenges staying healthy, accessing care: report." The Globe and Mail, November 28, 2013. Accessed August 1, 2017. <https://beta.theglobeandmail.com/news/national/aboriginal-seniors-face-more-challenges-staying-healthy-accessing-care-report/article15648102/?ref=http://www.theglobeandmail.com&>.