Project Delivery With Indigenous Communities and Methods to Incorporate Indigenous

Ways of Knowing

by

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B.APSc., The University of British Columbia, 2020

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF APPLIED SCIENCE

in

THE FACULTY OF GRADUATE AND POSTDOCTORAL STUDIES

(CIVIL ENGINEERING)

THE UNIVERSITY OF BRITISH COLUMBIA

(Vancouver)

August 2022

The following individuals certify that they have read, and recommend to the Faculty of Graduate and Postdoctoral Studies for acceptance, a thesis entitled:

Project Delivery With Indigenous Communities and Methods to Incorporated Indigenous Ways of Knowing

submitted by Danilo Caron in partial fulfillment of the requirements for

the degree of Master of Applied Science

in Civil Engineering

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Abstract

Influential inquiries, such as the 2015 Truth and Reconciliation Commission and the 2019 National Inquiry into Missing and Murdered Indigenous Women and Girls, have emphasized the need to advance reconciliation between Canadians and Indigenous peoples. The architecture, engineering, and construction (AEC) industry is influenced by such societal goals, but there is no definitive roadmap to reconciliation. AEC projects take place on treaty or unceded Indigenous land, which contributes to the imperative of developing project delivery methods that reflect the cultures and world views of the original inhabitants of the land.

The problematic acquisition of Indigenous land by settler colonial society, combined with the increased acknowledgement of Indigenous knowledges, has elevated the practice of incorporating Indigenous ways of knowing in project design and delivery. As Winona LaDuke described, 'Indigenous knowledge is the culturally and spiritually based way in which Indigenous people relate to their ecosystem' (2002, p. 78). The challenge is creating the conditions for project teams to collaborate and learn from Indigenous Knowledge Keepers. This thesis aims to understand the project delivery methods used by two owners to incorporate Coast Salish values and knowledge in projects and to develop a framework to assist owners in choosing project delivery methods that facilitate the incorporation of Indigenous ways of knowing.

Case studies for the City of Vancouver Sea2City Design Challenge and the University of British Columbia Gateway Building were completed to better understand the strategies and methods used by the project owners to facilitate the inclusion of Coast Salish knowledge in project design.

The case studies were combined with findings from a literature review to create a framework to aid owners in this process.

The Framework to Incorporate Indigenous Ways of Knowing is divided into three phases and four guiding principles. The phases include pre-project preparations and actions, project delivery actions and options, and post-project actions. The phased processes and considerations are iterative as owners complete projects. The framework's guiding principles of responsibility to relationships, flexibility, Indigenous protocols, and continual learning were shown to be essential throughout the framework phases.

Lay Summary

The architecture, engineering, and construction (AEC) industry conventionally designs and builds infrastructure based on dominant colonial values and knowledge systems, which precludes Indigenous ways of knowing that could benefit projects. Beyond the direct benefit of a millennia of accumulated observation and relation-based values and knowledge, the reasons for incorporating Indigenous ways of knowing include the growing influence of Indigenous legal orders, political sovereignty, and the collective movement to rebuild the relationship between settlers and Indigenous Peoples.

In the Canadian context, AEC projects take place on treaty and unceded Indigenous territory, which is seldom reflected in the project design or delivery methods used. This research produced two case studies for projects that utilized different strategies for fostering collaboration and developed a framework to assist project owners in selecting project delivery methods that enable intercultural collaboration with Indigenous Knowledge Keepers for the betterment of project design and broader societal goals like reconciliation.

Preface

This thesis is based on the author's research on projects with the City of Vancouver and the University of British Columbia, under the supervision of Dr. Sheryl Staub-French. All data collection, analysis, and research outcomes were completed by the author.

The Human Ethics approval for this research was received from UBC Research Ethics Board prior to conducting data collection (application number: H21-01090).

Figures and tables in this thesis are the author's creation, unless cited otherwise.

The findings from this thesis will undergo a verification and refinement process in further research.

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List of Abbreviations

AEC: architecture, engineering, and construction

UBCIC: Union of British Columbia Indian Chiefs

C+CP: Campus and Community Planning

CAG: Community Advisory Group

CAT: City Advisory Team

CoV: City of Vancouver

ID: Infrastructure Development

IK: Indigenous knowledge

KK: Knowledge Keeper

PDM: project delivery method

MCPDP: Major Capital Projects Development Process

MMIWG: Missing and Murdered Indigenous Women and Girls

PSAB: Procurement Strategy for Aboriginal Business

RA: research activity

TAG: Technical Advisory Group

TRC: Truth and Reconciliation Commission

UNDRIP: United Nations Declaration on the Rights of Indigenous Peoples

UBC: University of British Columbia

Glossary

the Crown: A symbol that represents the state and its government. With respect to Indigenous consultation and engagement in Canada, the Crown is the provincial, territorial, or federal governments, which have a fiduciary duty to safeguard the interests of Indigenous Peoples.

Elder: The term "Elder" does not simply refer to elderly people in a community, but the respectful acknowledgement of their role in the community. They are recognized by the community as holders of traditional knowledge, cultural practices, and wisdom. Therefore, their input is often sought on community projects, programming, and community decisions.

Indigenous vs. aboriginal vs. Indian: There has been an evolution of the terminology used to refer to Indigenous people in what is now Canada. The term "Indian" should only be used within legal contexts associated only to First Nations people with Indian status under the Indian Act. Of currently used terms, this one should be avoided due to its link to colonial policies. The term "Aboriginal" was and is still used in legal and constitutional contexts. The term "Indigenous" refers collectively or individually to First Nations, Metis, and Inuit. It is the preferred term when one cannot use the specific name of a community or nation.

Indigenous Knowledge: The knowledge systems location specific, unique, and based on Indigenous world views that reflect culture, language, political systems and history. Generally speaking, IK is holistic, cumulative, relational, and dynamic.

Indigenous ways of knowing: Diverse and complex ways Indigenous peoples learn, teach, and understand the world. Indigenous ways of knowing reflect the diversity of cultures and locations, and include but are not limited to language, knowledge, spirituality, protocols, and ceremonies.

intercultural: Relates to the interaction between members of different cultures. For this research, "intercultural" relates to the communication or collaboration between Indigenous Peoples and settler cultures.

Knowledge Keeper: An Indigenous community member who holds and cares for traditional knowledge and teachings that have been passed down by and Elder or senior Knowledge Keeper in their community. A Knowledge Keeper is not necessarily an Elder.

positionality: Refers to social and political contexts that shape your identity, which influences your outlook and worldview. For engineering consultants this would include understanding how several factors influence their degree of privilege and how bias can impact their professional practice.

protocol: The way one interacts with Indigenous people that respects and observes their traditional ways of being and ethic systems. Protocols vary between Indigenous cultures and even between communities of the same Indigenous group.

stakeholder vs. rights holder: Stakeholders are any party with an interest in a project. Indigenous people are rights holders because of distinct Aboriginal rights contained in section 35 of the Constitution Act, 1982.

treaty: Treaties are agreements between Indigenous groups and the Government of Canada and often provincial and territorial governments which define rights and obligations of all parties. There are historic treaties and modern treaties, which are also called comprehensive land claim agreements.

Acknowledgements

I would like to thank all the generous participants who contributed to this work and the members of the UBC BIM TOPiCS lab for their guidance and example.

I offer a special thanks to my supervisor, Dr. Staub-French, for her support and inspiration along the way.

This thesis would not have been possible without my family's love and support.

Chapter 1: Introduction

1.1   Project Delivery Historically and in the Future

Project delivery for the architecture, engineering, and construction (AEC) industry has

traditionally responded to three metrics: cost, timing, and quality (Choi et al., 2019). These

metrics do not capture all the desired outcomes that projects can provide, such as societal goals

that are less quantifiable. The AEC industry is often at the centre of projects that impact the

health and wellbeing of Indigenous communities, and this research explores how the AEC

industry can improve the way projects are conceived, procured, designed, and delivered, with an

emphasis on not only cost, time, and quality, but also societal goals like reconciliation.

1.2   Reconciliation Journey

Canada has collectively undertaken a journey of reconciliation, largely in response to the

outcomes of several commissions and inquiries, such as the Royal Commission on Aboriginal

Peoples (Library and Archives Canada, 2016), the Truth and Reconciliation Commission (TRC)

(Truth and Reconciliation Commission of Canada, 2015a), and the National Inquiry into Missing

and Murdered Indigenous Women and Girls (MMIWG) (Inquiry into Missing and Murdered

Indigenous Women and Girls, 2019). It is within this societal and political environment that

many facets of society seek ways to advance reconciliation.

According to the TRC, reconciliation is defined as (2015a):

> *Establishing and maintaining a mutually respectful relationship between Aboriginal and*
>
> *non-Aboriginal peoples in this country. In order for that to happen, there has to be*

awareness of the past, an acknowledgement of the harm that has been inflicted,

atonement for the causes, and action to change behavior.

In the context of the AEC industry, the relationship between Indigenous Peoples and non-Indigenous people manifests itself in the infrastructure designed and built to serve Indigenous communities. Relationships are at the core of reconciliation, and the AEC industry can initiate and strengthen relationships, and thus advance reconciliation, by incorporating Indigenous community perspectives, values, and knowledge into projects that impact communities' wellbeing.

1.3 Industry Motivations

Incorporating Indigenous values and knowledge in project design can strengthen relationships and mutual trust, but there are other benefits for the industry. Designers are coming to recognize the value of deeper engagement and collaboration with Indigenous Knowledge Keepers (KK) because their holistic perspective compliments reductionist western science (Bekoff, 2000, p. 635). In many situations, Indigenous values place different emphases in project design that otherwise would not be prioritized, such as striving for reciprocity within relationships among not only people, but non-human relations (Bekoff, 2000, p. 635). As we rise to meet challenges, such as climate change, the values we prioritize and dismiss will have a profound influence on our design approach and eventual designs.

The political and legal landscape within Canada and many other parts of the world are changing to reflect the impacts of colonialism and settler colonialism. The relationships between settlers, Indigenous peoples, and all levels of colonial governments are similarly evolving, as is the

reemergence of Indigenous legal authority and sovereignty through the implementation of UNDRIP (White III Kwulasultun, 2019, pp. 44-50). Within UNDRIP is the principle of free, prior and informed consent (FPIC), which describes a relational approach to decision making when projects impact territorial land and resources that recognizes Indigenous nations as co-equals (Papillon & Rodon, 2017a). Section 2.4 Evolving Crown-Indigenous Relationship and Emerging Indigenous Sovereignty describes in more detail inherent Aboriginal rights, settler government policy, the establishment of the Crown's duty to consult, and the emergence of FPIC.

It is in the best interest of the AEC industry to develop the necessary, consent seeking mindset for projects that impact Indigenous communities. Being able to incorporate Indigenous values and ways of knowing will be an important way to build the trust necessary for communities to enter into consent-based agreements, which will also increase project certainty. Contributing to a societal goal like reconciliation and meeting the progressive legal landscape are two immediate reasons the AEC industry is looking to improve design and project delivery methods. The AEC industry does not hold the Indigenous knowledge (IK), so the incorporation will require project delivery processes that enable Indigenous KKs to inform and collaborate with project teams.

1.4   Research Objectives

There are two objectives of this research. First, to investigate project delivery methods used by owners'[1] seeking to incorporate Indigenous ways of knowing. Second, to develop a Framework to Incorporate Indigenous Ways of Knowing that project owners can apply to AEC projects.

The research topic, scope, and methods were influenced by conversations with fellow students, professors, and professionals in the AEC industry. A prominent sentiment was a desire to learn and understand how to incorporate IK in their projects, but there is an apprehension of doing it poorly and contributing to further strained relations with Indigenous communities. This research was approached as the continuation of the initial conversations, listening to the experiences and perspectives of project teams and owners' representatives with the goal of coming to an increased understanding of the opportunities and challenges of decolonizing project design and delivery.

Two projects form the backdrop for this research. Case studies were done on the City of Vancouver's (CoV) Sea2City Design Challenge and the University of British Columbia's (UBC) Gateway Building. Both projects demonstrate motivated owners, share a Coast Salish cultural context, offer insights into various parts of the project design cycle, and have relevance to the

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[1] The term "owner" is used in most project delivery literature, but in the Canadian context projects are frequently built on unceded Indigenous territory. Another term used to capture the role associated with project initiation and responsibility is "proponent," but it is also used on occasion to refer to groups responding to request for proposals. The author will user "owner" to conform to industry norms and avoid confusion despite the term not reflecting treaty relationships or the absence of formal land sharing agreements.

xwməθkwəy̓əm (Musqueam Indian Band), Sḵwx̱wú7mesh (Squamish Nation) and səl̓ílwətaʔł (Tsleil-Waututh Nation).

The CoV and UBC are situated in what is now called Vancouver, British Columbia. Both organizations are learning to incorporate the values and perspectives of the First Nations on whose unceded land their projects take place, but the CoV and UBC utilized different approaches to facilitating engagement and learning between the design teams and Indigenous KKs. Insights from project owners' representatives and industry practitioners have illuminated the processes undertaken to incorporate IK into design, the challenges they faced, the adaptions made in engagement, and the learning journey participants have been on. The lessons learned from this body of research will inform future project delivery methods used by the CoV and UBC as well as offer insights into important engagement considerations for other owners.

The Framework to Incorporate Indigenous Ways of Knowing highlights important project delivery considerations owners should apply to their project delivery methods. The framework considerations include owner motivations and preparation, project delivery mechanisms owners can implement within the project, and actions owners can take after, between, and on future projects. In addition, four key engagement principles that should be woven throughout each framework phase are identified as: responsibility to relationships, flexibility, Indigenous protocols, and learning. While developed for owners because of their role in choosing project delivery methods, the framework reflects contributions from owners' representatives, design consultants, and facilitation specialists who work within various delivery methods and

understand the challenges and constraints that exist in engaging and collaborating with Indigenous communities.

The framework is based on the findings from the two case studies, the literature review, and from the author's experience. While the framework is structured to be applied to different Canadian contexts, its development carries more influence from the case studies located in Coast Salish territory. The literature review and the author's contributions provide a broader perspective to the topic.

1.5 Thesis Outline

Chapter 2 is the literature review that draws on four areas of research to inform the starting point for this work. Chapter 3 describes the methods used to achieve the research objectives. Chapter 4 presents the CoV Sea2City Design Challenge and UBC Gateway Building case studies. Chapter 5 describes the case study data analysis process and findings. Chapter 6 describes how the Framework to Incorporate Indigenous Ways of Knowing was developed from the findings from the case studies and literature review along insights from other projects. Chapter 7 draws conclusions from the research findings and outlines next steps for this body of work.

1.6 Researcher Positionality

The author is drawn to the broader impact engineering can have on society and how this impact can contribute to restoring equity and justice. The notion of equity is not just providing equal access to opportunities to everyone, but it is also addressing historic inequities that have left a legacy of selective community disinvestment.

The author is of mixed ancestry who is both first-generation Italian Canadian on his father's side and Anishinaabe[2] on his mother's side. His Italian culture and upbringing had a large influence on his previous career as a tradesperson, but it's his Anishinaabe culture and journey that drives a curiosity for combining Indigenous world views with western engineering knowledge systems.

In some ways, this research parallels the author's personal journey to connect with his Anishinaabe culture, which he did not grow up in. Despite an awareness of this potential influence, his personal motivation manifests itself in various parts of the research. The author has the utmost respect for the IK that was part of the two projects studied and while the research was not developed with Coast Salish partners, the author has continued to respect their desired level of participation and capacity to contribute. His Indigenous identity does not grant special privilege to overstep boundaries or share what he does not have permission to and any errors in this respect are the author's own.

1.7   First Nations Involvement

This research aims to learn how project delivery methods can be tailored to enable meaningful collaboration and the incorporation of Indigenous values and knowledge into project design. The CoV and UBC have been enthusiastic supporters of this inquiry because they wish to learn and improve with each project. This is part of building trust with the Musqueam, Squamish, and

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[2] Anishinaabeg are culturally and linguistically related First Nations peoples from the Great Lakes regions extending west to Saskatchewan and North Dakota in what is now Canada and the United States.

Tsleil-Waututh Nations. However, important perspectives were missing from the conversations and formal interviews.

Local First Nations are invited to participate in a multitude of initiatives and research and asked for input on an ever-increasing number of projects in their traditional homelands. This fact permeates the research conversations and findings. Representatives for the local nations working with the CoV Sea2City project manager and the UBC Gateway building were informed of the research and invited to participate or provide input. Unfortunately, there were no direct interactions with Musqueam, Squamish, and Tsleil-Waututh representatives, which makes it impossible to contrast project team members' impressions with those of the nations. These missing perspectives were consistently reflected on during the research planning, data collection, and analysis process, and the conclusions drawn from the conversations and document analysis recognize this limitation.

Chapter 2: Literature Review

A preliminary literature search specifically on how Indigenous knowledge and values can be incorporated in Canadian AEC projects was scarce. One particular challenge is that IK falls under different terms in different parts of the world, for different areas of research, and has evolved over time. Some other terms for Indigenous knowledge include Traditional Ecological Knowledge, Indigenous ways of knowing, traditional knowledge, and Two-Eyed Seeing. The project delivery related terms used in this literature review were engineering project delivery and engineering design. Each possible combination of Indigenous knowledge terms and project delivery terms were searched in Google Scholar. The author will primarily use the term Indigenous knowledge (IK) in the thesis.

With limited research into combining IK and AEC project delivery, the literature review examined the following four topics influencing the research:

1. incorporating social goals in project procurement and delivery

2. innovative collaborative project delivery and methods that draw on diverse knowledge and expertise at early stages of the project

3. contributions IK can bring to projects

4. the background and evolution of the legal requirement for consultation and the emergence of free, prior, and informed consent

These four fields of inquiry layered to provide insights into this new body of knowledge which represents the intersection and departure point for exploring project delivery that incorporates Indigenous perspectives.

2.1 Societal Goals Influencing Project Procurement

Project procurement, especially when publicly funded, has the opportunity to meet societal goals that go beyond the typical AEC project delivery metrics of cost, quality, and schedule (Loosemore, 2016, p. 133). Socioeconomic goals can be achieved through providing preference to bidders with identified characteristics or through contractual provisions that require contractors to uphold policies that align with the outlined societal goals (Kelman, 2002). Using Google Scholar, the following search terms and combinations of terms were used to find literature identifying the current societal factors influencing procurement, examples of social procurement relevant to the research question, and trends in social procurement: social procurement, sustainable procurement, Indigenous relations, societal values, and reconciliation.

Procurement refers to how an organization purchases goods and services from suppliers and contractors to meet their project objectives (Perera et al., 2007, p. 15). Social procurement creates social value through the acquisition of goods and services by a government or organization (Barraket & Weissman, p. iii, 2009; Loosemore, 2016, pp. 133-135). For public sector projects, social procurement is seen as a policy tool to contribute to societal goals (Barraket & Weissman, 2009, p. 15).

Public procurement policy has been evolving since it first emerged in the mid-19 Century and has responded to labour standards, unemployment, and later to promote opportunities for disabled workers, address social inequities, and the underrepresentation of minority businesses (McCrudden, 2004). Sustainable procurement is another example of a societal goal integrated

into procurement frameworks in order to minimize environmental damage while satisfying an organization's needs for goods and services that benefits the organization and the broader society over the entire life of the project (Iles & Ryall, 2016, p.1122).

Assessing the social benefits and sustainability of infrastructure projects using social procurement has been challenging (Barraket & Weissman, 2009, p. 14) but methods have been developed to enable comparisons between location contexts and in the short and long term (Sierra et al., 2017). Sierra et al. propose a method that is influenced by both short and long-term social improvement indexes that are based on comparisons against social improvement criteria (2017, p. 3). Projects' contributions to social improvement were evaluated through a decision-making structure based on a series of social improvement categories and associated indicators (Sierra et al., 2017, p. 13).

Social procurement that attempts to address social inequities between Indigenous and non-Indigenous people is particularly relevant to the research topic and have been explored for some western nations with settler colonial history such as Australia, Canada, and South Africa (Denny-Smith et al., 2020). Denny Smith et al. caution the development of social procurement policy without input from Indigenous peoples because without considering cultural perceived value, the procurement policy can have negative effects (2020, p. 1153).

It is the researcher's position that procurement policy that helps address inequities advance reconciliation in the Canadian context. It is beyond the scope of this literature review to survey the extent to which Canadian society is committed to advancing reconciliation. The political

rhetoric and action surrounding the TRC Calls to Action, the MMIWG Final Report, and the implementation of UNDRIP are called into question regularly, but for the purposes of this research, the assumption of sincere motivations and intent are granted.

In 1996, Aboriginal Affairs and North Development Canada initiated the Procurement Strategy for Aboriginal Business (PSAB), which was designed to increase the success of Aboriginal firms in bidding on federal projects (Government of Canada, 2012b). The PSAB has been an effective policy tool, despite favoring more established Aboriginal businesses over small upstarts (Mah, 2014, pp. 76-79). The Australian Government also developed it's Indigenous Procurement Policy to increase opportunities for Indigenous Australians to participate in the economy by stimulating Indigenous entrepreneurship and businesses (National Indigenous Australians Agency, 2020, p.8).

The growing body of literature and utilization of social procurement practices indicates the opportunities arising from project procurement, beyond conventional project drivers of cost, scope, and schedule.

2.2   Collaborative Project Delivery

The structure of project teams, the contractual relationships of project stakeholders, and owner identified values all play a role in project success (Choi et al., 2019, p. 1). Not all project delivery methods hold the same potential to bring knowledge and expertise together in project design, but the choice of method impacts all facets of project performance and success (Choi et al., 2019, p. 1; Oyetunji & Anderson, 2006, p. 1). When societal goals like reconciliation

emphasize the inclusion of Indigenous perspectives, values, and knowledge, the chosen project delivery methods need to be able to foster collaboration across disciplines and ways of knowing and reflect government-to-government relationships. The collaborative project delivery literature was searched to discover methods and trends that could enable cross-cultural or intercultural collaboration. Keywords used included: project delivery, collaboration, and team building. Integrated project delivery (IPD) stood out as the most researched "collaborative project delivery" method. There is an abundance of literature relating to team formation, collaboration within project teams, and contractual agreements that balance the risk and profit structure that highly collaborative methods employ.

Collaborative project delivery methods, like IPD, gather the necessary experience and expertise at an early stage, enabling designers and construction professionals to contribute and combine their expertise (Allison et al., 2018, pp. 29-30; Kent & Becerik-Gerber, 2010, p.819). The quality of inter-disciplinary interaction and collaboration between project stakeholders are major indicators of project performance through the reduction of waste and increased efficiency in design and construction (Choi et al., 2019, p. 1; Zhang et al., 2018, p. 262). Establishing and upholding shared project values are important aspects of IPD (Allison et al., 2018, pp. 25-26) which is why it may also be an be an appropriate choice for incorporating Indigenous values.

IPD has some processes which appear to naturally lend themselves to incorporating IK and Indigenous community values. Not only does IPD create space for early collaboration, but it also draws on a more diverse group of stakeholders, inviting parties who will have a significant role in the project, including owners, designers, contractors, key trades and major suppliers (Allison

et al., 2018. pp. 27-30). IPD project implementation teams (PIT) for various project areas or building systems are assembled from diverse stakeholders to form small and nimble multidisciplinary teams (Allison et al., 2018, pp. 44-47). This approach encourages innovation within the PITs and leverages the different perspectives within them (Allison et al., 2018, p. 47). To take it to the next level of collaboration, the PITs could include Indigenous KKs who could contribute the local Indigenous values relating to specific aspects of a project. This would require a shift from a multidisciplinary team approach to transdisciplinary, which "integrates the natural, social and health sciences in a humanities context, and transcends their traditional boundaries" (University of Guelph, n.d.).

The possibility of IPD fostering collaboration between conventional project stakeholders and Indigenous KKs is further demonstrated through the following play-on-words. There is a connection between IPD Big Rooms and Indigenous Bighouses. Co-location over a period of time is an emphasis in IPD which includes in-person collaborative design sessions that bring project teams together in "the Big Room" (Allison et al., 2018, pp. 71-72). First Nations communities on the Northwest Coast of British Columbia used the Kwakwaka'wakw term "Bighouse" for large cedar houses where members of the house lived, people gathered, and ceremonies were held (Baird et al., 1999, pp. 5-6). These two unrelated terms conjure the same sense of communal vision and collaboration.

2.3   Indigenous Knowledge and Engineering Design

Engineering serves society through the application of scientific principles and innovation while AEC industry projects are driven by societal values and priorities. This research draws attention

to whose values are typically prioritized in engineering projects and their design. Global Indigenous world views, perspectives, and relationships to the natural environment are diverse, but there are commonalities due in part to colonial and settler colonial experiences (Clarkson et al., 1992, p.7). Indigenous and western epistemologies differ, but the literature demonstrates the attempts and results of integrating approaches to problem solving from different world views.

It's important to define what engineering is so IK and engineering can be contrasted and layered together. According to Allen et al., conventional engineering involves the practice of applying systems design to problems related to human needs with an objective set at the outset which is influenced by the project context and socio-economic constraints (2003, p. 389). Furthermore, engineering design is the method engineers use to design optimized solutions to problems and it's use is the signal of legitimate engineering activity (Foster & Jordan, 2014, p. 24.84.12).

By contrast Indigenous design principles are informed by a very different epistemology of interconnected relationships (Friesen & Herrmann, 2018, p. 3) and a goal of understanding concepts through the mind, body, emotions and spirit (Cajete, 1994, p.209). Western science can fall into reductionist traps that reduce the world into controlled fragments that present dynamic and complex systems into static models (Bekoff, 2000, p. 635). According to Bekoff, analyzing and understanding complex systems would benefit from a "holistic, heartfelt science that is impregnated with spirit and compassion" that strives for reciprocal relationships between humans, non-human animals and nature (2000, p. 635).

Despite different epistemologies, combining Western science and IK has the benefit of leveraging the strengths of each while not detracting from each other (Kimmerer, 2002, p. 436). The Mi'kmaw concept of Etuaptmumk, or Two-Eyed Seeing, emphasizes the gift of multiple perspectives embraced by many Indigenous people and has been widely utilized in research and policy development (Bartlett et al., 2012). Despite IK being often categorized similarly to artifacts that remain unchanged, Davidson-Hunt and O'Flaherty point out the dynamic nature by which knowledge is created (2007, p. 293). It is for these reasons that IK can contribute to engineering design.

Three examples demonstrate the impact Indigenous ways of knowing are having on engineering challenges. Sustainable design principles align with Mätauranga Mäori, the IK of the Maori of Aotearoa New Zealand, as they relate to stormwater management, the reduction of impervious surfaces, and the use of natural filtration, to which Kirby raised the question of how innovative is current sustainable design when it can be compared to principles developed over thousands of years (Kirby, 2005, as cited in Voyde & Morgan, 2012, p. 226)? In Canada, the NSERC Chair in Design Engineering for Sustainable Development & Enhanced Design Integration has explicitly emphasized IK in program action plan (Friesen & Herrmann, 2018, p. 2). Similarly, Droz highlights how Anishnaabe knowledge and cultural relationships share many principles of ecological engineering (2014, p. 23) which Mitsch defines as "the design of sustainable ecosystems that integrate human society with its natural environment for the benefit of both" (2012, p. 5).

Harnessing the benefits of incorporating IK comes with its own challenges. In the case of Mätauranga Mäori, the New Zealand Ministry for the Environment acknowledges the importance of the knowledge, but also recognizes it vulnerability to loss over time (Voyde & Morgan, 2012, p. 219). Furthermore, while the Maori are often willing to share Mätauranga Mäori, they do so with the expectation that they maintain control over the knowledge and how it's used (Voyde & Morgan, 2012, p. 219). Another consideration to combining IK with Western science is the typical way science-bases researchers interact with Indigenous peoples (Davidson-Hunt & Michael O'Flaherty, 2007, pp. 291-292). The two problematic forms of interactions identified by Davidson-Hunt and O'Flaherty that harm potential collaborations are (2007, pp. 291-292):

1. Scientists as saviors offering technologies, methodologies, and processes that would improve the wellbeing of impoverished Indigenous communities if adopted.
2. Researchers extracting IK from Indigenous communities only to convert it to a Western form that has commercial or academic value.

These challenges are not insurmountable. However, they require the development of relationships based on trust and reciprocity between engineers and the Indigenous communities they serve.

2.4   Evolving Crown-Indigenous Relationship and Emerging Indigenous Sovereignty

To understand current Crown-Indigenous relations and possible ways forward as a society, one must examine the origins of colonial asserted power, the reaffirming of Aboriginal Rights in Canada's constitution, the Crown's duty to consult, and the emergence of free, prior and informed consent. These topics all influence the historically tumultuous relationship between the Crown and Indigenous Peoples in Canada, but they also inform the motivations for project

owners to contribute to building and strengthening relationships with Indigenous communities.

The following topics were researched to understand the context for which collaboration with

Indigenous communities and KKs occurs:

- Doctrine of Discovery and Terra Nullius

- Royal Proclamation and Treaty of Niagara 1764

- 1982 Constitution Act, 1982 and the Honour of the Crown

- The Duty to Consult

- Beyond Consultation, Towards Consent

- Free, Prior and Informed Consent

- UNDRIP Legislation and FPIC

The literature review of evolving Crown-Indigenous relationships and emerging Indigenous

sovereignty represents a condensed overview of each individual topic. It was meant to inform the

research question, the objectives, and methodology, but it also provided a common starting place

for the research case studies because the project owners were similarly motived by the shared

history of Canada and the collective journey of reconciliation.

2.4.1 Doctrine of Discovery and Terra Nullius

There are several pre-confederation concepts and policies that have shaped the settlement of

North American and what we now call "Canada." The Doctrine of Discovery originate from

fifteenth century Papal Bulls which provided the legal and moral justification for Christian

European explorers to claim lands that were "unoccupied" (Assembly of First Nations, 2018,

p.2). Terra nullius is the principle that land is vacant if not occupied by Christians for the

purposes deemed culturally appropriate by European culture (Joseph, 2020), which was never the case in Canada as described by the Supreme Court of Canada in Tsilhqot'in Nation v. British Columbia (Assembly of First Nations, 2018, p. 3; Hanson, 2009c). The Doctrine of Discovery has been a principle used to justify and support the Crown's displacement, occupation, and assumed sovereignty over Indigenous land, which is why it is still relevant today and why the TRC Calls to Action 45, 46, and 49 call for Canada and faith groups to denounce concepts like the Doctrine of Discovery that justify colonial sovereignty over Indigenous land and people (Joseph, 2020).

2.4.2   Royal Proclamation and Treaty of Niagara 1764

After King George III defeated the French in Quebec he signed the Royal Proclamation of 1763 which claimed North America for England but it recognized that Aboriginal land title existed prior to and continued to exist until ceded through treaty with the Crown (Hanson, 2009b). Furthermore, the Royal Proclamation set out the framework for treaty negotiations that is referenced in the Constitution Act, 1982 Section 35 (Hanson, 2009b). Only one year later the Treaty of Niagara brought together First Nations from Nova Scotia to the prairies and the Crown (the Superintendent of Indian Affairs) to affirm the Covenant Chain of Friendship (Assembly of First Nations, 2018, p. 6). In this multi-nation treaty communicated through a two-row wampum belt, no nation gave up their rights or sovereignty (Burrows, 1997). Together, the Royal Proclamation and the Treaty of Niagara are held by many historians and legal experts as the basis for today's right to Indigenous self-determination and self-governance (Burrows, 1997).

2.4.3 Constitution Act, 1982 and the Honour of the Crown

Section 35 of the repatriated Canadian Constitution Act, 1982 affirms existing Aboriginal rights

and title, but the rights do not originate with the Constitution. Aboriginal rights originate from

the continued use and occupation of territorial lands and through their ongoing Indigenous social,

political and legal structures (Hanson, 2009a). Furthermore, the courts have viewed Section 35 of

the Constitution Act as means of achieving reconciliation (Brideau, 2019, p. 3).

It's important to note that the first draft of the repatriated constitution did not have section 35, or

references to Aboriginal title (Hanson, 2009a). This flagrant omission instigated a backlash from

Indigenous groups most notably Ron George and George Manual, then president of the Union of

British Columbia Indian Chiefs (Hanson, 2009a). Their response was to commission two trains

from Vancouver to Ottawa bringing delegates to challenge the proposed constitution (Hanson,

2009a). Known as the Constitution Express, the delegates addressed Ottawa and then spread

their message to the United Nations in New York and the House of Lords in England (Hanson,

2009a). The hard-won addition of section 35, which affirms Aboriginal rights and title is an

example of the struggle Indigenous peoples in Canada have had to endure to maintain their

cultural identity and rights. It also shows the motivation of the Crown to extinguish Aboriginal

rights and culture, when in theory the Crown has a fiduciary duty to uphold existing rights and

advocate for Indigenous peoples' prosperity within Canada (Brideau, 2019, p. 2).

By asserting sovereignty over Indigenous land, the Crown initiated the constitutional principle of

"the honour of the Crown" which is central to the Crown's relationship with Indigenous peoples

(Brideau, 2019, pp. 2-3). To illustrate this, in 1895 the Supreme Court of Canada stated that the

honour of the Crown is "faithfully fulfilled as a treaty obligation of the Crown" (Supreme Court of Canada, 2001, p. 512).

2.4.4 The Duty to Consult

The duty to consult doctrine was affirmed through the Supreme Court of Canada decisions and further emphasized by the United Nations Declaration on the Rights of Indigenous Peoples Articles 27 and 28 (Government of Canada, 2012; UN General Assembly, 2007, p. 8). Three pivotal Supreme Court Cases established the duty to consult as it is known today: Haida Nation v British Columbia (Minister of Forests), Taku River Tlingit First Nation v British Columbia (Project Assessment Director), and the Mikisew Cree First Nation v Canada (Minister of Canadian Heritage) (Brideau, 2019, p. 2). Prior to these cases it was up to individual Indigenous communities to prove the existence of their rights and the infringement on them often requiring injunctions while the matter was settled in court (Brideau, 2019, p. 2).

The Crown owes a duty to consult Indigenous peoples should actions or decisions of the Crown potentially negatively impact established or asserted Aboriginal or treaty rights (Government of Canada, 2012a). While the Crown cannot contract out the responsibility to consult, it can delegate aspects of the consultation process to a regulatory process (Brideau, 2019, p. 4) or part of the process to a proponent (BC Environmental Assessment Office, 2013, p. 6) as long as the consultation process is explained to the Indigenous community (Brideau, 2019, p. 4).

The duty to consult is triggered when the Crown has "knowledge, real or constructive, of the potential existence of the Aboriginal right or title and contemplates conduct that might adversely

affect it" (Supreme Court of Canada, 2004, para. 64). This implies that the duty to consult does

not hinge on whether Aboriginal rights and title have been established, but rather whether a

claim has been asserted. The Haida Nation v. British Columbia (Minister of Forests) Supreme

Court ruling established the potential harm to reconciliation efforts if consultation is not

conducted only to discover legitimate Aboriginal title later (Brideau, 2019, p. 4). The threshold

of the duty to consult was later refined in Rio Tinto Alcan v. Carrier Sekani Tribal Council

Supreme Court judgement where the following three tests were identified (Brideau, 2019, pp. 4-

5):

1. The Crown must have "knowledge, actual or constructive, of a potential Aboriginal claim
    or right."

2. The Crown must be contemplating an action that may impact a potential Aboriginal right.

3. The Crown's action must have the potential to adversely affect an asserted or established
    Aboriginal right.

The scope of the duty to consult varies with each case and is influenced by the strength of the

claim, the type of Aboriginal right or title, and the scale of impact the Crown's action would

have on the Aboriginal rights (Brideau, 2019, pp. 4-5). For example, weak claims with minimal

project impact, the consultation process may be a notification with a follow up after the

notification has been reviewed (Brideau, 2019, p. 5). However, if the claim is strong with a risk

of severe impact on Aboriginal rights, the Crown may need to accommodate an Indigenous

group through a more robust consultation process with input from the impacted Indigenous

community, potentially including the full consent of the Aboriginal group whose rights are

infringed upon (Brideau, 2019, p. 5). Underlying the duty to consult is the requirement that the

Crown act in good faith and conduct the consultation process with a mindset of flexibility (Brideau, 2019, pp. 5-6).

2.4.5   Beyond Consultation, Towards Consent

Public perception and awareness of past and ongoing colonial harms conducted by the Crown including the Indian Act, the residential school system, the Sixties Scoop, and ongoing child welfare policies have influenced the Canadian discord with respect to resource development, industrial infrastructure, and Indigenous self-determination. Three recent developments have served to raise public knowledge of historic and continuing systemic discrimination towards Indigenous people in Canada: The Truth and Reconciliation Commission (TRC), the Inquiry into Missing and Murdered Indigenous Women and Girls (MMIWG), and the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). These follow the Royal Commission on Aboriginal People (RCAP) which was commissioned in 1991 with a comprehensive report released in 1996. RCAP provided a direction for the role of Aboriginal people in contemporary Canadian society with recommendations that were largely unimplemented (Ladner, 2001). The Inquiry into MMIWG has elevated awareness of social injustice. The TRC has also impacted the duty to consult because of Call to Action 92 (2015):

> *We call upon the corporate sector in Canada to adopt the United Nations Declaration on the Rights of Indigenous Peoples as a reconciliation framework and to apply its principles, norms, and standards to corporate policy and core operational activities involving Indigenous peoples and their lands and resources. This would include, but not be limited to, the following:*

i) *Commit to meaningful consultation, building respectful relationships, and*

obtaining the free, prior, and informed consent of Indigenous peoples before

proceeding with economic development projects.

As stated above, UNDRIP has explicit articles addressing the need to consult Indigenous peoples

when their rights are infringed upon. Article 28 of UNDRIP has drawn a lot of attention because

of free, prior, and informed consent (FPIC) (UN General Assembly, 2007):

Indigenous peoples have the right to redress, by means that can include restitution or,

when this is not possible, just, fair and equitable compensation, for the lands, territories

and resources which they have traditionally owned or otherwise occupied or used, and

which have been confiscated, taken, occupied, used or damaged without their free, prior

and informed consent.

2.4.6   Free, Prior and Informed Consent

The concept of FPIC has drawn pushback because it is often portrayed as a "veto" over project

approvals (White III Kwulasultun, 2019). FPIC requires a relational approach that recognizes

Indigenous nations as co-equals in decision making processes (Papillon & Rodon, 2017a).

Moreover, UNDRIP included numerous balancing provisions to ensure the declaration respects

principles of justice, democracy, a respect for human rights, equality, nondiscrimination, and

good faith governance all within the constraints of the Canadian constitutional traditions

(Coalition for the Human Rights of Indigenous Peoples, 2018, p. 4; Papillon & Rodon, 2017a, p.

218). After all, to "veto" implies an absolute power to decide, and Indigenous peoples are bound

by the facts of a proposed project including all the rights at stake (Coalition for the Human

Rights of Indigenous Peoples, 2018, p. 4). Canada prefers a limited interpretation of FPIC that

amounts to an obligation to seek consent, but drawing on principles of the Royal Proclamation the Crown needs Indigenous peoples' free consent to gain access to their land (Papillon & Rodon, 2017b, pp. 9-10).

An important aspect of FPIC is that the collaborative decision-making process must involve the Indigenous community's internal deliberation process, which can vary from community to community (Papillon & Rodon, 2017b, pp. 7-11). Allowing the internal process to unfold in a reasonable and respectful time is also a challenge because communities capacity to conduct their own engagement can conflict with a project's timeline (Province of British Columbia, 2010).

The 2019 paper, *Consent,* by the Union of British Columbia Indian Chiefs (UBCIC) puts an Indigenous perspective on the topic of FPIC. Kwulasultun lays out the historic path to FPIC through Supreme Court case law, the TRC, and UNDRIP but the Indigenous perspective emphasizes FPIC's foundation in Indigenous legal orders, the connection of FPIC to sovereignty and jurisdiction, and how the implementation of FPIC rebuilds Indigenous Nations and governments, rather than the Eurocentric transactional nature of the duty to consult and accommodate (White III Kwulasultun, 2019). Kwulasultun expresses optimism for what a transition from consultation to consent could mean (2019, p. 5):

> *These developments are significant. They hold the potential to place the future on a different course – one which significantly diverges from the original sin of Canada: that when the fathers of Confederation gathered to form Canada, Indigenous peoples were not present, Indigenous Title and Rights were never considered, historic treaties that*

expressed the relations between sovereigns were ignored or forgotten, and a pattern of

assimilation, oppression, and denial was advanced.

The paper goes on to tackle the question of operationalizing consent from Indigenous Nations, governments, and industry perspectives. To realize consent, Indigenous Nations need to build their decision-making and legal jurisdiction structures, processes, and mechanisms (White III Kwulasultun, 2019, pp. 44-50). Representation of the title and rights holder, clarifying the decision-making authority, establishing Indigenous decision-making and consent regimes, and building implementation capacity are key to operationalizing consent (White III Kwulasultun, 2019, pp. 48-50).

Long established laws and policies prevent Indigenous self-determination which is hindering the relationship between Indigenous governments and the Crown from being fully realized (White III Kwulasultun, 2019, p. 51). Most land and resource laws were passed as if Aboriginal title and rights do not exist and it is this assumption that forms the current mindset (White III Kwulasultun, 2019, p. 51).

Industry has a role to play as well because many projects involve agreements between Indigenous Nations and proponents, such as impact benefit agreements (IBA) (Papillon & Rodon, 2017a, p. 217; White III Kwulasultun, 2019, pp. 55-56). Agreements can bring certainty and can contribute to the Crown's duty to consult, but most agreements do not recognize Indigenous title and rights which is reflected in the legal frameworks limiting or restricting Indigenous title, rights and their legal governance roles as Nations (White III Kwulasultun, 2019, p. 56). Furthermore, most agreements include decision-making processes that do not ensure

consent from the partner Nation, but rather facilitate Crown processes of consultation and accommodation (Papillon & Rodon, 2017a, p. 217; White III Kwulasultun, 2019, p. 56). Papillon & Rodon called negotiated consent through IBAs "a truncated version of FPIC" because it doesn't treat FPIC as a collective right that involves substantive participation from the community (2017, p. 217).

Grand Chief Wilton Littlechild from the United Nations Permanent Forum on Indigenous Issues in 2018 captured the essence of what consent means and highlights the potential for more equitable and just partnerships (Skene, 2018, para. 12):

> *You simply cannot tell a People that they have no right to say 'no', regardless of the level of destruction or the consequences. What is needed are better processes, joint processes, designed with Indigenous Peoples…Indigenous Peoples must be part of decision making when our rights and well-being are at stake. Working with us to determine what that looks like is the smart thing to do. It will lead to fewer acrimonious decisions, fewer court battles, more timely decisions, and better outcomes for us all.*

2.4.7   UNDRIP Legislation and FPIC

The TRC Calls to Action 43 and 44 relate to the Canadian government adopting UNDRIP (2015):

> *43. We call upon federal, provincial, territorial, and municipal governments to fully adopt and implement the United Nations Declaration on the Rights of Indigenous Peoples as the framework for reconciliation.*

44. We call upon the Government of Canada to develop a national action plan,

strategies, and other concrete measures to achieve the goals of the United Nations

Declaration on the Rights of Indigenous Peoples.

Implementation of UNDRIP has accelerated since UNDRIP was endorsed without conditions by the Canadian federal government in May of 2016. British Columbia was the first jurisdiction to enact UNDRIP legislation in the form of the Declaration on the Rights of Indigenous Peoples Act on November 28, 2019 (Province of British Columbia, 2022). The Province, in input from Indigenous peoples, released its Action Plan on March 30, 2022, with four key themes (Province of British Columbia, 2022, p. 1):

1. Self-Determination and Inherent Right of Self-Government

2. Title and Rights of Indigenous Peoples

3. Ending Indigenous-specific Racism and Discrimination

4. Social, Cultural, and Economic Well-being

Bill C-69, An Act to Implement the Impact Assessment Act (IAA) and the Canadian Energy Regulator Act (CERA) in 2019 both show the influence of UNDRIP in Canadian law. Bill C-69 originally had no mention of UNDRIP, but amendments included UNDRIP in the preamble but no mention of FPIC (Gray & Axmann, 2019). The IAA mentions cumulative impacts from multiple projects that have incremental environmental, cultural, health, and economic consequences, or what are called regional and strategic assessments, but does not provide requirements for such assessments (Tsuji, 2022, p. 16).

On June 21, 2021 the Canadian UNDRIP Act received Royal Assent and thus marked a historic step towards implementing UNDRIP in Canada (Duncanson et al., 2021; Government of Canada Department of Justice, 2021). The UNDRIP Act requires the Government of Canada to ensure federal laws are consistent with UNDRIP while an action plan is yet to be developed (Duncanson et al., 2021). The UNDRIP Act has two primary goals (Duncanson et al., 2021):

1. to affirm UNDRIP as a universal human rights instrument applied in Canada

2. to serve as the framework for the Government of Canada to implement UNDRIP

2.5   Literature Review Conclusion

Aspects of the literature review were brought into this thesis, while some areas provided background context. The combined areas of interest served to inform the author of the evolving social, political, legal, and ethical context of decolonizing engineering project delivery as well as provide insights into the established project delivery considerations that influence the incorporation of Indigenous ways of knowing into AEC industry projects.

Each of the four literature review topics contributed to the research objectives in different ways. Key takeaways for each topic and how they influenced each research objectives are:

- **Societal Goals Influencing Project Procurement**: Incorporating societal goals that extend beyond project cost, scope, and schedule is not a new concept, but including reconciliation as a project outcome is less studied and understood. Research into social procurement highlights some of the organizational and process challenges of valuing qualifiable objectives. The findings from this topic influenced the Framework to

Incorporate Indigenous Ways of Knowing because of the similarities with implementing social procurement.

- **Collaborative Project Delivery**: The benefits of collaboration are well understood and project delivery methods that bring together project stakeholders early with shared values and goals influenced the framework because many organizations adopting collaborative project delivery methods experience similar transitions as those incorporating Indigenous ways of knowing.

- **Indigenous Knowledge and Engineering Design**: Understanding how owners have incorporated Indigenous ways of knowing in project design benefited from a review of how Indigenous world views differ from western science and engineering. The framework was developed to assist owners to create procurement and project delivery methods that account for these differences and support project teams through the process.

- **Evolving Crown-Indigenous Relationship and Emerging Indigenous Sovereignty**: A large motivation for advancing reconciliation comes from the shared history of Indigenous peoples and settlers in what is now called Canada. This includes understanding how this impacts the AEC industry now and in the future. The findings influenced the framework because it was created to assist owners in adopting the preparation, procurement, and delivery processes that acknowledge pivotal societal works such as the TRC Calls to Action, the MMIWG Calls for Justice, and UNDRIP.

The two case studies developed as part of this research do not represent all aspects of the literature review. Therefore, the findings from the literature review provide important

considerations in the framework that do not come directly from the two projects studied in-depth.

Where relevant, references will be made to findings and works in the literature review.

Chapter 3: Methodology

3.1 Research Method

The methodology used for the first research objective, to learn about project delivery mechanisms and considerations that enable the incorporation of Indigenous Ways of Knowing in AEC projects, was a mixed-methods case study method utilizing document review, interviews, and ethnographic observation. Case studies were developed on two projects: the CoV Sea2City Design Challenge (Sea2City) and the UBC Gateway Building (Gateway). The literature review and author's experience influenced the data collection starting point for the two projects. Due to the emergent nature of this body of knowledge, a constructivist grounded theory approach was utilized because the interviews, while semi-structured, involved dialogue between participants and the author where data could be viewed as co-constructed (Charmaz, 2014). The coding and analysis process described in Chapter 5 was completed to develop an understanding of the experiences shared through the interviews and the project documents. The case study data analysis involved an iterative synthesis process that allowed themes to emerge that represent the findings of the case studies. These were later identified as the "emergent themes."

The case study emergent themes, by themselves, are not directly implementable by owners or designers. The second research objective was to develop a framework to assist owners in choosing project delivery methods and mechanisms that promote intercultural collaboration between designers and Indigenous KKs, and thus the incorporation of Indigenous ways of knowing. The "Framework to Incorporate Indigenous Ways of Knowing" combines the emergent themes with literature findings and the author's experience in a structure that represents project phases that an owner will encounter. The phases of the framework repeat with each project, and

they combine with a category of principles that are critical to incorporate throughout all project phases. The development of the framework is described in Chapter 6.

To achieve the two research objectives, a series of research activities (RA) were identified and grouped according to objective and sequence. The RAs are outlined in Table 3.1 with the workflow represented in Figure 3.1. Section 3.3 outlines each RA.

Table 3.1 Research actions for each research objective

		Examine ways PDMs enable incorporation of Indigenous ways of knowing
RO1	RA1	Understand 4 fields of study contributing to research topic
	RA2	Understand context of both projects
	RA3	Investigate procurement process for each project
	RA4	Investigate preparation individuals and organizations did before projects
	RA5	Investigate project Indigenous engagement and collaboration for each project
	RA6	Investigate collaboration challenges and successes for each project
	RA7	Synthesize data through coding and analysis to Emergent Themes
RO2		**Develop Indigenous Values Framework for project proponents/owners**
	RA8	combine Emergent Themes with literature findings and author experience
	RA9	Develop framework for incorporating Indigenous ways of knowing

Research Activity Sequence
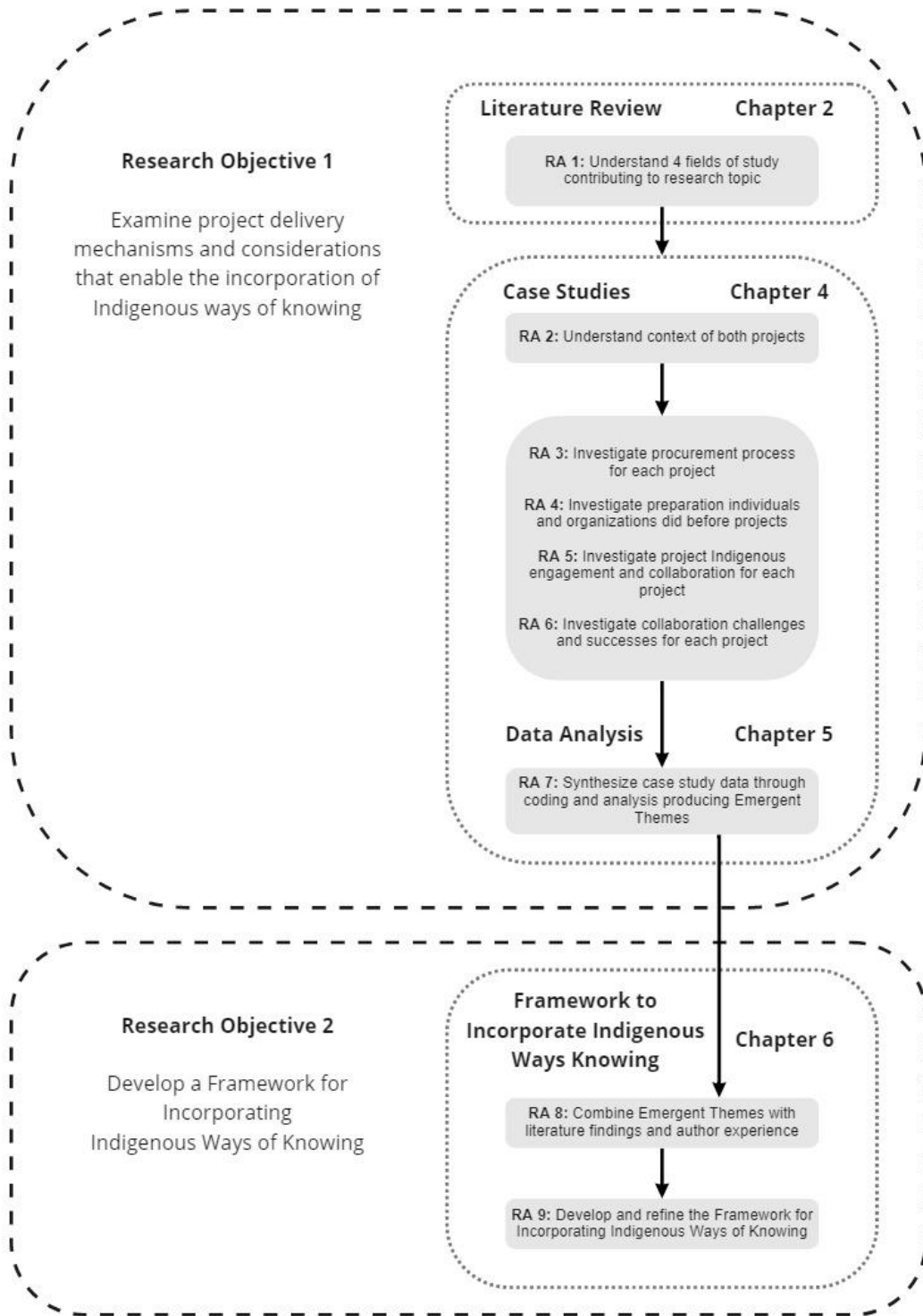
Figure 3-1 Research activity sequence

3.2   Case Study Data

Sea2City and Gateway represent an ongoing conversation that overlaps the researcher's personal experience and personal passion for advancing reconciliation in the AEC industry. Inviting people into the conversation is critical to engaging everyone, regardless of where they are in their reconciliation journey.

To understand the project delivery choices made by the CoV and UBC, the researcher collected data the following ways:

- review of project documents

- conducted interviews with participants from the design teams, the project management teams, and engagement consultants

- observed Sea2City design teams during virtual onboarding and workshops

Diverse perspectives and experiences were critical to understanding the themes associated with incorporating IK in Sea2City and Gateway. Informal dialogue helped develop research motivations and partnerships, while formal interviews enabled participants to contribute their experiences, whether they were successes, frustrations, uncertainty, discomfort, or all the above.

3.2.1   Conversations

The methodology is grounded in conversations. Beyond the many informal discussions, and despite differences between the Sea2City and Gateway projects, the core of this research is based on 19 semi-structured 60-minute interviews with a range of disciplines and experience in decolonizing project delivery. The interview questions were influenced by an initial series of key

project delivery considerations that were formed from literature and the researcher's experience. The five initial considerations and the related interview questions were:

1. Personal, Professional and Organizational Motivations

    a. What previous experience people brought to decolonizing professional practices?

    b. What was their willingness to engage, learn, and include Indigenous values and design principles?

2. Personal, Professional and Organizational Learning

    a. What preparation in Canada-Indigenous history or principles of decolonization did participants and teams do before the projects or while they prepared their proposals?

3. Project Procurement and Delivery Methods

    a. What was their understanding of the project delivery methods used in their project to facilitate engagement with Indigenous KKs?

    b. How the project delivery methods used in their projects enabled designers to incorporate Indigenous perspectives and knowledge in their designs?

4. Learning and Applying Indigenous Design Principles

    a. What lessons or design principles from the engagement process did the participants take away or utilize in their design?

    b. Did the interviewee perceived a change in personal comfort or confidence in applying what they learned during the project engagement?

    c. Did the participant believed that the local First Nation(s) were satisfied with the engagement process and use of their shared knowledge?

5. Barriers and Opportunities to Move Forward

a. What modifications would they like to see in the project delivery method that was used in their project?

b. What do they see as barriers to incorporating Indigenous perspectives and knowledge in their design?

The interview questions were designed to gather information and perspectives on aspects of AEC projects that literature identified as important and project delivery considerations the author knew to be relevant to collaboration with Indigenous communities. The questions were tailored to the project and to the role of the participant. Slight modifications were made to reflect whether interviewees were architects, landscape architects, engineers, planners, third party engagement consultants, or project managers. Similarly, questions also reflected the timing of projects' engagement with KKs. All the conversations maintained a consistent arc that allowed space for participants to dive deeply into areas that they felt strongly about. The list of questions for Sea2City and Gateway are Appendix A.

There were 12 interviews with Sea2City participants and 7 from Gateway with multidisciplinary representation from each project. The nature of collaborative project delivery with Indigenous KKs necessitates the implementation of engagement and design principles across disciplines, which is why a diverse field of participants was sought. See Table 3.2 for a breakdown of participant disciplines for Sea2City and Gateway.

Table 3.2 Research participants disciplines

Participant	Sea2City	Gateway
Architect	2	1
Landscape Architect	5	1
Engineer	1	1
Engagement Specialist	0	2
Planner	1	1
Cultural Planner	1	0
Project Management	2	1
Total	**12**	**7**

3.2.2 Documents

Various types of Sea2City and Gateway project documents were reviewed that reflected:

- the timing of the projects.

- the procurement methods chosen.

- the level of detail provided to potential design teams in the form of supporting

  documentation.

- the outcomes from engagement between designers and Indigenous KKs.

The project procurement documents were provided by research contacts with the CoV and UBC

and proposals were provided by design team leaders. In some cases, the documents were

internally facing, and others were intended for project wide distribution or to the public.

The author was looking for differences in how the CoV and UBC identified their goals for incorporating Indigenous values and perspectives in Sea2City and Gateway and how they facilitated and supported this objective. The project documentation demonstrated how the CoV and UBC established project expectations, how design teams articulate their approaches to the projects, and how the information shared in engagement sessions was communicated and implemented.

By evaluating the projects' procurement, supporting, and engagement documentation, the different approaches taken by the CoV and UBC could be compared. Additionally, insights collected through interviews could be compared with what was presented or described in the project documents. During analysis, these comparisons allowed the researcher to ground participant contributions. This is especially valuable when multiple shared perspectives on a subject differed.

Table 3.3 outlines a summary of the project documents reviewed as part of the Sea2City and Gateway case studies and Appendix B contains a complete list of documents reviewed for both projects.

Table 3.3 Project documents reviewed for Sea2City and Gateway

Project document type	Sea2City	Gateway Building
Expression of interest (EOI)	RFP	EOI
Request for proposal (RFP)		RFP
Design team proposal	2	1
Engagement meeting minutes	n/a	4
Engagement summary	n/a	1
RFP support documents	6	5
Additional project documents	4	2

3.2.3   Observations

The timing of Sea2City enabled the researcher to observe participants during Sea2City virtual

onboarding and some workshops. For Sea2City, the author observed:

- project onboarding sessions for the two Sea2City design teams.

- informative sessions with the City Advisory Team, the Technical Advisory Group, and

  the Community Advisory Group.

- two Decolonization and Indigenous Perspectives workshops facilitated by representatives

  of the Squamish and Tsleil-Waututh Nations.

This allowed the researcher to view the project as it evolved, and it provided a sense of how the

design teams were navigating the decolonization aspect of Sea2City and how the two teams were

interacting with advisors, stakeholders, and Indigenous KKs. These observations helped the

researcher relate to the participants' experience during interviews because the conversations

often included comments relating to these project experiences.

The engagement between designers and Musqueam representatives for the Gateway project was

completed before data collection began, so the ethnographic data collection is limited to

Sea2City. For Gateway, the researcher relied on participants' recollections and the engagement

meeting minutes and summary.

3.3   Research Activities

The research activities that contribute to the two research objectives are described in detail

below.

Research Objective 1: Investigate project delivery methods that enable the incorporation of Indigenous Ways of Knowing

RA 1: Understand 4 fields of study contributing to the research topic

Consulting existing literature was an important part of approaching this area of project delivery

research. While Indigenous ways of knowing are influencing some areas of engineering research,

project delivery is a topic with little mention to date. The contribution of Indigenous Peoples is

recognized, but not the way we foster collaboration on engineering design. Therefore, four areas

of literature were searched that contribute to this research:

- Incorporating social goals in project procurement and delivery

- collaborative project delivery

- IK contributions to engineering design and AEC projects

- current and historic Indigenous political, legal, and social contexts that impact AEC projects

The findings of the literature review informed the research starting point, most notably the interview questions, and the framework development.

RA 2: Understand context of Sea2City and Gateway

The context of Sea2City and Gateway involves the following factors impacting projects in Coast Salish territory:

- The evolving relationship between the CoV and UBC with the Musqueam, Squamish, and Tsleil-Waututh Nations

- The current capacity of Musqueam, Squamish, and Tsleil-Waututh due to such considerations as staffing and Covid-19

- Government-to-government agreements and protocols

- The commitments made by the CoV and UBC to advance reconciliation

The understanding of the case study contexts was achieved through formal in informal conversations, documents review, ethnographic observation, and from the literature review. The learning was continued throughout the data collection process.

RA 3: Investigate procurement process for each project

The procurement process used by the CoV and UBC was investigated through informal conversations with research contacts from each organization, through the documents review, the

semi-structured interviews, and ethnographic observations. Each organization has their own structured methods of procuring design services, which has a large influence over collaboration within the project.

RA 4: Investigate the preparation individuals and organizations did before the projects

The preparation individuals and their organizations did leading up to Sea2City and Gateway was shared through design team project proposals and through the semi-structured interviews with project managers, design teams, and engagement consultants.

RA 5: Investigate project Indigenous engagement and collaboration for each project

Each organization planned and facilitated engagement and collaboration between their design teams and representatives from Musqueam, Squamish, and Tsleil-Waututh in different ways. The researcher gained insight into the processes through document review, semi-structured interviews, and ethnographic observation.

RA 6: Investigate collaboration challenges and success for Sea2City and Gateway

The challenges and success experienced during Sea2City and Gateway were investigated through the semi-structured interviews and to a lesser extent, ethnographic observations. The flexibility within the interview process provided the best opportunity for research participants to articulate their experiences and insights.

RA 7: Synthesize data through coding and analysis producing emergent themes

The collected data from reviewing documents, interviewing research participants, and observing

Sea2City virtual sessions was coded using Nvivo[3] (QSR International Pty Ltd., 2021) software in

an iterative process that captured the collective insights from Sea2City and Gateway. Chapter 5:

Qualitative Data Coding and Analysis, goes into detail how the data was coded, analyzed, and

synthesized into themes that represent the findings of the case studies.

Research Objective 2: Develop a framework to assist owners in choosing project delivery

methods that enable intercultural collaboration between designers and KKs

RA 8: Combine emergent themes with literature findings and author experience

RA 8 involves a secondary data analysis that combines the emergent themes with literature

review findings, examples from other AEC projects, and the author's experience. This is

important because Sea2City and Gateway share a context that is different in other locations in

Canada. The additional sources of information highlight project delivery considerations not

explored or utilized by the CoV and UBC and reflect other Indigenous cultures.

RA 9: Develop Framework for Incorporating Indigenous ways of knowing

The framework was developed through an iterative process of comparing and contrasting the

case study emergent themes with the literature review findings, other AEC project examples, and

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[3] NVivo is a software package by QSR International that assists researchers to organize and analyze qualitative data. The software allowed the author to classify and arrange data, query the data for relationships, and represent the data visually.

the author's experience. The framework benefits from having insights from other cultural contexts and outcomes from other AEC projects. Chapter 6 outlines the framework development process that involved multiple refinements of structure and content.

3.4   Methodology Limitations

The absence of representatives of Musqueam, Squamish, and Tsleil-Waututh during the research methodological development and interview process leaves the insights gained from this research based only on participants associated with the CoV, UBC, and the projects' design teams. Ideally, the input from the research participants would be contrasted with those of the nations' representatives, but as noted in Section 1.7, this was not possible.

The research scope, objectives, and methodology were developed to inform project owners and designers of ways to better incorporate IK in project design through project delivery choices. With input from Musqueam, Squamish and Tsleil-Waututh, the very question being asked may have been different or the methods of data collection could have been altered to better capture the essence of what is sought. These research questions, along with the missing insights of representatives from Musqueam, Squamish, and Tsleil-Waututh in the interview data, represent limitations in the research's methodology.

The Sea2City design teams represent numerous nationalities from North America and Europe. Since this research aims to understand how project delivery methods impacts the collaboration between KKs and designers, not conducting interviews with designers from the Netherlands

likely missed the perspectives of those with the least experience and exposure to Coast Salish culture and Crown-Indigenous relations.

Sea2City and Gateway similarities and differences are outlined in Chapter 4 Case Studies. The different timing of the projects introduced challenges from a methodology standpoint. At the time of writing, participants from Gateway have the benefit of hindsight while those from Sea2City are currently engaged in the design phase that includes incorporating aspects of decolonization and Coast Salish teachings.

Chapter 4: Case Studies

4.1   Case Studies Overview

4.1.1   Case Study Research Activities

Case studies were developed to address the first research objective of learning about the methods used to incorporate Indigenous values and knowledge in two projects occurring in Coast Salish territory. The research activities involved in the process of completing the two case studies were:

- RA 2: Understand the context of both projects
- RA 3: Investigate the procurement process for each project
- RA 4: Investigate the preparation individuals and organizations did before projects
- RA 5: Investigate the projects' Indigenous engagement and collaboration for each project
- RA 6: Investigate collaboration challenges and successes for each project

The mixed methods case study methodology utilized data from the review of project documents, participant interviews, and ethnographic observations. The documents reviewed and interview data collected during RA 2 to 6 were analyzed through a coding and synthesis process that grouped text segments according to codes the author created. These are described in detail in Chapter 5, but the 6 initial topic groups that are made up of numerous individual codes are:

1. Motivations for Decolonization
2. Processes
3. Actions
4. Individual and Organizational Qualities
5. Barriers
6. Attitudes

These groups of codes evolved during the data analysis and were subject to a continuous refinement while processing the data.

The findings from the data analysis then influenced the second research objective of developing the Framework to Incorporate Indigenous Ways of Knowing that will assist project owners in preparing for projects, selecting the appropriate project delivery methods, and building off project outcomes, described in Chapter 6.

4.1.2 Sea2City and Gateway Similarities and Differences

The CoV's Sea2City Design Challenge and UBC's Gateway Building were chosen because they share many important characteristics that allow insights to be carefully shared between projects, yet they utilized different project delivery methods to foster intercultural collaboration between designers and KKs. The three most important similarities are:

1. Both the CoV and UBC are motivated to improve their project processes and advance reconciliation.

2. Both projects occur in Coast Salish territory, in what is now called Vancouver.

3. Both the CoV and UBC have large infrastructure delivery structures that overshadow the capacity of the local First Nations.

It is also important to note three key differences between Sea2City and Gateway:

1. Sea2City and Gateway have different project outcomes. Sea2City's outcomes include conceptual designs that will inform future coastal adaptation in Vancouver while the Gateway building will be a physical embodiment of the collaborative design process.

2. Sea2City and Gateway have different project timing. Sea2City is an active project at the time of writing, while Gateway is currently under construction and the collaborative process with Knowledge Keepers is essentially complete.[4] Together, the two case studies provide an overlapping and holistic view of the preparation, procurement, engagement, and design processes, and therefore, the effectiveness of the methods used to incorporate Indigenous values in the project designs.

3. The CoV and UBC chose different procurement methods and facilitated engagement between project design teams and representatives from the local First Nations in different ways.

The CoV and the UBC both hold longstanding relationships with the xwməθkwəy̓əm (Musqueam Indian Band), Sḵwx̱wú7mesh (Squamish Nation) and səlílwətaʔł (Tsleil-Waututh Nation). The relationships have not always been based in mutual respect, the recognition of the nations' traditional territories, or cultural and legal protocols. However, coordinated efforts are ongoing to build stronger relationships that reflect past and ongoing harms and to encourage positive ways to move forward together. The CoV and UBC are both in the process of acting on commitments made and are motivated to examine and improve their planning and building practices. This has led to them critically examine and seek ways to improve their project delivery processes as part of building stronger relationships with the Musqueam, Squamish, and Tsleil-Waututh Nations.

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[4] There are some interior art components that have not yet been determined. These will be contributed by Musqueam artists as arranged in the original engagement sessions between UBC, designers, and Musqueam representatives.

4.2   The City of Vancouver Sea2City Design Challenge Context

4.2.1   The City of Vancouver

The CoV is situated on the traditional, ancestral and unceded territories of the Musqueam, Squamish, and Tsleil-Waututh Nations. On July 8, 2014, the CoV declared itself a City of Reconciliation following a Year of Reconciliation which involved a series of services and programs for Indigenous and non-Indigenous communities (Au & Gosnell-Myers, 2014). Additionally, on June 24, 2014 the CoV officially acknowledged that it resides on the "unceded" territory of the Musqueam, Squamish, and Tsleil-Waututh Nations- the first major city to do so (Reimer & Robertson, 2014). On March 10, 2021, the Mayor and Council unanimously passed a motion to implement UNDRIP (Mochrie, 2021b). The CoV is also currently undergoing a review of the Red Women Rising (RWR) and National Inquiry into Missing and Murdered Indigenous Women and Girls' (MMIWG) reports to identify gaps and areas of alignment with city priorities (Mochrie, 2021a). A final report, expected in early 2022, will capture the engagement process, that includes the Musqueam, Squamish, and Tsleil-Waututh Nations and urban Indigenous peoples, and will identify opportunities to implement recommendations from the MMIWG and RWR reports (Vancouver, n.d.-b).

4.2.2   The Sea2City Design Challenge Background

The CoV's Sea2City Design Challenge will inform and guide urban development and ecological restoration in the Vancouver False Creek floodplain (Vancouver, n.d.-c). Musqueam, Squamish, and Tsleil-Waututh each have their own intertwined relationship with the Salish Sea and north arm of the Fraser River, and their stewardship of these lands dates back thousands of years and

continues to influence their culture today (Musqueam Indian Band, 2022; Sḵwx̱wú7mesh

Úxwumixw, 2022; Tsleil-Waututh Nation, 2021).

In 2012 Vancouver City Council adopted the Climate Change Adaptation Strategy (Vancouver,

n.d.-a) which includes the Coastal Adaptation Plan (CAP) specifically looking at long-term sea

level rise adaptation concerns for the CoV (City of Vancouver, 2021b). Sea2City is part of the

CAP, the first phase being the Coastal Adaptation Plan-Fraser River Foreshore, which was

completed in 2018 (City of Vancouver, 2021b). Sea level rise poses a monumental collective risk

to Musqueam, Squamish, Tsleil-Waututh, and Vancouver, and coastal adaptation will have a

large influence on coastal land use planning (City of Vancouver, n.d.). Figure 4.1 shows

Vancouver's floodplain today and in 2100 with False Creek circled.
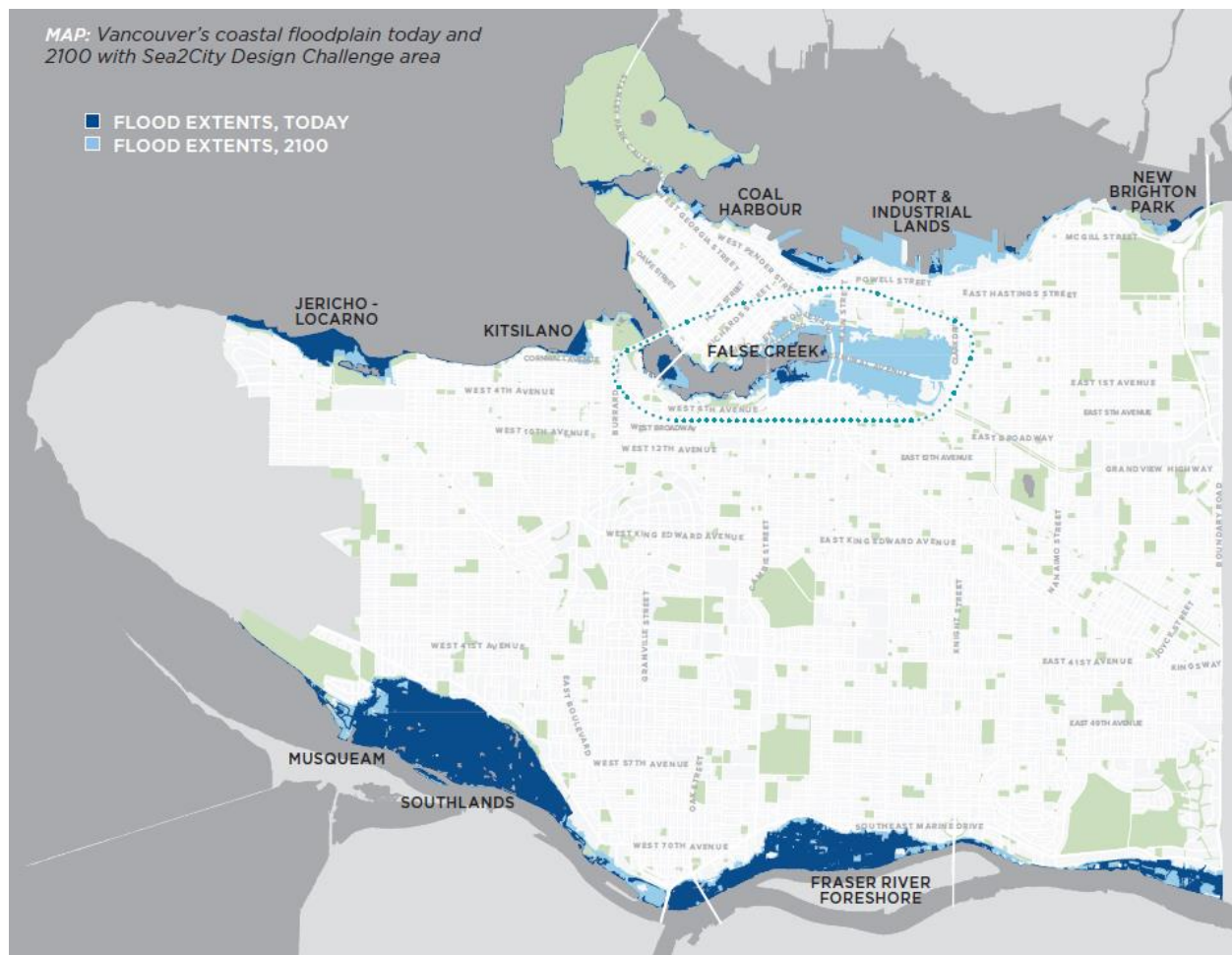
Figure 4-1 Vancouver Floodplain in 2022 and 2100 (Image source: the City of Vancouver)

The sea level rise coastal adaptation challenge involves two selected multidisciplinary teams working co-operatively with the CoV, project partners, Indigenous governments, stakeholders, the public, and coastal regulators to produce conceptual designs for 4 sites and collaborate on a fifth site around False Creek (Vancouver, n.d.-c). The design challenge will:

- raise public awareness of climate change and its accompanying sea level rise.

- seek creative approaches to coastal adaptation that respond to social equity, economic, and ecological challenges.

- explore coastal adaptation strategies for sea level rise of more than 1 m.

- contribute to the growing coastal flood management approaches the city has at its disposal.

Additionally, Sea2City includes an emphasis on decolonization both in how Indigenous perspectives and values are included in the conceptual designs, but also within the project delivery process. The request for proposals (RFP) emphasized this, which will be discussed in subsequent sections.

4.2.3   Sea2City Procurement Timeline

The RFP (City of Vancouver, 2021c) was released on June 15, 2021, closed on July 20, 2021, and two winning design teams were announced in September of 2021. Conversations between the author and the CoV Sea2City project manager began in October 2020 which allowed the researcher to follow the considerations made in establishing the design challenge procurement and engagement structure. The in-progress status of this project allowed participants to share their reflections on the proposal creating process as well as how they are navigating the Sea2City project processes, as laid out by the CoV project management team.

4.2.4   Sea2City Project Teams and Organization

The Sea2City design teams will have gained insights specific to False Creek from multiple sources through three rounds of structured technical advisory sessions and community engagement. The design teams' conceptual designs will need to align with existing city utilities and infrastructure planning, and these insights will be provided by the City Advisory Team (CAT) which consists of CoV staff from multiple departments. The Technical Advisory Group

(TAG) is made up of external industry specialists who will provide technical feedback relating to coastal adaptation and real estate. Representatives of major utilities and asset operators will also be part of the TAG. The Community Advisory Group (CAG) is made up of local stakeholders and representatives of organizations with interests around False Creek. Local Indigenous values and perspectives have been and will continue to be shared through Decolonization and Indigenous Perspectives workshops designed and facilitated by representatives of the Squamish and Tsleil-Waututh Nations. The interactions with the CAT, TAG, CAG, and Indigenous KKs was outlined and scheduled in the RFP as three rounds with changing themes: (1) priming and learning, (2) ideas, and (3) refine ideas.

There are existing government-to-government and formalized relationships between the CoV council, the CoV Planning, Urban Design, and Sustainability Department, and the local nations. In addition, separate memorandums of understanding exist between the Sea2City project and the Squamish and Tsleil-Waututh Nations. These layers of relationships inform engagement in CoV projects, like Sea2City. The design teams do not have a formal relationship with the local nations, but interact through the Sea2City project management team, as is described in Section 4.3.2. Figure 4.2 is the Sea2City organizational chart showing:

- the CoV structure between City Council, the Planning, Urban Design & Sustainability department, and the Sea2City project management team.
- the formalized relationships with Musqueam, Squamish, Tsleil-Waututh and the different CoV structures.
- the informal relationships fostered between the Squamish and Tsleil-Waututh Nations, the TAG, CAT, and CAG, and the design teams.

The informal relationships, involving engagement and collaboration, between the design teams,

the Sea2City project management team, and the nations are of primary concern for this research.

RA 2 was achieved mostly through reviewing the project documents and the ethnographic

observations, while the participant interviews contributed less insights about the project context.
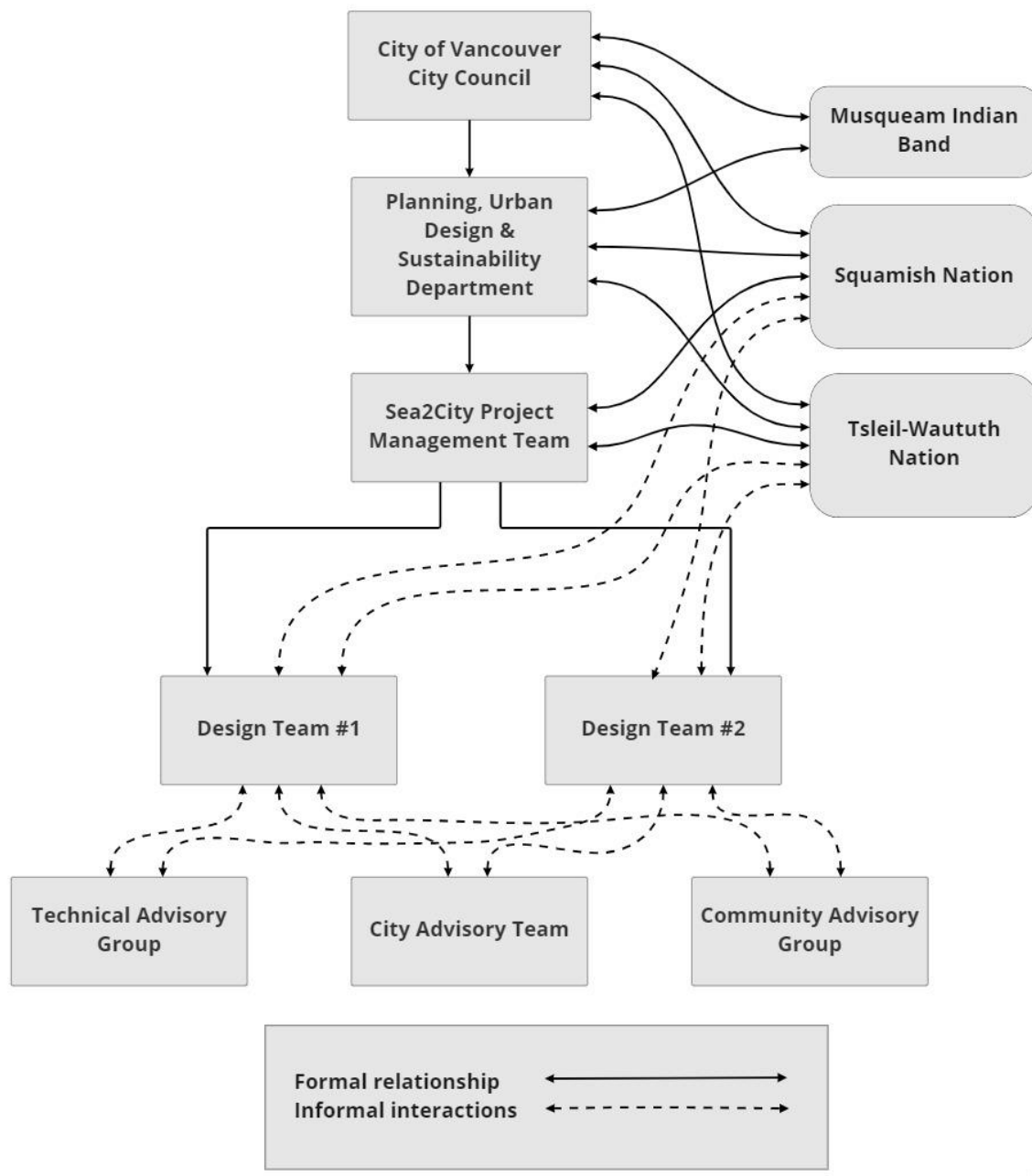
Figure 4-2 Sea2City organizational chart

4.3   Methods used by the CoV to Incorporate Indigenous Ways of Knowing

4.3.1   CoV Sea2City Project Preparation and Procurement

Drawing on the CoV's commitments to advance reconciliation, the Sea2City project management team identified the significance of the False Creek area to the local nations in project procurement documents like the RFP, the Sea2City Design Challenge Roadmap (Roadmap) (City of Vancouver, 2021b), and the Values-based Planning Primer (City of Vancouver, 2021a), which along with design team onboarding, set expectations for the project.

The researcher was able to follow the development of the Sea2City procurement documentation, which conveyed the CoV's emphasis on decolonization and their commitments to reconciliation. The Sea2City project management team developed a procurement process that was informed through communication with the Musqueam, Squamish, and Tsleil-Waututh Nations, as per government-to-government protocols, and the eventual level of engagement was set according to the desired level of participation from each nation. Additional engagement with residents, business owners, community groups, and the local nations was described in the Roadmap and the RFP (City of Vancouver, 2021c, 2021c); furthermore, the RFP and Roadmap clearly stated that planning community engagement was a CoV responsibility.

The following values identified in the 2021 False Creek Coastal Adaptation Plan would direct the evaluation of conceptual designs (City of Vancouver, 2021b, 2021c):

- Community Values
- Design Principles

- Planning Principles

- Indigenous Knowledge Value

The RFP goes onto state that additional guidance and input would be provided by Musqueam, Squamish, and Tsleil-Waututh (City of Vancouver, 2021c). This information provided owners with some expectations of the engagement process.

The following two questions were asked of competing design teams in the RFP, which were designed to emphasize the underlying importance decolonization in Sea2City as well as gauge proponents' understanding and competencies in this area (City of Vancouver, 2021c):

- *What does decolonization mean to the team?*

- *Why does decolonization matter to the team?*

The RFP goes onto recommend numerous decolonization and Indigenous resources recommended by Ta7talíya Michelle Nahanee, founder and CEO of Nahanee Creative Inc (City of Vancouver, 2021c). These were particularly useful for international teams because they provide a culturally relevant perspective on the topics.

Within the Sea2City RFP and Roadmap, the CoV emphasized the importance of team composition and encouraged teams to include people with expertise in Indigenous perspectives specifically connected to the Musqueam, Squamish and Tsleil-Waututh Nations (City of Vancouver, 2021b, 2021c). The decision between "recommending" and "requiring" specialists in Indigenous perspectives was not made lightly by the Sea2City project management team. It was clear early in the project development that having cultural consultants within teams would

contribute to the interpretation of knowledge shared in city led Indigenous engagement and decolonization workshops. The project management team sought input from other CoV staff in other departments. The final language included in the RFP is (City of Vancouver, 2021c):

> *In terms of other relevant specialists, the City strongly encourages but does not require inclusion of the following expertise and team composition:*
>
> 1. *Indigenous perspectives rooted in the experience of Musqueam, Squamish and Tsleil-Waututh First Nations;*

This recommendation was subsequently added to in the RFP, which also serves to engage Indigenous people in Sea2City (City of Vancouver, 2021c):

> *The City strongly encourages Proponents:*
>
> - *to include different perspectives on their team. This may include Indigenous people, youth, people with disabilities, and people with working experience outside of Canada;*

Creating expectations for the competing design teams ensured that teams submitting proposals understood the emphasis on decolonization and the inclusion of Indigenous perspectives in Sea2City. In many cases, the direct questions about decolonization forced teams to discuss, research and learn about decolonization. The suggested resources provided an entry point for those not familiar with the historical context. However, the Sea2City project management team recognized that Indigenous perspectives and decolonization would be new to many consultants and that there was a role for the city to not only coordinate the engagement process as outlined in the RFP, but to also foster the learning process.

The onboarding process, which began in September 2021, included kick off meetings with each of the two winning design teams. During these meetings, Sea2City's purpose, outcomes and the project process were outlined, as were the design teams' work plans. Within the presentations by the CoV, the four guiding principles that would guide the design teams were reviewed, which included the Indigenous Knowledge Value that was added after the RFP was released. This is described in in 4.3.2 Strategy 2.

Research Activities 3 and 4, investigating the procurement process and project preparations were accomplished through document review, interviews, and ethnographic observations.

4.3.2 Sea2City Engagement and Collaboration Strategy

The CoV project management team employed two strategies to assist the design teams to incorporate Indigenous values into their designs:

1. Supporting design teams by facilitating an engagement and learning process between the design teams and Musqueam, Squamish, and Tsleil-Waututh representatives that aligns with existing protocols and the capacity of the host nations.

2. Remaining flexible and responsive to perceived needs within the project and actively seeking ways to improve processes.

Strategy 1: Supporting Design Teams Through the Process

Enabling meaningful interaction between Indigenous KKs from Musqueam, Squamish, and Tsleil-Waututh and the design teams required balancing the enthusiasm of designers to learn

everything there is to know about False Creek and the capacity of local nations. The second

strategy used by the CoV attempted to address this balance by building off the findings of the

robust engagement done for the Northeast False Creek Park in 2018, while meeting the needs

and capacity of the individual nations (City of Vancouver, 2018).

The engagement between the design teams and Musqueam, Squamish, and Tsleil-Waututh was

facilitated by the city according to established government-to-government protocols and tailored

to accommodate the nations' desired level of interaction. More individualized engagement

between KKs and the design teams was not possible due to capacity constraints of the nations.

The limited level of interaction eliminated the possibility for more lengthy collaborative co-

design that some designers have experienced in the past. The chosen method of engagement

were Decolonization and Indigenous Perspectives workshops designed and facilitated by

representatives of the Squamish and Tsleil-Waututh Nations. The CoV Sea2City project

management team keeps Musqueam informed of the project progress, and despite participating

in the Coastal Adaptation Plan-Fraser River Foreshore, the nation has stepped back from full

participation in Sea2City for the False Creek component of the project.

The objectives of the Decolonization and Indigenous Perspectives workshops were derived from

the Northeast False Creek Indigenous Engagement Summary Report (City of Vancouver, 2018).

Sea2City is divided into three rounds, each including a Collaboratorium with the City Advisory

Team and Technical Advisory Group, sessions with the Community Advisory Group and Youth Adaptation Lab,[5] and Decolonization and Indigenous Perspectives workshops.

Each round of workshops is designed to build off the previous and include important topics drawn from the 2018 Northeast False Creek Park Indigenous engagement and from input from the Squamish and Tsleil-Waututh representatives (City of Vancouver, 2018). The three planned themes of the workshops are (Sea2City Project Management Team, 2021):

1. Round 1 Introductions: Design teams, Musqueam, Squamish and Tsleil-Waututh Peoples

2. Round 2 Sense of Place: Being on the land and connections with the land.

3. Round 3 Future Visions for the land and people of False Creek

The facilitators shared with participants perspectives that are important to their nations. In some cases, this was regarding historic and current uses of the False Creek and the broader Burrard Inlet area, and in other situations they shared stewardship initiatives on their territories (Sea2City Project Management Team, 2021).

The Round 1 Decolonization and Indigenous Perspectives workshops were not exclusive to the design teams, as CoV staff also attended. Therefore, there was less opportunity for individual interaction due to the online presentation style and number of participants. The second round of Sea2City workshops and engagement were conducted at the end of March and the final round were conducted in July 2022.

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[5] The Youth Adaptation Lab is a youth engagement program operating in parallel with Sea2City by a sub-consulting firm.

Strategy 2: Learning and Adapting the Process

As the CoV develops new methods to incorporate IK in project designs, important characteristics will be flexibility and adaptability. The CoV has established commitments to rebuild relationships with MST and the urban Indigenous community, and as they work towards fulfilling these commitments, they have experienced barriers and learned from missteps. Sea2City is a design challenge which will produce conceptual designs that will inform future coastal adaptation plans. No final designs will be put out for tender and then constructed. Therefore, the process behind Sea2City is a major part of the project itself, and the project management team has demonstrated a willingness to learn from, and to act on feedback from the design teams and Musqueam, Squamish and Tsleil-Waututh during the Sea2City project.

Decolonizing project design and delivery will require the humility to listen, reflect, share, and try again. This is undoubtably an uncomfortable position for many, but a necessary part of the journey. The CoV has the benefit of maintaining a continuous relationship building process with Musqueam, Squamish, and Tsleil-Waututh which allows an iterative approach that builds off previous projects. As the relationship strengthens and trust builds, collaboration between KKs and the city's consultants will only become more fluid as the process is improved from project to project.

An example of adaptation is how the Sea2City project management team, in consultation with the Squamish and Tsleil-Waututh Nations, modified their project guiding principles and values. Originally there were only three, but the Indigenous Knowledge Value was added because

representatives from the Squamish and Tsleil-Waututh were concerned that there wasn't adequate space given to decolonization and incorporating IK because Indigenous values were only represented within Community Values subcategory: Art, Culture, and Heritage value. As noted in Section 4.3.1, the final four guiding principles and values that guide design teams in their coastal adaptation designs for False Creek:

1. Community Values
2. Design Principles
3. Planning Principles
4. Indigenous Knowledge Value

The Indigenous Knowledge Values was developed after the RFP was released and distributed during the design team on boarding process. This modification helped elevate the incorporation of Coast Salish values and perspectives.

The recommendation that proponents have an Indigenous cultural advisor on their team had different impacts on the two finalist teams. While this recommendation addressed the importance of having these competencies embedded within the teams, it illuminated the uncomfortable reality of under representation of Coast Salish designers in architecture, engineering, and planning. One of the teams formed a partnership with a Squamish designer while the other team was not able to establish a relationship with a designer or firm with ties to Musqueam, Squamish, or Tsleil-Waututh. This discrepancy between the two Sea2City design teams was identified and ways to enable collaboration between the design teams for the purpose of sharing the insights of the only cultural consultant were explored.

The "recommendation" for design teams to have an embedded cultural consultant highlighted the challenge of forcing relationships when they don't already exist. The design team without a Coast Salish cultural consultant chose to abandon their search in the proposal phase because their efforts felt extractive. They set aside budget to bring a consultant onto their team if they were chosen as a finalist team.

The objective of the CoV project management team has been to support the design teams in this learning process and to be nimble in response to what is needed. In the case of Sea2City, the project management team was able to bring in another cultural advisor with ties to the Tsleil-Waututh Nation. In addition, the project management team facilitated engagement opportunities between the Squamish and Tsleil-Waututh KKs and the design teams in a more collaborative fashion, as opposed to only within their own teams.

Learning about the Indigenous engagement and collaboration, which is RA 5, was accomplished through project documents, participant interviews, and ethnographic observations. RA 6, investigating collaboration challenges and successes was largely completed through the interview process because participants could individually share their experiences.

4.4   The University of British Columbia Gateway Building Context

4.4.1   The University of British Columbia

UBC is located on the traditional, ancestral, and unceded territory of the Musqueam Indian Band. The 2020 UBC Indigenous Strategic Plan (ISP) consists of 8 goals with 43 actions that provide a pathway for the university to implement and uphold Indigenous peoples' human rights (Office of Indigenous Strategic Initiatives, n.d.-b). The foundation of the ISP is the commitment to respond to the TRC's 94 Calls to Action and the National Inquiry into MMIWG's 231 Calls for Justice, as well as implement UNDRIP (Office of Indigenous Strategic Initiatives, n.d.-a).

4.4.2   The Gateway Building Background

The UBC Gateway building is a new 22, 588 square meter teaching, research, and administrative building at the main entrance to the Vancouver campus that will house the following 5 units:

- School of Kinesiology
- School of Nursing
- research space for Language Science
- UBC Integrated Health and Wellbeing Services
- UBC Health Team-Based Teaching Clinic Prototype

This multi-purpose health building will introduce Musqueam as the host nation and greet people to the university, representing UBC as innovative, sustainable, and home to forward thinking research. Gateway, which is under construction at the time of writing, will be located at the entrance of the UBC Vancouver campus at the northwest corner of Westbrook Mall and University Blvd Gateway (Perkins&Will & schmidt/hammer/lassen architects/, 2020).

The Gateway project design brief was developed by UBC Campus + Community Planning (C+CP) and relevant UBC departments and stakeholders. It articulated the following four priorities and aspirations of the project that design teams were asked to address in their proposals (UBC Campus + Community Planning, 2020):

1. Academic Gateway: The significance of the location requires that Gateway's design capture the university's vision while contributing to the urban design.

2. Host Nation: The university is committed to strengthening their relationship with Musqueam. The design team will work with UBC and Musqueam to co-create an engagement and collaboration process that UBC will lead.

3. Health and Well-Being: The building will host five health-related units, which creates a common vision of supporting healthcare, health promotion, and well-being.

4. Zero Carbon: Gateway will seek net-zero carbon certification through the Canadian Building Council's program.

For this research, it is important to emphasize the evolving relationship between UBC and Musqueam. Based on ambitious commitments to strengthen the relationship through responding the TRC Calls to Action and implementing UNDRIP, C+CP placed a high priority on creating and facilitating a meaningful engagement process with Musqueam and the chosen design team. The recognition that the university is on unceded Musqueam territory is a fact that UBC is currently reconciling, and Gateway was identified as an important project that could be part of improving relations and processes.

4.4.3   Gateway Timeline and Organization

Approval and procurement for major capital projects at UBC involve a multi-step process with different units taking lead roles and contributing as stakeholders. The involvement of Musqueam in this lengthy process, including collaborative engagement between designers and KKs, is evolving with each project and reflects of the overall relationship between UBC and Musqueam. The responsibilities of project delivery of UBC capital projects are divided between:

- C+CP is responsible for systems planning across campus, the siting process, the design brief, and facilitating the relationship between the university and Musqueam,

- UBC Infrastructure Development (ID) is responsible for planning, development, and renewal and renovation of campus facilities.

- UBC Properties Trust is a development company owned by UBC that acts as project manager for capital projects, such as Gateway.

Figure 4.3 is the organizational chart for Gateway that shows the shared responsibilities of UBC units like C+CP, ID, and Properties Trust, along with the design team and the Musqueam Indian Band.
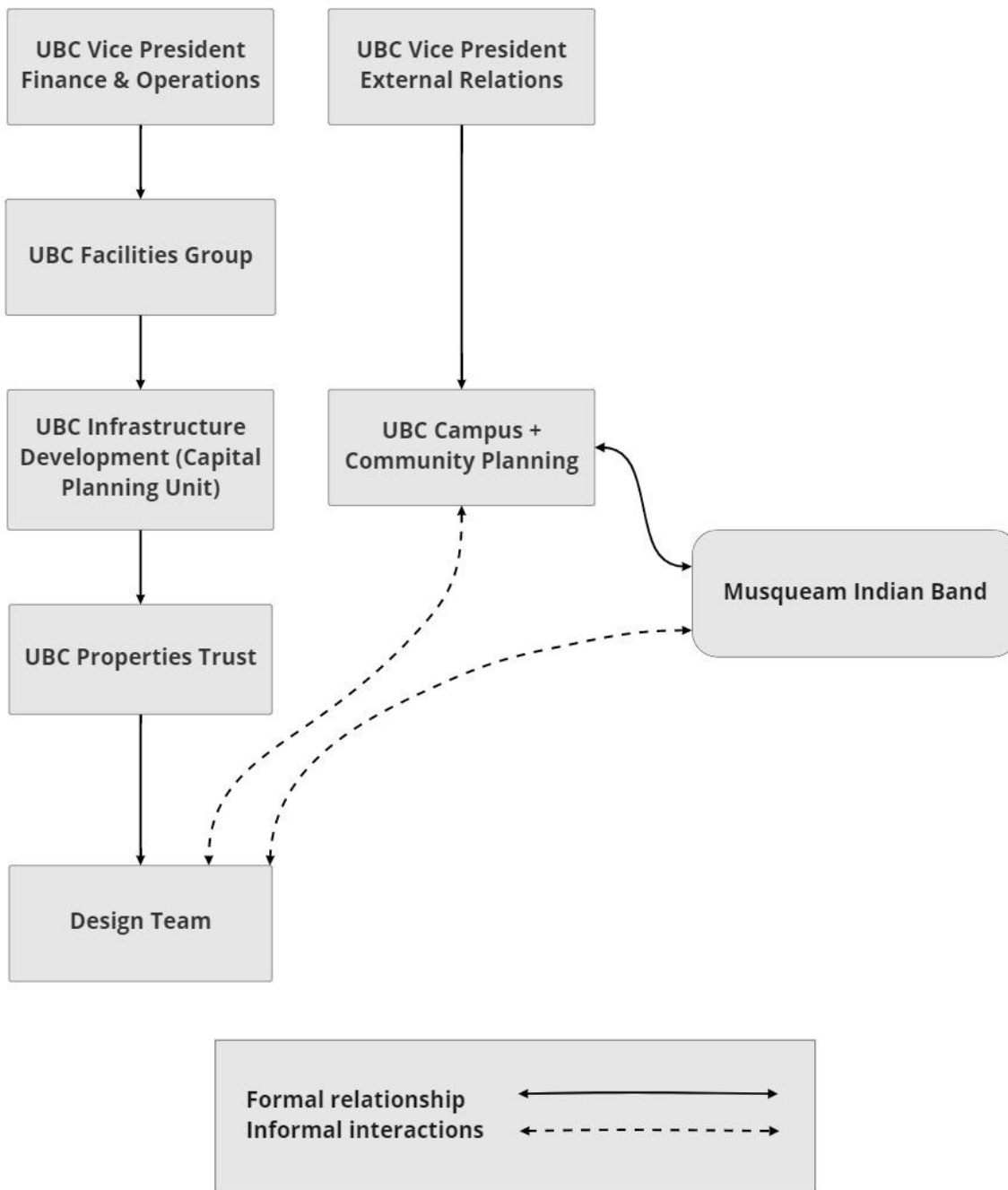
Figure 4-3 UBC Gateway organizational chart

Gateway is one of many projects that demonstrates how the university builds and modifies the campus to fulfill housing, academic, and social programming needs. With each project, the relationship evolves, and lessons are learned. Musqueam and UBC are currently in the process of updating their memorandum of understanding and infrastructure development on campus is one facet of the shared relationship. Figure 4.4 is a rendering from the designers' vision for incorporating Musqueam values summary that illustrates the connection between Musqueam principles of wellness, the Gateway building, and the space allocated for restorative ecology.

Figure 4-4 Gateway building incorporating wellness through ecological restoration (Image source: Perkins&Will / Vizmo)

RA 2, understanding the project context, was accomplished primarily through reviewing the

project documents and to a lesser extent the semi-structured interviews.

4.5   Methods Used by UBC to Incorporate Indigenous Ways of Knowing

4.5.1   UBC Gateway Project Preparation and Procurement

The development of UBC major capital projects like Gateway involves a series of internal steps

that include establishing the siting, programming, numerous approval stages, procurement and

design, and construction with responsibilities being shared between UBC ID and C+CP. The lead

and contributor/stakeholder roles in each phase of the project are outlined in Figure 4.5, Major

Capital Projects Development Process (MCPDP).
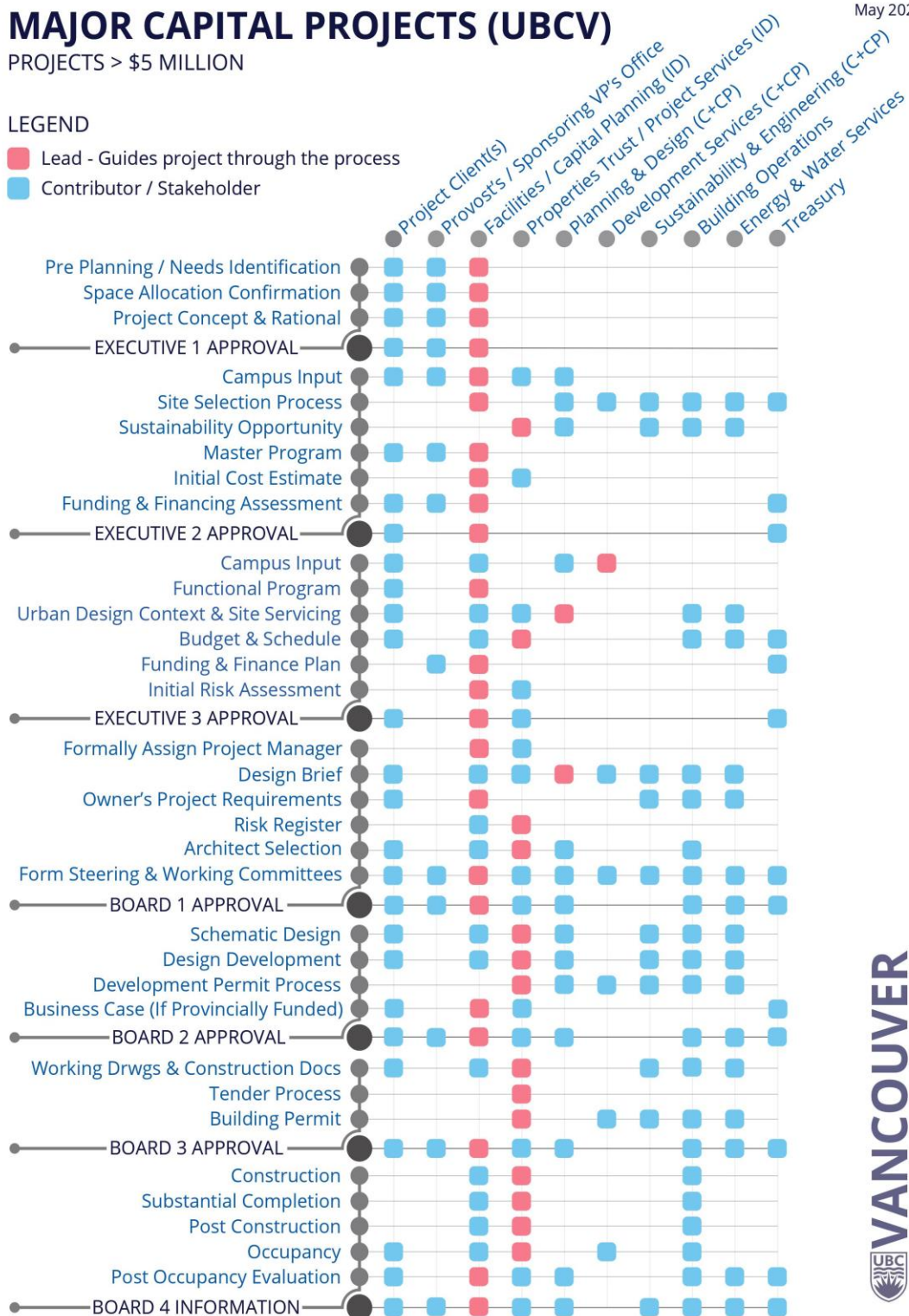
Figure 4-5 UBC Major Capital Projects Development Process (Image source: UBC Infrastructure Development)

The Gateway procurement process involved a request for an expression of interest (EOI), a RFP to firms who made a short list based on submitted EOIs, and the design teams' proposals themselves. Context for Gateway was established and communicated through supporting documents that designers used to ground their proposals and serve as references as the procurement and design process progressed. These documents include the functional programs for each end user and the design brief. UBC ID established the functional programs for Gateway, which outlines the building users' space and amenity needs. The design brief is developed by C+CP and acts as the guiding framework for the project. The Gateway design brief contains the following project-specific components (UBC Campus + Community Planning, 2020):

- Guiding framework: Vision and Objectives

- Design Goals and Strategies

- Green Building

- Functional Program Summary

- Governance and Process

- Existing Utilities

The design brief's Guiding framework "Vision and Objectives" set expectations for Gateway that potential design teams could build off. The Vision for Gateway includes creating a strong sense of welcome along with emphasizing Musqueam as the host nation. Four project objectives are Academic Gateway, Host Nation, Health and Well-Being, and Zero Carbon (UBC Campus + Community Planning, 2020, p. 5). The Host Nation objective acknowledges the traditional, unceded, and ancestral Musqueam territory that Gateway will occupy and UBC's aspiration for a strengthened relationship with Musqueam. The design brief prepared potential designers for engagement with Musqueam by stating (UBC Campus + Community Planning, 2020, p. 5):

The design team will work with Musqueam and UBC to co-create a process that

meaningfully includes Musqueam culture and values in the project.

The winning design team's proposal demonstrated a response to the RFP's Vision and

Objectives regarding the UBC led engagement process with Musqueam and UBC's commitment

to strengthening their relationship with Musqueam. A quote from the design team's proposal

states " (Perkins&Will, 2020, p. 7):

> *We are committed to co-creating a process that meaningfully includes Musqueam culture*
>
> *and values in the project. To be meaningful, the reconciliation process needs to be*
>
> *defined at the outset, and allow time for listening and broad engagement.*

RA 3 and 4, investigating the preparation organizations did before the project and the

procurement process, were achieved through reviewing the project documents and through the

participant interviews.

4.5.2   Engagement and Collaboration

The procurement process set expectations for design teams about UBC led engagement with

Musqueam, but the details of the process were not clearly articulated at the outset. UBC's

relationship with Musqueam is evolving, and Gateway benefits from lessons learned from

previous projects on campus that includes engagement timing, depth of engagement, and the

incorporation of engagement outcomes.

The C+CP coordinated engagement process between Musqueam representatives and KKs, designers, and UBC engagement consultants involved three facilitated design workshops between February and December 2021. The workshops were conducted virtually because of Covid-19 virus precautions. The design team created a preliminary design before engagement began which was shared with the Musqueam representatives and KKs. The engagement sessions created the opportunity to not only receive feedback on the design, but also to allow KKs to inform designers of Musqueam design principles relevant to the building site and Gateway's intended purpose. The engagement process provided many important design take-aways that influenced the final design, which are described below. While the project construction is far from complete, insights and reflections based on the completed engagement and collaboration provided a retrospective look at the method used by UBC to incorporate Musqueam values into the design.

Since Gateway will be home to five health related units, principles of Musqueam wellness were prominent discussion points during the engagement sessions, based on the engagement meeting minutes. Some areas of building and landscape design that Musqueam representatives and KKs highlighted were:

- traditional building design
- material selection
- the use of hən̓q̓əmin̓əm̓[6] words or Musqueam iconography

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[6] hən̓q̓əmin̓əm̓ is the language spoken by Coast Salish Peoples surrounding the delta of the Fraser River, including the Musqueam Indian Band.

- the application of Musqueam applied science in the building and landscape

- the emphasis placed on ecological restoration as wellness

Examples of Musqueam informed design principles and aspects resulting from Gateway collaborative engagement sessions are listed in Table 4.1 (Perkins&Will et al., n.d.).

Table 4.1 Musqueam informed design principles

Design principles	Examples from engagement sessions
Tradtional building techniques	Longhouse uses and design, source of social cohesion, transportability
Musqueam applied science	joinery of structural elements- using shape without metal fasteners
Stewardship of ecological well-being	selection of building materials that reflect responsibility to sustainbility. Timber structure, local wood species, shells within terrazzo flooring
Social cohesion	seating arrangement in public spaces
hәṅ̓q̓әmiṅ̓әm̓ language	hәṅ̓q̓әmiṅ̓әm̓ embeded within lighting, plant identification, and wayfinding
Musqueam culture through art	incorporating weaving in interior and landscaping. The inspiration of Houseboards.
Musqueam principles of wellness	ecological restoration as a reflection of holistic wellness beyond human-centred health

Between engagement sessions the designers advanced concepts discussed in each session and outcomes were followed up. This attention to what the KKs shared was appreciated by the Musqueam representatives, and the creativity of the collaboration was evident. Participants expressed the benefit of repeated engagement sessions that allowed parties to get to know and learn from each other. The design team produced a summary of the vision for the Musqueam

cultural expression and the sense of welcome that Gateway will create (Perkins&Will et al., n.d.).

RA 5 is to investigate how the owner facilitated Indigenous engagement and collaboration. The author gained insights from project documents like the "A Vision for Musqueam Culture and Welcome at UBC Gateway" and the meeting minutes from the engagement sessions. Equally valuable were the participant interviews because people were able to add details to the collaboration process.

4.5.3   Flexibility and Commitment

The most significant outcome from the engagement sessions was the project siting on the building lot. The preliminary design developed prior to the engagement sessions maximized the building footprint to achieve the functional programs of each of the end users while not exceeding 5 stories. The height limit was partly due to the campus planning and due to building code limitations using mass timber. The finished floor space and height limit created a need to minimize the setback from University Blvd and Westbrook Mall. However, Musqueam KKs outlined how covering all available land was incompatible with principles of Musqueam wellness because ecological health and restoration is linked to human wellness.

The Musqueam relational understanding of wellness that is connected to the ecological health of the site was not a value originally identified in the Gateway design brief. Being constrained by the program's floor space and the height of the building, the only way to incorporate a landscape design that contributes to ecological regeneration was to relocate or shift the building.

Moving a project of this scale, given the enormous work that goes into the MCPDP, is very challenging. The building site between Gateway and the adjacent transit bus loop is undeveloped and offered the opportunity to shift the building north to accommodate landscaping informed by Musqueam values. UBC approved moving Gateway 10 meters into the north building lot, at the expense of future projects because of the now smaller lot.

While Gateway end users or the general public may not understand the story behind Gateway, UBC demonstrated flexibility and commitment to not only engage with Musqueam representatives, but to listen and recognize the significance of the KK's contributions, despite the approval inconvenience and financial impact of implementing design considerations based on Musqueam world views.

4.5.4   Beyond Gateway

UBC is working to incorporate Musqueam engagement at various stages of the MCPDP. Previous UBC projects have informed this additional layer of considerations beyond the existing campus, stakeholder, and Musqueam input. This inclusion of Musqueam engagement into the MCPDP is in preliminary stages with various factors influencing the timing of engagement. Many of the findings of this research, and the Framework to Incorporate Indigenous Ways of Knowing reflect the challenges and opportunities of UBC's continued improvement to project delivery.

The desired outcomes of earlier and continued engagement at relevant and appropriate points within the MCPDP are intended to strengthen relationships with Musqueam and elevate and benefit from Musqueam perspectives and values in project design. These two outcomes were realized in Gateway. However, the timing of the engagement and learning that led to moving the Gateway building came after the preliminary design had been completed. While the designers, Musqueam representatives, and UBC are pleased with the outcomes of Gateway to date, UBC does not want to seek approvals for significant design changes in future projects when early engagement can reduce this risk.

RA 6, to investigate collaboration challenges and successes, was accomplished mostly through the interviews because the project documentation did not provide the personalized details that individuals provided.

4.6   Limitations of the Case Studies

The interviews provided rich insights and data, largely because interviewees were so generous and sincere with their contributions. While participants from both Sea2City and Gateway are engaged in a learning process, the Sea2City design teams are currently incorporating what they have learned from Squamish and Tsleil-Waututh Knowledge Keepers. While this timing limited the extent Sea2City designers could share tangible design elements influenced by Indigenous design principles, it did capture a moment in time when designers were struggling to process teachings that were not literal descriptions of how to apply the IK. Their designs have advanced significantly since the interviews were conducted, as have their interpretations of Indigenous design principles. Similarly, as Gateways is constructed, there are responsibilities yet to be

realized regarding artistic elements within the building. The expectation is that local Indigenous

artisans will have a large influence in this aspect of design.

Chapter 5: Qualitative Data Coding and Analysis

The processes being examined are dynamic and context specific, which lends itself to grounded theory because it is open to all possible understandings and interpretations of the collected data. The coding and analysis process was completed to develop an understanding of the experiences shared through the interviews and the project documents. The following description in 5.1 illuminates the steps taken to categorize the information shared with the researcher in a way that follows the data. Section 5.2 outlines the iterative process taken to analyze the coded text data, allowing important themes to emerge that would influence the Framework to Incorporate Indigenous Ways of Knowing outlined in Chapter 6. This synthesis of the case study data is RA 7.

The Sea2City and Gateway case studies share methodological characteristics due to the similarities in the projects' contexts, and therefore, the data was coded together. Additionally, participants from Sea2City and Gateway were at different stages in their own personal growth and understanding of decolonization. Therefore, the author saw little benefit of dividing the contributions. To track and analyze what was heard in interviews and learned from project documents, the researcher systematically reviewed all materials, manually coding significant statements, insights, and processes using Nvivo computer software. Interview transcripts were reviewed for accuracy against the video recordings and project documents were read prior to coding.

While coding, some text segments warranted further exploration or caused a tangential idea. These thoughts, inspirations and personal notes were captured through annotations in Nvivo to

allow continuous uninterrupted coding. Similarly, two memos were started to capture thoughts

about research subjectivity and notes about methods and sources. While not data, these notes

helped shape the author's data analysis process.

Where details were missing, clarifications were needed or interview comments appeared to

conflict with project documents, the researcher followed up with the relevant interviewee, the

CoV project manager or the UBC contact person.

5.1   Initial Code Groupings

Codes were developed initially based on the researcher's understanding of the topic from

personal experience, the literature reviewed, and from preliminary data review. Additional codes

were added as sentiments and topics emerged during the extensive coding process. Often more

nuanced codes were needed to capture subtle differences in sentiments or topics. When codes

were determined to be very similar, they were consolidated as coding occurred. Ultimately, the

categorization of data within codes served to organize and understand the data. The author

allowed variation between the number of codes per topic and number of text segments per code.

The more nuanced codes had as little as one piece of text, while the most represented codes had

as many as 74 text segments within them. In some situations, the researcher chose to keep codes

with few text segments because they captured unique participant contributions that could be

overshadowed if combined into a code with a larger volume of data. This occurred when one or

very few participants' comments aligned with important insights from other sources like

literature or the researcher's experience. In addition, text segments sometimes fit into more than

one code. The author chose to not limit a piece of data to only one code, but to assign it to codes that were relevant.

The coding process identified 903 text segments relating to specific topics and captured the participants' thoughts and sentiments. These segments were assigned to 55 different codes. As a first step in understanding this large data set, the researcher combined the 55 codes into 5 groups that loosely followed the interview question topics, plus a sixth category that captured the participants' attitudes related to the text segment. The attitudes code allowed the researcher to attach sentiments to some of the shared information when it was relevant. This provided a means to compare similar contributions against the individuals' emotional response to the topic. Table 5.1 illustrates the 6 code groups, the number of codes contained in it, and the total number of text segments in the topic.

Table 5.1 Initial code groups with number of codes and text segments.

Initial Topic Groups	Number of Codes	Total Number of Text Segments
Motivations for decolonization	10	198
Processes	15	371
Actions	2	81
Individual and organizational qualities	7	41
Barriers	8	107
Attitudes	13	105

It is important to explain the difference between the frequency of topics and the content of the participant contributions. The researcher chose to balance the frequency of the topics mentioned with the source of the contributions, which is important in Section 5.2 where the data was synthesized, and themes were allowed to emerge. This adds a layer of complexity to the analysis but was important because it highlighted the expertise brought to the conversations and helped the researcher to understand the processes undertaken by Sea2City and Gateway participants. As noted, participants brought varied experience and personal reflection in decolonization and reconciliation, so the data analysis reflected this diversity. Therefore, the number of codes combined in a topic does not reflect the overall weight of the topic and the number of text segments only reflects the frequency in which contributions were coded.

During coding, there was no discernable difference in the motivations for decolonizing project delivery methods between the professions represented. Motivations were largely based on the individuals' understanding of settler colonialism and reflection on the impact and influence each has personally and professionally. One possible reason for the consistency was due to the willingness of participants to voluntarily sit for interviews. Most of which are actively learning and seeking ways to action reconciliation. Had participants with less experienced or comfort with decolonization participated, it is possible the data would show more variance across professions.

Figure 5.1 displays the 55 codes grouped into 6 initial topic groups. This shows a bit of the chaos the data presented initially before further refinement and analysis. Appendix C has a full list of the 55 original codes and their characteristics.

Original Topic Groups with their Associated Codes
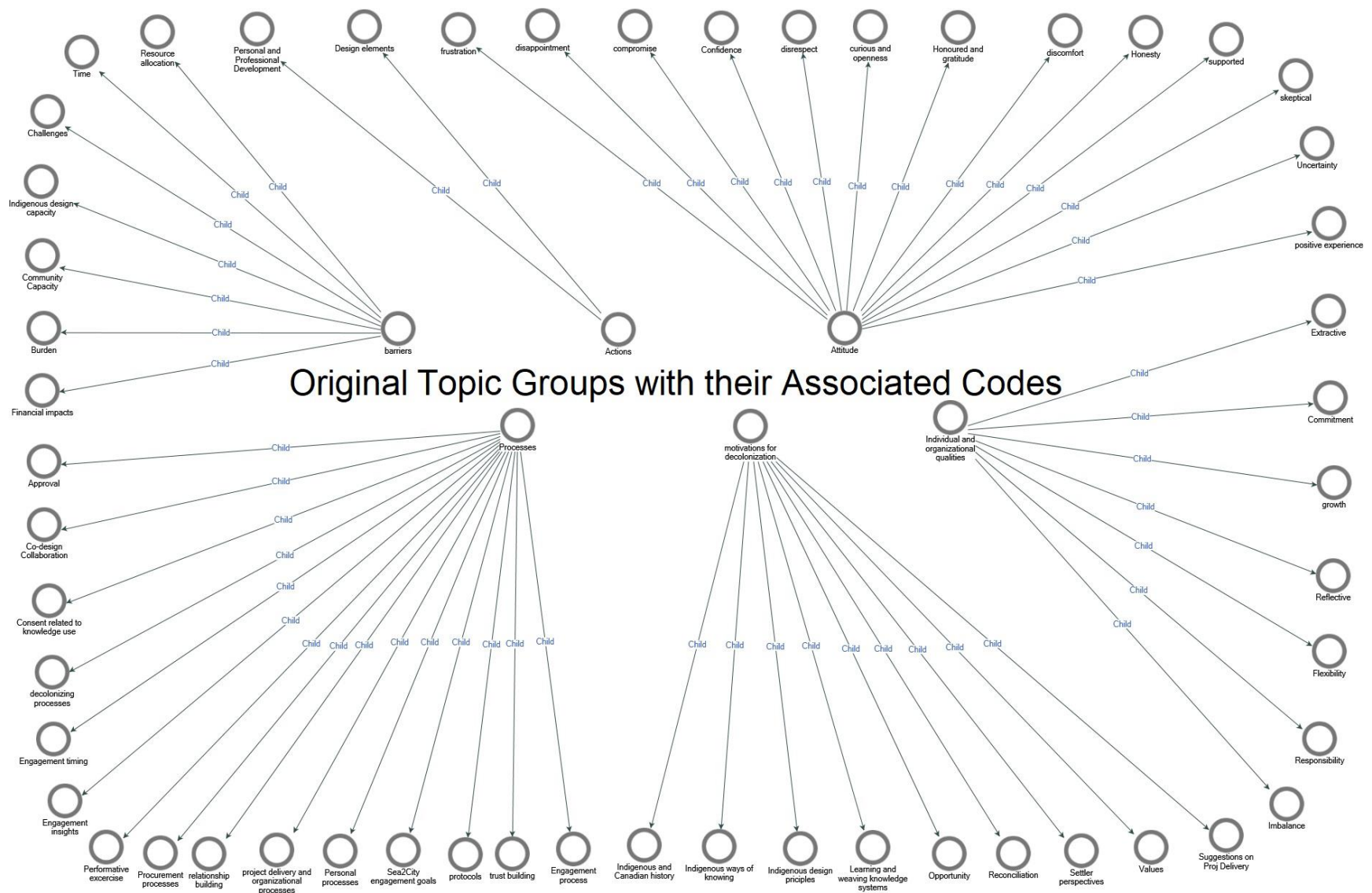
Figure 5-1 Six original topic groups with 55 codes

5.2   Emergent Themes

To this point the data collected through the RAs 2 to 6 were contained in six code groups of topics and sentiments. This did not fully tell the story of the two projects and the research participants' experience in them. Therefore, the data were evaluated further to better understand the relationship between the groups of topics and participant attitudes. The researcher goal was to view the coded data through underlying values and processes, which are called themes. Rather than remain focused on the topics of project delivery, themes were sought that cut across the various motivations, processes, barriers, and lessons learned. The participants' sentiments contributed to the author's understanding of individual data segments.

The codes, and the text segments within, were manipulated in an iterative process where the researcher explored various combinations that captured the critical topics participants touched on and emphasized. A couple attempts were unsatisfactory before a series of four themes with 37 sub-themes emerged that captured the body of data in a way that reflected a concise yet encompassing grouping of themes. The emergent themes are:

- Learning and Unlearning

- Respect and Qualities

- Project Processes

- Challenges and Opportunities

Each theme is explored below with example quotes from interview transcripts. Interviewees' identities are confidential, as per the Behavioral Ethics Board approval process.

5.2.1   Learning and Unlearning

Throughout the interviews, there was a common thread of owner representatives and designers being on a learning journey. In many ways, there was a requirement to unlearn before Indigenous world views could be received, reflected upon, and then applied. Within this theme, the conversations fell into three categories: learning as a journey, foundational truths, and applying IK.

Learning as a Journey

The learning necessary to incorporate IK and worldviews into project design was uniformly recognized to be a complex process of listening, reflecting, engaging, struggling, and repeating. The process can be compared to a journey that sometimes moves fast, sometimes stalls, and sometimes even slides backwards. Reflecting on what you understand and don't understand requires humility, but it provides the necessary starting point for decolonization. A participant shared a reflection on their journey:

> *I've read a lot of. I like to think I'm, or I used to like to think I was kind of informed and had more experience. I think, [through] this process I realized just how little I actually did have.*

There was a range of decolonization experience among the interviewees which provided much needed diversity in observations and perspectives. Many people interviewed brought experience working with Indigenous communities or incorporating principles of anti-racism or decolonization. However, regardless of previous experience or comfort working in this space, there was a consistent recognition of making mistakes as one proceeds in decolonizing their

practices. This connects to comments made about the importance of reflecting on past practices with the intention of owning missteps, bringing lessons learned forward, and sharing the experience with others. One participant captured the importance of humility and their willingness to engage:

> *I think the only reason that I have any learning or knowledge from having worked with indigenous communities, it's only because I just keep showing up. I just keep showing up.*

Foundational Truths

An essential part of decolonization is a baseline understanding of the context in which one works. Both the CoV and UBC have made ambitious commitments to reconciliation, and many references were made to what participants already recognized as motivation for this work, or what they learned in the lead up to the projects. This may have put foreign designers at a disadvantage to those from the Vancouver area or those from the Pacific Northwest, but being an expert in Crown-Indigenous relations is not a prerequisite to decolonizing one's practice.

Some foundational truths directly impact infrastructure projects in Coast Salish territory. A common practice is to acknowledge the traditional lands on which you gather, live, work, or otherwise occupy. The land in which Sea2City and Gateway take place was never ceded to settler colonial governments. As one participant put it:

> *We have forcibly removed people from their lands, Indigenous people from their land. We erase their culture on the land. We hold land, build up our own wealth, transfer that wealth and at the expense of Indigenous people.*

Despite being uncomfortable, this brutal truth needs to be recognized.

As designers embark on their learning journey and build off fundamental truths, it is important to acknowledge, as a few participants did, that framing the Musqueam, Squamish, and Tsleil-Waututh relationship to the area as "historic" disregards their present and future uses of the area. A decolonized approach to design will incorporate this reality.

Applying Indigenous Knowledge

Applying the IK to design represents a significant part of the learning process because of the uncertainty associated with interpretation. A feeling expressed by many was the need for a common level of knowledge that would minimize miscommunications and misinterpretations. There was a desire to establish baseline Indigenous design principles common to Musqueam, Squamish, and Tsleil-Waututh because it could honour cultures not engaged in projects. This notion was contradicted by others that recognized the challenge of formalizing or pan-indigenizing design principles. What was clear to most participants was that a certain level of understanding is necessary for interpretation because the IK shared will not always be a literal representation. Most participants thought that cultural advisors could provide vital insights in this regard.

There were examples presented of how Indigenous world views could assist the design process and how design could further reconciliation. An example that was raised numerous times was "wilding." Squamish and Tsleil-Waututh KKs highlighted this as part of Sea2City and Musqueam KKs similarly emphasized the importance of ecological restoration as wellness.

Applying IK in design often benefits from having cultural advisors as integrated project team members. However, the current Coast Salish Knowledge Keepers working in this capacity is limited, which impacted one Sea2City design team. A sentiment raised was the challenge of capacity among the cultural advisor community and how the AEC industry could support the development of a pathway for Coast Salish people pursuing these roles. A proposed mentorship program developing Coast Salish cultural advisors was described, which will help meet the industry's need of professional cultural interpretation and contributions.

The notion of consent was raised numerous times with respect to the application and transfer of shared IK. Voyde & Morgan raised a similar concern regarding the control of Mätauranga Mäori in New Zealand (2012, p. 219). The difference between knowledge ownership from Eurocentric and Indigenous perspectives was pointed out by a few participants, and the observation that assumptions around what is shared could lead to concerns around privacy and consent. As one participant observed:

> *I think, western mind thinks of, let's say, knowledge, like, if someone tells you something, that knowledge is then out there, and you use it any way you want. I don't think that's Musqueam sense of knowledge. I think knowledge is held by the people who say those things. And that comes with responsibility. So, you can't just lightly take someone's thoughts, and use them as you wish. You're in a way…that's bit of a violation.*

The specificity of IK requires designers to take a project-to-project approach. Bringing experience and knowledge forward and proceeding with the expectation that not all design

approaches will work, mistakes may happen, but this is part of the unlearning and learning process.

5.2.2 Respect and Qualities

A common sentiment participants expressed throughout the interviews was a sense of responsibility to the work of decolonization. Many expressed uncertainties about how to do it but recognized that it required personal work and a willingness to disrupt their conventional way of doing things. Adopting a mindset that recognizes the value and importance of relationships was an important quality identified in the case studies and literature.

As participants moved through their projects, whether as owner representatives or as designers, they generally expressed a set of qualities not typically associated with AEC projects like respect, empathy, patience, and humility. A participant shared what it meant to them to be trusted with Musqueam's knowledge:

> *I have to say, it's changed my life. It's my path of reconciliation to understand what Musqueam is talking about and trying to communicate to others. And I find that very valuable.*

Some participants expressed caution, apprehension and even skepticism of whether decolonization could be realized in their project. This was not an unwillingness, but an awareness of potential failure, despite the owner's efforts to assist designers to incorporate Indigenous design principles in their designs. Mistakes and missteps are part of the journey, and

many interviewees acknowledge this as necessary to personal growth, but some also pointed out the potential harm to relationships if decolonization efforts are ineffectual due to the rigidity of existing planning, prioritizing, and decision-making processes. For this reason, it was emphasized numerous times that the commitment of owners and designers is critical, as is the importance of flexibility and adaptability as a project moves forward. An interviewee shared their apprehension the following way:

> *My hope is that we won't look back on it and say, we paid lip service to the idea of decolonizing the process, but we proceeded through a process that was you know, a reiteration of a colonized way of doing things.*

During the Sea2City Decolonization and Indigenous Perspectives workshops, the KKs from Squamish and Tsleil-Waututh shared insights into their relationship with the land and waters that make up their traditional territories. The notion of who has permission to hold specific knowledge was also introduced, although not explicitly outlined in detail. Two concepts emerged from the interviews relating to IK: the sacredness of the knowledge and the responsibility of holding that knowledge. For example, there is the potential for community held knowledge to be used beyond the project to exploit resources important to the communities. Many participants came away from the workshops with an appreciation for what was shared, and for the trust imparted on them to hold and apply that knowledge responsibly, as shared by a participant:

> *I also kind of came away with how sacred that information is, and how certain things probably aren't for me to know.*

A common sentiment, whether identified by name or not, was the notion of shifting one's mindset. This was usually related to examining conventional business practices and looking for ways to incorporate other perspectives and values. It was noted often that consultants and their clients can have very formulaic project processes and while many are interested in alternative outcomes, more emphasis should be placed on alternative approaches. A couple participants identified the challenge of building trust through relationships when this is not necessarily a valued "work product." The importance of relationships and trust was mentioned by most participants, but the time it takes to earn trust can run contrary to the dominant western business mindset. An example shared was the importance of simply having a meal with community members because it removes the emphasis of "doing business" and places it on getting to know people. The change from transactional to relationship-based design forms a fundamental principle of decolonizing design, highlighted by this participant comment:

> *When you talk about decolonizing, I think that it's… we have to take our western business*
> *processes and our agendas, and our timelines, and really, really think about the*
> *community that we're talking with and how that impacts them.*

Another participant described an on-going relationship their team has developed with a different Indigenous community that demonstrates their prioritization of relationships:

> *A couple folks that are on every single one of those projects, you know, they feel like*
> *they're part of that community now, you know, we're able to continue working on multiple*
> *projects with that community because there's that trust built, and we hold their values*
> *really close. And it's, you know, it's almost personal at that point, which is not always the*
> *best way to do business, per se, but I don't think we like to do business in other ways, on*
> *these kinds of projects.*

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5.2.3   Project Processes

This theme captures the processes used in Sea2City and Gateway, and insights participants

brought from previous projects. Interviews often contrasted the methods used by the CoV and

UBC with other options not chosen or not possible under the owners' current project delivery

constraints. The Project Processes theme includes procurement and collaboration processes, and

the experience of adopting new processes. Challenges experienced will be addressed in Section

5.2.4, but it suffices to say that implementing change requires balancing the desire to move fast

while acknowledging where the local nations are at.

Notable processes developed so far within design teams included interventions to promote

understanding and growth around decolonization. Examples include short, dedicated

conversations during team meetings that allowed members to bounce ideas off each other and

adding milestone reflections to examine what went well and what could be done differently.

As the CoV incorporates local IK into projects, ensuring project teams are capable to fulfill their

roles in projects is an ongoing consideration. An example of how the CoV emphasized

decolonization within their Sea2City procurement process was the inclusion of questions in the

RFP that would gauge design teams' understanding and experience with decolonization.

Proponents were asked "what does decolonization mean to the team" and to explain "why does it

is matter to the team?" By asking this, the design teams were forced to explore what

decolonization meant in the context of designing for sea level rise around False Creek. A design

team member commented on the questions in the RFP:

...which is a very unusual sort of request for a proposal, and I think it really pushed us as a team to have those questions and then sort of parse out what reconciliation meant to us. We actually spent a lot of time on that one particular question and did a lot of introspection.

Another Sea2City participant commented on the emphasis placed on decolonization and adaptability within the project:

I've never worked on a project that have taken those principles so seriously, and those intentions so seriously in terms of even recognizing at this point, "okay, we need, we might need some additional funding for this." Like the ability to learn as we go and to be able to do right and have room for making adjustments.

Both the CoV and UBC are responsible for the relationships with local nations, and this influences the project delivery choices made. The relationships are evolving with each project, as is the mutual understanding necessary to collaborate more closely. A participant expressed how this impacted their participation as a consultant responding to the goals set out by the owner:

One of the goals of the project is this "host nation" and incorporating Musqueam culture into the project. But we were like, "Okay, well, what does that mean?" And so, we had no idea what we were getting into. All we knew was that UBC was going to lead that process. And I found that to be actually very beneficial, because what I learned through this was that it's their relationship. Well, we're tasked with helping to resolve it within the project that we're working on. It was their relationship that they're trying to manage.

Continued relationship building beyond the project is important as owners leverage off each project. This was noted by many participants as a necessary process that is not often considered, especially since many owners and designers identify projects as distinct and isolated.

Conversations about engagement and collaboration highlighted numerous processes such as cultural advisors embedded within design teams and matching project and engagement expectations with the capacities of the local nations. These will be touched on next.

5.2.4   Challenges and Opportunities

Decolonizing project delivery to incorporate Indigenous ways of knowing is a disruptive exercise and not without its challenges. Often each challenge offers opportunities to those willing to respond to their established goals and apply lessons learned. A summary of challenges faced by most participants included:

- Understanding and collaborating with KKs of other cultures

- The under-representation of Coast Salish designers and consultants

- The capacity imbalance between project owners and the local nations

- The discomfort of decolonization and the fear of making mistakes

Each of these challenges will be expanded upon below with references to participants' experiences.

Many challenges stem from the prioritization of western knowledge systems and the intercultural competencies that foster meaningful relationships and collaboration between owners, designers, and Indigenous communities. This challenge is answered through preparation, patience, and team

composition that includes designers or cultural advisors with ties to the local cultures. A growing

trend involves specifying the inclusion of cultural advisors or consultants who can facilitate the

incorporation of shared IK. The Sea2City project management team opted to recommend design

teams have at least one cultural advisor with Indigenous perspectives rooted in the experience of

Musqueam, Squamish, or Tsleil-Waututh Nations. While this assists design teams in engaging

and collaborating with KKs, it does put pressure on fulfilling this team composition requirement.

Whether a recommendation or a requirement, forcing a relationship of this kind is problematic

and likely unfeasible for design teams without existing relationships. A participant expressed the

discomfort they experienced when trying to secure a cultural advisor:

> *It came became clear to us that it was, it was an extractive process. And that's something*
>
> *that as a firm we've been learning about in this work is you have to have trust and*
>
> *relationships, and you can't just extract.*

This highlighted the challenge owners have in selecting and supporting designers without

firsthand experience in their geographic region. Indigenous cultures and knowledge are very

context specific, and this poses a challenge as owners seek the most creative problem solvers

who may not understand the local context.

As project owners increasingly seek ways to incorporate Indigenous perspectives and world

views in projects, the demand on the few Coast Salish cultural consultants will grow as well. As

noted above in Applying Indigenous Knowledge, the development of junior cultural advisors

through mentorship is currently being explored. This would offer more opportunities for design

firms to not only bring cultural advisors on as specialized consultants, but they could be

embedded in design teams on a regular basis. The inclusion of cultural advisors would assist in

reducing the gap in understanding of decolonization between the AEC industry and the local

nations, as noted by a participant:

> *There's an industry standard of indigenizing or decolonizing, and an understanding of*
>
> *what those cultural elements could be. And then there are the local First Nations*
>
> *Knowledge Keepers, I will consider myself as one of those Knowledge Keepers. And*
>
> *there's a gap. And what we're trying to do is create a level of common knowledge, so that*
>
> *there's no miscommunication. There's no misinformed consideration. There's no*
>
> *misrepresentation.*

A significant challenge that most participants acknowledged was the capacity imbalance between

the local nations and the owners' project management teams. This was evident in the ability of

nations to participate in Sea2City and Gateway. Often the demands placed on communities by

well-meaning project proponents is overwhelming and poses a continuous burden. Both the CoV

and UBC are seeking ways to accommodate and align their project delivery practices with that

the host nation(s). This day-to-day difference in business practices and capacity was articulated

by an interviewee:

> *They work differently to us. They each consultant a different way. They process*
>
> *information in a different way. Not always, but our bureaucratic ways of doing things*
>
> *often don't fit with the way indigenous communities work.*

Adding to the challenge of community capacity is how designers incorporate IK when not all

nations are able to participate in collaborative engagement. This often requires the application of

Indigenous design principles that are common to the nations on whose traditional territories a

project takes place.

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A common sentiment participants experienced was uncertainty in decolonizing their processes and a fear of making mistakes and causing more harm to relationships. Often this related to their intercultural learning journey and while it seems like a challenge, many described the value in accepting their missteps and bringing the lessons forward. Multiple interviewees commented on their uncertainty and associated discomfort around making mistakes:

> *I think you learn from each of these processes, and hopefully you carry something*
>
> *forward. Otherwise, you know, what's the point of engaging with a process that*
>
> *challenges you this way if you don't grow?*

Figure 5.2 shows the four themes and 37 sub-themes during the analysis process and Figure 5.3 shows the emergent themes after further refinement to 20 sub-themes. The refinement process demonstrates how the researcher manipulated the codes, allowing themes to emerge and then consolidated and merged sub-themes where possible.
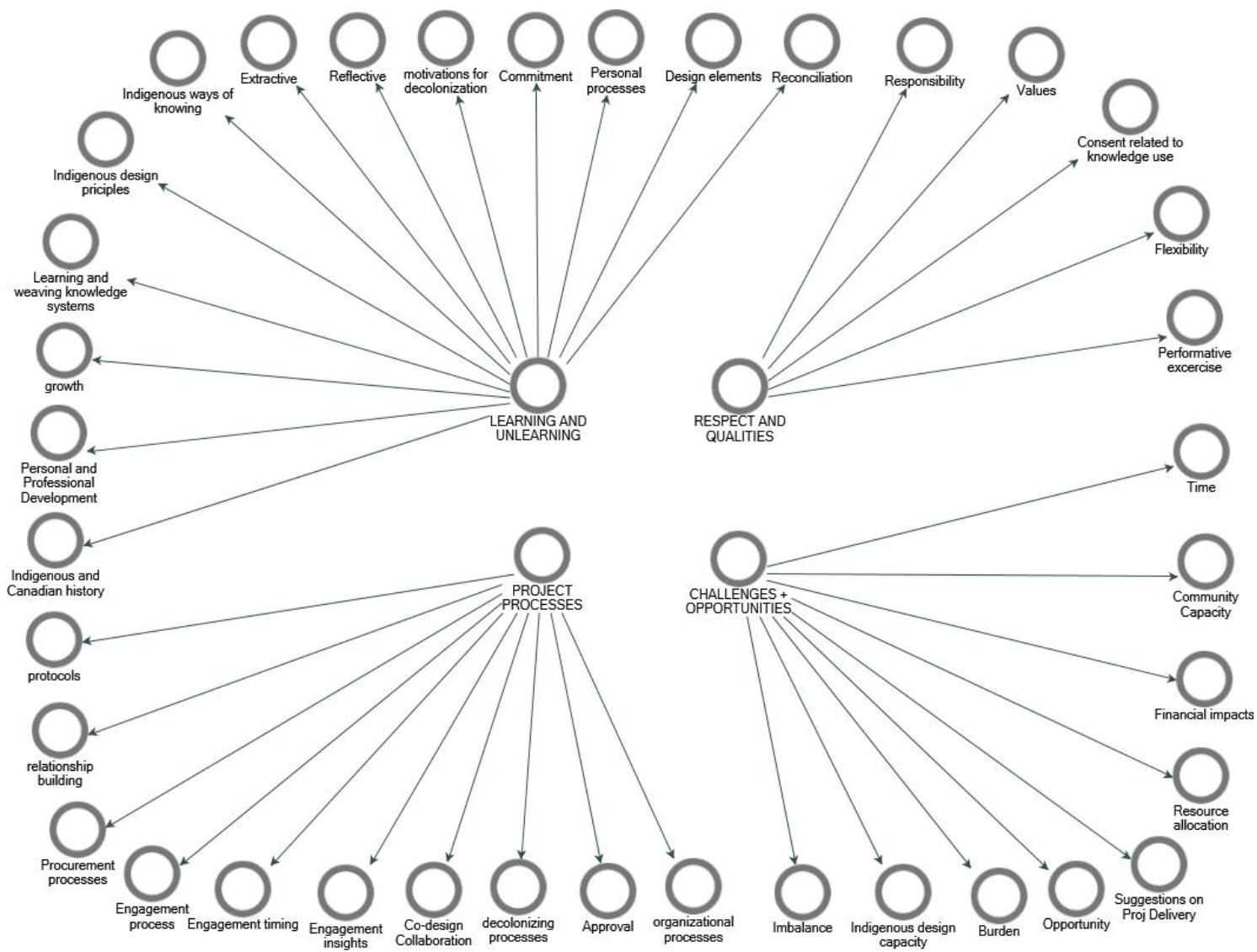
Figure 5-2 Earlier theme groupings with sub-themes
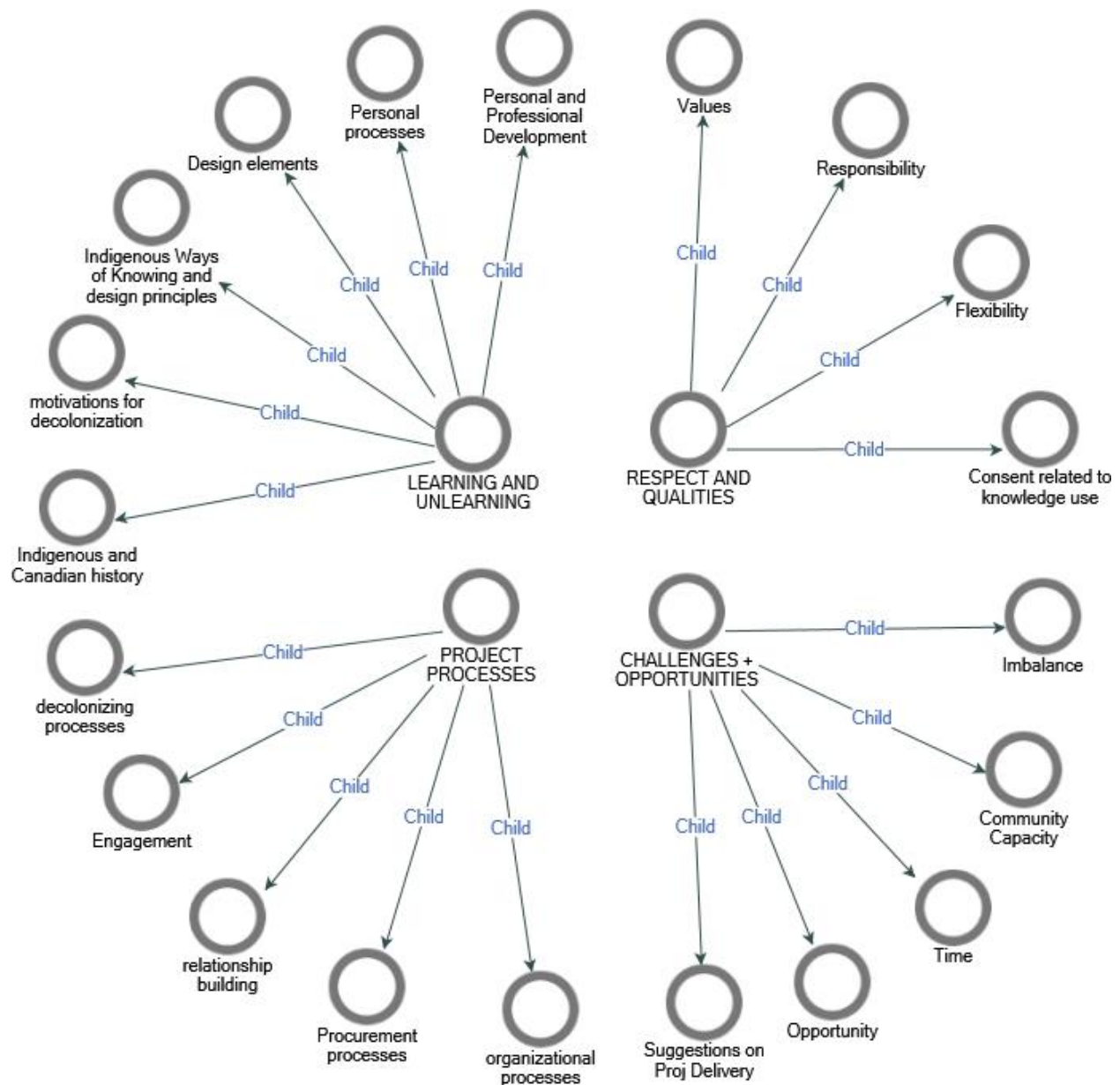
Figure 5-3 Final emergent themes and sub-themes

It is important to note how the four themes that emerged combined project delivery methods with principles and values that inform and influence project processes. This is critical because project delivery processes do not exist without clear project values set by the owner and influenced by

stakeholders. The four emergent themes form the departure point for the development of the

Framework to Incorporate Indigenous Ways of Knowing in Chapter 6**.**

Chapter 6: A Framework to Incorporate Indigenous Ways of Knowing

6.1   Influencing the AEC Industry

In most situations, design teams will benefit from input and guidance from KKs or Elders from a community unless the team already has member(s) with a deep understanding of the community's history, values, and ways of knowing. Intercultural collaboration may involve knowledge shared in a way unfamiliar to the design teams, such as through stories (Bartlett et al., 2012, p. 337). The knowledge may also have strict restrictions on how it is shared more broadly (Voyde & Morgan, 2012, p. 219). Therefore, the challenge of incorporating IK in AEC industry projects is centred around the relationship and collaboration between owners, designers, and KKs.

The project owner has a role in creating conditions where this collaboration can occur and where outcomes of the exchange of knowledge is respected. While it may seem as simple as scheduling a couple meetings, it involves a process of building trusting relationships between owners, project management teams, designers, and the Indigenous communities. Often, relationships are strained through the legacy of settler colonial history, jurisdictional disagreements, and previous project experiences. Furthermore, capacity imbalances can contribute to the challenges of deep collaboration and learning between KKs and design teams.

The next step is to build off what was learned through the case studies and develop a framework the AEC industry can apply to other projects. The perspectives of owner representatives, design teams, and third-party engagement consultants demonstrated similarities in motivations and a collective willingness to learn and modify their processes, despite the uncertainty and discomfort

of not being the experts in IK. What is different among these parties are the leverage points for implementing project design processes that incorporate Indigenous values. In many ways, the owners hold most of the influence in the project delivery methods chosen, while designers and other consultants are often constrained to various degrees by the structures in place. In addition, many project owners have the long-term relationship with the Indigenous communities on whose traditional territories their projects are built, while design teams may or may not work again with the same community.

Because owners create project goals and choose project delivery methods that can optimize engagement and collaboration between design teams and Indigenous KKs, a framework was developed to identify important project delivery considerations for owners. The perspectives of participant designers and engagement specialists were critical to understanding current design and co-design[7] practices used, and the barriers they perceive as they work in conventional ways and as they decolonize their design practices. For the owner-facing framework to be useful, it must:

- set owners up for success by helping them prepare for intercultural collaboration and decolonization of their processes.
- identify and address challenges design teams face during procurement and design.
- acknowledge the diversity and protocols of Indigenous communities.
- respect communities' desire and capacity to participate in a project.

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[7] Co-design is a design approach that brings designers, end users and other stakeholders together to frame the question and seek solutions together.

- contribute to strengthened relationships between the owners and host nations.

The Framework to Incorporate Indigenous Ways of Knowing was developed to meet the above needs.

6.2   Building Off the Case Studies

The development of the Framework to Incorporate Indigenous Ways of Knowing began by mapping the four emergent themes from the case studies to a series of actions and considerations that owners can apply to their projects which provides potential options at various project stages to foster an exchange of knowledge from Indigenous KKs and design teams. However, Sea2City and Gateway did not consider or utilize all possible project delivery mechanisms for fostering intercultural collaboration. RA 8 is combining the emergent themes with literature findings, insights from other projects, and the author's experience. This combination was done prior to and continually during the development of the Framework to Incorporate Indigenous Ways of Knowing.

RA 9 is the development and refinement of the framework. This iterative RA involved exploring numerous sequences of actions and considerations based on the combined insights resulting in a framework composed of three repetitive phased processes and considerations and four principles that are applied throughout the project phases. Figure 6.1 outlines the complete framework phased processes and considerations and the framework principles while Section 6.3 describes the phased processes and considerations and the framework principles separately in more detailed with easily read figures.

Framework to Incorporate Indigenous Ways of Knowing													
Phased Processes and Considerations										Principles			
Pre-Project Actions			Project Delivery Actions and Options						Post-Project Progress	Throughout all Aspects of Project Delivery			
Foundational Understandings	Individual and Organizational Responsibility	Project Specific Preparation	Project Delivery Method Type	Partnerships with Indigenous Communities	Procurement Structure and Level of Effort	Alignment of Goals	Engagement Strategy	Post-Project Reflections	Continued Relationships	Responsibility to Relationships	Flexibility	Indigenous Protocols	Learning

Figure 6-1 Framework to Incorporate Indigenous Ways of Knowing

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6.3   Framework Development

Much of the Sea2City and Gateway data collected from participant interviews, ethnographic

observation, and project documents was about the motivations to decolonize project processes,

the learning process for individuals and their organizations, and the various engagement and

design processes project teams use**.** While the framework is aimed at owners, many aspects apply

to all project participants, to different degrees. The four emergent themes from the Sea2City and

Gateway case studies that influenced the framework are:

1. Learning and Unlearning

2. Respect ad Qualities

3. Project Processes

4. Challenges and Opportunities

The mapping from themes to a framework was not a literal transfer of ideas and methods. It was

deemed necessary to structure the framework as both sequentially phased processes and as

principles that capture important characteristics and engagement concepts that are woven

throughout all processes.

This type of two-dimensional framework was proposed by Migliaccio et al. for public owners

adopting a design-build project delivery method for highway projects (2008). In the efforts to

assist owners implement project delivery change, Migliaccio et al. further divided the phases into

organization and project levels components with concurrent processes of implementation,

knowledge building, and implementation assessment (2008, pp. 490-491). Their framework style

influenced the Framework to Incorporate Indigenous Ways of Knowing because of similar objectives of assisting owners through project delivery change.

The Framework to Incorporate Indigenous Ways of Knowing is structured as:

- project phases that guide the owner through processes and considerations that influence the inclusion of IK in the project design.

- a set of four principles that establish respectful practices throughout all project phases.

Section 6.3.1 goes into more detail about the relationship between the emergent themes and the framework phased processes and consideration and the framework principles.

6.3.1   Framework Phased Processes and Considerations

The framework contains three phases that represent the repetitive sequence owners will progress through with each project:

1. Pre-Project Actions: The reflection on an organization's motivations and the preparation and mindset needed before the organization enters a project.

2. Project Delivery Actions and Options: The potential project delivery mechanisms and strategies available to owners based on the project and the Indigenous community involved.

3. Post-Project Progress: Learning from and incorporating lessons from a completed project and the actions that can be taken to maintain relationships and build off previous projects.

Figure 6.2 represents the phased processes and considerations component of the framework along with their actions and options, and each phase is described below.

Phased Processes and Considerations									
Pre-Project Actions			Project Delivery Actions and Options					Post-Project Progress	
Foundational Understandings	Individual and Organizational Responsibility	Project Specific Preparation	Project Delivery Method Type	Partnerships with Indigenous Communities	Procurement Structure and Level of Effort	Alignment of Goals	Engagement Strategy	Post-Project Reflections	Continued Relationships
Learning and reflecting on the History of Indigenous Peoples, intercultural competencies and allyship.	The commitments to broader societal goals, like reconciliation and anti-racisim.	Actions to be done to prepare for a project that will incorporate Indigenous knowledge.	Different project delivery methods have strengths and limiations for fostering intercultural collaboration.	Seek partnerships or opportunities for Indigenous community economic participation.	Procurement process provides guidance to designers and ensures competencies are present.	Project goals are initiated by the proponent and should include commitments from the Pre-Project Actions.	Proponent responsibilities for engagement between design teams and the Indigenous community.	Identify lessons learned from the project and ways to incorporate insights into future work.	Continue to strengthen the relationship between projects.

Figure 6-2 Framework to Incorporate Indigenous Ways of Knowing: Phased Processes and Considerations

Pre-Project Actions

The Pre-Project Actions phase was included because unlike other project delivery advancements aimed at efficiencies, technology adoption, or organizational processes, the implementation of decolonization and intercultural collaboration are foreign to many owners and design teams. For example, the motivations of the Sea2City and Gateway project parties are rooted in societal goals and a growing appreciation of other world views, such as Coast Salish ways of knowing. This framework reflects the learning journey the CoV and UBC are on that includes learning and actions prior to undertaking projects. Pre-Project Actions include the following:

1. **Foundational Understandings**: The owner should ensure their organization's team members have the foundational understanding necessary to work with Indigenous communities. Intercultural competency training at all levels and exposure to the history of Indigenous Peoples in Canada will aid in effectively implementing all phases and principles of the framework.

2. **Individual and Organizational Responsibility**: Responding to the TRC Calls to Action, the MMIWG Calls for Justice, and implementing UNDRIP will require reflection and commitment from individuals and organizations. Opportunities exist to advance reconciliation within existing processes and where necessary, and when they are ready, organizations can apply principles of decolonization to business design practices. Examples from the Inquiry into MMIWG and the TRC are quoted below.

   Inquiry into Missing and Murdered Indigenous Women and Girls Calls for Justice 13.1 (2019):

We call upon all resource-extraction and development industries to consider the safety and security of Indigenous women, girls, and 2SLGBTQQIA people, as well as their equitable benefit from development, at all stages of project planning, assessment, implementation, management, and monitoring.

The TRC Call to Action 92 (2015):

We call upon the corporate sector in Canada to adopt the United Nations Declaration on the Rights of Indigenous Peoples as a reconciliation framework and to apply its principles, norms, and standards to corporate policy and core operational activities involving Indigenous peoples and their lands and resources. This would include, but not be limited to, the following:

    i.   *Commit to meaningful consultation, building respectful relationships, and obtaining the free, prior, and informed consent of Indigenous peoples before proceeding with economic development projects.*

    ii.   *Ensure that Aboriginal peoples have equitable access to jobs, training, and education opportunities in the corporate sector, and that Aboriginal communities gain long-term sustainable benefits from economic development projects.*

    iii.   *Provide education for management and staff on the history of Aboriginal peoples, including the history and legacy of residential schools, the United Nations Declaration on the Rights of Indigenous Peoples, Treaties and Aboriginal rights, Indigenous law, and Aboriginal–Crown relations. This will require skills based training in intercultural competency, conflict resolution, human rights, and anti-racism.*

3. **Project Specific Preparation**: Prior to projects being initiated, owners can inform themselves on potential opportunities and challenges to fostering intercultural collaboration on a project. This preparation component is essential because many opportunities require lead time to organize or prepare for, such as capacity building, formal partnerships, or employment strategies.

Project Delivery Actions and Options

The Project Delivery Actions and Options phase involves the project specific choices owners can utilize. The five actions and options allow the framework user to pick what mechanisms work for the project, the community they are working with, and other constraints. The following actions and options also range in level of complexity or sophistication of an organization:

1. **Project Delivery Method Type**: Different project delivery methods determine the timing of project participation and the level of team integration (Choi et al., 2019, p. 1). When highly collaborative project delivery methods are utilized, like integrated project delivery, the project team works closely early to establish project goals that can include Indigenous ways of knowing because timing and team integration are very influential factors in developing the conditions for intercultural collaboration. Owners may have preferences or established project delivery methods based on the organization's experience and financing structure, so choice of project delivery method is one that requires careful consideration.

2. **Partnerships with Indigenous Communities**: Owners can view their projects opportunities for mutually beneficial outcomes if the Indigenous communities are

involved in the design, delivery, and ownership of the project. Explore opportunities to hire local labour and consulting services, source materials and equipment from community companies, build capacity where needed, and seek economic co-ownership or investment agreements.

3. **Procurement Structure and Level of Effort**: How potential designers and contractors bid on the project can include mechanisms that influence the eventual intercultural collaboration. Owners can strike a balance between conventional and streamlined proposal processes with more prescriptive requirements. Procurement processes like requests for qualifications, expressions of interests and requests for proposals, can establish project goals and assist in highlighting designers with intercultural competencies. An example from Sea2City was the recommendation that design teams have a cultural advisor on their team who is adept at working with Elders and interpreting IK.

4. **Alignment of Goals**: The project goals and the owner's commitments can be woven through the procurement and project delivery process. The alignment of goals will be unique to each project because project goals are project specific, and the owner's goals will likely change overtime. The owner should find a balance between clearly articulated expectations and allowing the design teams to apply creativity to realize the owner's project goals and broader societal aspirations.

5. **Engagement Strategy**: In most situations the owner holds the responsibilities for engagement between design teams and the Indigenous community. The options may depend on established government-to-government or other protocols. The engagement style, depth, and timing will depend on the Indigenous community's capacity and desire

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to participate, so the owner should engage early and implement feedback from the community before finalizing their engagement strategy. For example, due to capacity constraints on behalf of the local nations, virtual Decolonization and Indigenous Perspectives workshops were scheduled by the Sea2City project management team and designed and facilitated by representatives of the Squamish and Tsleil-Waututh Nations. Early engagement with the nations provided the needed time to arrive at an engagement level that met the nations' capacity and provided design teams with insights from KKs.

Engagement will also be influenced by the competency and team composition of the design teams. For example, embedded cultural advisors and experienced design teams will need less structured support from the project management team. Flexibility should be part of the strategy to accommodate changes from the community or design teams.

Post-Project Progress

Owners can facilitate the incorporation of Indigenous ways of knowing through selected project delivery methods and mechanisms, but each project offers an opportunity to leverage positive outcomes and lessons learned. As noted, many owners have an ongoing relationship with the host nation(s) and each project can be an iteration of the framework, building understanding and trust each time. Post-project actions are divided into the following learning and relationship building opportunities:

1. **Post-Project Reflections**: The owner, through their project management team, can measure the effectiveness of the project delivery choices made. This is aided through feedback from design teams and the Indigenous community representatives. Seeking and

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implementing improvements, especially when coming from other project parties,

demonstrates a commitment to strengthening relationships. Similarities can be made to

recommended retrospectives, completed at various stages of projects using integrated

project delivery, which are activities to examine what worked well and what could be

done differently (Allison et al., 2018, p. 57).

2. **Continued Relationships**: An important take-away from many conversations was the

importance of shifting from a transactional mindset to one of relationships. For owners

who conduct projects on the traditional territories of Indigenous Peoples, the time

between projects represents an opportunity to further build trust and understanding. As

relationships evolve, capacity can be built between projects to enable more advanced

methods of collaboration and partnerships. The learning that takes place can begin to look

like pre-project actions, which demonstrates the cyclical nature of the framework.

While the project owner has more control over actions within the framework, designers can

benefit from a similar iterative process of preparation, project specific processes, and post-

project learning.

6.3.2   Framework Principles

Principles			
Throughout all Aspects of Project Delivery			
Responsibility to Relationships	**Flexibility**	**Indigenous Protocols**	**Learning**
Each chosen project delivery approach provides opportunities to strengthen relationships.	Project approaches must adapt to align with community capacity and support intercultural collaboration.	Project processes and activities should align with protocols of the community.	Learning with humility throughout the project leads to growth and new understanding.

Figure 6-3 Framework to Incorporate Indigenous Ways of Knowing: Principles

Four principles underlie considerations and actions owners can make to foster collaboration between designers and KKs. Each of the following principles, shown in Figure 6.3, should be utilized concurrently with each project phase:

1. **Responsibility to Relationships:** Strengthening relationships is the goal behind each action, whether it is between the owner and the Indigenous community or between design teams and KKs. Throughout each phase, the project owner and their design consultants should conduct themselves in accordance with their growing intercultural understanding and commitments to reconciliation.

   An example of this principle was how UBC listened to Musqueam KKs when they expressed the incompatibility of the Gateway preliminary design, that left no space for ecological rejuvenation, with Musqueam principles of wellness. Moving the building and encroaching on the next building site was a costly choice, but in line with respecting Musqueam culture and strengthening their relationship.

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2. **Flexibility:** Project approaches must adapt to align with community capacity and support intercultural collaboration. Preparation and planning are important, but owners and their project management team needs to remain flexible to changing situations within the project and the Indigenous community.

   The Sea2City project management team demonstrated flexibility by supporting the design team who did not have a cultural advisor. Rather than proceeding as planned, the project management team worked to arrange collaboration with the cultural advisor who was part of the other design team. In addition, a second cultural advisor was brought onto Sea2City to work with both teams. The CoV was flexible in their project management and the result was a nimble and responsive approach to a project challenge.

3. **Indigenous Protocols:** The owner and designer teams should seek to learn and align project actions with the community's cultural protocols in each project phase. Emphasizing and honoring Indigenous protocols is an act of decolonizing project delivery. An example is how a KK with the Sea2City project started site visits with a song and some KKs started their Decolonization and Indigenous Perspectives workshops with a song. The Sea2City project manager checked with KKs to ensure they felt comfortable observing their protocols.

   UBC representatives expressed their understanding of how Musqueam knowledge contributed during engagement is in confidence, and that UBC does not have the

ownership or control over specific knowledge. There was a document from another UBC

project that the author was not able to view because UBC did not have permission to

share it. Respecting the protocols around IK is important to building trust.

4. **Learning:** The learning process is on-going, and it is helpful to have the mindset of

   empathy and humility as one gains experience through successes and missteps.

   Both the CoV and UBC incorporate a learning mindset to their projects. During

   interviews, participants representing the owners were very engaged in their own learning

   journey and eager to apply their experiences to advancing their methods, all with the goal

   of delivering projects that better reflect the culture and values of the Musqueam,

   Squamish, and Tsleil-Waututh Nations. Similarly, the design teams demonstrated a

   motivation and commitment to continuously apply the knowledge shared with them by

   KKs.

6.3.3   Case Study Themes to Framework Actions and Principles

The emergent themes from the case studies map to the framework both directly and indirectly.

The mapping process was messy and iterative. This section describes how the four case study

emergent themes relate to the framework. To aid visualizing this mapping, Figure 6.4 shows the

relationship between specific themes and the framework.

Case Studies Themes

Framework Phased Processes
and Considerations

Project Processes

Pre-Project Actions

Project Delivery Actions and Options

Post-Project Progress

Framework Principles

Learning and Unlearning

Respect and Qualities

Responsibility to Relationships

Flexibility

Indigenous Protocols

Learning

Framework Phased Processes and
Considerations and Framework Principles

Barriers and Opportunities

All Phased Actions

All Framework Principles

miro

Figure 6-4 Mapping case study themes to the framework

The "Project Processes" theme captures the Sea2City and Gateway contributions towards the
three phased processes and considerations, while the "Learning and Unlearning" and "Respect
and Qualities" themes form much of the principles that are integrated throughout the framework.
The "Barriers and Opportunities" theme influenced both phased processes and the concurrent
considerations.

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It should be noted that individual and organizational learning is emphasized prominently in the "Pre-Project Actions" phase and "Learning" exists separately as an essential principle throughout all project phases. This reflects the intentional and coordinated effort of individuals and organizations as they examine their positionality, establish their motivations, and begin to decolonize their design and project delivery processes. In addition, learning is an important quality to observe while working through the framework and is linked to an openness to listen, share, practice, and reflect on successes and failures.

The importance of maintaining relationships between projects is identified in the "Post-Project Progress" phase. It is common for owners to adopt a project-to-project mindset rather than view the relationships with host nations as continuous. This differs from the "Responsibility to Relationships" principle that influences all project processes and represents a lens to view all project delivery actions in all project phases.

6.4 The Final Framework to Incorporate Indigenous Ways of Knowing

The framework should be viewed as both phased processes and considerations, and principles applied throughout. The iterative nature of the phased processes and considerations will reflect the framework users' understanding of the principles. As users gain experience and confidence through completing projects, their interpretation of the principles will evolve.

Chapter 7: Conclusion

7.1 Summary

This research involved investigating methods to facilitate the incorporation of Indigenous ways of knowing in AEC industry projects. It looked at the motivations for the inclusion of Indigenous ways of knowing, methods used by two organizations, and created a framework to aid project owners in selecting project delivery methods to optimize the intercultural collaboration that enables the incorporation of Indigenous values and perspectives.

If an owner's goal is to strengthen relationships with and honour the culture and world view of an Indigenous community, on whose traditional territory a project will occupy, then incorporating the community's values and perspectives will require a collaboration between designers and Indigenous KKs. This exchange of ideas and knowledge requires competencies and understandings that most western educated project team members are not familiar with. Therefore, project delivery must accommodate the owner's goal and support design teams through this intercultural collaboration.

The two case studies produced a rich collection of individual insights from interviews, that combined with group observations and the review of project documents, led to a series of themes relevant to decolonizing project delivery and the incorporation of Indigenous world views in project design. The case study themes, along with the findings from the literature review and the author's experience, then contributed to the Framework to Incorporate Indigenous Ways of Knowing.

What became clear from the case studies and the framework development was the multi-step process of preparing for decolonizing project delivery, the range of choices an owner can implement for a project, and the repetitive learning and relationship building process owners and designers should undertake with each project. The process outlined in the framework also asks the user to apply four principles throughout the phases: the responsibility to relationships, flexibility, observing Indigenous protocols, and continuous learning.

This research represents a learning journey for the case study organizations, the research participants, and the author because the inclusion of Indigenous ways of knowing in AEC industry projects is viewed by many involved as an act of reconciliation.

7.2   Research Limitations and Future Research

The case studies that form the backdrop of this research are initiated by the City of Vancouver and the University of British Columbia. Both organizations have established ambitious goals, such as responding to the Truth and Reconciliation Commission's Calls to Action and the Missing and Murdered Indigenous Women and Girls' Calls for Justice, and to implement the United Nations Declaration on the Rights of Indigenous Peoples. The goal of reconciliation, as proposed in this research, is a Canadian societal goal, but it is acknowledged that not all AEC industry projects will prioritize objectives beyond project scope, cost, and schedule. It is beyond the research objectives to address ways to motivate the AEC industry more broadly.

The Framework to Incorporate Indigenous Ways of Knowing was developed largely through the findings of the Sea2City and Gateway case studies. The research would benefit from a survey

and round of interviews with the participants and additional subject area experts to verify the contents of the framework because the participant pool was limited to 19 individuals and only two owner organizations. While findings from literature and the author's experience influenced the framework, for it to reflect more diverse contexts, more perspectives should be brought into the research. The added iteration of data collection is where grounded theory excels because it allows reflections from analysis to influence further data collection and analysis, which will refine the framework.

To date, this research has been focused on the perceptions and experiences of non-Indigenous owner's representatives and designers. The next steps of this research are to further refine the framework based on participant and subject area expert verification and to co-develop future research objectives and methodologies with Indigenous partners that will centre Indigenous communities' perspectives and desired areas of inquiry.

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Appendices

Appendix A Interview Questions

A.1   CoV Sea2City

- What is your name?

- What was your role in the project? And when did you join Sea2City?

- What would you consider your knowledge of decolonizing processes before competing in the Sea2City Design Challenge?

- Have you had experience working for or with Indigenous communities in the past?

- Were the objectives of the project clear on how design teams would be collaborating with local First Nations or incorporating their values?

- What preparation did you do leading up to the project?

- Did you participate in the Indigenous Perspectives and Decolonization Workshop? What were your main take-aways and how did you apply what you learned?

- Did the workshop improve your knowledge of Musqueam, Squamish, and Tsleil-Waututh perspectives and principles of decolonization?

- Has your comfort level change during the project with respect to including Indigenous teachings or MST identified perspectives?

- Were you originally open to including MST informed design principles? Was your team?

- Do you believe your MST partners would agree with your application of their principles?

- Will you apply what you learned in future projects voluntarily, or only if requested?

- If you could recommend improvements to the Sea2City Design Challenge's decolonization process, what would it be?

- What are some barriers to collaborating with and including Indigenous communities' perspectives in engineering projects?

A.2   UBC Gateway

- What is your name?

- What is your organization?

- What was your role in the project?

- What would you consider your knowledge or experience of decolonizing processes before working on UBC Gateway (or other projects) you were involved with?

- Have you had experience working for or with Musqueam or other Indigenous communities in the past?

- What preparation did you do leading up to the project with respect to situating the project within the Canadian settler colonial context?

- Were you originally open to including Musqueam values or Musqueam informed design principles? Were other members of the project team?

- Do you believe UBC's Musqueam partners would agree with the application of their teachings and the decolonization principles?

- What do you see as impediments to better collaborative processes with Musqueam?

- What improvements would you make to the collaboration project process?

- What are some barriers to including Indigenous perspectives engineering projects?

Appendix B Project Documents

B.1   City of Vancouver Sea2City Design Challenge

A total of 13 Sea2City project procurement and supporting documents were reviewed:

- Sea2City Request for Proposal

- Sea2City Project Roadmap: Rise to the Challenge

- Sea2City Design Challenge Overview

- Sea2City Roadmap Land Acknowledgement

- Sea2City Values Revision Brief: Indigenous Knowledge Values

- Coastal Adaptation Values-Based Planning Primer

- Coastal Adaptation: False Creek Final Report

- Indigenous Engagement Summary Report: Northeast False Creek Park Design

- Decolonization and Indigenous Perspectives Draft Framework

- Design team Onboarding presentation

- City of Vancouver Council Members' Motion to Implement UNDRIP in the CoV

- Sea2City Design team proposals (for two teams)

B.2   University of British Columbia Gateway Building

A total of 15 Gateway project procurement and engagement summaries were reviewed:

- Gateway Building Design Brief: School of Nursing, School of Kinesiology, Integrated

   Student Health Services, UBC Health, and Language Sciences

- Gateway Building Board 1 approval meeting minutes

- Gateway Building Architectural Services- Expression of Interest

- Design team Request for Proposal for Architectural Services

- Design team proposal

- Gateway Building Development Permit Application

- Gateway UBC/Musqueam Meeting minutes (series of 4 meetings from December 7, 2020 to July 2021)

- A Vision for Musqueam Culture and Welcome at UBC Gateway

Appendix C Qualitative Data Initial Codes and Characteristics

The coding process generated the following 55 codes that were subsequently analyzed and consolidated into the four emergent themes that represent the case study findings. The following table describes what the code refers to or how it differs from other similar codes.

Initial Topic Group	Codes within topic group	Code characteristics
Motivations and opportunities for decolonization	Indigenous and Canadian History	facts commonly known that does not include Indigenous knowledge
	motivations for decolonization	Relating to what participants identified as their reasons for decolonizing their practices
	Indigenous ways of knowing	Relating Indigenous ways of knowing, ecological traditional knowledge, Indigenous values, traditional teachings
	Indigenous design principles	Design inspired/influenced by IK
	learning and weaving knowledge systems	related to participant's learning experience and/or weaving Indigenous and Western knowledge systems
	opportunity	this captures various potential actions or processes
	reconciliation	These entries speak to motivations, evaluation and actions that advance reconciliation
	settler perspectives	things from a settler perspective or contrary to Indigenous world views

	values	Content related to stated values, Indigenous or Eurocentric
	suggestions on project delivery	Ideas/ suggestions relating to identified opportunities about project delivery methods
Processes	approval	Refers to segments that address approvals by the proponent, designers or the Indigenous community regarding design or stages in the delivery process.
	co-design collaboration	Relates to design practices that involve including designing together with stakeholders
	consent related to knowledge use	Permission granted relating to cultural knowledge or privileged information.
	decolonizing processes	Relates to critically examining and modifying colonial processes that significantly bias world views, promote/uphold settler colonial authority over Indigenous land
	engagement processes	Ideas shared, proposed, considered
	engagement timing	Relates to topics/outcomes related to timing
	engagement insights	these are things learned or collected from engagement session. Can be related to various world views and from different perspectives.
	performative exercise	Relates to actions that are not authentic
	procurement processes	processes within procurement including RFPs and proposals- intentions and considerations.
	relationship building	Actions that have long-term intentions
	trust building	Learning and behaving in a way that instills mutual respect and trust
	project delivery and organizational processes	project delivery processes and any process within an organization
	personal processes	Ways individuals work or live
	Sea2City engagement goals	things Sea2City hopes to do, according to various project organizations
	protocols	Relates to ways to work with Indigenous communities
Actions	personal and professional development	How individual and organizations are learning and becoming more culturally competent
	design elements	The outcomes from collaboration. May include Indigenous design principles
Individual and organizational qualities	extractive	taking knowledge or using specialized knowledge keepers without the appropriate relationships or consent.
	commitment	Establishing goals/trust and following through
	growth	personal or organizational growth through the process

	reflective	looking back with the aim of understanding, learning and growing
	flexibility	Relates to remaining open to new ideas or adapting to challenges
	responsibility	personal and organizational responsibility to various objectives
	imbalance	Imbalance in resources, number of people, knowledges
Barriers	resource allocation	Relates to unsustainable practices or under-resourcing project processes
	barriers	Perceived barriers, that can be structural, mental, political, institutional etc.
	time	Challenges relating to timing, valuing time
	challenges	These are perceived challenges that relate to all aspects of project delivery.
	Indigenous design capacity	actions to increase capacity among Indigenous designers/professionals. Different than Community Capacity.
	community capacity	Barriers related to a community's ability to participate/contribute
	burden	disproportionate effort needed or tasks put on someone or something
	financial impacts	Relates to the impact engagement and other project processes have on communities
Attitudes	positive experience	When the topic left the participant feeling positive
	curious and openness	This attitude captures feelings of curiosity and a willingness to learn and grow as individuals and their organizations.
	honesty	Relating to interactions or reflections that were honest or transparent
	honoured and gratitude	feelings of being honoured, or recognizing the privilege of working with others
	confidence	relating to processes, desicions, designs etc
	supported	Relating to being supported or offering support
	uncertainty	Not knowing what you're doing or the outcomes- related to design, engagement, professional development, etc
	compromise	Relates to meeting others where they are at, or arriving at a mutual agreement
	skeptical	feeling uncertain, but in an negative way.
	discomfort	confronting realities that challenge one's positionality and privilege derived through settler colonial impacts

	disappointment	Relating to not achieving or creating an expected outcome
	disrespect	Refers to not being treated with respect or observing disrespectful behavior or practices
	frustration	Feelings of lack of control or negativity that could be avoided