Mapping the City: Narratives of Memory and Place

by

Desiree Geib

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I hereby declare that I am the sole author of this thesis.

This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

How do we discover a new place and begin to get acquainted with it? In Canadian cities, the sense of place can be difficult to grasp. The relative youth of the built form of our cities and a constant influx of new people from other cities, provinces, and countries continuously re-calibrate what place means. In Calgary, the sense of place includes relationships to its surroundings and the stories that are tied to the city. Ideas surrounding place are essential for architects who want to design while considering context. The question this thesis examines is: How can we learn about place, describe it, and share it, while respecting a multiplicity of experiences and histories of the city?

The act of mapping is one of the ways in which designers can begin to understand and express a sense of place. This thesis explores the connections between place, memory, and narrative and how mapping can share these aspects of experience. Through mapping, four stories of the city of Calgary emerge from a mixture of personal experience, historical maps, and research. These maps begin to express place through describing official and unofficial histories, experimenting with material and scale, and presenting narratives of the city that come through lived experience in a place.

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*Where there is no citation listed, the photo or illustration is my own.

Preface

Within my work, I have always had the same preoccupations. Whether in the studio or the profession, I always ask questions surrounding what makes a site what it is? What is the influence of its context? How does this site fit into the history of the city? These types of questions always revolve around a larger issue: What makes a place feel a certain way? How can I recognize the sense of place within the site for my design process?

Most people only understand a sense of place where they have lived for a long period of time. We share a relationship with a place based on memories and experiences lived there. I was lucky to grow up with an attachment to multiple places: Calgary where I lived, Medicine Hat where I was born and spent every July, LacLu near Kenora where the first two weeks of August passed by, and Kananaskis and the Rocky Mountains west of Calgary, a place to escape the city for the day. All of these places have specific memories and familial associations for me. I have returned time and time again to enjoy and remember and grow my experiences of these places. All of them always felt like home.

When I moved to Cambridge, Ontario it was the first time I had to learn how to get to know a new place intimately. I had gone on trips to new places before, but spending a week somewhere is much different than learning to live somewhere new. Now, after seven years of living in Cambridge on and off, I would like to say that I know the place rather well. It has also become a home to me. I have seen the river in all seasons, its level changing with snow, rain, and the sun. There are familiar faces when I walk down the street. I know which weeks of the year to expect LA Franks, the burger stand along the river, to open for the summer season and close for the winter. But more than knowing some facts, or being able to give directions, I can feel the place, and I love the place.

In architecture school, it is easy to yearn for experiences of new and different places. We look to cities all over the world for examples of design not being done here in Canada. We go to Rome to see the fantastic art and architecture of our cultural ancestors. We are encouraged to travel and see all there is to see, typically with a focus outside of our own country. These methods provide ways to learn more about our world and architecture's role within it. However, if we dig a little deeper there is more to learn than we expect in our own cities.

In Canada, it is common to ignore the depth of our own history. We have the excitement of learning about different places through new neighbours from all over the world. Sometimes it is hard to compare our young cities to those of older countries. When this is the case, I am reminded of both the form of the built city and the landscape surrounding it. Does a city only have a sense of place if the buildings are old? How do our relationships to landscape, and the relationships between the city and the landscape affect our sense of place? How have official histories and forgotten memories shaped the city? What about memories and meanings of a place before the city was there? What about indigenous understandings of the places we now inhabit?

Understanding a sense of place where we live is not only important in design, but also in being able to share it with new people to the city. How can people understand and connect to place? How can a sense of place be shared with others? While delving into these ideas in preparation for my thesis work, maps kept coming to mind. Maps hold the potential to learn more about a place and to imagine it. There has always been a fascination for me in the process of merging an understanding of the map with the place it represents. Reading the two-dimensional representation of a building or a place takes time. The understanding gained from it is often not the same as being there. Over time, in comparing

the representation and experience of a place, they may merge to become a nuanced understanding of it.

With this process of learning in mind, I wanted to try making a map that got a little closer to the feeling of a place. Could there be a combination of the analytic nature of maps and feelings of experience? Could there be a way to analyze the history and development of the city while sharing the multiple narratives and memories of a place?

In order to answer these questions, I began experimenting with mapping Calgary, the city where I was raised. Using personal experiences and historical research I began making maps. The flat diagram these became did not fully represent the experience of the city as much as I had hoped. This led to further testing of making three-dimensional physical maps. The potential for depth, texture, and the process of making offered more opportunities. This process became its own investigation alongside the aim to describe a sense of place.

This brings us to the book you now hold. The following chapters lay the groundwork for the maps I have made. Chapter 1 describes a sense of place and its relationship to the physical city, collective memory, and narrative. Chapter 2 considers the way that designers have looked at mapping and how it can introduce aspects of narrative and memory into its process. Chapter 3 illustrates the stories that led to each map. This is followed by work that contributed to the maps. The Conclusion shows the physical maps I have made, reflections on the process of making, and Calgary's sense of place.

Figure 1.01 | Site Ten

This image shows an arrow pointing across the river to a painted blue circle within the alcove at the base of the building. This is the former location of where Mill Creek came to meet the Grand River.

Chapter 1 | Place, Memory, and Narrative

Whenever I needed a break from working in the studio, I would walk outside to the back patio of the school to take a moment to breathe. My favourite things to watch out for were ducks, pigeons, and songbirds that might be swimming, waddling, or flying around. The various birds were attracted by the Grand River, as was I. One day in 2012, I found something different about my everyday view.

Across the water, there were large blue circles painted in an alcove of a building on the river, as well as one at the water outlet further downstream where water gushed out. There were also words written on the wide ledge of the flood wall that marks the boundary of the patio. It was hard to read the words from afar, so I walked closer. They read, "Which one is the end of Mill Creek? Where it ended? Or where it ended up?"

I did not know that the water coming to meet the river downstream was a creek, let alone that it had a name. The words clearly pointed to these painted blue circles and I was left wondering why these circles were here?

A few days later I was running errands around Downtown Galt amidst the textured materials of the old stone buildings and the shop windows of Main Street. Once I turned onto Ainslie Street and passed by the bus station, I saw a painted blue semi-circle on the sidewalk. This time the blue circle had writing on it. This circle read, "5 – BURIED – Mill Creek kept diving under this road that changed name 3 times – Mill • Hawthorn • Ainslie."

I found myself surprised that the street had changed names so many times and that is was originally named after this creek I had just learned about. But why was this circle here in the middle of all of this asphalt and concrete? Was Mill Creek really underneath me?

Over the weekend I decided to walk up and down the river before my weekly stop at the Cambridge Farmer's Market. My typical route was usually from the bridge at Park Hill Road down to Concession Street to once again cross the Grand River and come back. As I ascended the steps over the berm along Water Street, I enjoyed the view of the trees across the river. My gaze traveled towards the School of Architecture and the Main Street Bridge. Once again, I came across a blue circle. This circle was painted on the sidewalk, with words that read, "MOVED – Mill Creek Found. In the Wrong Place. – 7."

Figure 1.02 | (Half of) Site Five

This image shows a painted blue semi-circle which indicates the location of Mill Creek underneath the sidewalk.

Figure 1.03 | Site Seven

This image shows a painted blue circle which indicates the outlet of Mill Creek below.

While reading these words I became aware of the sound of water. Looking over the ledge, I realized I was at the location of one of the first blue circles I had seen from the back patio of the School. This was the outlet of Mill Creek, at least where it sits now, coming from somewhere on the other side of downtown. Moving beneath roads, sidewalks, buildings, and landscaping to finally meet the Grand River. The water rushed out of the opening beneath me, creating a new flow against the river's current. There were algae growing at this spot underneath the water, there must have been something about the combination of creek and river that helped the algae flourish.

In the past, I had lived at a house with Mill Creek running behind it and I did not know it was there for many months. Even then, I had followed the path along it towards downtown and did not realize it disappeared under the street. I think I had assumed it went under the street to come back up again on the other side. However, finding all of these blue circles helped me to remember the faint recognition I had of this creek. I wanted to learn more.

When we arrive somewhere new, we search for ways to get to know it. This knowledge we are searching for is related to a sense of place. Place itself is a common word in our everyday vocabulary, it describes something specific, yet as a term can be vague. In architecture, place is often discussed and has a specific meaning related to a 'sense of place' or *genius loci*.

Aldo Rossi's book *The Architecture of the City* examines the factors that affect the development of the city: its architecture, buildings, memory, and *genius loci*. Reconsidering history and context in architecture was important to Rossi and other architects after the rejection of it within modernism. Rossi situates this discussion of place within his understanding of the gradual transformation of the city. In this case, each individual building reflects the cultural values of the time and helps to create a framework for collective memory within the overall city.[1] Rossi's discussion of place focuses on the idea of the *locus*, which is the "relationship between a certain specific location and the buildings that are on it."[2] This idea can be expanded to include the relationship between a specific location and an urban area or can extend further to include an entire city.

Rossi also describes how the *genius loci* of a space leads to place. The moment space is made distinct by an event or modification

Figure 1.04 | Basilica of St. Mary of the Angels and the Martyrs

The frigidarium portion of the structure of the ancient Baths of Diocletian were turned into a Basilica in 1702. This is an example of a building that could be considered an urban artifact; a building with a form that can adapt to different functions over time, and embodies the collective memory of the place.

1 Aldo Rossi, "Chapter 3: The Individuality of Urban Artifacts; Architects," in *The Architecture of the City*, 102-127, (Cambridge, Massachusetts: MIT Press), 1984.
2 Rossi, "Chapter 3," 103.

Figure 1.05 | National Roman Museum - The Baths of Diocletian

The rest of the ruins that are left of the Baths of Diocletian are embedded into the city fabric. This image is taken in the courtyard of the Baths of Diocletian museum, which takes its shape from the ancient ruins.

3 Rossi, "Chapter 3," 103-107.
4 Rossi, "Chapter 1: The Structure of Urban Artifacts," in *The Architecture of the City* (Cambridge, Massachusetts: MIT Press), 29.

of the location, it becomes a place. This initial act can then lead to attracting more ways to distinguish the particular nature and singularity of that place.[3] There is a spirit of a location that is acted out over time. These actions include events and markers of events, which add meaning to place. Subsequently, the events, markers, and meanings of a place re-affirm the *genius loci.*

When trying to portray what the spirit of a specific place is, tools of language and analysis can fail to express what the place feels like. Rossi analyzes the city and *genius loci* through buildings that have become important landmarks over time. These types of buildings are called urban artifacts. Rossi describes urban artifacts as buildings that have their own unique history. Through the form of the building, the importance attributed to it, and multiple uses over time, the building can become a landmark of the place.[4]

Rossi also acknowledges the role of memory in the city. While describing the city's development, Rossi explains the role of individual work, collective cultural ideas, and the preceding history of the place. As people and culture in the city changes, the environment begins to shift with them.

Collective memory is a term that goes beyond the individual nature of memory and recollection. This type of memory involves the

ways that groups of people share memory and experiences, which can be a way that ideas about place spread. One of the scholars involved in popularizing the term collective memory was Maurice Halbwachs. Although Halbwachs is often cited in the discussion of collective memory, his ideas were part of a larger discourse within sociology and philosophy in the 1920's and 1930's.[5] Halbwachs compares individual thoughts and the influences of social groups. The experiences within the group intersect with an individual's personal memories. This idea gains complexity when considering that there may be sub-groups within a larger group. Additionally, one individual may be a part of multiple groups. This suggests that collective memory is a large web of connections between groups, sub-groups, and individuals. Halbwachs argues that shared experience that can be remembered filters through these connections and holds the groups together.[6]

Since each individual's memory of a shared experience relates to a group, the collective memory shifts and changes with the group. This occurs with the changeover of members or the natural progression of ideas that happen over time. These circumstances suggest that collective memory is a living thing that is ever changing. This becomes apparent when Halbwachs describes the complexity of memory within an individual, sub-group, and larger group. There are many variations of the same

5 Jeffrey K. Olick, Vered Vinitzky-Seroussi, and Daniel Levy, Introduction to *The Collective Memory Reader,* ed. Jeffrey K.Olick et al. (New York: Oxford University Press, 2011), 22-23.
6 Maurice Halbwachs, "The Collective Memory," in *The Collective Memory Reader*, ed. Jeffrey K.Olick et al. (New York: Oxford University Press, 2011), 139-149.

memories and experiences that occur in these situations. With this multiplicity of memory, what a place feels like or means will shift over time. Nonetheless, there are also opportunities within this complexity, when considering ways that narrative can share multiple experiences.

Michel de Certeau uses the idea of narrative to illuminate aspects of everyday life that hold meaning. In "Spatial Practices: Walking the City," Certeau describes different ways that the city can be viewed, and how these are representative or not of the place.[7] There are two main experiences of the city that Certeau examines, one is seeing the city from a bird's eye view; the other involves walking through the city itself.

A panoramic view of the city gives a sense of the breadth of the built environment. The networks and systems of the city seem to become visible at a tall height. This vantage point showcases the network of streets, parks, and open spaces in between them. The city from this height might even look like a model someone has built of the city. Certeau writes about this experience and describes the thrill of seeing everything at once, but also points out the problems of seeing the city this way. From this view the city becomes an image, it is not a place you can directly engage with. The city is just something to look at.[8]

7 Michel de Certeau, "Walking in the City," in *The People, Place, and Space Reader*, ed. Jen Jack Gieseking et al. (New York: Routledge, Taylor & Francis Group, 2014), 232-236.
8 Michel de Certeau, "Walking in the City," 232-233.

On the other hand, walking around the city gives you a direct experience of it. While walking through the city you catch glimpses of particular details of buildings, or you can recall fragments of your previous experiences. Alternatively, this does not allow you to understand the larger systems that hold the city together. Certeau states that the "walker writes the city without being able to read it."[9] These comparisons lead to his discussion about how each walker in the city creates a new narrative with the paths they take and the locations they aim for. A larger story of the city is created when each trace of walking is brought together. Certeau points out that this story or narrative is not easily shared or ever seen. The experience of the city is always through fragments and selective remembering.

The idea of each person's individual narrative of the city can be brought back to bear upon collective memory and place. If each person's narrative is fragmentary, it means that multiple narratives can help the stories come together. Many people occupy the city and share their experiences. Through this process, commonalities will emerge. These fragments of memory also interact with the different groups someone associates with. This can affect their interpretation of the city. The more that people share their narratives, whether influenced by collective memory or not, the more that stories can reinforce existing ideas about the

Figure 1.06 | Calgary, AB

This aerial photograph of Calgary lets us see the large systems at work in the city. It is easy to imagine we fully understand the city this way, but as Certeau describes, it is only one way of seeing the city.

9   Michel de Certeau, "Walking in the City," 235-236.
10   Brian S. Osborne, "From Native Pines to Diasporic Geese: Placing Culture, Setting our Sites, Locating Identity in a Transnational Canada," *Canadian Journal of Communication* 31 (2006), 147-175.

Figure 1.07 | Historic City Hall in Calgary
This image provides many details of this particular space in the city. The Historic City Hall is the focus but is seen through the trees of Olympic Plaza. This experience is incredibly visceral but is difficult to connect back to the aerial image on the left.

place. Otherwise, the same process of sharing can allow for the evolution of meaning in the same place.

The act of place-making is a complex process, and narrative and collective memory affect it. In a multi-cultural society like Canada, narrative and collective memory are likely to shift and evolve frequently. This is an issue that Brian S. Osborne has examined in "From Native Pines to Diasporic Geese: Placing Culture, Setting our Sites, Locating Identity in a Transnational Canada." Osborne writes about an important issue in Canada regarding our identification with wilderness despite the growing multiculturalism of the country. This preoccupation with the wilderness is also contrary to the large percentage of urban populations we now have.[10] Combining ideas from a wide array of disciplines, Osborne comes to this discussion with a mixture of geography, philosophy, landscape, and culture.

The description of place that Osborne provides shows how place is related to the people who inhabit it. Because of this identity, a sense of place in Canada is shifting; the extensive immigration of people from all over the world continues to add multiple narratives to our society. These evolving demographics will slowly re-calibrate what certain places mean in Canada. Osborne explains that the mythic narrative we have written about Canadian

wilderness has always been an exaggeration of our ties to non-urban spaces. When people mainly live in cities, these ideas need to adjust to how people experience their lives in the city and the places that they actually use. Osborne describes how place is made and the role people have in that process.

> "Space is a neutral entity, defined by objective coordinates and measures; but "place" is an emotive entity, experienced emotionally and defined subjectively. That is, people produce places and they also derive their identities from them. Farms and fields, streets and neighborhoods, vernacular buildings and institutional edifices, parks and monuments, songs and stories: all are expressions of the social activities in space that transform the latter into place. They are the spatial coordinates for identity and belonging in the reciprocal relationship between people and the places they inhabit."[11]

The discovery of Mill Creek that was described at the beginning of this chapter is one possible narrative about a sense of place in Cambridge, Ontario. Related to the historical development of Galt, PLANT Architects Inc. developed a project that would help bring a forgotten story to light. "Channeled Buried Moved Lost: Where did Mill Creek Go?"[12] was commissioned in 2012 by Cambridge Galleries, now known as Idea Exchange, for an exhibition entitled "Common Ground: Where Land Meets Art."

11 Brian S. Osborne, "From Native Pines to Diasporic Geese," 148.
12 "Mill Creek Galt|the Project," accessed September 10, 2015, http://www.millcreekgalt.ca/pages/project.html.
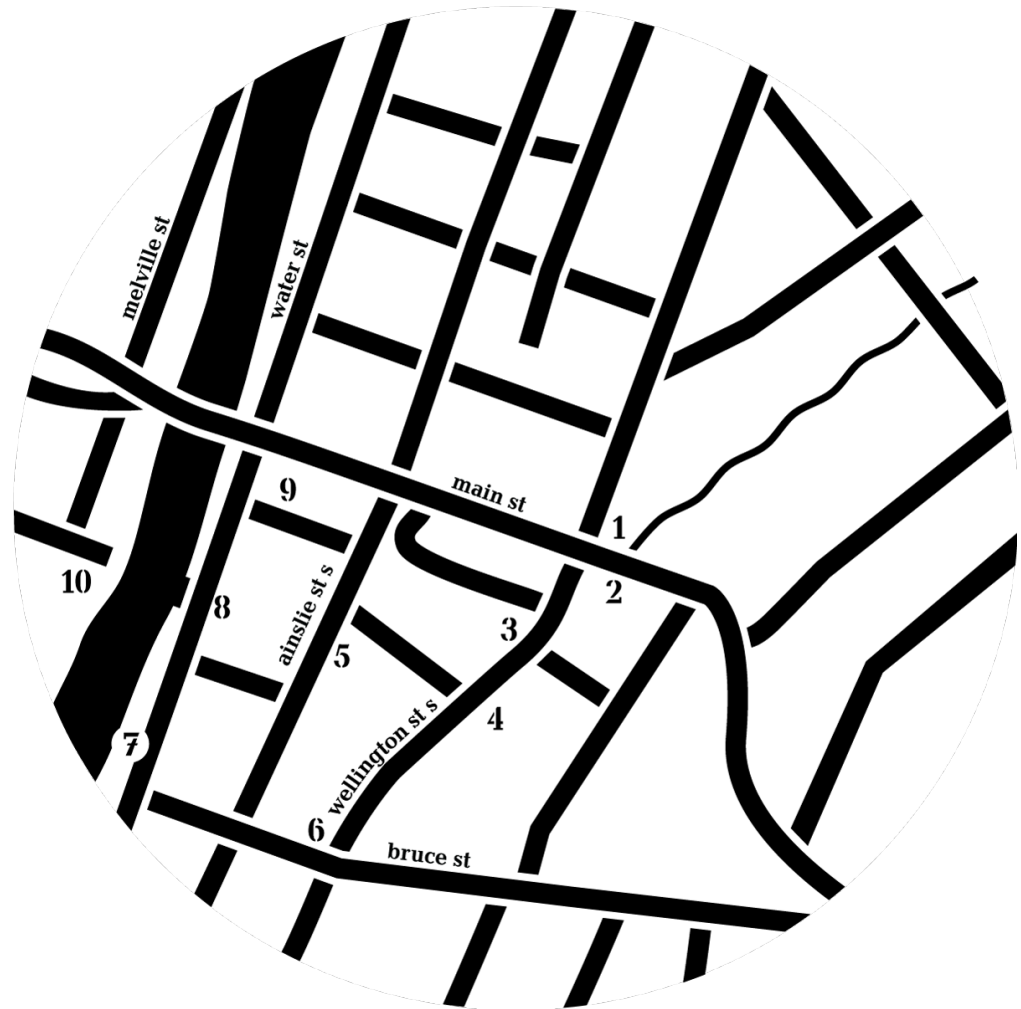
Figure 1.08 | Key Map

This map was located in the exhibition within the Design at Riverside Gallery. It shows all of the locations where there were markers of Mill Creek.

Sharing this narrative required historical maps of the development of Galt to examine how the creek had been altered through the changes in the city. The creek had been channeled, buried, moved, and lost. This project was a way to bring it back to life, or at least back into our memories once again. The exhibition portion of the installation featured a map that laid out locations around Galt where clues could be found. The other opportunity to come across this installation through happenstance is what was described at the beginning of the chapter. The clues were scattered around downtown Galt, so anyone who walked around in their everyday lives could have come across these moments of memory.

The Mill Creek Project offers a perspective into how place, memory, and narrative can intersect, as well as be shared. The beginning of the project began with a memory; someone knew there was something interesting or different about Mill Creek. They shared this memory with their colleagues and looked at ways to learn more about it in order to share a story. The act of sharing this story through old photographs, historical maps, and physical installations is something that adds to collective memory. The people involved in the project, and people who viewed the exhibition or walked the multiple installation locations, became a part of a group that remembers this creek. The way that they share their experiences of this project adds to a sense of place in

the city. Through remembering the creek itself, or remembering the excitement of finding clues hidden around downtown Galt, the memory of Mill Creek lives once again.

Figure 2.01 | Mercator Projection

The mercator projection was useful for seafaring because it showed where a ship would go if following the cardinal directions. However, this particular projection misrepresents the sizes of land closer to the polar regions.
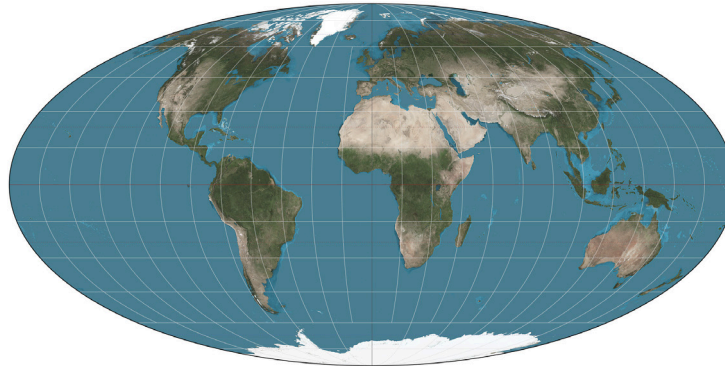
Figure 2.02 | Mollweide Projection

This projection shows continents closer to their actual size. Here we see Africa larger than North America which is not a view most people are used to seeing.
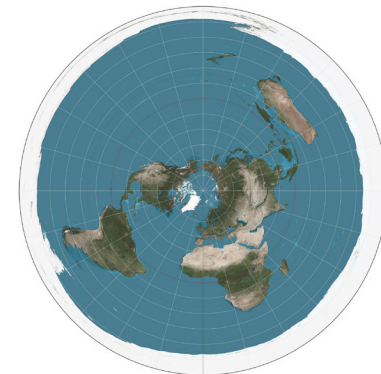
Figure 2.03 | Azimuthal Equidistant Projection

This projection shows the proximity of different countries within the arctic. The expansiveness of the Pacific Ocean is also easier to understand.

Chapter 2 | Mapping as Process

As outlined in the previous chapter, place, collective memory and narrative are inter-related. As described by Denis Cosgrove, these concepts also relate to mapping.[13] Cosgrove was a geography professor who focused on researching culture, landscape, and visual representation. In *Mappings*, Cosgrove gives a description of mapping that goes beyond the scientifically accurate map to include multiple ways to experience the world.

> "To map is in one way or another to take measure of a world, and more than merely take it, to figure the measure so taken in such a way that it may be communicated between people, places, or times. The measure of mapping is not restricted to the mathematical; it may equally be spiritual, political, or moral. By the same token, the mapping's record is not confined to the archival; it includes the remembered, the imagined, and the contemplated. The world figured through mapping may thus be material or immaterial, actual or desired, whole or in part, in various ways experienced, remembered, or projected."[14]

This description of mapping points out the range of information that a map may represent and how that relates to different purposes of the map. Different projections of a map show

13 Denis Cosgrove, "Introduction: Mapping Meaning," in *Mappings*, ed. Denis Cosgrove (London: Reaktion Books Ltd, 1999), 1-23.
14 Cosgrove, "Introduction," 1-2.

different biases. In Figures 2.01-2.03, the projection changes what is represented as being larger or smaller, what the centre or top of the map is, or what is connected or disconnected by the edges of the paper. These choices reveal the power structures surrounding the maps and the euro-centric view of the world in the history of cartography. Another aspect of mapping that is often ignored is the abstraction of reality within the process of making a map. Mapping inherently loses information. The information that is lost or kept also says a lot about the purpose or use of the map. These are issues that most people are not aware of. The prevalent use of maps for navigation in our world, namely with GPS systems or Google maps, skews the understanding of what maps can do.

The experiences of place, collective memory, and narrative are complex elements to represent in a map. However, Cosgrove's description of the process of mapping begins to hint at ways in which maps can reach further ambitions than simple navigation. Another text included in *Mappings* shows how maps can become part of the design process. In "The Agency of Mapping," James Corner examines ways that designers can get more out of the maps they use. When designers engage with the biases and assumptions inherent in maps, they can take control of how ideas or information are represented.
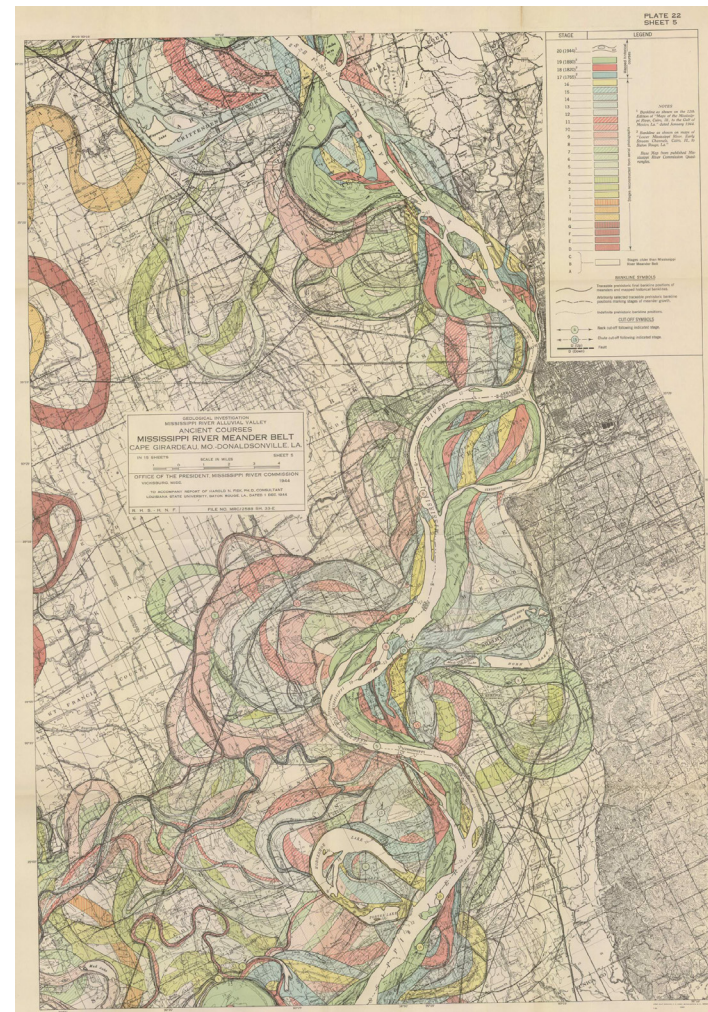
Figure 2.04 | Mississippi Meander Belt Plate 22 Sheet 5

This set of maps of the Mississippi meander belt that Fisk made in 1944 shows a map that had been made as accurately as possible for government use. However, it also shows the potential beauty of maps.

Figure 2.05 | Ribbon Map of the Father of the Waters

This is also a map of the Mississippi River. It unrolls the map as you would sail downstream over time, outlining important points along the way. The same river can be portrayed in many different ways depending on the focus of the map.

James Corner is a landscape architect who has researched and written on landscape architecture, urban design, and mapping. His thoughts on mapping align with Cosgrove's work discussed earlier. However, Corner's writing goes further in detailing how the act of mapping can be beneficial for designers, and how he imagines the process will work. By using typical surveys as the starting point of a design process, Corner points out that it is not an objective artifact. He emphasizes the importance of understanding the site through our own mappings, which can incorporate much more complex phenomena.

The benefits for designers in cultivating their own maps lies in the process of bringing together multiple layers of information. Opportunities on a site can be revealed through amalgamating information and layering different elements. Furthermore, areas of intersection can be used as a jumping off point for further design.[14] Corner goes into further detail about the act of tracing versus mapping as well as his techniques in the mapping process: Drift, Strata, Game-Board, and Rhizome.[15]

When Corner describes tracing versus mapping he calls on the writings of Deleuze and Guattari. Tracing is described as reproducing what is already known, whereas mapping constructs the unconscious and is fully engaged with the real world. Corner

15 James Corner, "The Agency of Mapping," in *Mappings*, ed. Denis Cosgrove (London: Reaktion Books Ltd, 1999), 213-252.

goes on to describe the duality of the map when it follows from an act of mapping, "The analogous-abstract character of the map surface means that it is doubly projective: it both captures the projected elements off the ground and projects back a variety of effects through use."[16] This describes a reciprocal relationship between the abstraction of information and ways of sharing it.

The technique that Corner calls Drift is described through examining the dérive of the Situationists. The dérive involved a practice of wandering the city that would encourage individual participation in everyday life. This practice intersects with the movement of the body and each person's experience of that movement. Corner also brings up the ways that Drift can disrupt top-down power structures and representations. This idea supports the multiplicity of collective memory and how it influences a sense of place.[17]

Looking further into the dérive, there was already a mapping process within this practice. Guy Debord was a member of the Situationists and wrote 'The Theory of the Dérive," outlining how drifting through the city is influenced not only by chance, but psychogeographical elements in the city. The purpose of the dérive is two-fold: to study a terrain in terms of its psychogeographical effects, and to disorient yourself in the city in order to experience

16 Corner, "The Agency of Mapping," 213-252.
17 Corner, "The Agency of Mapping," 215.

new places.[18] Through the practice of dérive, Debord and the Situationists found that different areas of the city encourage you to travel along certain paths. Another thing they noticed was that different neighbourhoods within the city encouraged entering and exiting from a particular spot. Subsequently, this means that there would be areas in the neighbourhood that discouraged moving between one area to another. Debord describes how they started accumulating this information by looking at maps in comparison to their experiences. They would compare road maps, aerial photographs, and their dérive experiences to build upon their psychogeography studies of the city.[19]

The aspect of layering maps and experiences as described by Debord is similar to the technique of Strata described by Corner. The way that layers of different information come together is the focus of this technique. When overlaid, layers can show intersections and overlaps that suggest potential design opportunities. Some of the advantages of this technique include eliminating hierarchies of information and allowing multiple interpretations of what is shown. This technique brings the information together in ways that bring a better understanding of the complexity of the site.[20]

18 Guy Debord, "Theory of the Dérive and Definitions," In *The People, Place, and Space Reader*, ed. Jen Jack Gieseking et al. (New York: Routledge, Taylor & Francis Group, 2014), 65-69.
19 Debord, "Theory of the Dérive and Definitions," 65-69.
20 Corner, "The Agency of Mapping," 231-233.
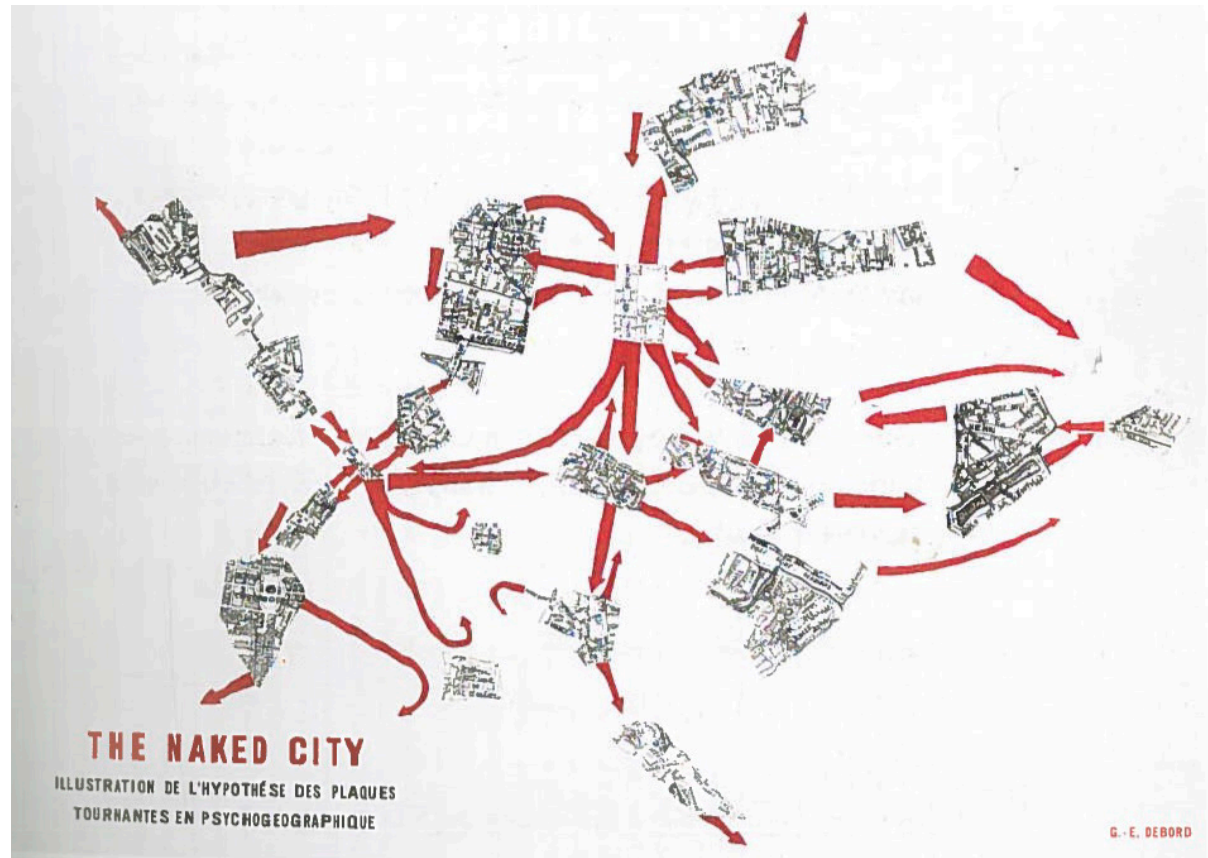
Figure 2.06 | The Naked City

This map visually represent how different areas have
specific entry and exit points, as described by Debord.

LEGEND

VALLEY FLOORS
LOCAL AND REGIONAL PARKS
NO FURTHER DEVELOPMENT

UNFORESTED VALLEY WALLS
NO FURTHER DEVELOPMENT

FORESTED VALLEY WALLS
1 DU / 3 ACRES

FORESTED PLATEAU
1 DU / ACRE

UNFORESTED PLATEAU
2 OR MORE DU / ACRE

HAMLET LOCATION

VILLAGE CENTER

COUNTRY TOWN CENTER

EXISTING INSTITUTIONAL USE

CURRENTLY ZONED INDUSTRIAL

LAKES

PROMONTORY HIGH RISE
LOCATION

OPTIMUM LAND USE

Figure 2.07 | Optimum Land Use

This map portrays 'The Valleys' area north of Baltimore. McHarg has overlaid different types of landscapes and vegetation areas along with existing uses and water sources in the region. Through the combination of many elements, the layering process has revealed potential areas of development. There have been marked with hamlet location, village centre, and country town centre markers.

28

Some of the processes that Corner suggests for mapping have similarities to, and may have been inspired by, the work of Ian McHarg. In *Design With Nature*, McHarg combines personal experiences of a place, topographical information, and potential land uses in order to plan the best ways to use particular sites. Ian McHarg was trained as a landscape architect and town planner, but throughout his career he went looking further into the relationship between humans and nature.

Design With Nature looks at multiple aspects of our relationship with nature. Some of the layers McHarg brings to the maps are personal experiences and memories of place. Other layers McHarg shares relates to our relationship with nature through ecological processes happening around us, and the results of our actions on the same processes.[21] Finally, he takes lessons learned from both of those views and makes regional plans inspired by them.

Figure 2.07 shows the map Optimum Land Use which was a part of Wallace-McHarg Associates' *Plan for the Valleys*. This is a document that prepared regional planning for an area called the Valleys north-west of Baltimore. The aim of this project was to find better ways to develop land while protecting ecologically sensitive areas. McHarg combined many different concerns and layered them together which resulted in finding the best areas

21 Lewis Mumford, Introduction to *Design With Nature*, by Ian McHarg (Garden City, N.Y.: Natural History Press, 1969), vi-viii.

for different levels and densities of development. The layers that McHarg included were: different types of geographical areas and their suitability to development, the aesthetic value of different vegetation types and areas within the valleys, sensitive aquifers and flood plain areas, connections to existing transportation infrastructure, and geological information.[22] This way of looking at a site is sensitive to how people experience a place, as well as how people might want to enjoy and live in a place.

The design processes that Corner and McHarg describe can greatly improve a designer's understanding of the site. These strategies produce rigorous explanations of design decisions, but they do not inherently lead to sharing a sense of place. Can we go beyond data analysis and accurate forms of information that are typical to mapping? Are layering and abstraction enough to begin to share a sense of place? Bordeleau and Bresler propose how mapping might become more expressive of place in "Drawing the Map: Siting Architecture."

While examining both mapping and drawing, Bordeleau and Bresler draw out problems of representation and temporality for both activities in architecture. Drawing is considered fragmentary. It is evocative of narrative and places itself within a layering of time. Alternatively, mapping is concerned with distancing itself

22 Ian McHarg, "A Response to Values," In Design With Nature (Garden City, N.Y.: Natural History Press, 1969), 78-93.

from time. Mapping uses details in order to get an overall view of the site while overlapping layers of information to reveal potential.[23]

These issues are related to time and how we address it through different modes or processes of drawing and mapping. Three ways that architecture can address time relate to the past, present and future. One way is to document or record existing conditions. This may include multiple histories and conflicting narratives on the same site. Another way to address time is through the act of documentation. The interpretation of site brings temporal depth to the content of the site. The third way involves projecting possibilities and multiple perceptions of the site. These are all elements that may be part of the same process. Bordeleau and Bresler discuss ways that these apply to both drawing and mapping.[24]

Mapping, if removed from scientific accuracy, can be transformed in the designer's hands to represent multiple temporalities and perspectives. The act of mapping brings together records or documents of the site. When these are combined with the architect's own documentation of the site: events of the past, embedded memories, and temporal conditions all come together. New possibilities and narratives may emerge through the process

23 Anne Bordeleau and Liana Bresler, "Drawing The Map: Siting Architecture," in *Footprint* 4 (2014), 45-47.
24 Bordeleau and Bresler, "Drawing the Map," 48-54.

and can be read through many perspectives. Sharing these ideas about a site is similar to sharing narratives and memory about place.

Narrative is an effective way to remember and share memories of a place. Mapping can become a tool to share narrative in its context of place and memory. Denis Wood experiments with how maps can describe complex narratives and poetics of place in his book *Everything Sings: Maps for a Narrative Atlas*. Although Wood was formally trained as a geographer, his instincts led him to work with maps in a way that contradicted typical practices of mapping. He was trained to make maps for navigating, demarcating land ownership and mapping for military purposes. Wood points out that even when maps seem to be objective, "We begin to see that [maps] are servants of this way of thinking as opposed to that, they're involved in story-telling, they're not compendia of facts."[25] This aspect of telling a story with a map is important in sharing memory and sharing a sense of place. This idea is expressed clearly when Wood suggests, "What if map-making were an expressive art, a way of coming to terms with place, with the experience of place, with the love of place?"[26]

Are there ways to use mapping as Wood suggests? Can maps help people experience and love a place? These questions are

25 Denis Wood, *Everything Sings: Maps for a Narrative Atlas* (Los Angeles: Siglio, 2010), 10.
26 Wood, *Everything Sings,* 14.

important when considering new people moving to cities. The same questions give the opportunity to help existing residents regain their connection to place. Mapping in its traditional sense does not achieve this. If someone can look up directions it does not mean they are able to understand the complexities and feelings of that place. This is one of the reasons I have outlined multiple ideas about maps. The act or process of mapping holds many opportunities to learn about and share a sense of place.

The ideas surrounding layering or strata, drift or dérive, and drawing and mapping time are all methods that filtered through to the maps I made. Combining multiple narratives, memories, and layers of time in a map creates a way to access a nuanced understanding of place. My experiences in Calgary stemmed from both my daily routine and through exploration, similar to the dérive. Aspects of drawing have been infused into the maps I had made by considering layering time or collapsing it. Narrative and passion about a place has influenced which stories I tell. All of these different ideas about the capabilities of mapping have influenced my methods and processes in mapping Calgary, while helping me to reflect on ideas about place, memory, and narrative.

Figure 3.01 | Calgary, Alberta

Chapter 3 | Mapping Calgary

Calgary is typically seen as a city that lacks a sense of place and distinct culture. This is partially due to the youth of the city, even by Canadian standards. Fort Calgary was established in 1875, Calgary became a town in 1884, and was subsequently incorporated as a city in 1894. In comparison, cities like Montreal, Toronto, and Winnipeg were settled as early as 1642, 1750, and 1738 respectively. Much of the growth that led to Calgary being established was influenced by the Canadian Pacific Railway, which reached the town in 1883. This is similar to many cities and towns in the western provinces of Canada.

Another aspect of the city that makes it difficult to reach a sense of place is in part due to its tie to the oil and gas industry. The nature of the boom and bust cycles of the industry led to many people moving in and out of the city all the time. I still remember people being surprised when they met someone who was actually born and raised in Calgary. Without a longer time to experience and get to know the city, any conceptions of place may be too closely tied to the 'official history' that the city boasts of oil and gas and cowboys and prairies. Not to say that those elements don't have a presence in Calgary, but they certainly are not representative of the depth of place in the city.

There are many further ways to engage with multiple narratives and memory within Calgary, and I am lucky to hold some of these through my own experiences of growing up in the city, as well as moving away and returning multiple times. My own understanding of the city has evolved since I left the first time; the moment of returning changed my perspectives partially by getting to know other cities. I was also provided new opportunities to learn about Calgary by living in different neighbourhoods, expanding my social groups through new interests, and developing relationships within architecture that led to understanding more about systems at work that transform the city.

As mentioned previously, there is a lot more to Calgary than oil and cowboys. The aim to describe what is special about Calgary is not just a personal plea. In the past year and a half while Calgary has been coping with another oil bust, there has been a lot of media coverage surrounding Calgary's past, present and future. There are questions surrounding where its economy might grow, and how that is related to Calgary's different strengths and weaknesses. 'Calgary at a Crossroads'[27] is a series of articles on the CBC website examining these issues. There are multiple articles by different authors and journalists exploring everything from Calgary's identity, historical precedents on issues the city is facing now, the role of arts and culture in the city, and place.

27 "Calgary at a Crossroads," accessed May 10, 2016, http://www.cbc.ca/news/canada/Calgary/crossroads

The following maps experiment with ways to describe Calgary's sense of place. The themes of the maps themselves are largely inspired by personal experience, but are also guided by research into historical maps, histories of the city, and multiple conversations with fellow colleagues, friends, and family members who know the city. Each map tells a narrative at a different scale, trying to span the divides between the voyeur and the walker, and between drawing and mapping. The maps are artifacts of a process I have gone through to learn more about place, along with experimentation in representation and materials. This artifact of the process is an abstract work that calls forth imagination and curiosity allowing multiple readings of the work, as well as a hope that it leads to the observer wanting more.

On the following spread, Figures 3.03-3.06 show the varying scales of the maps and how they begin to zoom in to the details of the city over the series. The following sections examine each map individually and how through various personal experiences, collection of data, and compilations of layers, the maps evolved into their final rendition as a physical artifact.

Figure 3.02 | Calgary Location Map

This map shows Calgary's location within the province of Alberta.
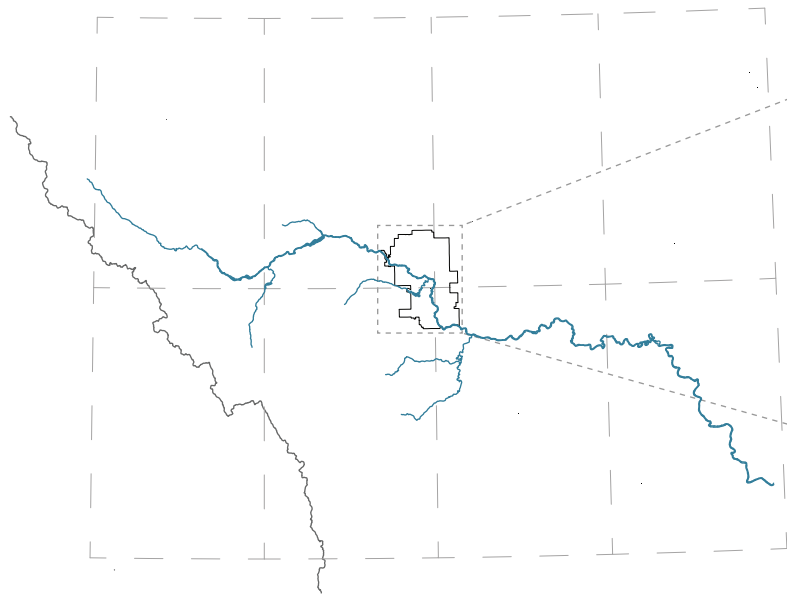
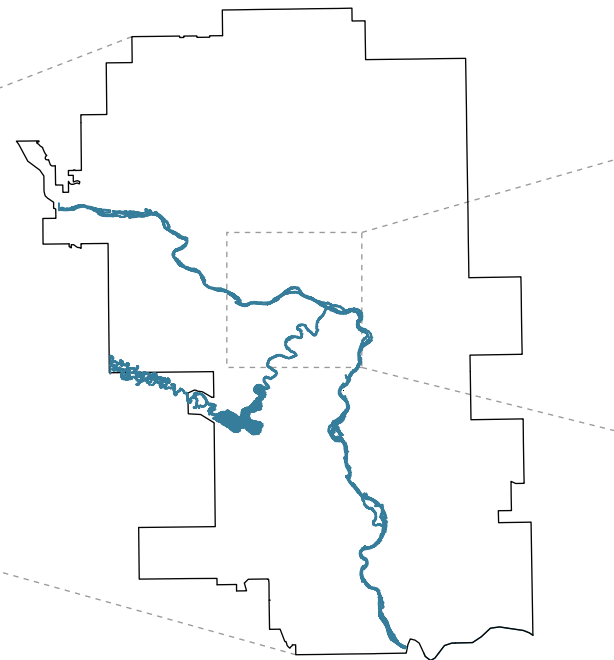Figure 3.03 | Regional Relationships Map Boundary

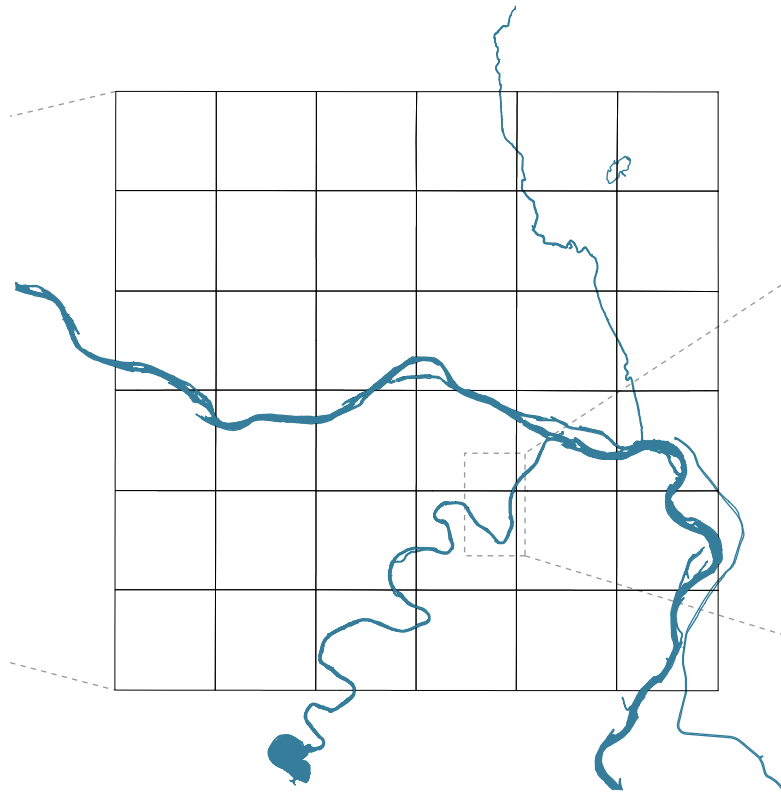Figure 3.04 | Historical Flooding Map Boundary

Figure 3.05 | The Grid and Topography Map Boundary

Figure 3.06 | Calgary Exhibition and Stampede Map Boundary

Figure 3.07 | The Prairies

This photo shows the gently sloping landscape of the prairies. The shape
of the land itself along with objects on it is what forms the view.

Regional Relationships

Throughout my childhood and adolescence I had a type of regional migration throughout Southern Alberta. At its basis, the school year was spent in Calgary, and the month of July was spent in Medicine Hat, a small city where I was born. At smaller intervals, weekend trips or day trips were taken throughout the province. There would be a yearly school trip to the badlands of Alberta to see the dinosaurs at the Royal Tyrell Museum. Every January we would venture deep into the Rocky Mountains to go to Lake Louise, see the ice sculpture competition, and go skating on the lake. Then there would be the day trips of hiking in the fall to see the golden yellow larch trees in Kananaskis country.

Driving the same roads through the same landscapes might seem boring, but there was always a fascination in the details for me. Driving for hours through the prairies reveals farmhouses, silos, gas wells, rolling hills and valleys, coulees, radio towers, and that familiar curve of the Trans Canada highway in that place, and this place. Driving towards the mountains is an exciting trip that honours both the journey and the destination. There is an anticipation of finally getting to those mountains you can see in your everyday life. The motion of going over larger and larger hills until you aren't sure what is a hill and what is a mountain

Figure 3.08 | Mountain View from West Side of Calgary on Highway 8

Figure 3.09 | Mountain View around Morley on Highway 1

anymore. Alternating between views of forests and views of farms and prairies and mountains until stone and coniferous trees and snow caps engulf you. Once you have reached the mountains the journey is still exciting, there are mountain streams and waterfalls and endless variations of snow meeting rock meeting trees meeting water.

Living in Calgary does not typically involve staying in the city at all times, because there are so many beautiful places to go and activities to do. Calgary is within such a close proximity to multiple provincial and national parks that have everything from camping, hiking, canoeing, kayaking, skiing, snowboarding, and a large list of other sports and recreational activities that are not included here.

The draw of the mountains is especially clear in Calgary. Even if you are not lucky enough to live in a home with a view of the mountains to the west, there are so many great vistas in the city when you are moving through the city, from downtown office buildings, and from parks within the city. Calgary is located at a major transition point in the landscape, where five different geographical regions come together as shown through Figure 3.12. It is in the perfect spot to see the mountains in the distance, where they keep themselves on your mind, but the city can also

Figure 3.10 | Mountain View in the Bow River Valley on Highway 1.
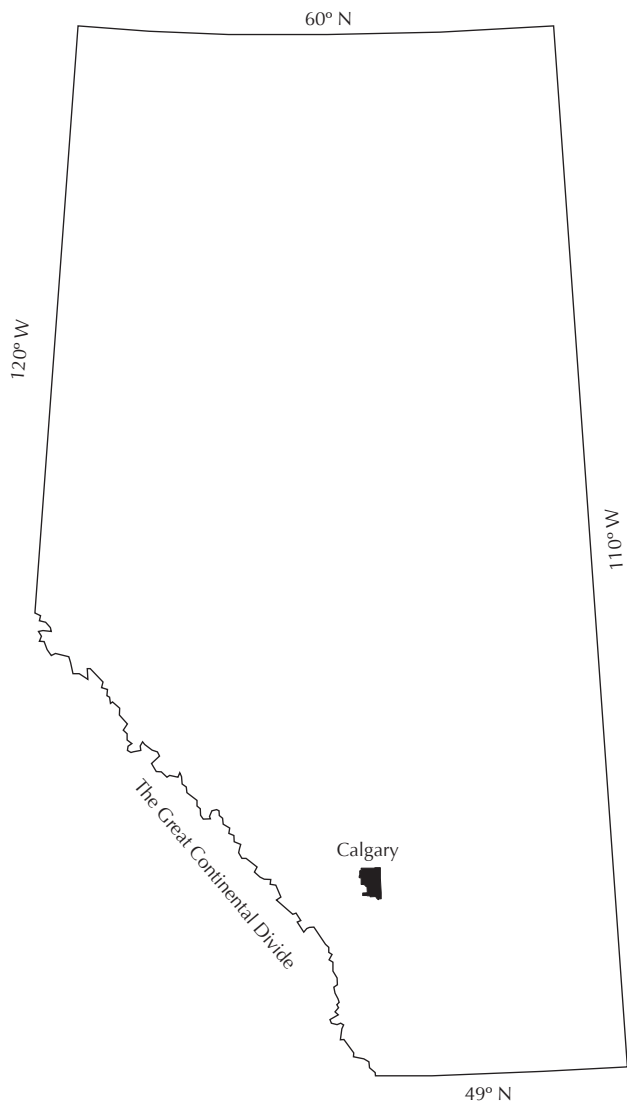
Figure 3.11 | Alberta Boundaries

The legal boundaries of Alberta were determined in 1905 by longitude markers and the Great Continental Divide. The boundaries are a combination of invisible markers of land and physical features of the landscape.

Figure 3.12 | Geographical Regions of Alberta

This map overlays satellite imagery with the geographical regions of Alberta. Calgary is located at a transition point in the landscape, between the grasslands, parklands, foothills and alpine regions.

Dry Island Buffalo Jump
Provincial Park

Banff National Park

Glenbow Ranch
Provincial Park

Calgary

Bow Valley
Provincial Park

Peter Lougheed
Provincial Park

Bluerock Wildland
Provincial Park

Kootenay National Park

Height of the Rockies
Provincial Park

Elk Lakes
Provincial Park

The Great Continental Divide
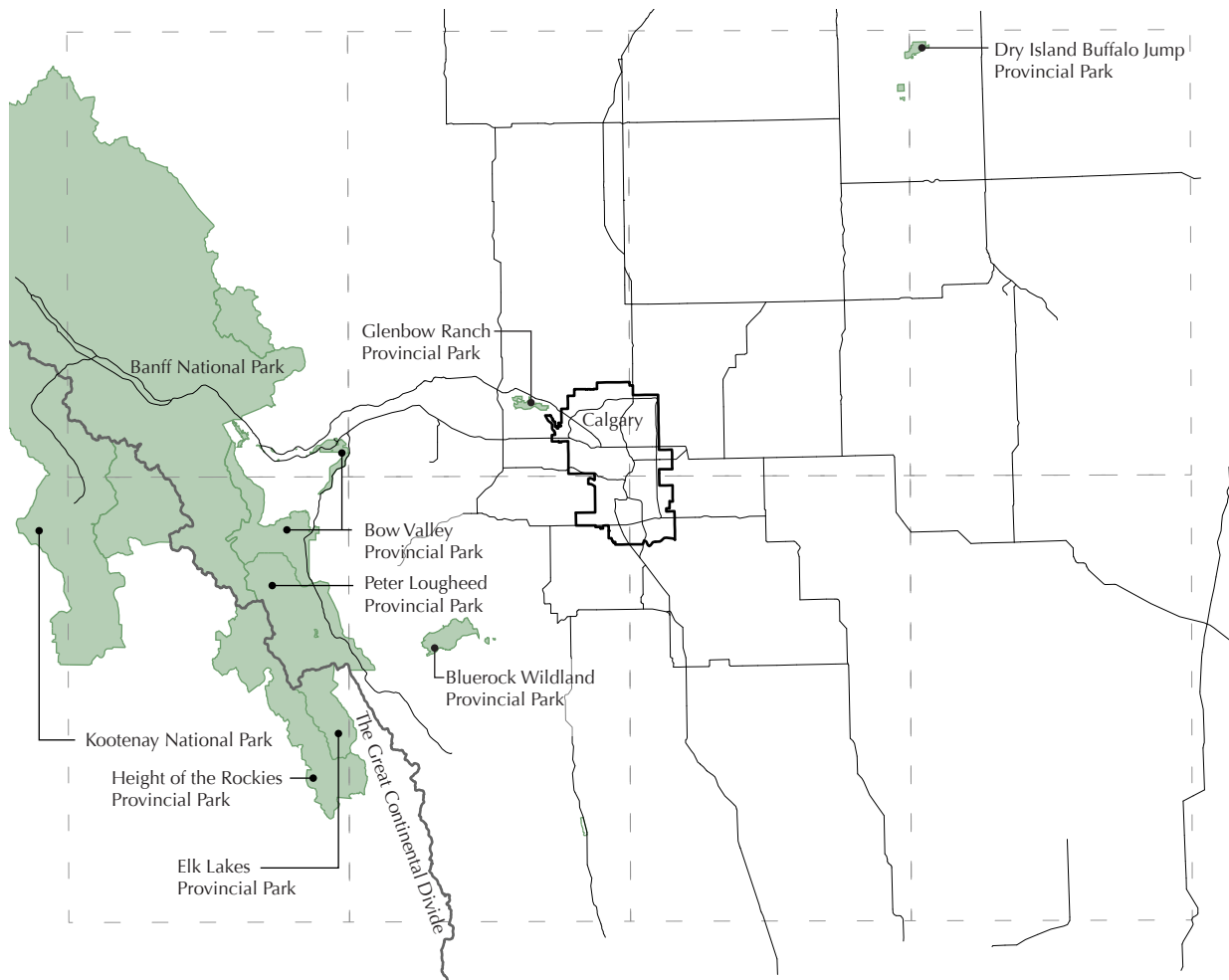
Figure 3.13 | National and Provincial Parks

Calgary is located within close proximity to multiple national and provincial parks.
The highway system allows for anyone with a car to go on a day long or week long
adventure within the prairies, foothills, or mountains.

52° N

116° W   115° W   114° W   113° W   112° W

Calgary

51° N

The Great Continental Divide

50° N
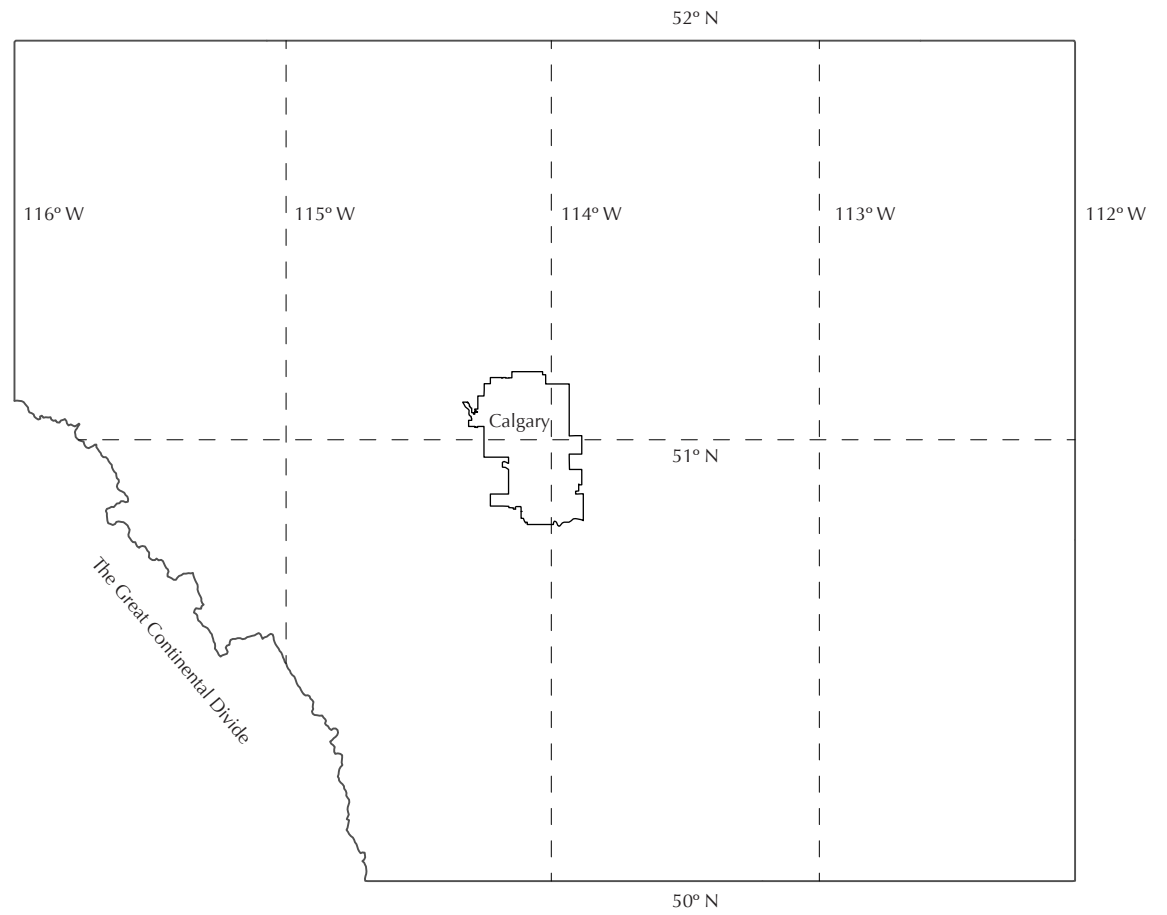
Figure 3.14 | Regional Relationships Map Boundaries

The boundaries of the physical map I made follow both longitude and latitude lines as well as the great continental divide similar to the boundaries of Alberta itself.

take advantage of the sunshine of the grasslands, the forests and meadows of the parkland and foothills, and the Chinook winds that blow over the mountain and carry warmth to the city in the depths of winter. Figure 3.13 shows the proximity of the various provincial and national parks and the roads to get there.

The Regional map aims to show this complex relationship between the city, its region, and the psyche of its people. The boundaries of the map follow the Great Continental Divide which is the border between Alberta and British Columbia, and the latitude and longitude areas surrounding Calgary as shown in Figure 3.14.

Another aspect of this map relates to thoughts I have had in relationship to an indigenous understanding of the landscape. I cannot speak on the behalf of the existing First Nations in Alberta. However, I have researched the lifestyles of their ancestors before European settlement. The yearly nomadic patterns of the indigenous peoples who lived in this region intersects with how people use the larger region surrounding Calgary now.

Figure 3.15 shows the extents of the various First Nations that lived in the area surrounding Calgary before European settlement. The Blackfoot, The Stoney Nakoda, and the Tsuu T'ina all had different cultures and lifestyles, with varying levels of migration,

but they all had a relationship to the specific land they lived on, and the bison herds.

The Blackfoot peoples were the most nomadic, following the bison herds from place to place. Each year they might take a different route, stopping in known and sometimes sacred places. The place names they gave to many areas around Calgary related to attributes of the landscape as well as the Old Man, or Napi. The best example, and one which is used everyday in Calgary, is the names of the city's two rivers. The Bow River is given its name for two reasons; the trees along this river were useful for making bows, and the shape of the river itself in the landscape could be seen as a bow that Napi holds. The Elbow river also relates to Napi, and it is his elbow that comes to meet the Bow river at their confluence.[28]

Another aspect of the region prior to European settlement were the regional ties spanning from North to South. The Old North Trail was a trading route that followed the edge of the Rocky Mountains, which may have extended from Alaska to South America.[29] In Figure 3.16, a potential route of the Old North Trail is shown. This route may have formed the basis of the Macleod Trail, which was important for regional trade and movement for both First Nations people and European settlers.

28 The Glenbow Museum, Blackfoot Gallery Committee, *The Story of the Blackfoot People* (Richmond Hill: Firefly Books, 2013).
29 Lindsay Amundsen Meyer, "Nested Landscapes: Ecological and Spiritual Use of Plains Landscape During The Late Prehistoric Period," (PhD diss.; University of Calgary, 2014), 156-165.
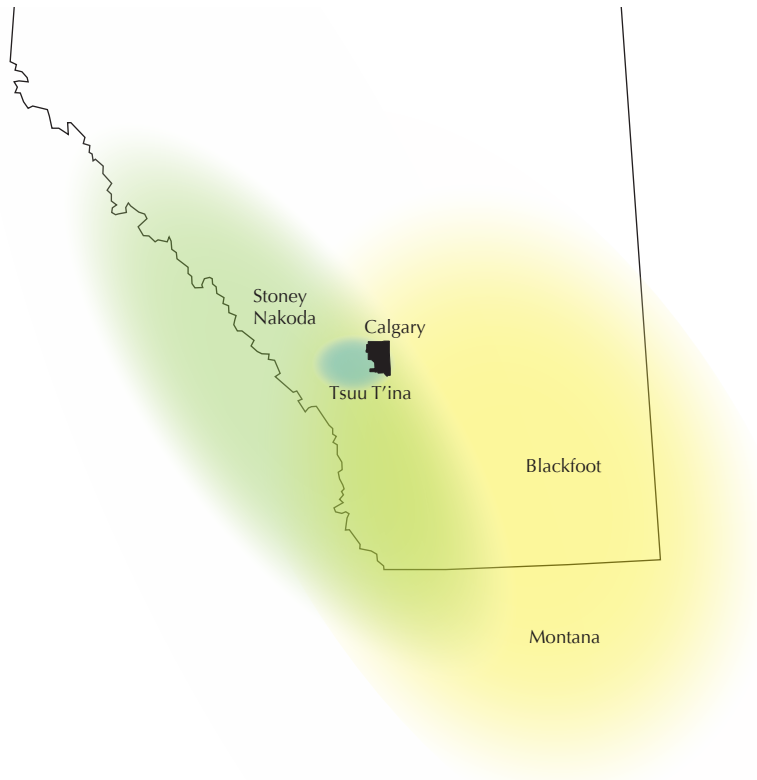
Figure 3.15 | First Nations Traditional Territories

Southern Alberta had three different First Nations groups living there before European Settlement: the Stoney Nakoda, the Tsuu T'ina and the Blackfoot.

Figure 3.16 | The Old North Trail and the Canadian Pacific Railway

Before European settlement, Calgary had north-south regional ties. The Old North trail was a pre-historic trail in use up until European settlement, and may have been the basis for some historic trails in Alberta. The Canadian Pacific Railway reached Calgary in 1883, catalyzing development in the city.

Bow River
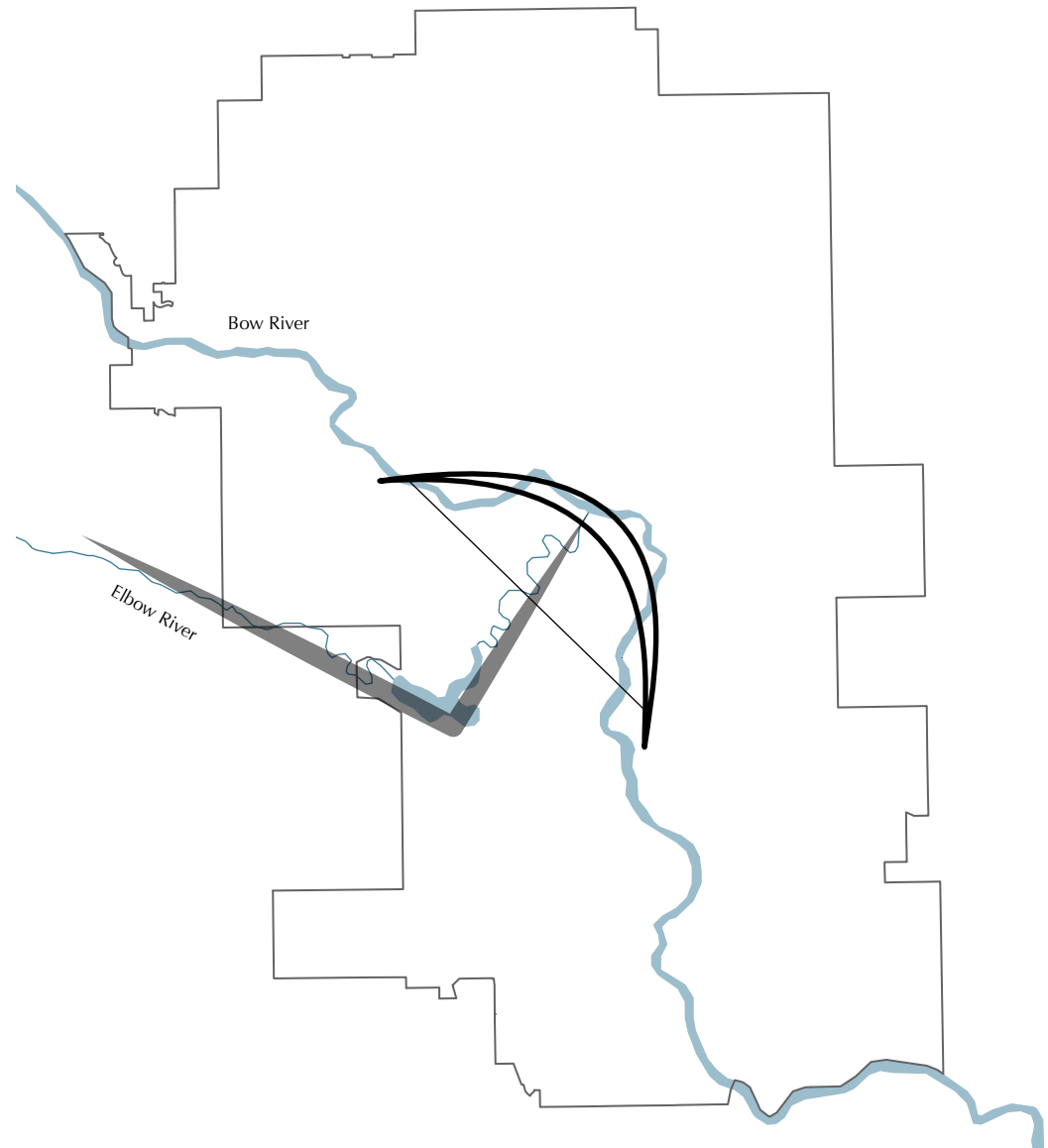
Elbow River

Figure 3.17 | Bow and Elbow River Place Names

The Bow and Elbow Rivers are named based on
the translation of indigenous place names. These
two in particular relate to the body of the Old Man,
otherwise known as Napi.
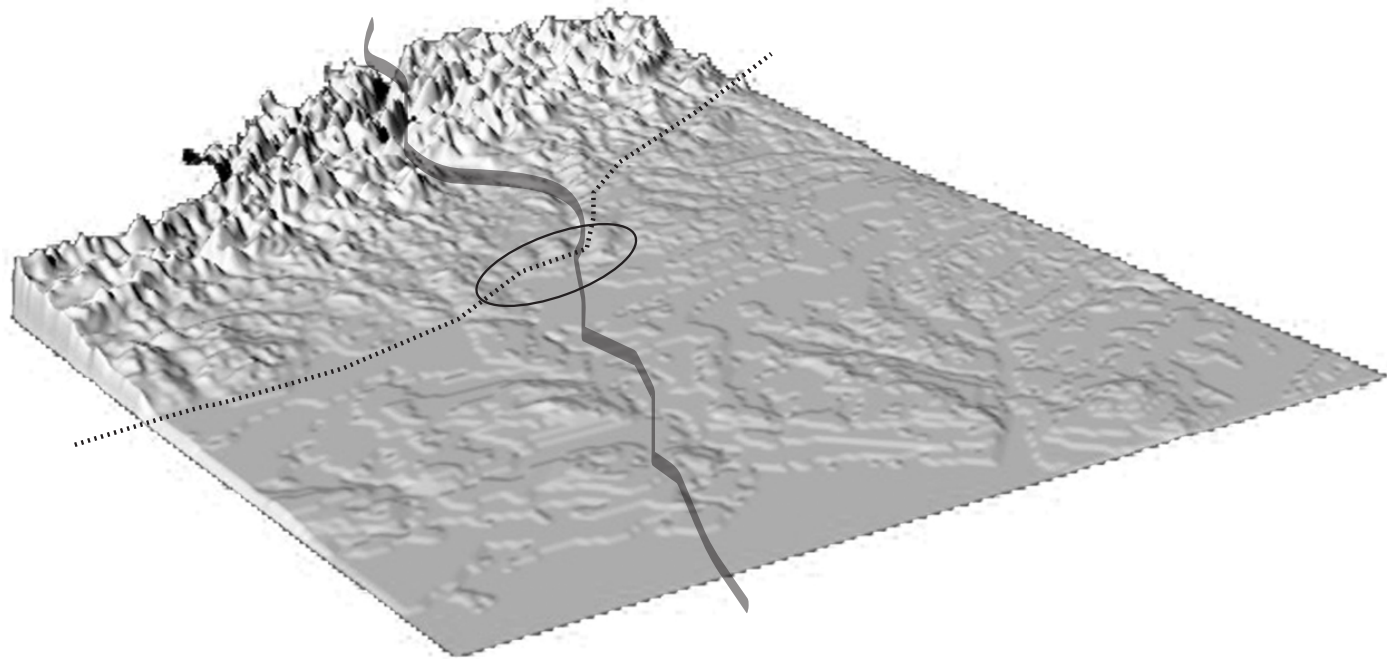
Figure 3.18 | Regional Relationships Map Concept

The prairies slowly rise towards the foothills and then mountains appear. Calgary sits at a transition in the landscape, as well as a crossroads between new and old regional ties: north-south for the Old North Trail, and east west for the Canadian Pacific Railway.

When the railway came, it created east-west connections within Canada. This led to a large flux of immigration from Eastern Canada and other countries to settle the west. The Railway reached Calgary in 1883 and was a catalyst for its growth and development. Calgary was also a stopping point along the railway to get to Banff National Park, which was heavily advertised by the Canadian Pacific Railway to induce tourism. While the railway increased the connections between East and West, Calgary was still connected by trails to multiple towns in Southern and Central Alberta.

Calgary is a place connected to its surroundings. The rivers that meet in Calgary extend from the mountains to the prairies. The mountains are visible in many places in the city calling you to visit them. Calgary was a stopping point within a migration around the larger region before European settlement. The rivers in Calgary are part of a larger story relating to Napi. Calgary was an important place to trade livestock for the ranchers who lived in surrounding areas. Cars and highways allowed people to visit natural areas outside the city every weekend. Throughout many different eras of the city, the larger region played a part in why Calgary was important, and why it was located at the confluence of the Bow and Elbow rivers.

Figure 3.19 | View of overland flooding at 24th Ave and 1st St SW   Figure 3.20 | View of the flooded Elbow River Valley, overlooking Riverdale Park

Historical Flooding

A hot and sunny afternoon in 2013 turned into the stressful beginning of a grueling week with one text message. A friend of mine told me that our neighbourhood was being evacuated in anticipation of flooding. Within twenty minutes, I told my coworkers about the situation, got permission from my manager to leave, and started running home, literally running. The information that the media provided gave the impression that people had to evacuate by 4:00PM and would not be permitted into the neighbourhood after that time. I left work at 3:40PM, and usually the walk would take thirty minutes.

After lengthy discussions between my friend who lived a block away, and my boyfriend and I, we all decided to stay the night at our apartments. We only did this after checking the 1:100 flood maps that the city was circulating online to let people know if they might be at risk of flooding. Luckily, our buildings were dry throughout the flood, but we woke up the next morning to no power.

The flood hit our neighbourhood hard, some streets had a foot or two of standing water, and some streets became a part of the Elbow River. The grocery store and some houses were saved by a

Bow River

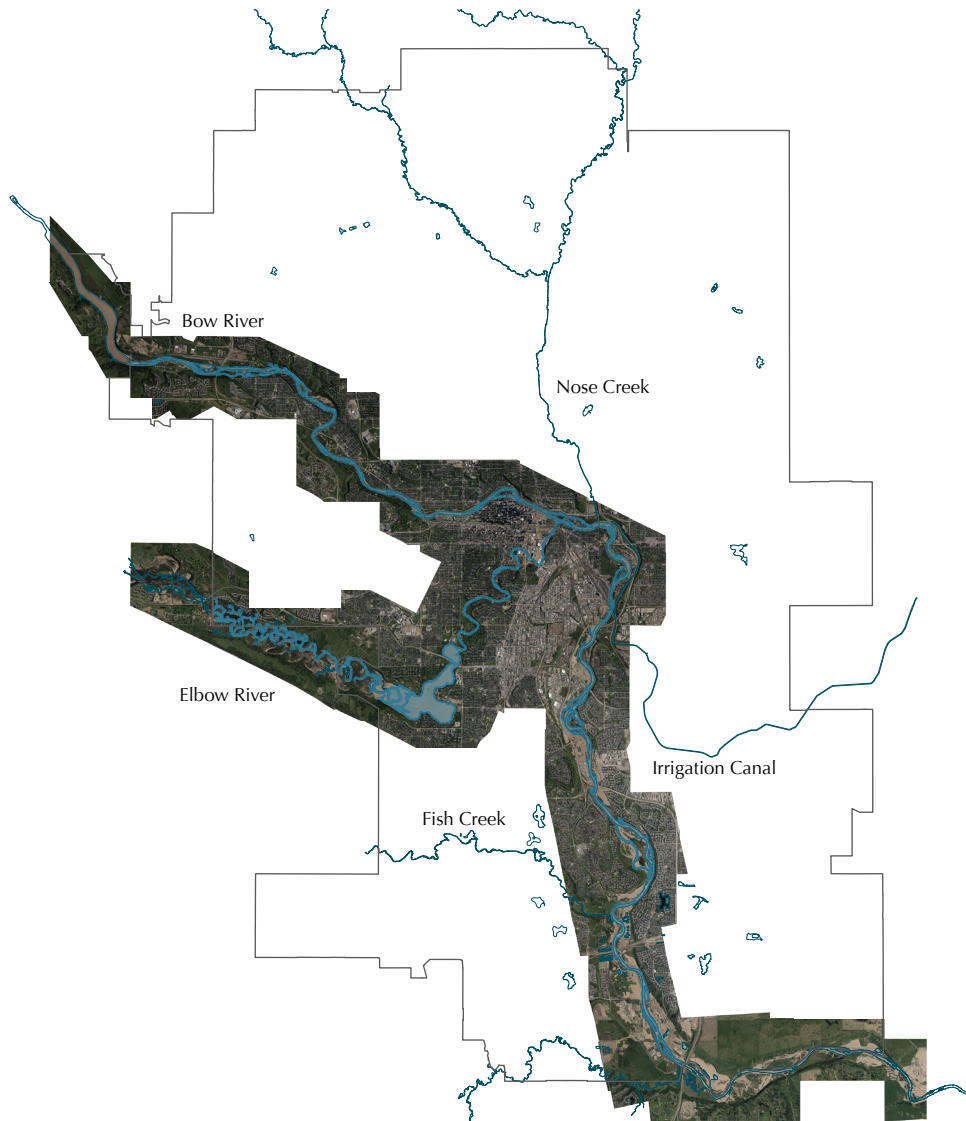Nose Creek

Elbow River

Irrigation Canal

Fish Creek

Figure 3.21 | Flood Orthophoto of 2013

The typical route of the water systems in Calgary
have been overlaid on top of the orthophotos taken
during the flood of 2013.

berm that was built in time, but so many other houses, apartment buildings, and condominiums took on water that affected not only the building materials it touched but also the electrical and mechanical systems.

This was a similar outcome to any neighbourhood along the Bow and Elbow Rivers. The day we left our apartment, we walked through the rain to see the damage that was being done to our city. We walked up the tall hills above the Elbow River Valley to see the neighbourhoods full of water, the bridges in peril, the parks no longer there. It was surreal to just see water at the bottom of the valley; it was hard to gain our bearings.

The nights and days that followed were spent checking on our apartment from time to time and staying glued to news coverage of the flood on television and on twitter. Finally, when the waters receded, we spent our time helping our friends remove the muck, destroyed possessions, and other damaged materials from their homes. Unable to return to work for a whole week, we helped where we could, and became engulfed in the surreal nature of the situation; the sadness, the shock, and the bittersweet but joyous fact that the whole city came together to help each other.
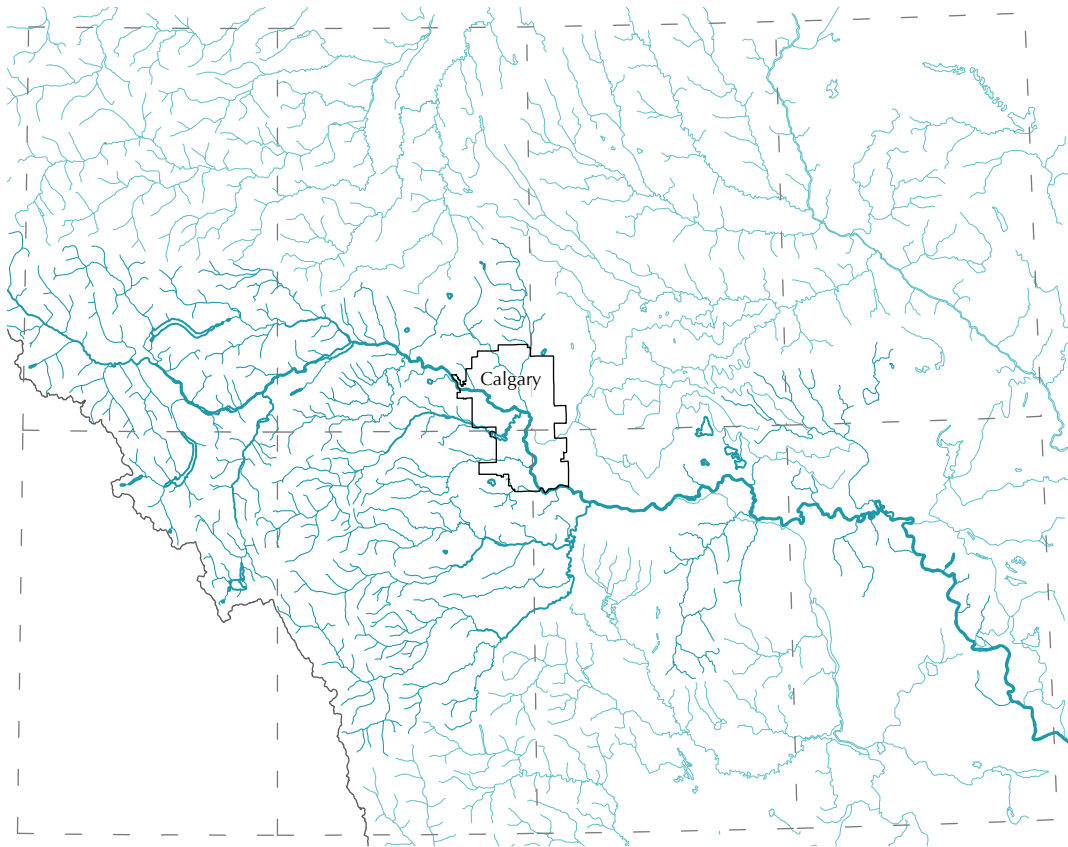
Figure 3.22 | Topography and Hydrology

The location of Calgary is in an important location between the topography and hydrology, or water systems. The head waters of the rivers flowing through Calgary begin in the mountains.

In the aftermath of the flood, certain things returned to normal quicker than others. Many people got to return to work and many people got to return to their homes once the power was turned on to each section of each neighbourhood once buildings had been inspected. But for many others the trauma of the flood would last for months while their homes were repaired or declared uninhabitable. One of the most surreal parts of the whole experience was going to the Stampede, a place that had also been entirely flooded. Ten days after the flood it seemed as though nothing had happened, except you knew it had because of the mixture of joy in being able to say you got through it, and heartache in what people had lost.

The flood of 2013 has become a collective memory; there is a certain feeling that comes up when people who lived through it mention it. The closest experience some people had was dealing with a much less severe flood in 2005 on the Elbow River. However, Calgary is not a stranger to flooding, it is just that the memory of it had been lost; there had not been any major floods before 2005 since 1932. Before that, there were many difficult floods, especially in the early years of Calgary.
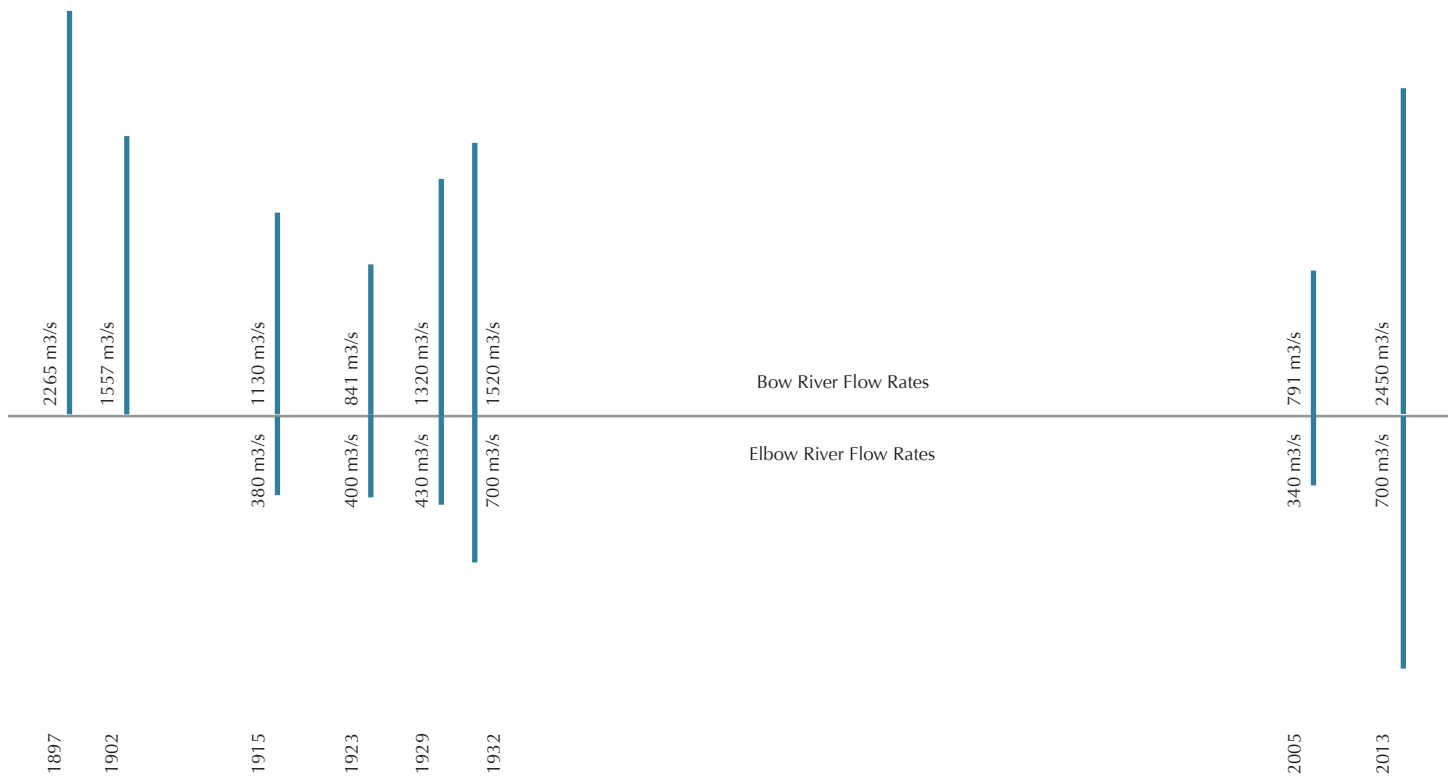
Figure 3.23 | River Flow Rates During Major Flood Years

There were multiple major floods late in the nineteenth and twentieth centuries. There was a very long gap between major floods, which increased risk to residents of Calgary.

The Historical Flooding map shows all of the major floods of Calgary that have been documented. Since 2013, a website has been developed through the Calgary Public Library to share stories of the floods; ones in the past, and ones that people have seen in their lifetimes.[30]

The Bow River Watershed is an important one within Southern Alberta, collecting all of the water, snow melt, and glacier run-off from the mountains and foothills. Figure 3.22 highlights the creeks, streams, and rivers that flow into the Bow River to reach Calgary. There are specific weather patterns necessary to produce a substantial flood in Calgary, which stems from its relationship to the Bow River watershed and the mountains. Similar to the events leading up to the flood of 2013, there will be large snow-packs on the mountains from heavy precipitation in the winter. The snow-pack may melt incredibly quickly, leaving the ground in the mountains and foothills over-saturated. The water that cannot be held will run down and down and down until it reaches the Elbow and Bow Rivers. Some extent of this process happens every year, leading to higher water levels in the rivers in Calgary, but when it happens in rapid succession, along with heavy rain in the foothills and mountains, the probability of major flooding increases dramatically.

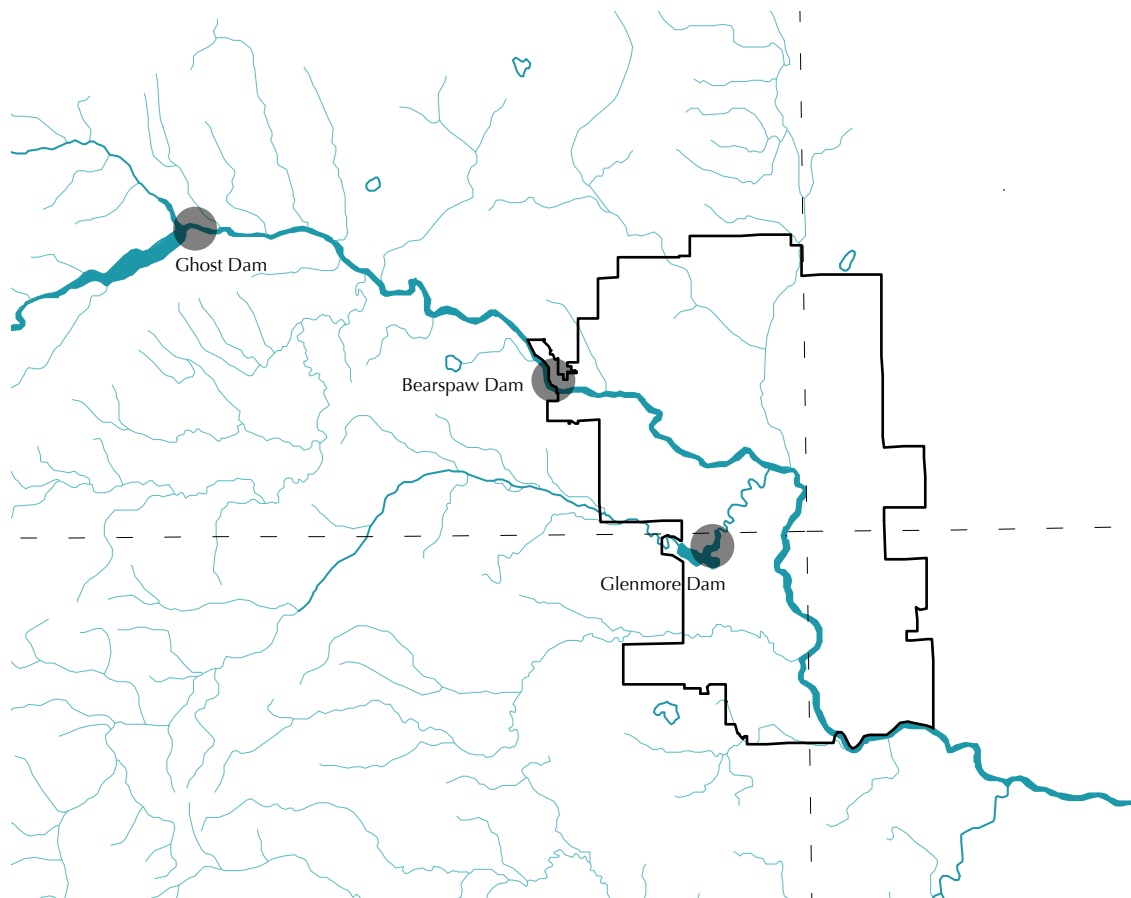30 "Flood Story," accessed March 30, 2016 http://floodstory.com/.

Figure 3.24 | Flood Mitigation Infrastructure

Most of the dams along the Bow River Watershed are geared towards electricity generation and do not have capacity for water flow mitigation. There are three dams that have reservoirs that can allow for certain levels of flood mitigation, although this is not their primary purpose. The Ghost Dam was created at Ghost Lake in 1929. The Bearspaw Dam was built in 1954. The Glenmore Dam and Reservoir were built in 1932 to keep a steady drinking water supply for the City of Calgary. However, the level of reservoir is changed based on flood risks, but only to the extent it does not severely impact water quality.

Between 1932 and 2005, these conditions didn't arise in the extreme circumstances necessary to create a damaging flood. This was mostly due to weather patterns during those years, but also may have had an impact from some of the larger infrastructure projects within the Bow River watershed.[31] Figure 3.23 outlines the time line of major floods and their flow rates in Calgary. Although infrastructure projects have helped to mitigate floods in the past, this is not their main purpose. The Glenmore Dam and Reservoir is to upkeep drinking water supply for the City of Calgary. The other dams and infrastructure projects can be seen in Figure 3.24, and their locations within the watershed.[31] Once again, although there are measures that can be taken with the help of these dams, they cannot wholly prevent floods. With ever-increasing extreme weather events due to climate change, the chances of major floods in Calgary will continue to rise.

These issues bring up the problem of perception that Calgary does not flood often. Many people did not know that their homes or favourite places to visit might be in the affected areas of a major flood when the waters rose in 2013. On the following pages, Figures 3.25-3.32 outline areas affected by flooding from 1897-2013. The Historical Flooding Map layers all of these together to bring past memories of the floods to the present.

31 David Ardell, "Alberta Flood Mapping: Community Mitigation Elements," (presentation for the Flood Recovery Task Force, December 12, 2013).
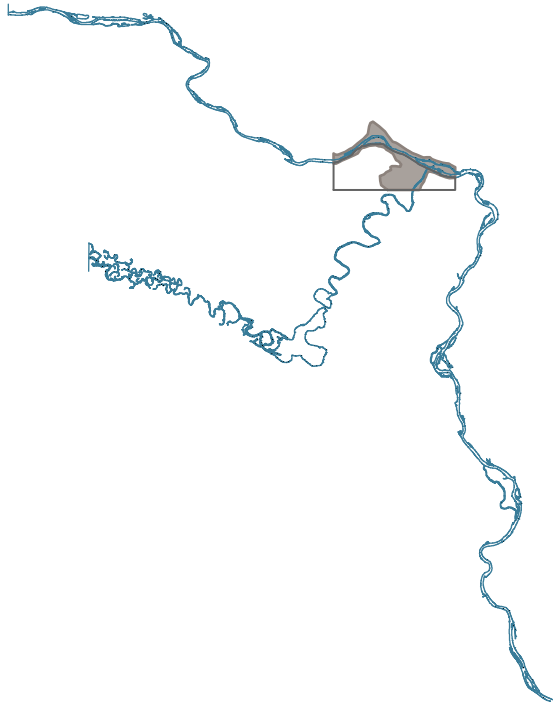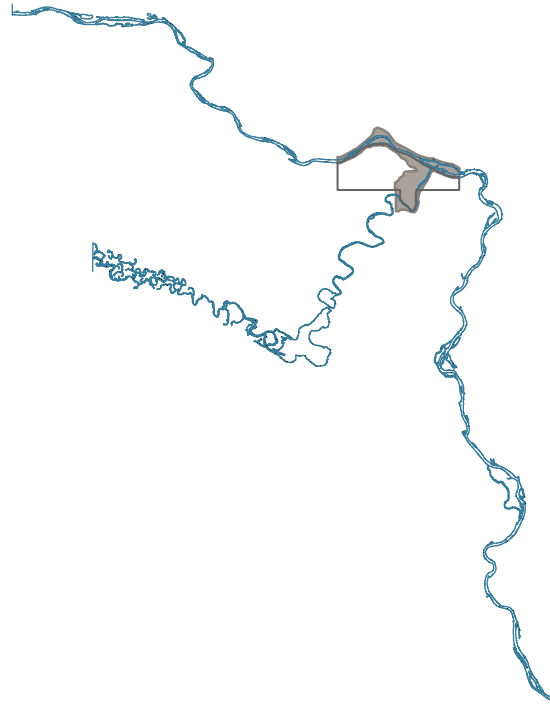
Figure 3.25 | Flood 1897
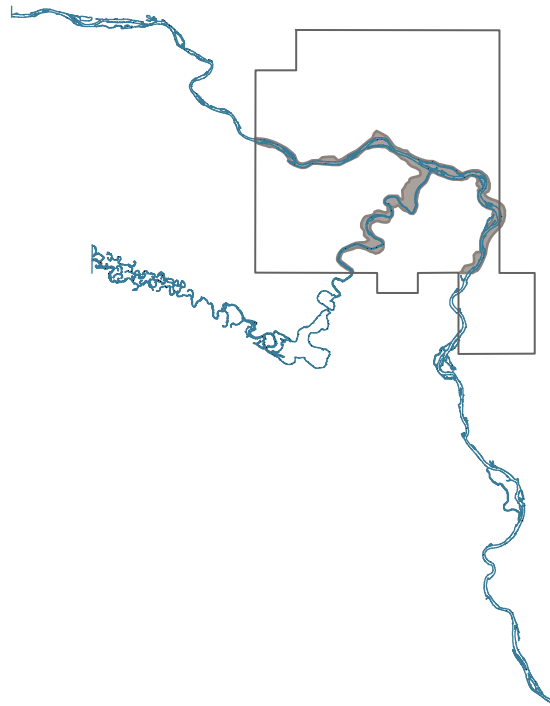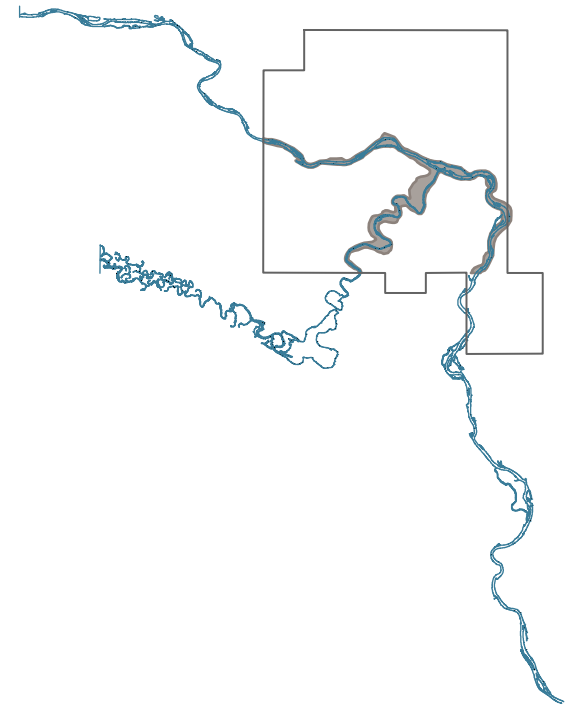

Figure 3.26 | Flood 1902
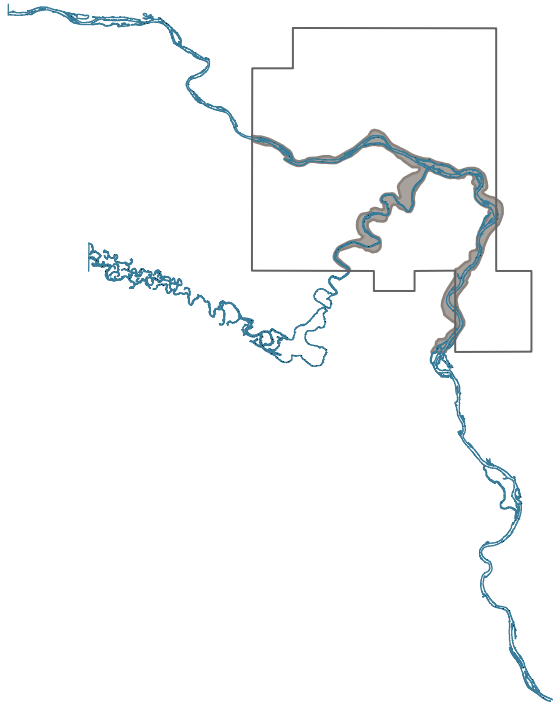
Figure 3.27 | Flood 1915
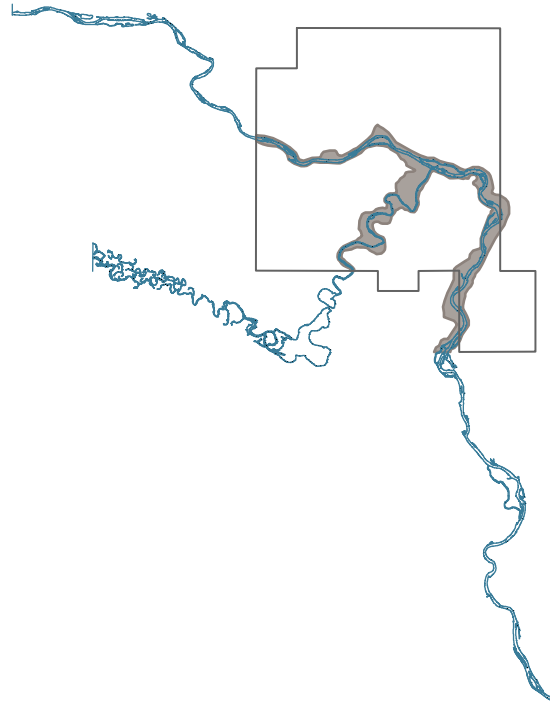

Figure 3.28 | Flood 1923

Figure 3.29 | Flood 1929

Figure 3.30 | Flood 1932
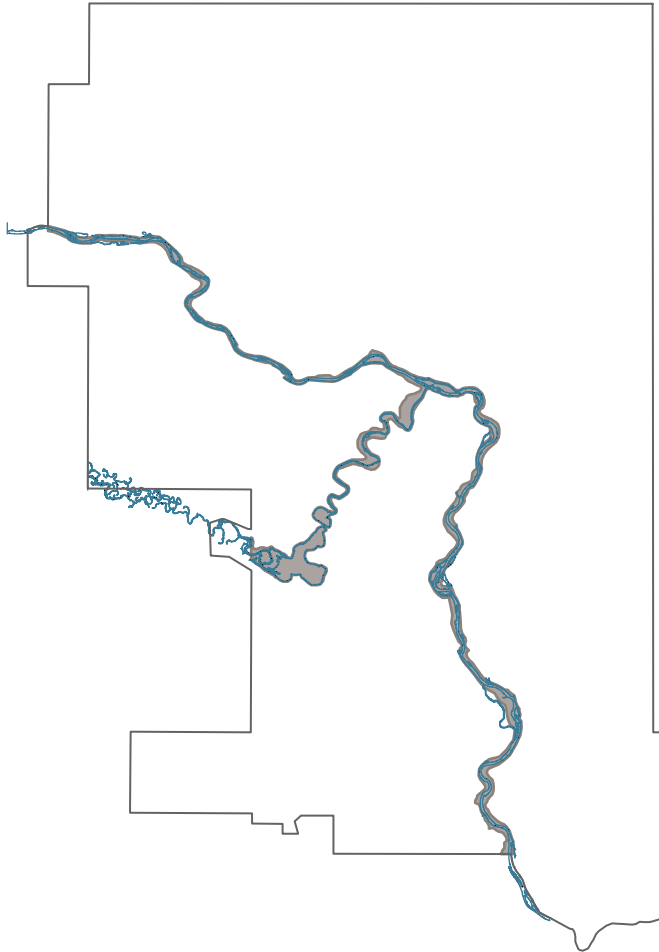
Figure 3.31 | Flood 2005
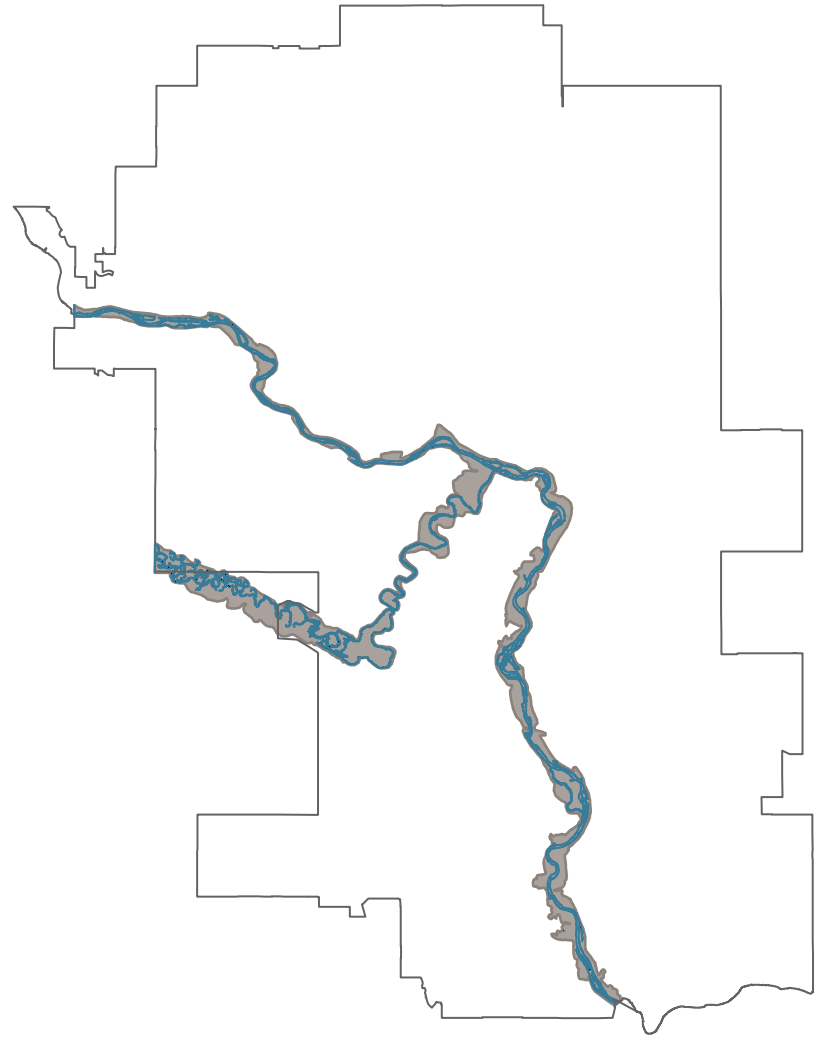
Figure 3.32 | Flood 2013
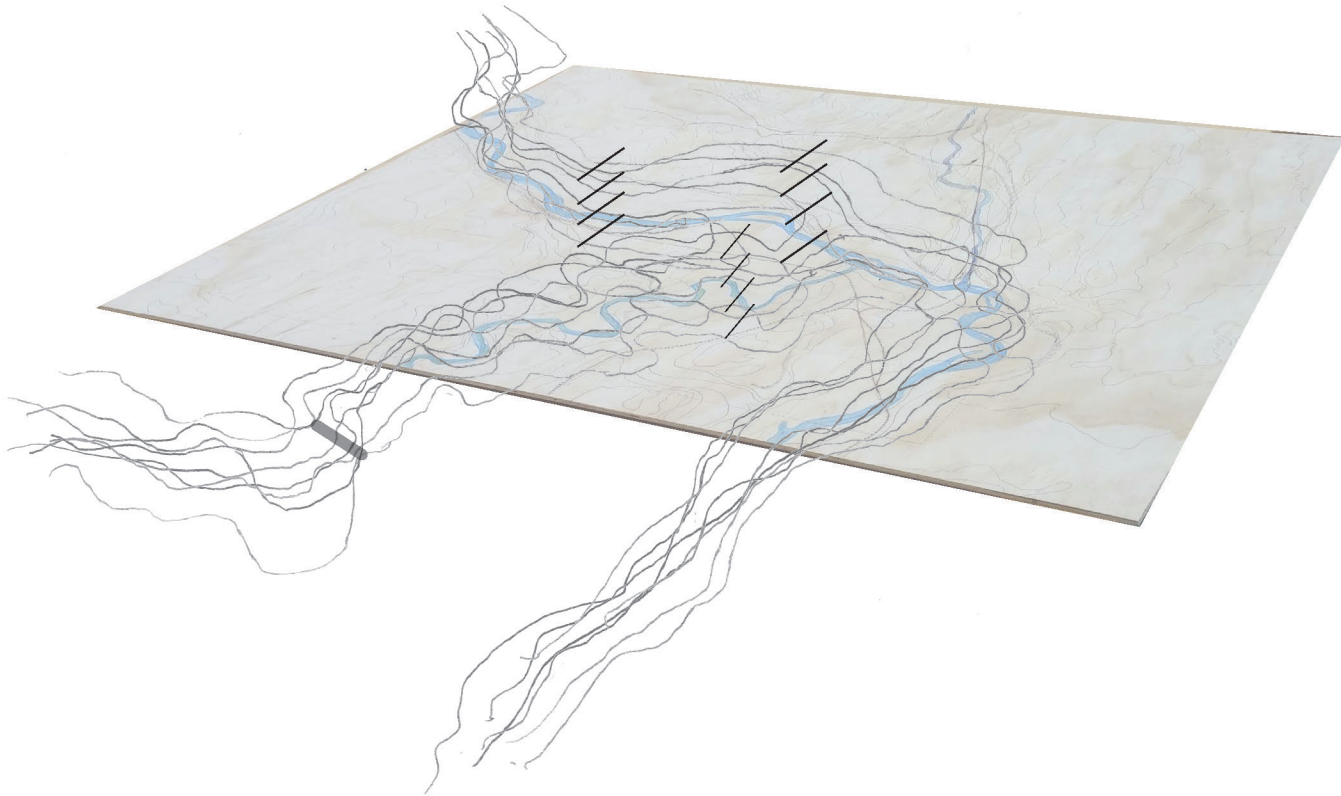
Figure 3.33 | Historical Flooding Map Concept

The confluence of the Bow and Elbow rivers is seen as an integral part of the city, and the rivers themselves are celebrated and valued. The city was established because of this confluence of rivers, and has been the basis for development and recreation ever since. Despite the floods, early Calgarians kept re-building bridges and homes, developing their attachment to place even further.[32] Today, the perseverance of living beside two rivers has influenced our relationship with them. The rivers are important boundaries, they provide spaces of recreation, they have large systems of pathways to act as connections between different parts of the city, and they provide beauty and nature within the city.

However, with the potential threat of the rivers forgotten over time the perception of the rivers became more picturesque than real. The gap between major floods from 1932 to 2005 gave a false sense of security within the river valleys of the city. The collective memory of the flood of 2013 has helped to re-assert the complexity of living with rivers. They shift and change over time, the river banks are not their bounds, and their pastoral beauty can change into the rushing sublime with the right combination of melting snow-packs, over-saturated earth, and heavy rain.

32 "Flood Story."

Figure 3.34 | Elbow River Pathway with view of the Saddledome

The pathway follows the curves of the river.

The Grid and Topography

While working in Calgary, my weekends were usually filled with biking to interesting places around the inner city. My favourite weekend mornings typically involved the bright sun running through the trees, the cool crisp air and a feeling of adventure. I loved to enjoy the bike ride and then find a coffee shop where I could sit down, read and people-watch. There were many options for routes and I typically chose the ones I knew, and the ones that were safer. I really enjoyed the new pilot cycle-track network that the City of Calgary had installed in the summer of 2015 and I could get onto it if I took the on-street bike route on 2nd Street, just off the street where I lived. I also liked the option to follow the Elbow River to its meeting with the Bow, with multi-use pathways all of the way. I had many rides to enjoy the beautiful water, trees, and sometimes a traffic jam that consisted of Canadian Geese and their babies.

I liked to take the Elbow River pathway when I had time to enjoy the ride and go at a leisurely pace. I would cross the pedestrian bridge to Lindsay Park and continue to follow the river downstream. I would ride under the dappled light that makes its way past the leafy trees along the path, pass by the Cathedral, a high school, and the Talisman Recreation Centre, where I learned

to swim as a child. Then always came the feeling of needing to duck my head when cycling beneath the bridges of Macleod Trail. I would continue on past the edges of the Stampede Grounds, the Saddledome, and finally arrive at the confluence of the Bow and Elbow Rivers.

I have always enjoyed the rivers of Calgary; I have been lucky to live close to them despite moving around the city multiple times. I always found it interesting how you could follow a pathway that follows the curves and the flow of the river, only to be brought back to the buildings and roads of the city at a completely different angle. The majority of roads and buildings in inner city Calgary follow a grid; many main streets form large squares that are broken up by smaller streets. But when the river comes too close, or the slopes arise around downtown, the grid starts to stray. It begins to follow the topography of the hills, or the curve of the river.

This even has an effect on the cycling routes I tend to take. If I want to enjoy a leisurely bike ride, I take the pathways along the rivers; they weave back and forth which means I am not taking a direct route anywhere, but the scenery and views are always stunning. If I need to go farther afield, or I want to get somewhere faster, I take bike routes or the cycle-tracks. They follow the grid laid

Figure 3.35 | Cycling along 12th Avenue SE

The streets run on an orthogonal grid. The new cycle-tracks (not pictured here) follow the grid across the downtown core.

out over the landscape, and I can go faster than on the pathways. However, if I need to go somewhere that takes me up onto the hills surrounding downtown, I find the roads or bike routes that follow the topography. There are some great hidden-away roads that wind up the side of these hills and find the least slope, which is always helpful on a bike. Some of the main streets try to defy these slopes by running straight up them, especially 14th Street SW and NW, and it is not something you want to try on a bicycle.

The Topography and the Grid Map began with the desire to show how early Calgary developed. I already knew there was an interesting push and pull to the grid that forms inner city Calgary, and the areas where streets stray from that grid, and some parks emerge where buildings cannot be built. Since Calgary grew at a rapid rate with the oncoming Canadian Pacific Railway, land was typically bought and divided by the Dominion Land System.[33] This system laid out a grid across the west in order to sell land titles to incoming settlers.

The area that is now inner-city Calgary was surveyed in 1883. Figure 3.36 shows the original survey map, entitled 'Plan of Township No. 24, Range 1 West of Fifth Meridian.' In Figure 3.37, I have placed a map with current data showing similar attributes. The township system is still a marker on current maps,

33 John Gilpin, "Chapter Two: The Elbow and the New Town of Calgary," In *The Elbow: A River in the Life of a City* (Calgary: Detselig Enterprises, 2010) 63-99.
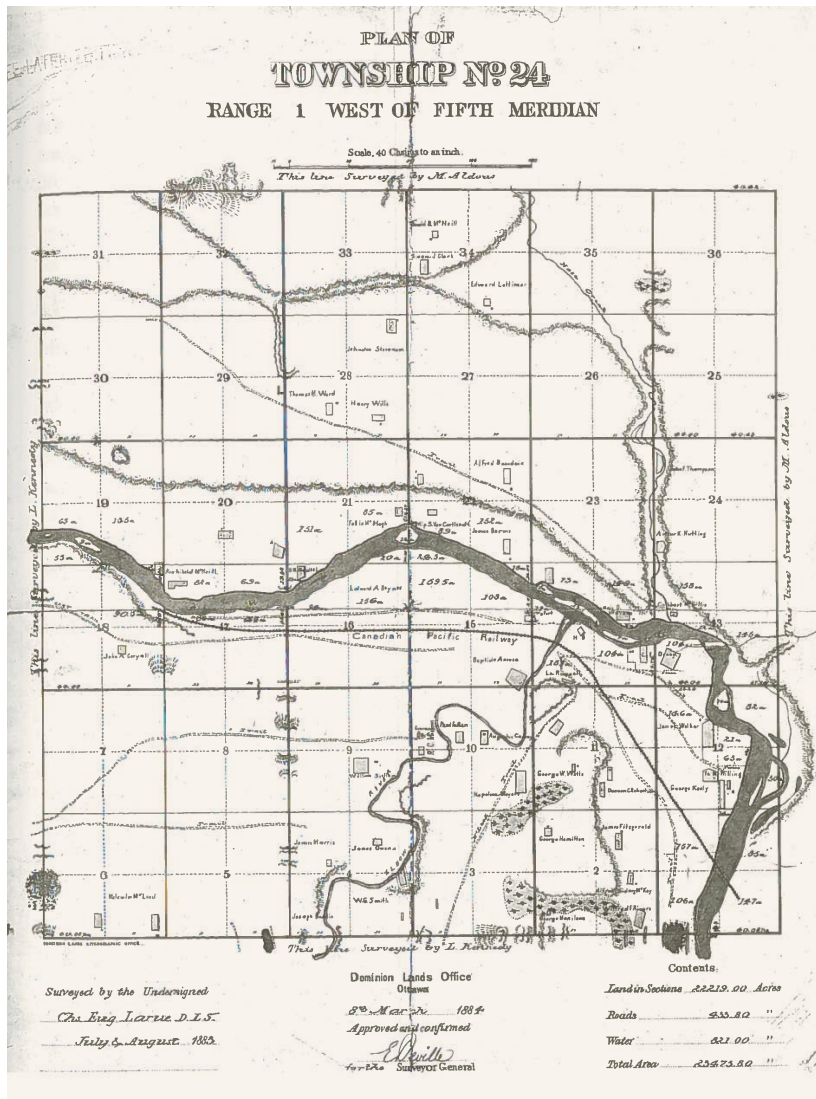
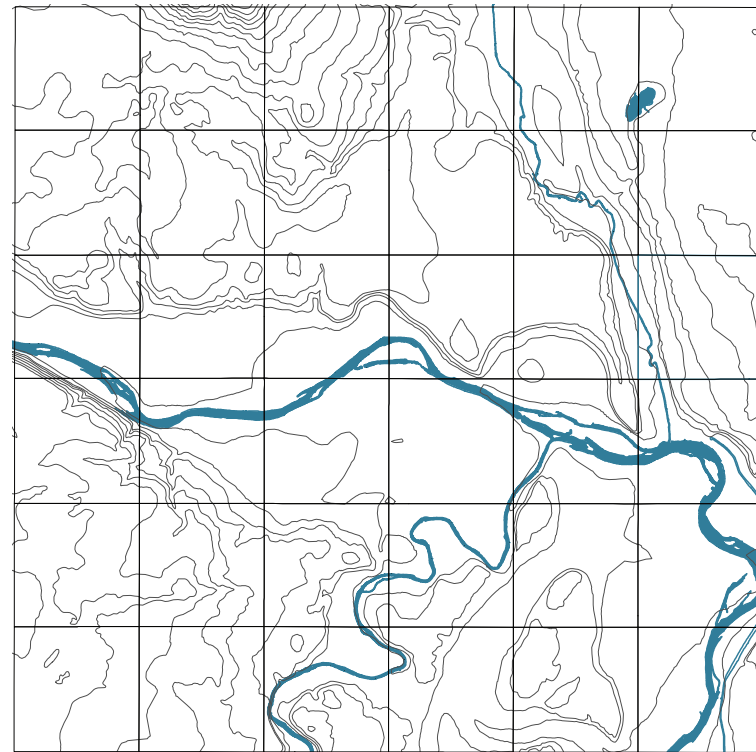Figure 3.36 | Plan of Township No. 24 Range 1 West of Fifth Meridian

Figure 3.37 | Inner City Calgary Topography and Hydrology

This shows the same areas as surveyed in Plan of Township No. 24 with the current topography and hydrology.

using the same sections that were originally marked out in the township survey.

These maps are important in understanding the way the city developed. Once the railway came, people were able to begin making claims on land. To make a claim, people would describe the land with sections and the rivers as their boundaries. Eventually, this division of land along section lines would lead to main streets within larger neighbourhoods once the city began to expand. However, there were times where main roads in the early days of Calgary did not follows these lines.

Three main roads that developed tried to follow the topography for larger trails leading to other towns or settlements. MacLeod trail once extended where Spiller Road is into the neighbourhoods of Ramsay and Inglewood, avoiding the large hill it now goes over. Mission Road was made in order to provide easier and more direct access to the Mission neighbourhood from the Macleod Trail.[34] These examples follow the easiest routes to move along a grade change.

With further development of the city, there were many places that the grid could not be followed easily. Sometimes the grid was used anyway, such as at 14th Street NW and SW, or Centre Street,

34 Gilpin, "Chapter Two," 64-71.
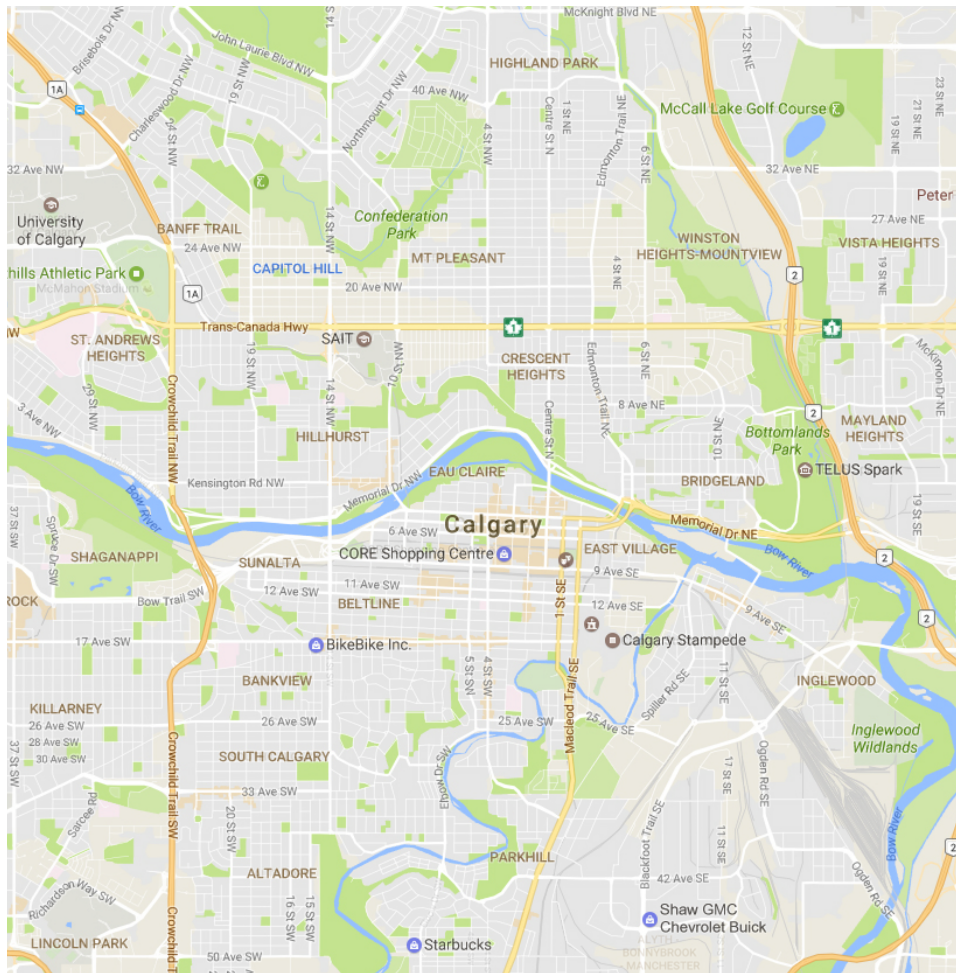
Figure 3.38 | Inner City Calgary Google Map

This is a typical map we are used to seeing of a city. It is placed here to show the
grain of the streets in the city.

Legend

- – – Township Section Boundaries
- ——— Streets Along Section Boundaries
- ——— Streets Following Grid System
- ——— Streets Following Topographic features
- ——— Streets (other)

Map labels: 14th Street, 16th Avenue, Centre Street, Deerfoot Trail, Memorial Drive, 9th Avenue, Bow Trail, 17th Avenue, 4th Street, Macleod Trail, Spiller Road, Mission Road, Blackfoot Trail, Crowchild Trail

Figure 3.39 | Calgary Streets

This map simplifies the street map by focusing on major streets that follow either the section boundaries of the township system, the grid that follows, or specific elements of the topography.

Figure 3.40 | Grid and Topography Map Concept

The streets and buildings of the city waver between the grid
imposed on the landscape and the topography of the city.

where the direction of the grid gives the streets a steep incline. In other places, the topography was followed: whether at the edge of a ridge, following the path of easiest ascent, or tracing the edge of one of the rivers or creeks in the city.

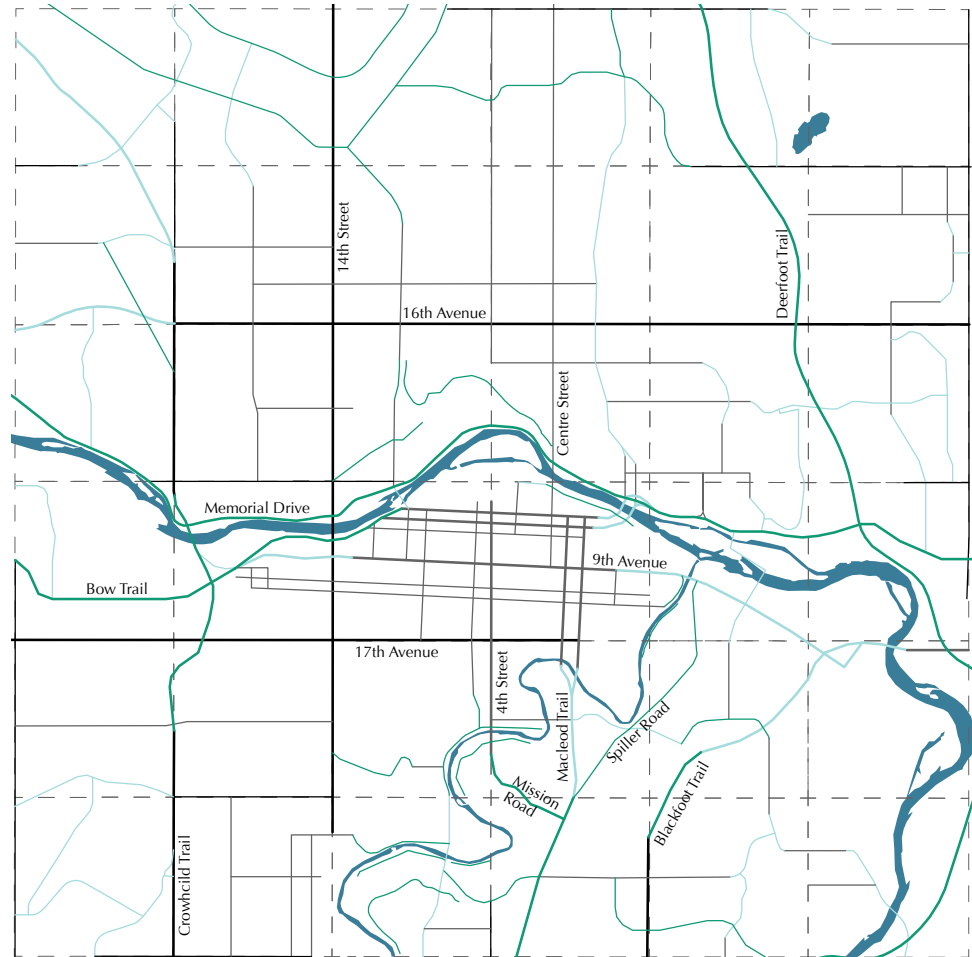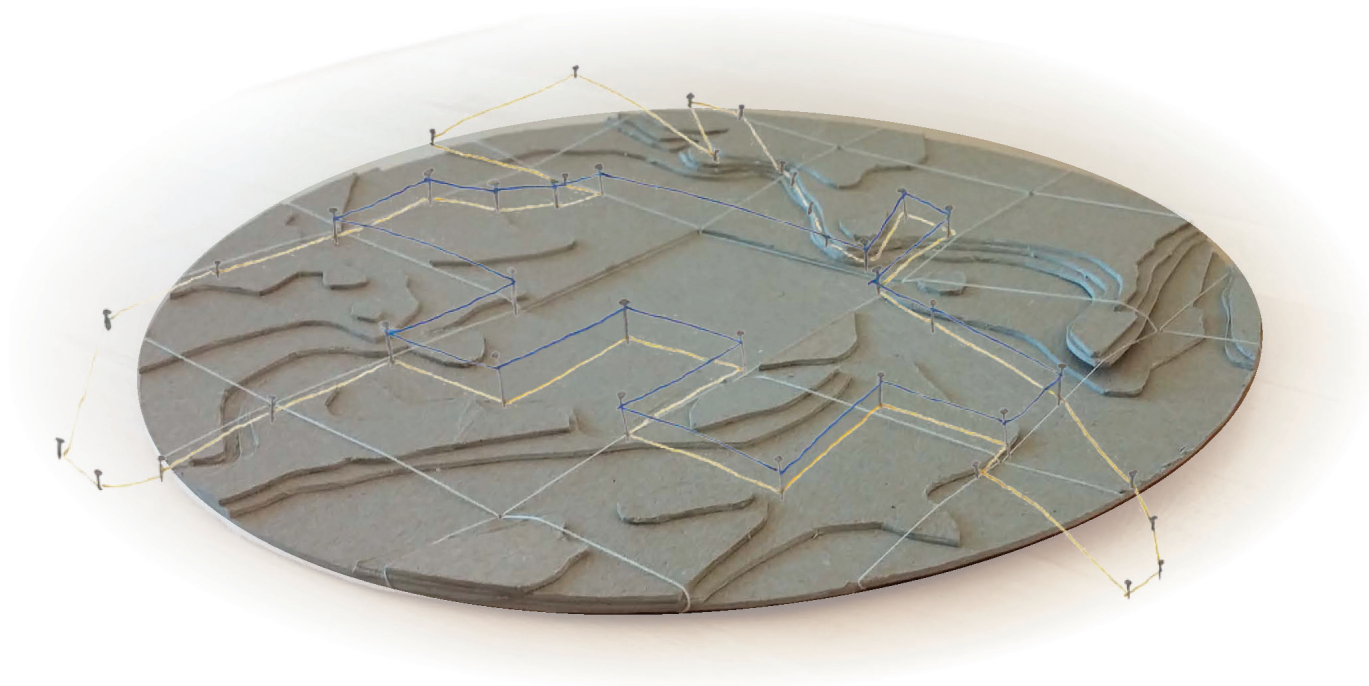Figure 3.38 shows the same boundary of the city as the Township Survey, but gives more detail into how the city has evolved, where its main thoroughfares are, and the grain of streets in the neighbourhoods. Figure 3.39 abstracts this information to show the original sections of the township along with the main streets. The streets have been categorized by whether they follow the section lines, the grid, or the topography.

The Topography and the Grid Map combines the topography, hydrology, township sections, and main streets of inner-city Calgary. By bringing together these different layers, a connection between the ownership of land and how we view the landscape becomes clear. The abstraction of seeing land as a tabula rasa, which is what the grid implies, is met with the reality of harsh slopes and meandering rivers in Calgary. Over its history, the city has played between the two, using the concept of the grid as a default, but realizing when the topography must be given its due.

Figure 3.41 | The Chuck-wagon Races

The Calgary Exhibition and Stampede

The first time I attended the Stampede was when I was 14. That is pretty late for a kid who grew up in Calgary, but most of my summers up until then had been spent in Medicine Hat. Finally going to the Stampede was so exciting because I had been missing out on this huge thing that it seemed everyone had experienced and loved. What I was looking forward to the most was gravity-defying carnival rides and every kind of deep fried food imaginable, which is typical fair grounds stuff. After working the next two summers at the Stampede gates, and visiting as much as possible since then, I have gained a better understanding of the breadth this festival offers beyond the standard fair.

Now, it turns out my favourite parts of the Stampede have their ties to the original exhibitions before 1912 and some of the early stampedes which were developed between 1912 and 1926. A typical itinerary of my day at the stampede tries to fit in all of my favourite activities: checking out the exhibition hall, seeing all of the cows, horses, donkeys, and sheep that are for show or for sale, watching pow-wow dancing and listening to the beautiful singing that accompanies them, eating something delicious, and finally watching rodeo events or the chuck wagon races.

Downtown Core

Stampede Parade Route

Stephen Avenue   Olympic Plaza

The Beltline

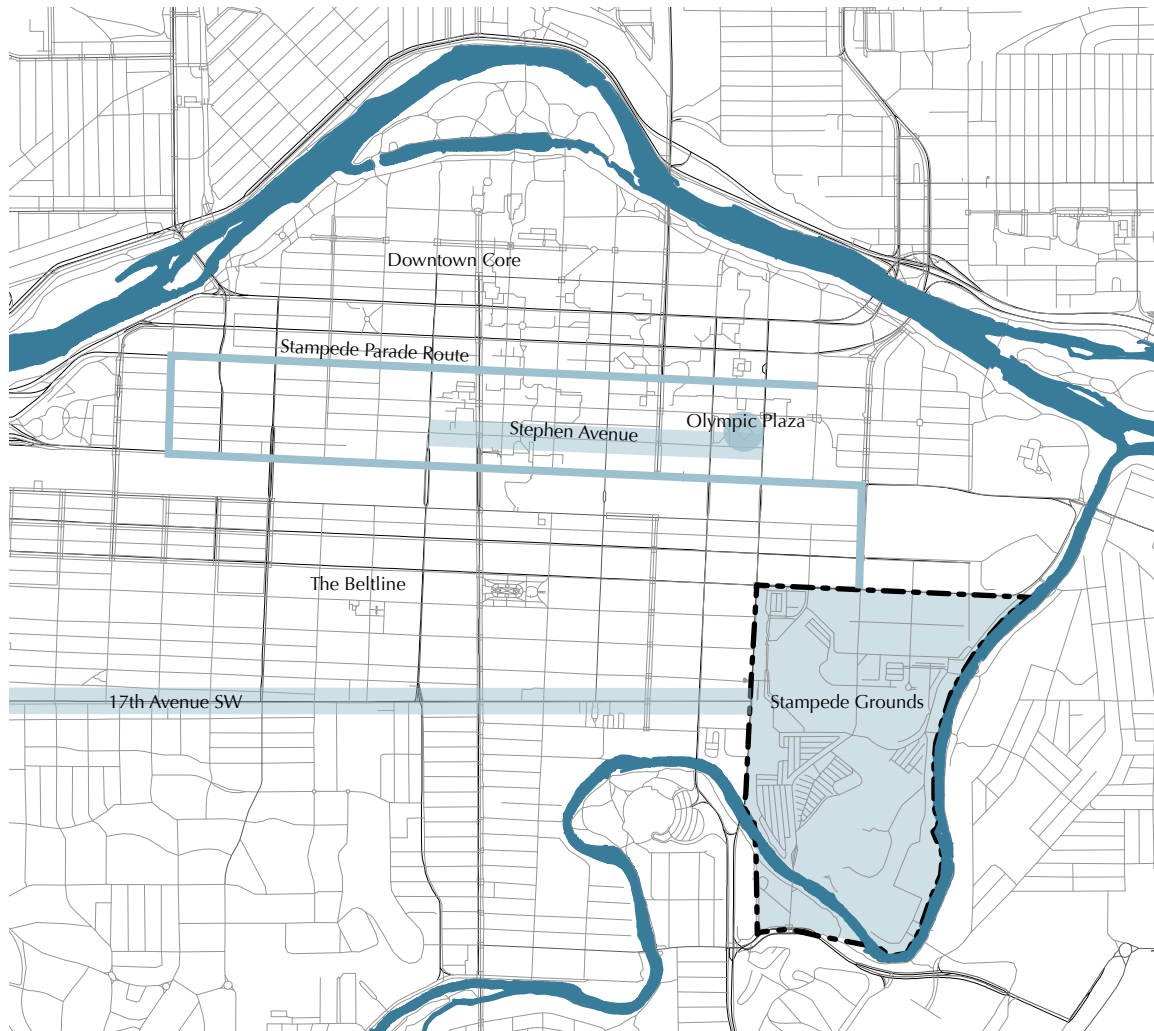17th Avenue SW   Stampede Grounds

Figure 3.42 | The Stampede Grounds and Surrounding Areas

During the Stampede, the whole city comes alive with activity. There are pancakes breakfasts and stampede parties everywhere, but most of it is centred in the downtown and beltline areas. This map shows the many locations where there are activities during the festival.

The Calgary Exhibition and Stampede has reached something of a mythical status in Calgary. It overtakes the city for 10 days with parades, corporate parties, exhibitions, concerts, fair rides, games, pub-crawls, rodeo events, cowboys, pow-wow dancing and singing, and bright white tents turning parking lots into event spaces. You also tend to see cowboys and cowgirls everywhere, because the corporate world and everyone else shuns their typical dress for western wear.

Although the Calgary Exhibition and Stampede celebrated its 100-year anniversary in 2012, the exhibitions had been happening in Calgary much earlier than 1912. The first exhibition was held in Calgary in 1886. By 1889 the Calgary Agricultural Association had bought the land that the Stampede sits on now. The Exhibitions were meant to show off the agricultural and ranching potential of the area, and became a major place to buy and sell livestock.[35]

The first 'Stampede' was held in 1912, with a vision of celebrating the last of the cowboys and the Wild West; it was thought to be a one-time event in remembrance of a lost era. The idea came with a former Wild West show performer and organizer from the United States, Guy Weadick. He convinced four men from Calgary to help fund this event, in the hopes that it would help people remember what was. The Big Four as they are called, were

35 James Henry Gray, "Chapter 1: Westward the course of empire," In *A Brand of its Own: The 100 Year History of the Calgary Exhibition and Stampede* (Saskatoon: Western Producer Prairie Books, 1985), 10-11.

Victoria
Pavilion

Victoria
Arena

Grandstand

Midway

Racetrack

Elbow River
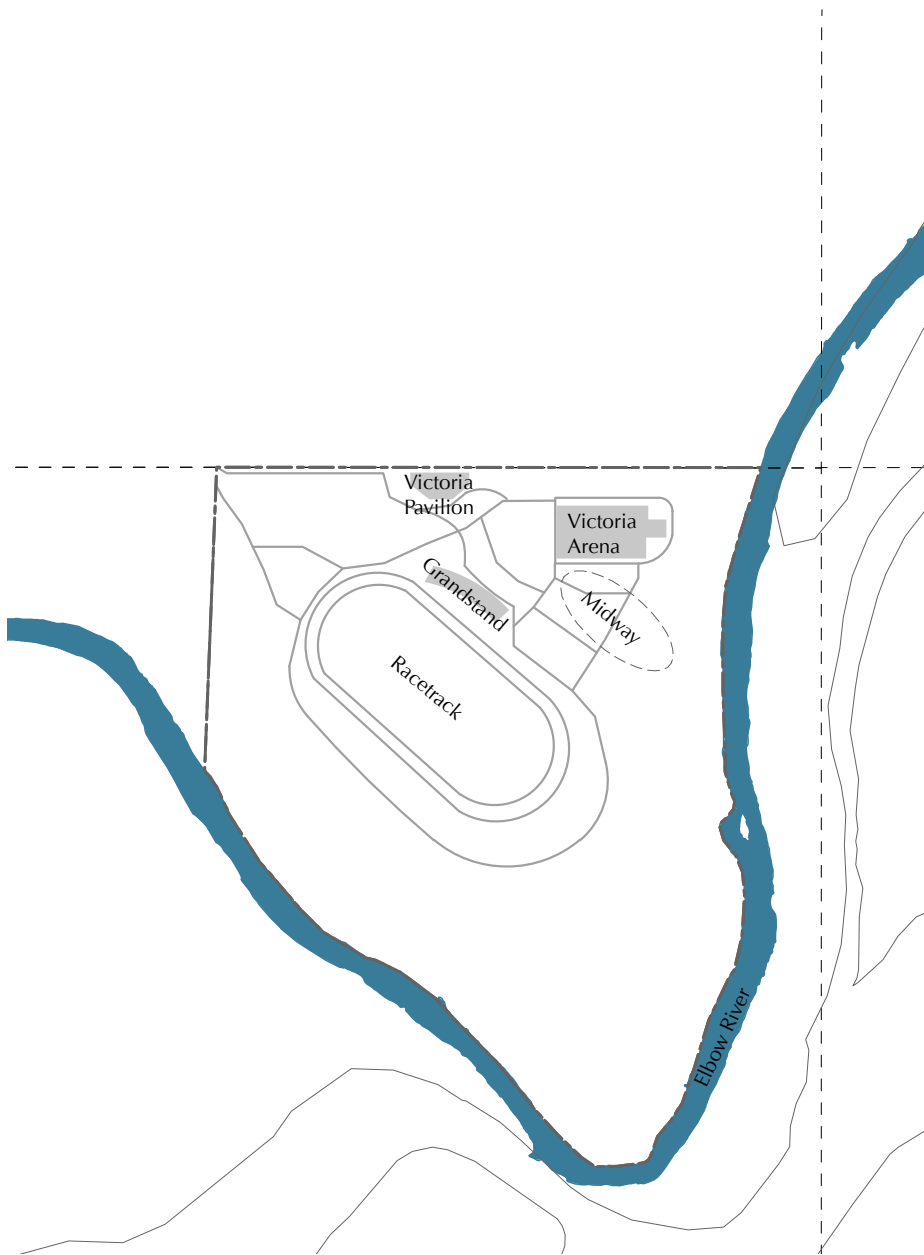
Figure 3.43 | Stampede 1908
(left)
Buildings at the time included the Victoria Arena, the
Victoria Pavilion, and the Original Grandstand.
The Grandstand was built along with the racetrack in
the early 1890's. The Victoria Arena would follow in
1908, providing a space for ice hockey. The Victoria
Pavilion was built in 1888 and was an exhibition hall
for new technologies and agricultural techniques.

Figure 3.44 | Stampede and City Boundary 1908
(below)
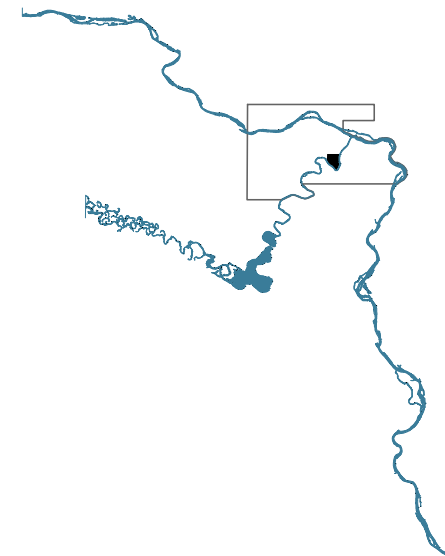
Figure 3.45 | Stampede 1926
(right)
By 1926, two more important buildings were added
to the Stampede grounds. The original grandstand
was replaced by a new one in the 1908 on the other
side of the original racetrack. The Agricultural
Building was built in 1919 and still stands. The
Building houses stock areas for show and sale, and
areas to share knowledge of agricultural practices.

Figure 3.46 | Stampede and City Boundary 1926
(below)

Indian Village

Victoria Pavilion

Victoria Arena

Agricultural Building

Racetrack

Grandstand

Midway

Elbow River

Indian
Village

Stampede
Corral

Victoria
Arena

Agricultural
Building

Racetrack

Grandstand

Midway

Elbow River

Figure 3.47 | Stampede 1956
(left)
The Victoria Pavilion is replaced by the Stampede
Corral in 1950. The Corral is an arena for ice sports
and large events.

Figure 3.48 | Stampede and City Boundary 1956
(below)
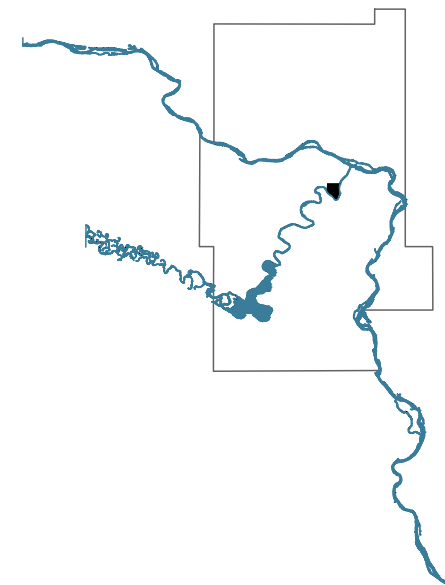
Figure 3.49 | Stampede 1985
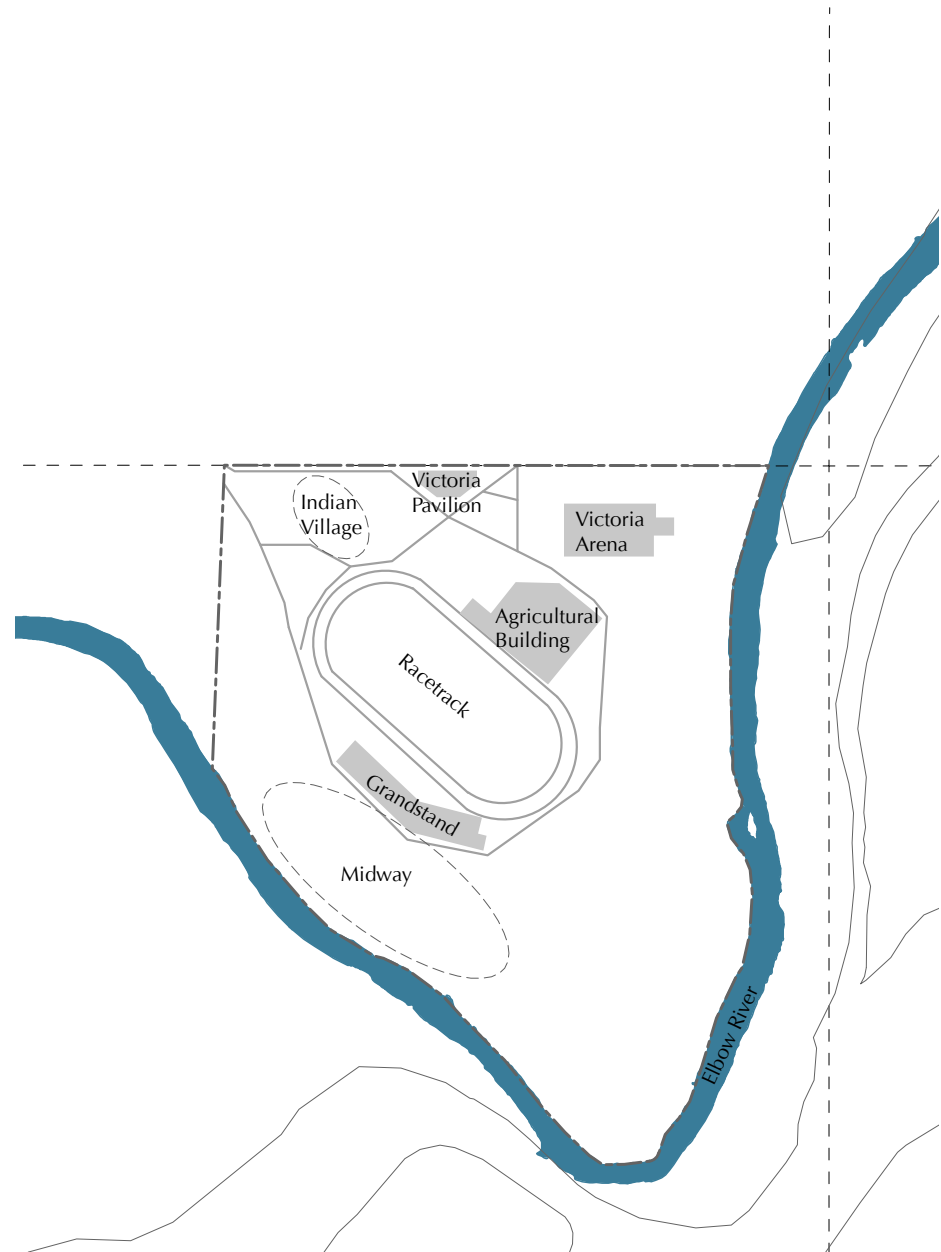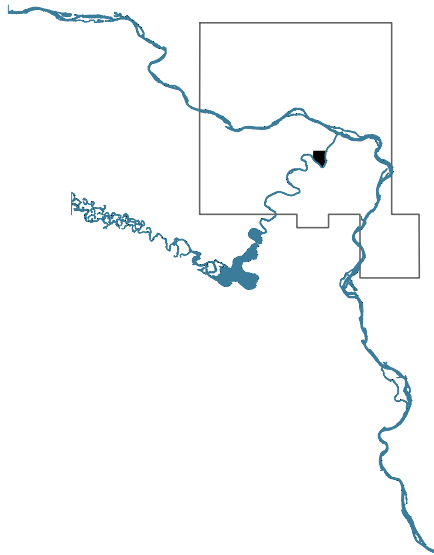(right)
Between 1956 and 1985, the Stampede Grounds underwent a large transformation in shifting the direction and connection between buildings. The Grandstand and racetrack were demolished and moved to the southeast edge of the Site in 1974. The Victoria Arena is replaced by the Saddledome, a new arena for major ice hockey and large events. The Big Four building was added to the site in 1959, providing a dedicated space for curling. The Round-Up Centre was added beside the Stampede Corral to become a large exhibition and conference space.

Figure 3.50 | Stampede and City Boundary 1985
(below)

Roundup
Centre

Stampede
Corral

Saddledome

The
Big
Four

Agricultural
Building

Midway

Grandstand

Racetrack

In-field

Indian
Village

Elbow River

87

Cowboys
Casino

BMO Centre
Expansion

BMO
Centre

Stampede
Corral

Saddledome

The
Big
Four

Agricultural
Building

Western
Events
Centre

Midway

Grandstand

Racetrack

In-field

Indian
Village

Elbow River
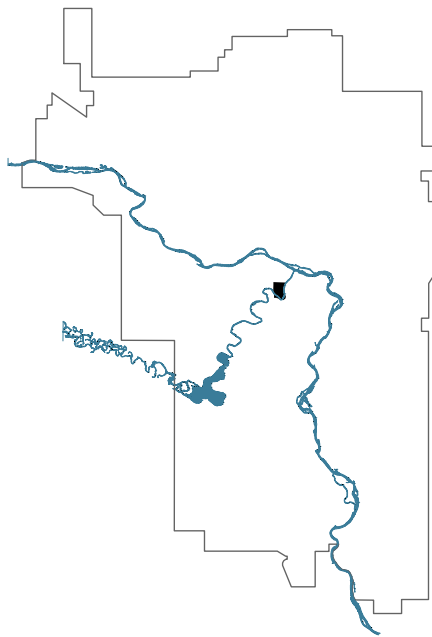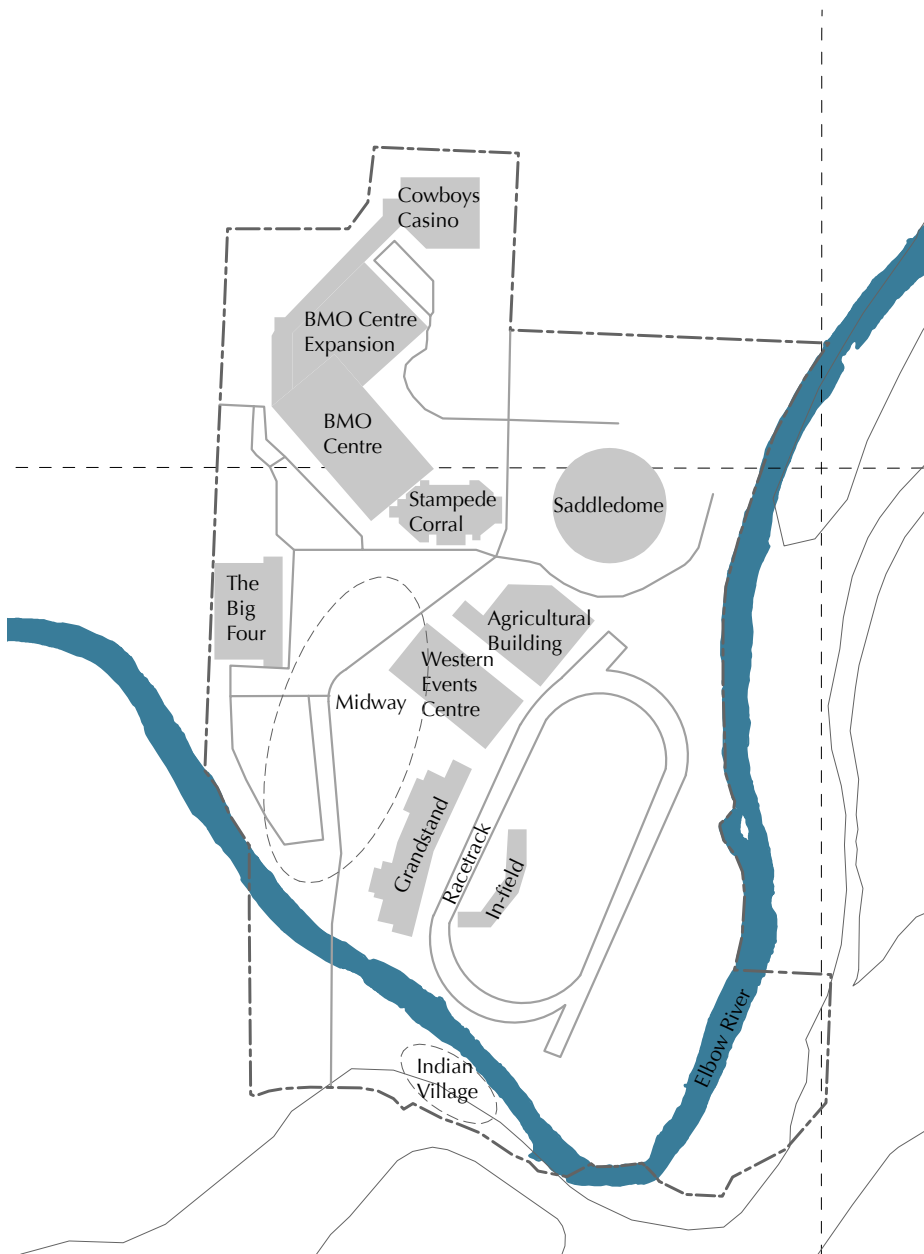
Figure 3.51 | Stampede 2016
(left)

The new buildings shown in this diagram were mostly built between 2003-2013. The Round-Up Centre got an expansion, and was renamed to the BMO Centre in 2007. The Stampede Casino was built at the northernmost part of the site in 2006. The newest building on the site is the Agrium Western Events Centre, built in 2014. It adds space for agricultural events, as well as dedicated exhibition space to increase the access to agricultural knowledge for urban youth.

Figure 3.52 | Stampede and City Boundary 2016
(below)
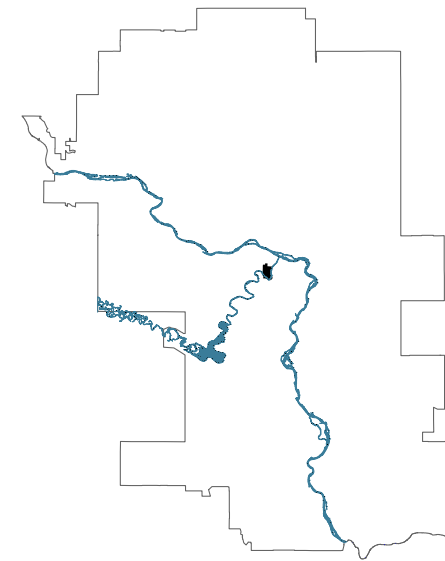
Patrick Burns, George Lane, A.E. Cross, and A.J. McLean. The Stampede was a successful event, but wouldn't be held again until after the First World War. Eventually, the Exhibition event and the Stampede event would come together to celebrate ranching, agriculture, and rodeo events.

Without delving too far into every historical detail of the Calgary Exhibition and Stampede, the previous outline of its inception is meant to point out how long it has been running; almost as long as the city itself has existed. It has also stayed in the same location the entire time.

The gradual development of buildings on the site is what the Stampede morphology map is about. This is one of the areas in the city that has gone through a lot of change over its history, while still building on the same kinds of uses of the site, as well as the memory embedded in it. The layers of the maps are not a simple representative of past time. Each layer represents a certain amount of time, but each building cuts deeper into the layers based on how long it was there, not how long ago it was there.

Overlaying all of the buildings, and certain areas that had more ephemeral usage shows the way the site has transformed and shifted over time. Many buildings still stand, while some have been
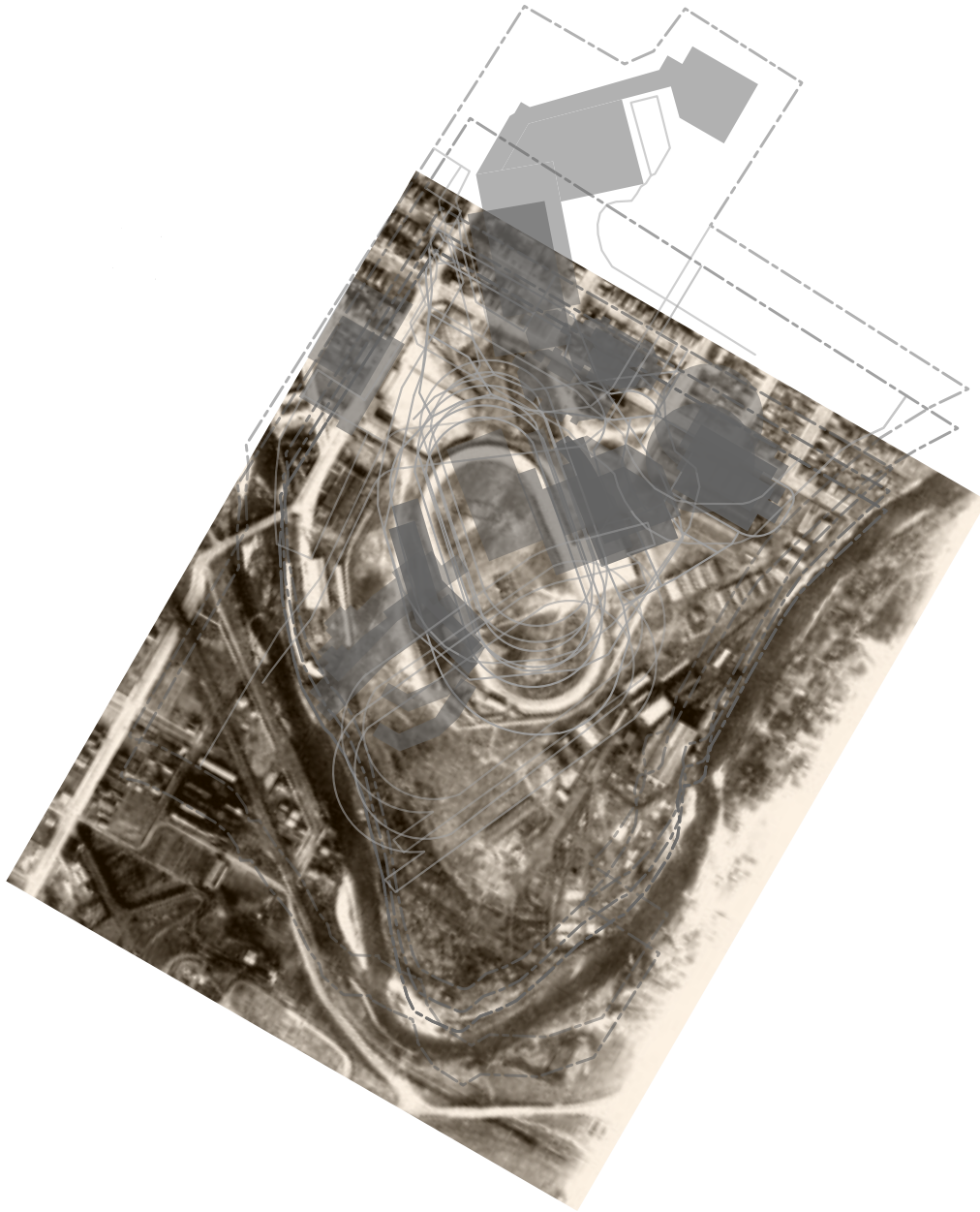
Figure 3.53 | The Calgary Exhibition and Stampede Concept

The activities on the site of the Calgary Stampede were encouraged by the buildings placed there. Many of them are multi-use and their purposes live on through newer buildings and shifts in site.

demolished or replaced over time. The longest standing building, which happens to still be on the grounds, is the Agricultural Building near the centre of the site. It was built in 1919 as a showcase for agriculture and ranching, related back to the origins of the exhibition.

The images that are combined with each building in the multiple layers of the map denote the type of events that would happen there. One of the interesting correlations that come up here is the proximity of exhibition building locations, the proximity of arenas for ice hockey and other sports events, and the complete shift in the direction of the race tracks and grand stands, but still in similar locations.

Although the architecture of the buildings range in styles and design value, this is one of the places in Calgary that comes close to having a built up history. The combination of specific memories related to events of the Stampede grounds, narratives about the festival that people share, and that all of these things have happened in the same location, does create a sense of place for this area.

Conclusion | A Sense of Calgary

The relationship between a sense of place and mapping is tied together with narrative and representation. While reflecting on the process I have gone through in mapping and making, I have found a connection to the way architects work in general. We use stories and representation to share our ideas. It is much easier to share an idea when the representation itself is appealing and conveys a lot of information. In my thesis, the idea I focused on was sharing Calgary's sense of place through mapping.

This thesis has led me to push the boundaries of narrative and representation. I found that drawing diagrams and researching basic histories and facts were not enough to try and convey an actual sense of place in the city. I was also interested in learning more about the city to enrich my work and go past my own personal stories.

My first attempts at maps were two-dimensional drawings that combined accurate data with imagined possibilities. Although these maps were interesting, they did not succeed in sharing a better understanding of the city. Later I began thinking about how these maps might be able to show more if they had physical depth. One of my first ideas was related to Calgary's topography
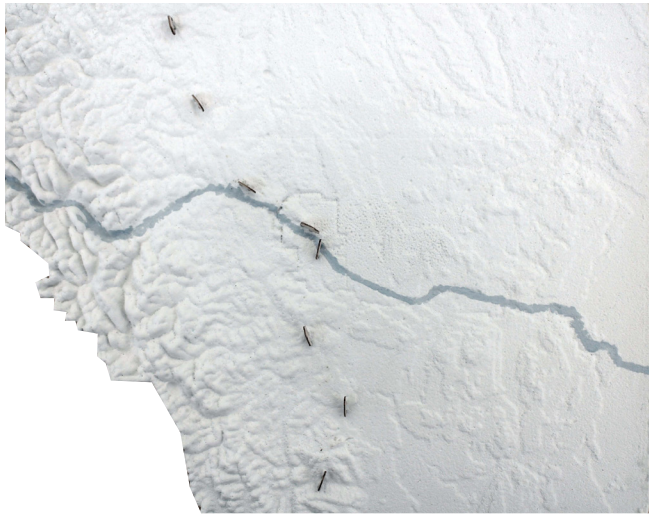
Figure 4.01 | Regional Relationship Map - Plan View

Scale 1:700,000
40 x 30cm

Figure 4.02 | Historical Flooding Map - Plan View

Scale 1:60,000
50 x 65cm

Figure 4.03 | The Grid and Topography Map Plan View

Scale 1:25,000
40 x 40cm

Figure 4.04 | The Stampede Morphology Map Plan View

Scale 1:3,000
30 x 40cm

Figure 4.05 | Regional Relationships Map - Plan View

and a misconception that the city is flat. What if I could show how the downtown core is in a valley surrounded by foothills? This spoke to me about topography, so that is where I started with the three-dimensional maps.

Then I had to ask myself what other elements of the map are important to show besides the topography. Which stories am I actually trying to tell? How much information is needed to convey the idea? Each map had its own set of questions specific to it. Eventually, certain answers applied to multiple maps, or shifted slightly to suit that story.

For the Regional Relationships map, I was excited to show how the surrounding landscape is important to understanding Calgary. I knew getting the topographical information and modeling it in three dimensions would be important to show the transition between the prairies, foothills, and mountains. My first tests of modeling the topography were made with extruded polystyrene on a computer numerical control (CNC) machine.

Further in the process of modeling the topography I realized that keeping the scale consistent in all directions would not show enough of the change in the landscape. I started experimenting with changing the z-scale to come closer to what you can
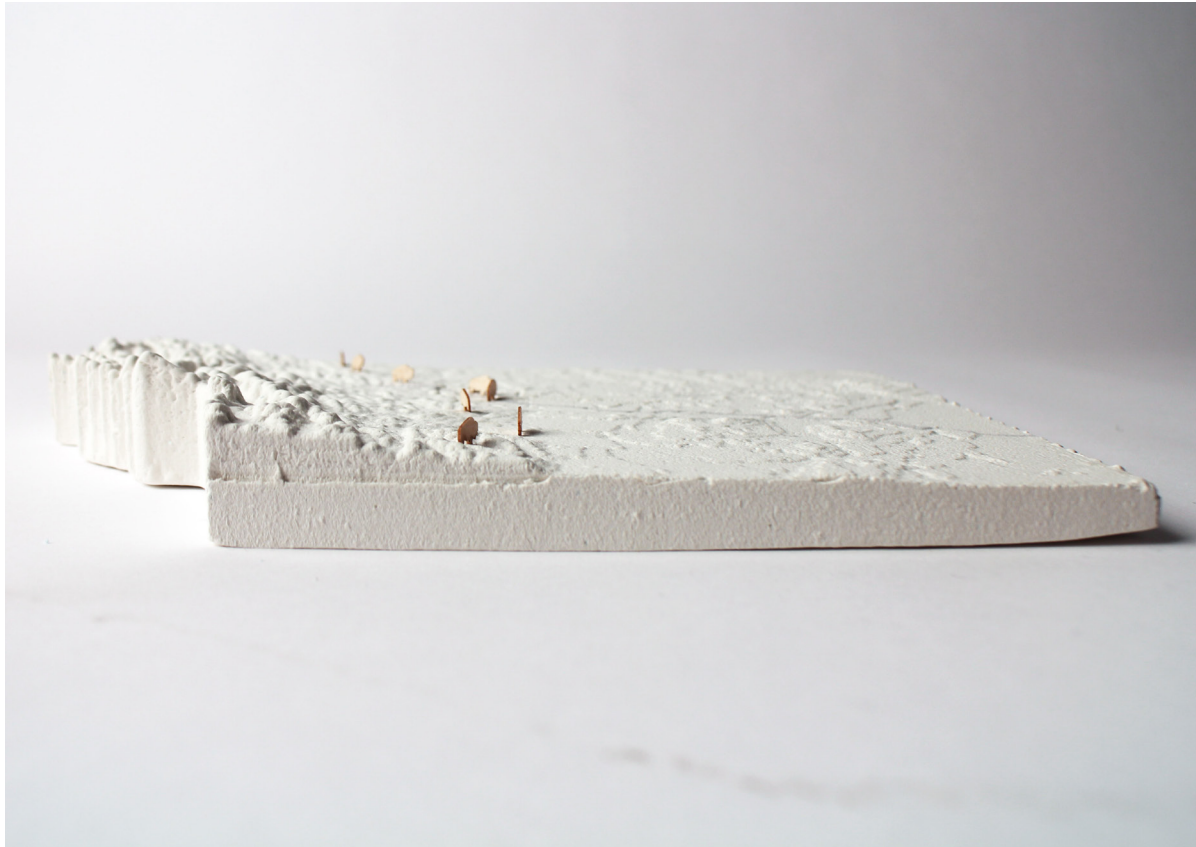
Figure 4.06 | Regional Relationships Map - Front View

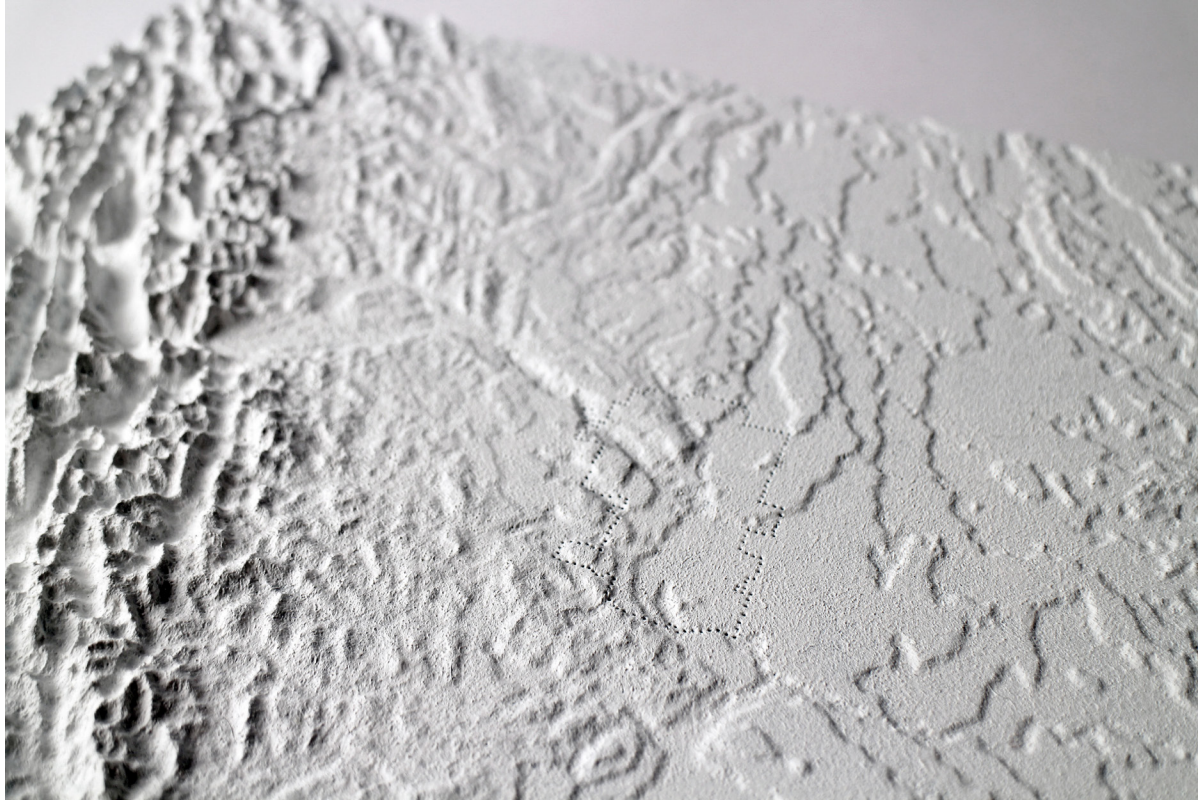Figure 4.07 | Regional Relationships Map - Right View

Figure 4.08 | Regional Relationships Map - Calgary Outline 01

experience when you are there. The z-scale I settled with was thirty times the height, which approached a more realistic portrayal of the landscape.

Another issue I dealt with in the Regional Relationships map involved the material of the topography. The extruded polystyrene I had originally been using to model the topography lacked a sense of importance. It was so lightweight. Luckily, there was another material that could work with the digital fabrication processes I was already using. I began experimenting with Plaster of Paris, using the extruded polystyrene as a mould. This came with its own set of learning curves but I enjoyed the weight of the plaster, the texture of the material once it set, and the other opportunities it gave me.

While experimenting with multiple scales and materials, I also looked at multiple ways of representing the city limits of Calgary. I tried showing Calgary's boundary with a dotted line, as seen in Figure 4.08. It did not interfere with the topography of the model, although it could easily disappear at the right angle. In another model, I was able to make the outline of Calgary part of the plaster mould. Figure 4.09 shows this engraved method of marking Calgary's boundary. This edge became too similar to the topography, and the political boundaries and natural features are so different that they should be represented uniquely.

Figure 4.09 | Regional Relationships Map - Calgary Outline 02

Figure 4.10 | Regional Relationships Map - Old North Trail and Buffalo

Figure 4.11 | Historical Flooding Map - Plan View

The boundaries of the map also became an important question to consider. My first model showed a small area surrounding Calgary, comprised of four squares of one latitude by one longitude. Later I would expand the area horizontally to reach the mountains. The one edge that does not align with the longitude is the Great Continental Divide, because it is an important geographical boundary.

The other layers of the map took on their own materials. The Canadian Pacific Railway, as seen in Figure 4.09, is painted on. The line of paint follows the landscape, much as the railway does. The Old North Trail could have also been a painted line. However, there is a kinship to the lost wild buffalo and this lost pre-historic trail, and you can see this represented in Figure 4.10.

The Historical Flooding map takes on a different set of materials, questions, and representations. Although the way the city floods is inherently tied to the topography, this map focused on floodwaters and layers of time. From the beginning, my ideas about the flooding map were about a layering of all of the data. Layers of multiple events in the same place would show how many times certain areas were hit with flood waters and where it affected the city.
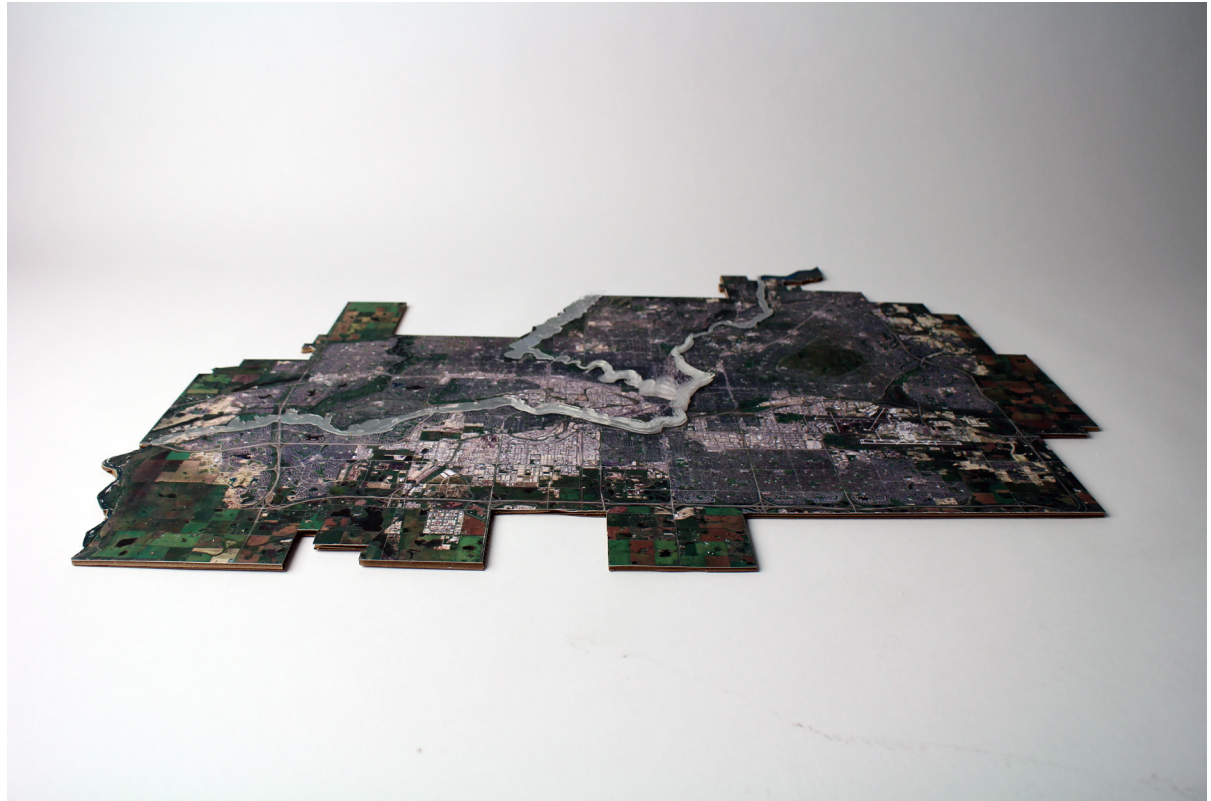
Figure 4.12 | Historical Flooding Map - Front View

Figure 4.13 | Historical Flooding Map - Right View

Figure 4.14 | Historical Flooding Map - Layering 01

With this emphasis on layering the floods, acrylic was an obvious choice to me. It was important to me that you could see every flood at the same time in relationship to each other. Because acrylic is clear, it offered these opportunities. The other advantage to using acrylic was the ability to see through the material, as well as engrave into it. The river boundaries are engraved into every layer for comparison to the floodwaters that year.

The other edges involved in the acrylic layers resulted in tracking the growth of the city over time. In Figure 4.14 you can see the top layer, which is from the oldest flood with recorded flow rates (1897). Calgary's town limits at that time were incredibly small and the flood impacted a large percentage of that area. As the city grew, the floods could be just as devastating but the city grew towards its hills and higher areas.

The base that would lie underneath these acrylic layers was another question to consider. What would help people understand the actual impact of a flood on the city? I combined multiple Google images to create a high-resolution image of the city. This image shows multiple aspects of the city including neighbourhoods, vegetation, farming fields, and waterways. It also gives a sense of the different densities of neighbourhoods as the city grew outwards. Combining this image with the clear acrylic allows
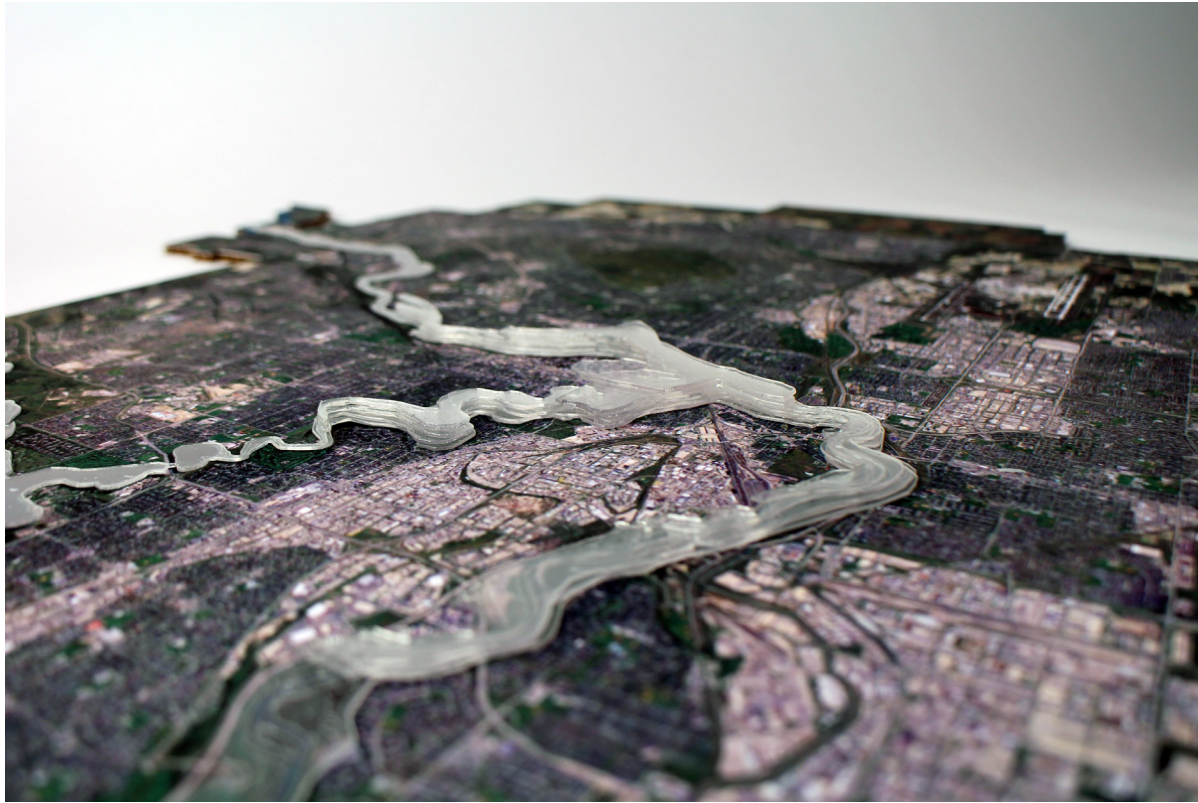
Figure 4.15 | Historical Flooding Map - Layering 02

anyone to look at how the rivers overflowing their banks relate to different neighbourhoods in the city. The aerial imagery also allows people to understand Calgary through familiar means of mapping.

The Grid and Topography Map is focused on topography, similar to the Regional Relationship map. This map looks at the differences in understanding the landscape through the physical topography versus the township grid. In Figure 4.19, you can see where the grid cuts into the topography. The grid is all cut to the same depth as if it were on a flat surface. For the material of the topography itself, I went through the same process of testing extruded polystyrene first, and then moving towards plaster casting. Once again, the texture and weight of the plaster made more sense for this type of map that is so connected to the topography and weight of the earth.

For the rivers, I added an extra element on top of the topography. The rivers are a boundary that supersedes both the grid and the topography. The topography contributes to where the water sits, but it sits on top of that earth. So the laser cut millboard painted in a shimmering blue represents the moving water, as seen in Figure 4.19.

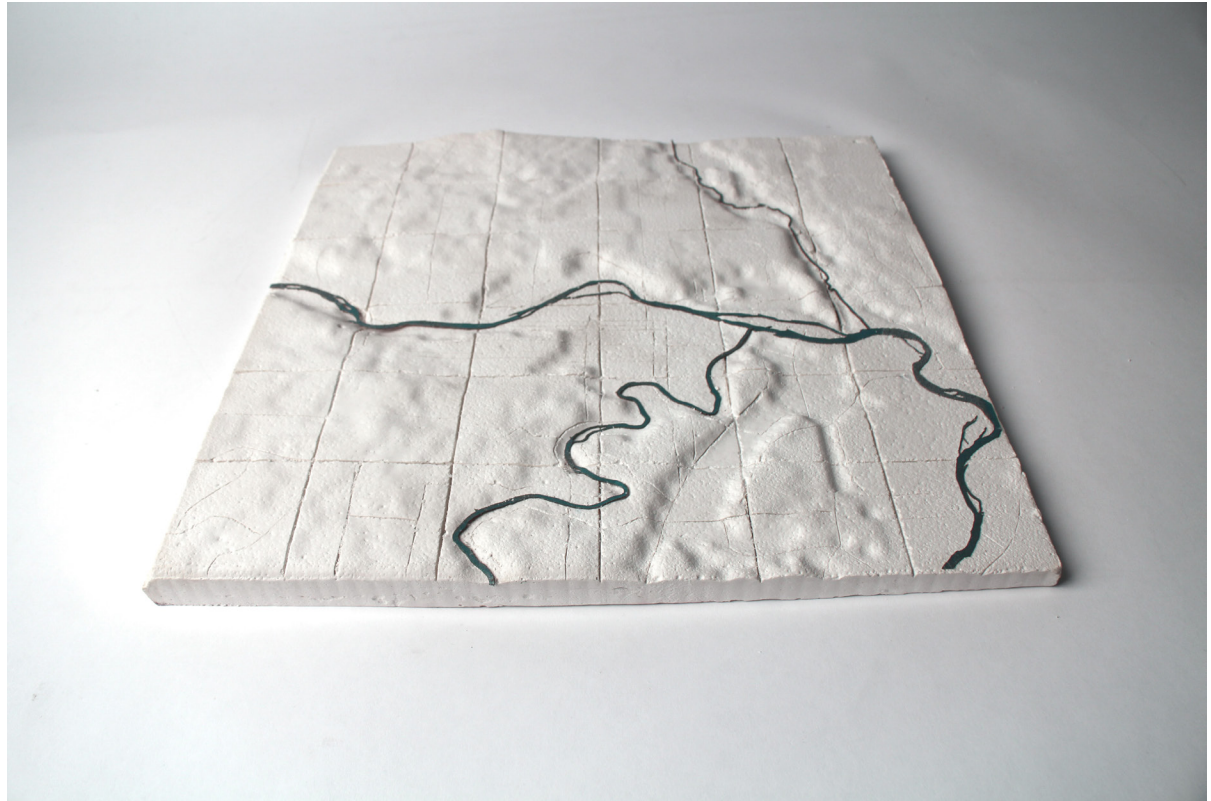Figure 4.16 | The Grid and Topography Map - Plan View

Figure 4.17 | The Grid and Topography Map - Front View

Figure 4.18 | The Grid and Topography Map - Right View

The topography, grid and the rivers do not express the entire story. Where streets are has been influenced by this flux between the grid and the topography. I categorized the important streets in the inner city into whether they followed the topography, the township section line, followed the grid in general, or found the least slope for a path. These streets began to form an interesting pattern over the topography. In Figure 4.20, you can see where I have carved into the plaster to show these streets.

The last aspect of the map to address is the edge boundary. This map is a square, and for a very particular reason. The map follows the original township survey boundaries, split into thirty-six sections. These sections are still markers in the city, both because some main streets follow them, but also because they are still used by the municipality to demarcate areas.

Finally, the Stampede Morphology map is about the built up history and memory on a specific site. Layers are important in representing time in the map, similar to the Historical Flooding Map. Many activities have been supported in the same locations with new buildings over time. Sometimes activities have shifted locations but still have a similar relationship to the site. As seen in Figure 4.24 the two grandstands overlap at perpendicular angles but remain in similar locations.
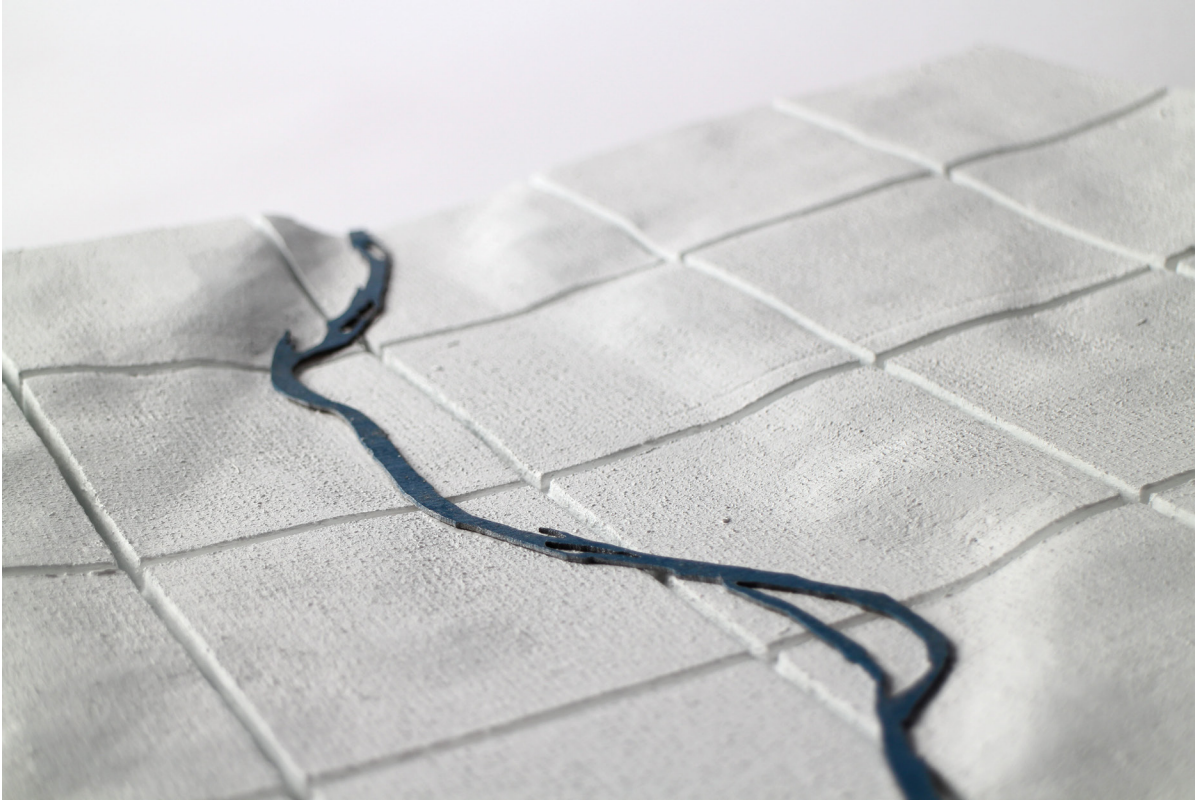
Figure 4.19 | The Grid and Topography Map - Grid

Figure 4.20 | The Grid and Topography Map - Streets

Figure 4.21 | Stampede Morphology Map - Plan View

This map also takes on some of the advantages of imagery like the flooding map. Each building has a photo of one of the types of events that happened there. The black and white photos are of buildings that are older, whereas colour photos represent buildings that are newer and still exist on the site. Figures 4.21 show the grainy quality of the photo transfers, which leads me into a discussion of material for this map.

All of the experiments with this map have involved wood. I have tried plywood, basswood, and birch wood veneer. Being able to engrave into it, and the warmth of the material were advantages to using wood. I was interested in using the laser cutter to see how different cuts might represent how long buildings had been there. Later, I thought that the buildings would become cuts into the material, and dig into the ground. The boundaries of the site, the river, and temporary events spaces were engraved on the top layer. But each building digs deeper into the layers of wood the longer it stayed on that site, regardless of it still stands or not.

Figure 4.22 | Stampede Morphology Map - Front View

Figure 4.23 | Stampede Morphology Map - Right View

Figure 4.24 | Stampede Morphology Map - Buildings 01

I also wanted to combine this layered idea with the wish to include images of events. The wood veneer I have used is great for this because the photo transfer works well in showing the image while keeping the wood's texture. The thinness of the veneer also allows for showing the depth of the building's history, while not removing it from the relationship to other buildings around it.

Each map brought on its own questions and issues surrounding its representation and the stories I was trying to tell. Each map also informed the way that I thought about the others because they all have points of intersection. All of the maps were made simultaneously in iterations. This helped me learn from each of them as I went on to the next step. Even now, I have thoughts on what the next map might be like. There is no end to the stories that might be told of Calgary. Alternatively, Calgary is not the only city worth being explored in this way.

Each person experiences a place a little differently, but I am hoping that these artifacts help share it. I have tried multiple techniques of mapping in both my two-dimensional maps and three-dimensional maps to share a sense of Calgary. I have diagrammed, traced, abstracted, imagined, overlaid, and made different types of data

Figure 4.25 | Stampede Morphology Map - Buildings 02

and memories and stories come together. The main aim of these artifacts is to generate curiosity. I want to share my experiences of Calgary and its sense of place. I want people to look at the maps and artifacts I have made and be curious to learn more. It is easier for the maps to act as a framework for telling these stories about Calgary in person, one on one. However, I am counting on this written thesis becoming the next best thing when I am not there to share my experiences.

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