



Shaping Community Nodes in the District of Squamish

Prepared for the District of Squamish by UBC School of Community and Regional Planning Students
2021

The SCARP project team, Jenny Koss, Spencer Lamirand, Devin O’Leary, and Yachen (Tori) Lin, would like to acknowledge that we are conducting planning research that references and affects the traditional, ancestral and unceded territory of the Squamish Nation.

We extend our sincere thanks to the District of Squamish and, in particular, Matthew Gunn and Ian Picketts for initiating and supporting this partnership over the past several months.

Finally, without the mentorship of Maged Senbel and the professors at the School of Community and Regional Planning (SCARP), we would not be able to conduct this project and help support the planning department in the District of Squamish. As a team of SCARP students, we are not residents of the District, and the views expressed in this report may not fully align with the community’s vision for the District’s future.

Cover/Back Cover Image Credit: Jenny Koss

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Executive Summary

“In 2040, Squamish is a vibrant, inclusive, connected coastal mountain community with a big heart and a small town spirit. At nature’s doorstep, Squamish is a leader and steward, sustaining ecological and human health while supporting resilient neighbourhoods and a thriving, diverse economy for all.”
— Community Vision, District of Squamish Official Community Plan

The 2017 District of Squamish (DoS) Official Community Plan (OCP) and 2020 Community Climate Action Plan (CCAP) call for an increase in housing diversity and the establishment of compact communities. This is in order to lessen the District’s greenhouse gas (GHG) emissions in response to the climate emergency. The community identified four goals to guide the OCP, and DoS staff created more specific indicators that help the community monitor and evaluate progress towards achieving these goals, shown in Figure 1. District staff identified measurable community performance indicators that help the community monitor and evaluate progress towards achieving these goals. The indicators are heavily influenced by the neighbourhood development patterns suggested in the OCP and CCAP. More populated complete communities, planned and stewarded in collaboration with district staff, have the potential to improve the quality of life in DoS greatly.

Past community engagement has revealed that there may be a disconnect between popular conceptions of density and those used by planning officials. ‘Density’ can be introduced into an area in a variety of ways that have unique opportunities and challenges. While single homes with large yards provide plenty of space for privacy and freedom to use that space, their inefficient use of space and utilities is detrimental to the greater community and environment.

By focusing on an ongoing participatory engagement process involving district staff and community members, neighbourhoods can increase their density as a way to improve community resilience, health, connectedness, livability, and engagement. This process has the potential to be both challenging and fulfilling and depends on the willingness of everyone who calls Squamish home, to ensure that it is a safe, desirable, and equitable place to live.

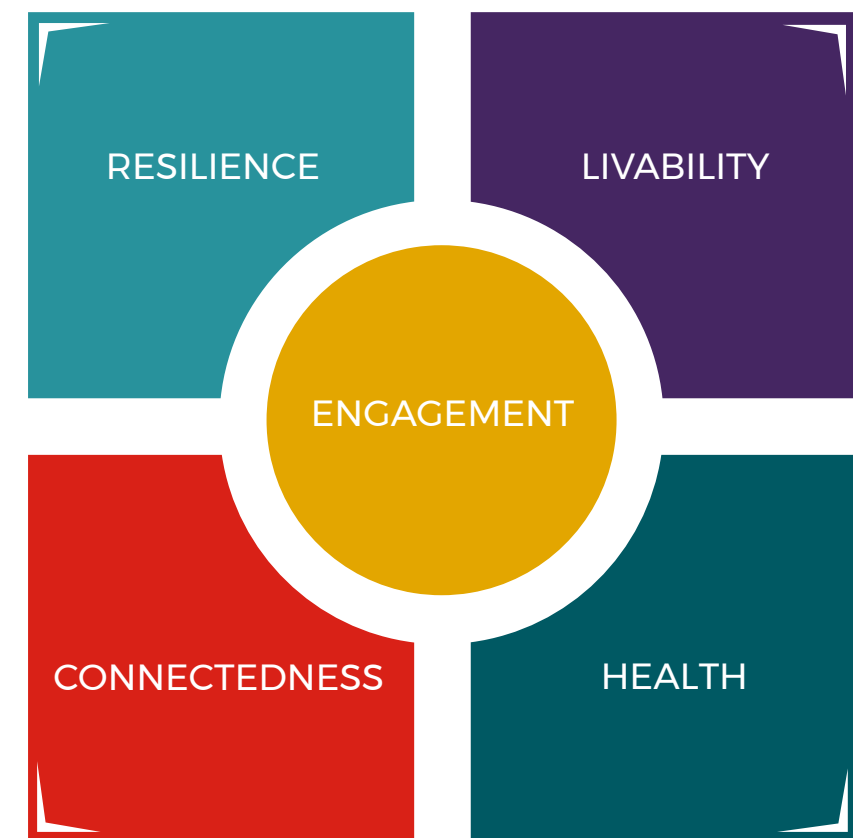


Figure 1. Project Goal

Introduction

What is this document?

This information booklet is for the residents and staff of DoS, and can be used to facilitate conversations regarding collaboratively shaping community nodes.

The booklet explores concepts from the 2017 OCP and 2020 CCAP, and their relationship to community nodes. The booklet uses visual narratives to imagine how residents might live around nodes. It checks in on four fictional characters whom each experience their neighbourhood a little differently.

The intention of this approach is to encourage the use of storytelling when discussing communities, and how residents have helped shape them over the course of generations. For community nodes to achieve OCP goals, the stories of the community that the nodes serve should be a central and ongoing component of conversations and decision-making.

This booklet has been formatted to be used as both a complete document and a collection of 'info-cards' that can be shared via social media.



Figure 2. Visual Narrative Approach

Introduction

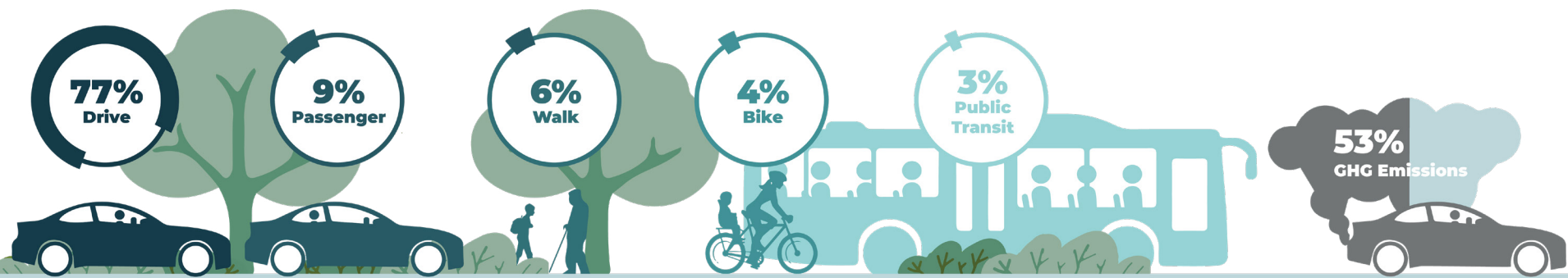
Community Context

In July 2019, the District of Squamish declared a climate emergency, and set a goal to reduce greenhouse gas emissions 45% by 2030 and be net carbon neutral by 2050. In 2020, a Community Climate Action Plan (CCAP) was accepted by council that identifies primary contributors to local emissions and proposes actions and implementation strategies to meet these goals.

The most significant source of community greenhouse gas emissions today comes from 'mobility fuels' at 53%. (Figure 3)

DoS residents are largely car-dependent when accessing their daily needs such as places of work, recreation and retail. Figure 3 illustrates the transit mode share of the community. One way to reduce car-dependence and related emissions is to expand employment and amenities into neighbourhoods, forming a network of transit-connected, walkable, and amenity-rich community 'nodes' (Haas et al. 2010). Node viability requires nearby housing for enough residents to support the concentration of amenities. These components work together to support DoS' goals of being a resilient, healthy, connected, livable, and engaged community.

Figure 3. DoS Transit Share and GHG Emissions



Past Public Engagement

During previous public engagement sessions held by the city, DoS residents expressed series of their values and how they vision the future of the community. Figure 4 is created based on the input from the community, demonstrating the most concerned issues and providing the foundation for this project.



Figure 4. Word Cloud based on inputs collected from past public engagement sessions

Community Performance Indicators

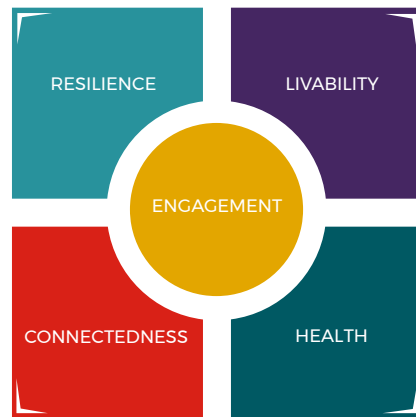
The CCAP and OCP have identified a number of measurable performance indicators that represent progress towards the five goals. For example, increasing neighbourhood food assets contributes to improved health for nearby residents. These indicators are common components of compact, amenity-rich neighbourhoods and should be integrated into DoS through the collaborative planning process. Figure 5 shows some examples of community performance indicators, and this booklet will explore them more in depth in later chapters.



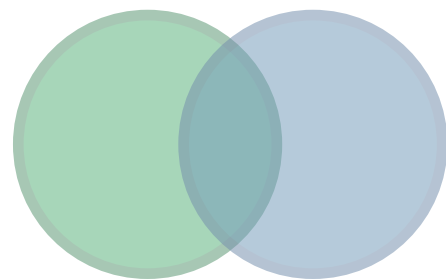
Figure 5. Community Performance Indicator Examples

Community Nodes

Community nodes locate daily destinations such as grocery stores, parks, and libraries closer to home. This means more trips can be made by walking or rolling. Nodes can be linked together by public transit, which runs more frequently when ridership increases. Reducing the need for regular car trips has the potential to dramatically reduce GHG emissions and also has a number of co-benefits that mitigate the effects of climate change and improve the quality of life of residents in these communities. The co-benefits with this form of compact neighbourhood design contribute to the OCP goals.



Community vs Neighbourhood



We refer to these as community nodes rather than neighbourhood nodes. Neighbourhoods are physically confined to street intersections or natural barriers. Communities, on the other hand, are dynamic, shifting, growing, and overlapping depending on who exists within them at any given time. These community nodes have the opportunity to serve as meaningful places not only for those who live in the neighbourhood surrounding them, but also for those who feel connected to its unique character, despite living a bus or bike ride away.

Figure 6. Community Node Conceptual Visualization

Visualizing Compact Development

Single-family homes are a familiar and comfortable way of living, but are they holding us back? What could you and your community achieve with more neighbours?



Visualizing Compact Development

Scaling Down Mass

Increased population density is required to support a community node. 'Density' is a vague term that manifests in a variety of built forms, so it is important to create conceptual and visual distinctions between what DoS envisions, and what residents might fear. "Good" density maintains all the desirable features of suburban living such as privacy, limited noise, light, and air pollution, spaciousness, and attractive character (Campoli, 2007). Achieving these qualities in neighbourhood nodes may increase community satisfaction and connection with these changes.

One strategy for building a community node is to concentrate a higher number of dense buildings near commercial areas and large, arterial roads. Oftentimes, there is a high demand from people to live near these lively places because the majority of daily needs can be met within a short walk. Outside of these commercial areas and arterial roads, smaller buildings and quieter side streets dominate the neighbourhood.

However, this strategy can lead to an imbalance in building types. The arterials and commercial areas may be too built up, featuring towers and other tall buildings, while the quieter side streets only have single-family homes. The missing middle-storey buildings, townhomes, and multi-unit homes, like duplexes are called the missing middle. The models in this project illustrate how compact communities can be achieved by creating missing middle homes.



Figure 7. Concept 1 Plan View



Figure 8. Concept 2 Plan View

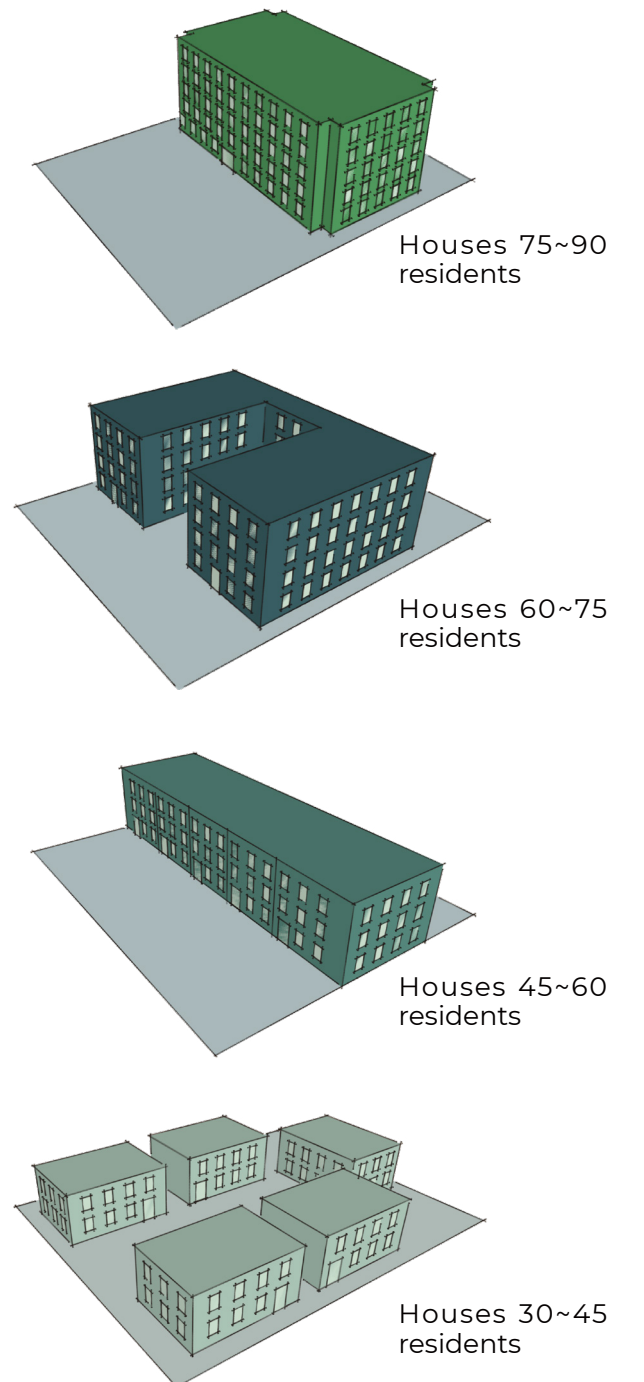


Figure 9. Potential Building Typology

Visualizing Compact Development

Community Node Concepts

Design Concept 1

A Highstreet on Diamond Head Road



Figure 7. Concept 1 Plan View

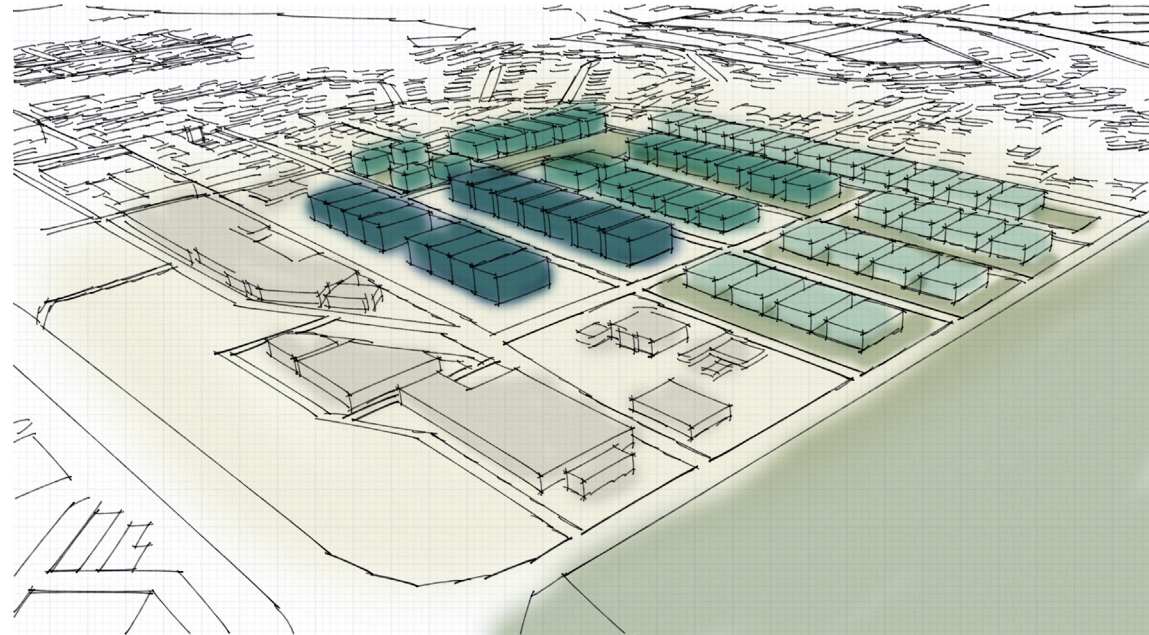


Figure 10. Concept 1 3D View



Figure 12.
Concept 1 Analysis

This model concentrates on housing and retail on Diamond Head Road, just behind the existing commercial centre. The primary advantage of this approach is that it allows building heights to gradually decrease as you approach the single-family homes to the North and East.

The creation of a new East-West street between Diamond Road and Mamquam Road would encourage pedestrians to visit local parks. In addition, it mitigates congestion by improving access to new housing.

Design Concept 2

Distributed Density and Green Spaces



Figure 8. Concept 2 Plan View

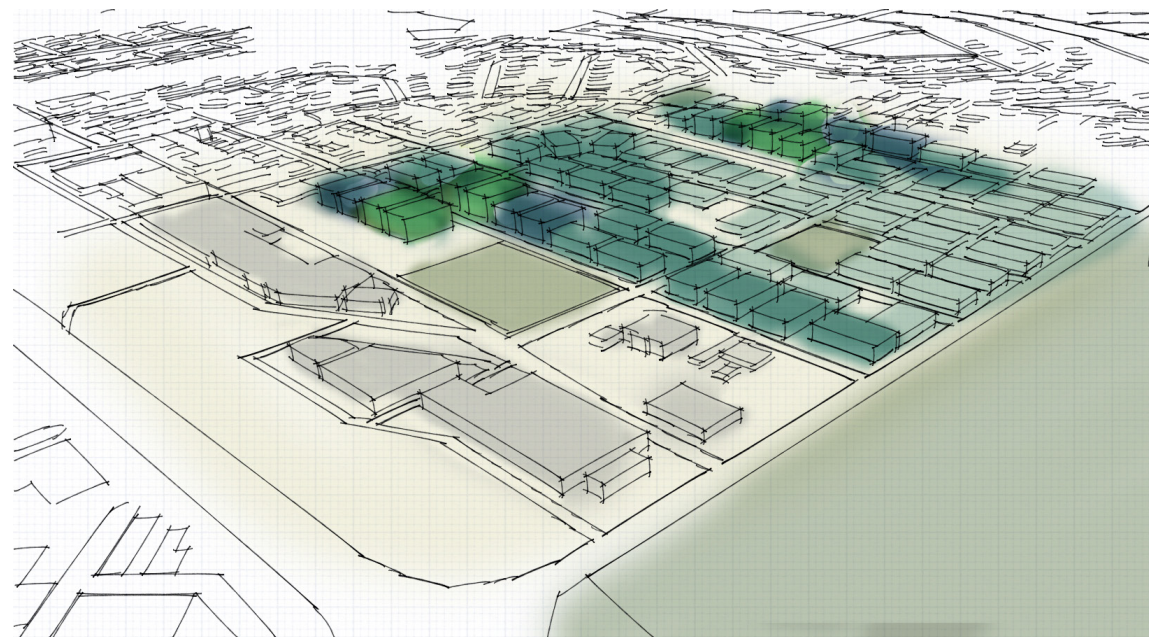


Figure 11. Concept 2 3D View

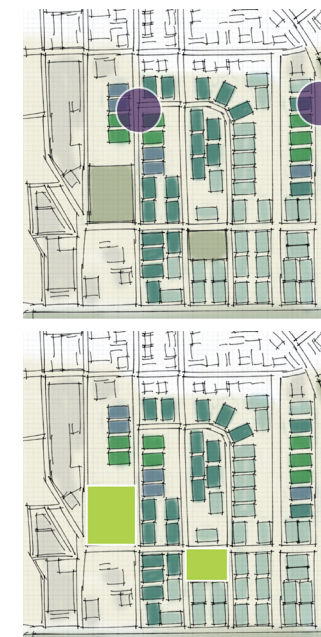


Figure 13.
Concept 2 Analysis

This second model affects a larger part of the neighbourhood but in a more subtle manner. It creates two neighbourhood centres and employs missing middle housing to increase density while maintaining its small-town character.

This distribution also allows for more open space in the form of neighbourhood parks. Not only does this encourage physical activity, but it also supports active transportation by creating destinations along bicycle and walking routes.

RESILIENCE

Residents have a high capacity to adapt to challenges and thrive in a changing environment.



Waste
Diversion Rate



Daily Water
Consumption



Single
Occupancy
Vehicle (SOV)
Mode Share



Social
Resilience



ePACT
Emergency
Notifications



Dike
Upgrades

FAMILY
FRIENDS
Homebrewing
NATURE
Safety
COMMUNITY
HIKING



Arjun
70 years old
Former forestry worker

Arjun is a 70-year-old former forestry worker. When his son moved to DoS with his partner and young daughter, Arjun moved with them to be with his granddaughter as she grew up. Arjun has made friends through the neighbourhood hiking group and recently started home-brewing beer with some of the other hikers. He is happy with how safe and connected he feels in his new home.

** For more information, refer to Appendix C*

RESILIENCE



Arjun and his friends harvest spruce needles for their craft brewing, collect recycled bottles for reuse, and donate their spent grains to the Kalodon community garden to be composted.



Arjun's neighbours told him about the limited local freshwater supply and brought him native plant species for his low-water garden. He is using water that he saves from his brewing to water them.

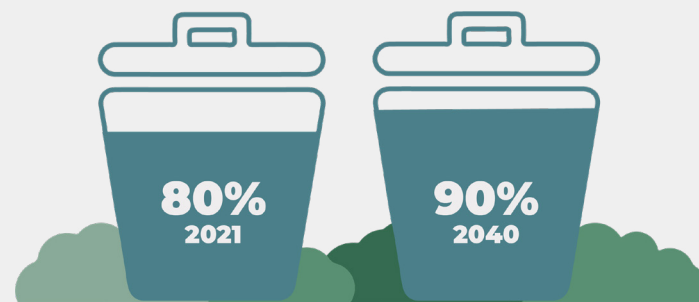


Arjun's eyesight is poor, so he can no longer drive a car. Luckily, most of his daily needs are within a 10-minute walk, and he takes the bus to the trailhead to meet up with his hiking group.

WASTE DIVERSION RATE

The Diversion Rate measures how much waste is diverted from the Squamish landfill, and is either recycled or composted instead. Future-focused environmental stewardship, which incorporates community-wide waste reduction, is one of the guiding principles of the District of Squamish Council's Strategic Plan.

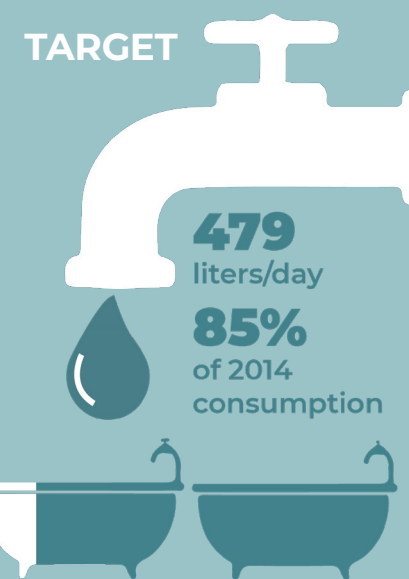
TARGET



*Source: DoS Townfolio

DAILY WATER CONSUMPTION

Reducing water consumption preserves the finite water supply, protects ecological integrity, delays costly infrastructure upgrades, and reduces greenhouse gas emissions. This indicator accounts for total water consumption (residential, commercial, institutional, and industrial) divided by population per day.



*Source: DoS Townfolio

SINGLE OCCUPANCY VEHICLE (SOV) MODE SHARE

Through compact land uses, transit-supportive densities and efforts to support active transportation, personal vehicle ownership will decrease over time. With mode shifts to alternative and active transportation options, transportation-related GHG emissions and congestion will be reduced as well.

TARGET SOVs will decrease from **88%** to **63%** of work commutes for those aged 15 and up by 2031.



*Source: DoS Townfolio

RESILIENCE



Arjun feels like he can ask his friends and daughter for anything. When Arjun got the flu last winter, his friends delivered all of his groceries, and his daughter brought him hot meals each day.



Arjun signed up for Squamish's emergency notification (ePACT) at the Farmers' Market. Now he'll get notifications on his phone for events such as severe weather, wildfire, floods, unexpected road closures, and other emergencies as they impact the community.



After losing a home to flood, Arjun chose the Garibaldi Estates because it has lower flood risk compared to most of the District. He appreciates how the golf course is located next to the Mamquam River, giving the river room to flood without destroying homes. Arjun also likes how the District is upgrading dikes to account for climate change and earthquake risk.

SOCIAL RESILIENCE

Communities with higher levels of neighbourliness and strong social networks are more resilient – that is, they are better at withstanding, adapting to, and recovering from change, stresses, or disturbance.

TARGET



Have a minimum of 4 people in your network you can reach out to for support in a time of need.

**Source: Building Neighbourhood Social Resilience*

ePACT EMERGENCY NOTIFICATIONS

The ePACT emergency notification system (which powers SquamishAlert and Squamish Nation Alert) sends out alerts when a hazard may impact the community. This free service is offered to all residents living in Squamish, and supports coordinated emergency response and communications between District of Squamish and Squamish Nation.



TARGET

100% of the local Squamish population aged 15 and up is registered for ePACT by 2031.

**Source: DoS Townfolio*

DIKE UPGRADES

Through compact land uses, transit-supportive densities and efforts to support active transportation, personal vehicle ownership will decrease over time. With mode shifts to alternative and active transportation options, transportation-related GHG emissions and congestion will be reduced as well.



TARGET

District dikes are upgraded to meet provincial dike design and seismic standards over time.

** Source: DoS Townfolio*

HEALTH

Residents' physical, emotional, social, environmental, and spiritual well-being are supported by their community and neighbourhood.



Neighbourhood Food Assets



Farm Area



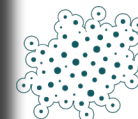
Parkland Dedication



Childhood Vulnerability



Physical Activity



Air Quality

ACTIVITY
RECREATION
FRIENDS
NEW EXPERIENCES



Sean

12 years old
Student

Sean is an active and social 12-year-old who loves exploring his neighbourhood with friends and always discovers something new. He lives in the Garibaldi Estates neighbourhood with his mom and younger sister in a two-storey townhome, three blocks from his grandparents' apartment.

** For more information refer to Appendix C*

HEALTH



On their way home from school, Sean and his friends stop at Root's Corner Store in the Diamond Head Arcade for smoothies. Sean's mom texts him when she needs him to grab some fresh bread and produce from the shops next door.



Sean and his grandparents spend Saturday mornings at the Kalodon community garden, catching up with some of the neighbours. Sean loves the feeling of digging his hands into the dirt and the taste of tomatoes right off the vine.



Sean plays at the park just down the street. He likes how close it is to home, so he can run back if he's forgotten anything.

NEIGHBOURHOOD FOOD ASSETS

Food assets are integral to the local food system, and may include community kitchens, farmers markets, composting facilities and programs, community garden plots, urban farms and more.

TARGET
The number and diversity of food assets available progressively increase within every Squamish neighbourhood.

*Source: DoS Townfolio

FARM AREA

Even activities such as backyard or community gardens have the potential to build community, influence food knowledge and contribute to the local food supply and agri-economy.

TARGET
Farming activity and agricultural production are increased within the District of Squamish on parcels available for farming.

*Source: DoS Townfolio

PARKLAND DEDICATION

An integrated network of neighbourhood and community parks, natural open spaces, recreation amenities and play spaces accessible to all residents supports community health and wellness. The District is working towards safe, convenient access to neighbourhood parks and recreation amenities within a 10-minute walk of all existing and new residential developments.

TARGET
1.4 hectares of park inventory per 1,000 residents.

1.4 ha. **1,000**

*Source: DoS Townfolio

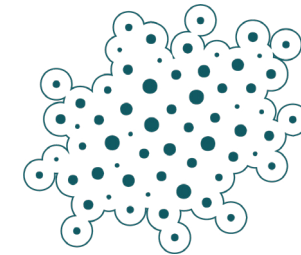
HEALTH



Sean's teacher says that children's vulnerability in emotional health, language, and communication has decreased since they created the bike to school program. He's not entirely sure what that means. He just loves that he gets to ride with his friends to and from school.



Sean and his friends leave early in the morning to ride their bikes to school using the new Mamquam Road bike lanes. Sometimes they stop at the park to ride the new jumps they built.



Sean's family always worries that his asthma might act up when they visit big cities. Sean's always excited when he gets back home and can enjoy the fresh air.

CHILDHOOD VULNERABILITY

The Early Development Index (EDI), which measures childhood vulnerability rates provides a starting point to create thriving environments and settings for children through family-friendly policies and planning to address their needs during the early years and beyond.

TARGET

The number and diversity of food assets available progressively increase within every Squamish neighbourhood.



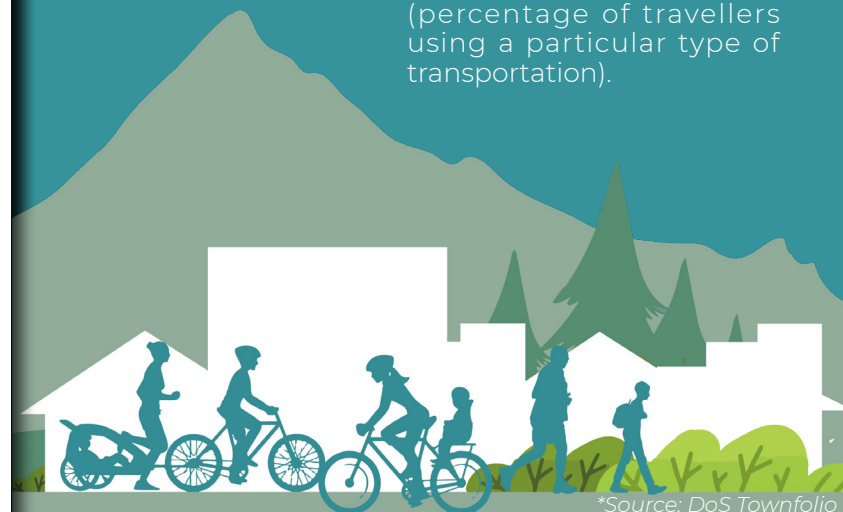
*Source: DoS Townfolio; UBC Early Learning Partnership

PHYSICAL ACTIVITY

Active forms of transportation increase physical activity, lower infrastructure costs and reduce congestion and emissions from vehicles.

TARGET

Increase the walking and biking "mode shares" (percentage of travellers using a particular type of transportation).



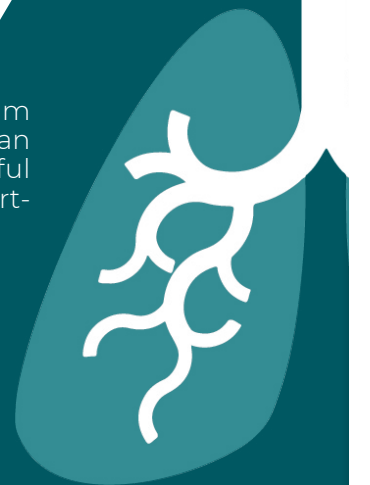
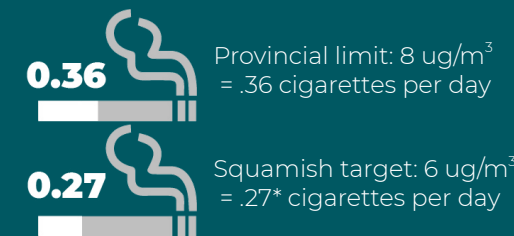
*Source: DoS Townfolio

AIR QUALITY

Fine particulate matter (from exhaust pipes, wildfires, etc.) is an air pollutant that can be harmful to human health from both short-term and longer-term exposure.

TARGET

A local target of 6 $\mu\text{g}/\text{m}^3$ over an annual averaging period is intended as a voluntary target to guide airshed planning efforts.



*Source: DoS Townfolio

CONNECTEDNESS

Residents are connected to daily resources by a network of trails, sidewalks, and cycling paths. Longer trips are accommodated by frequent public transit and occasional car-use.



 Proximity and Connectivity

 Transit Mode Share

 Transit Ridership

 Walkability

 Wheeled Travel

 Public Library Visits

PARENTS
PUBLIC TRANSPORTATION
KIDS
LOCAL EMPLOYMENT
SAFETY



Josie

Single Mom
Construction Assessor

Josie is a single mom who lives with her two kids in Garibaldi Estates. Josie is an assessor for a local construction company and finds it challenging to shuttle her kids to all of their activities. Fortunately, her parents were able to down-size from their house in Vancouver to an apartment a few blocks away to be close to Josie and their grandkids. Josie loves that she can walk her kids to her parent's house on her way to the bus and that her parents are able to get her kids safely to all of their activities.

** For more information, refer to Appendix C*

CONNECTEDNESS



Josie is happy knowing that her parents are within walking distance from a pharmacy, grocery store, and a park. There is little car traffic in the neighbourhood, so they can safely cross the street without walking all the way to an intersection.

PROXIMITY AND CONNECTIVITY

Increased accessibility to daily needs reduces the need for vehicle transit. This increases safety, promotes healthy living, and reduces the impacts of climate change.

TARGET

Increase the proportion of residents living in complete communities, so they can meet all their daily needs within a 15-minute walk.



*Source: 15-Minute City



On occasions when she wants to take the whole family on a day trip and needs extra space, she finds local ride-sharing services a great help.

TRANSIT MODESHARE

The District aims to increase the number of trips using active and alternative transportation modes (any mode other than single-occupancy vehicle). Increasing the transit mode share reduces greenhouse gas emissions, congestion, the personal and public economic costs of commuting, as well as increasing connectivity and health in the community.

TARGET

In comparison to other modes of transport, the "mode share" (percentage of travellers using a particular type of transportation) of commuters by transit progressively increases.



*Source: DoS Townfolio



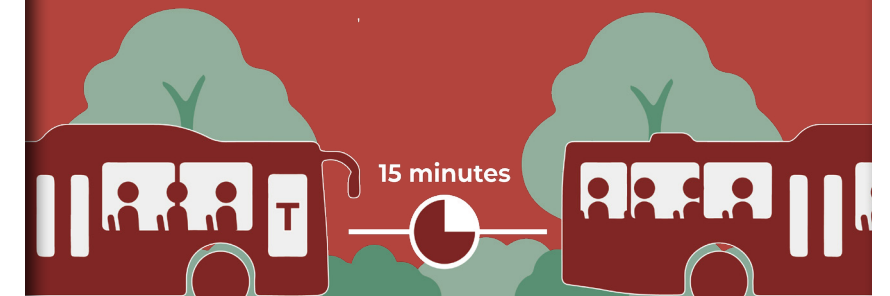
Josie's parents stopped driving a car when they moved up to Squamish. When her daughter has piano lessons, Josie's parents are able to take the bus from outside their apartment to the neighbourhood centre, where they meet the piano instructor.

TRANSIT RIDERSHIP

Efforts to increase transit ridership ensure that Squamish neighbourhoods are connected by an efficient, accessible and reliable local transit system that will, in turn, connect to enhanced future regional transit services.

TARGET

Increase public transit ridership to the point where it can support a bus network with multiple lines running at 15 minutes intervals. [See District of Squamish Transportation Analysis: Appendix A]



*Source: DoS Townfolio

CONNECTEDNESS



Josie feels safe walking everywhere in the neighbourhood because of the wide sidewalks and slow car traffic. She likes taking her daughter on different routes to her parent's house so they can check out the various neighbourhood gardens and artwork.



Josie likes that her son can ride with his friends to and from school safely along the bike routes while she walks her daughter to her parents' house before work.



Josie visits her neighbourhood library to relax outside of home. She often goes with her kids as a family event. There are books for all interests, and the activities there offer ways to learn new skills at a low cost. Josie is currently taking an introductory class on Photoshop.

WALKABILITY

Increased walkability promotes active travel, which helps meet greenhouse gas emission reduction targets.

TARGET

Increase neighbourhood walkability.



**Source: DoS Townfolio*

WHEELED TRAVEL

Cycling is a visible and communal mode of transportation that offers independence to community members who don't have access to a car or license.

TARGET

Have safe human-powered travel routes that connect all neighbourhoods to their amenities and each other.



**Source: DoS Townfolio*

PUBLIC LIBRARY VISITS

Increased access and services available at the Squamish Public Library can strengthen information sharing, community connections and cultivate a learning culture within Squamish.

TARGET

Library activity progressively increases.



**Source: DoS Townfolio*

LIVABILITY

The neighbourhood has a vibrant small-town feel where residents enjoy local businesses, employment opportunities, and affordable housing options that suit them at every stage of life.



Aging in Place



Housing Variety



Housing Affordability



Local Employment



Neighbourhood Amenities



Local Business Growth

NEIGHBOURHOOD MOUNTAIN BIKING HOME BUSINESS OWNER



Taylor

Local Business Owner
Outdoor Enthusiast

Taylor used to commute to both Whistler and Vancouver for work. Now that the community nodes are creating more housing and commercial space, Taylor was able to open up his dream corner store on the ground floor of his apartment in Garibaldi Estates. He loves that he gets to spend more time in his neighbourhood and uses the time he saves commuting to ride his mountain bike before or after work.

** For more information, refer to Appendix C*

LIVABILITY



Taylor's neighbours, the Chopras, are an elderly couple that often visit his corner store. They share stories about how much the neighbourhood has changed in the last 20 years.



Taylor is glad to have his own place unlike before when he had to split a small house with 5 other roommates. He feels comfortable knowing that he'll be able to move into a larger townhome in the same neighbourhood when he starts a family.



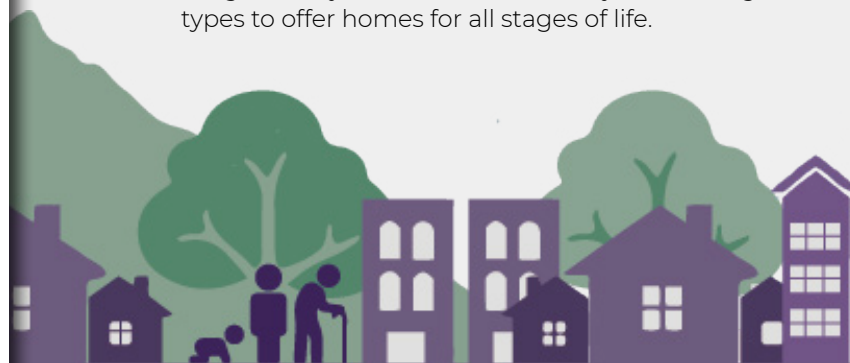
Taylor is saving so much money on rent that he's able to invest more into the store, his bikes, and supporting other local businesses.

AGING IN PLACE

Locating daily resources for all ages enables residents to age in place while maintaining independence, autonomy, and connection to social supports, including friends and family. It also avoids the costly option of institutional care. Older adults hold a lifetime of knowledge that contributes to the livability of a community.

TARGET

Progressively increase the diversity of housing types to offer homes for all stages of life.



*Source: Cities Alive: Designing for Ageing Communities



HOUSING VARIETY

Housing variety is important for accommodating resident's needs throughout different stages of life. Housing varieties can integrate well into existing neighbourhood design.

TARGET

Increase the proportion of attached dwellings, like townhomes and apartments, to single-detached homes.



*Source: DoS Townfolio

HOUSING AFFORDABILITY

Quality affordable housing is a critical livability indicator for Squamish, as the community sees deepening affordability issues with rapid land and housing cost increases and continued strong population growth.

TARGET

Both renter and owner households spend less than 30% of gross income on shelter.



*Source: DoS Townfolio

LIVABILITY



Taylor is excited that he gets to work locally and improve the quality of life for his neighbours in Garibaldi Estates.



Taylor loves that his studio apartment is in Garibaldi Estates because of its variety of daily activities. He can work out at the gym, grab a bite from one of the food trucks, hang at a park, attend a workshop at the library, and play with his punk band at the local pub, all in one day.



Because of the demand for small neighbourhood businesses, Taylor was able to open up a shop that meets his neighbourhood's needs. A few neighbours have started homebrewing beer, so he stocks bulk brewing supplies for them.

LOCAL EMPLOYMENT

Residents employed locally are able to enjoy an increased quality of life due to shorter commute times and a reduction in associated carbon emissions.

TARGET

Increase the number of local jobs per capita.



**Source: DoS Townfolio*

NEIGHBOURHOOD AMENITIES

Neighbourhood commercial space helps contribute to place character. Accessible and welcoming amenities increase socialization between neighbours and increase safety by providing 'eyes on the street.'

TARGET

Locate the majority of residents' daily needs within their neighbourhood.



**Source: 15-Minute City*

LOCAL BUSINESS GROWTH

New business starts are a good measure of economic conditions. This measure enhances our understanding of changes in new business formation when economic conditions worsen or improve.

TARGET

Increase the concentration of business with one or more employees.



**Source: DoS Townfolio*

ENGAGEMENT



Engagement



Sean and his mother, Josie, met Taylor and Arjun during a neighbourhood engagement activity around sub-area planning.

They discussed the challenges of finding desirable housing, walking and biking through town, and having fun things to do in their neighbourhood. When district staff talked about achieving these qualities by increasing the density of buildings, they were all excited about the opportunities but were worried about losing their favourite parts of the neighbourhood.

Places Hold Stories

District-wide data is useful for generally describing income groups and household size, but it fails to share the story of how a single parent lost their job and had to feed their kids ramen for a month so they could afford rent. Or how a group of children play after school in a vacant lot with the perfect wall for games of wall ball.

Storytelling shares and preserves the recorded history of people and places. It can tell us what happened to a person or people yesterday or 1,000 years ago, and it carries the emotions that made the event meaningful enough to retell. In planning, it allows residents to share their experiences with each other and the built environment without being restricted by jargon.

Storytelling can be integrated into shaping community nodes in a variety of ways that match the needs and capacity of the community. It can be used as a tool for healing and for building a sense of community. Stories can be shared orally, as they have for most of human history, or written and shared online. Participatory mapping exercises are useful for residents to share meaningful or concerning locations within their neighbourhood that should receive special consideration. The COVID-19 pandemic has expanded this exercise virtually onto online participatory mapping software such as the Shape Your City platform used by the City of Vancouver.

Regardless of how stories are told, creating systems to intentionally listen to them is essential for effective shaping of community nodes.



Figure 14.
Story Booth in San Francisco's Bayview Hunters Point



Figure 15.
Collaborative building at a healing workshop

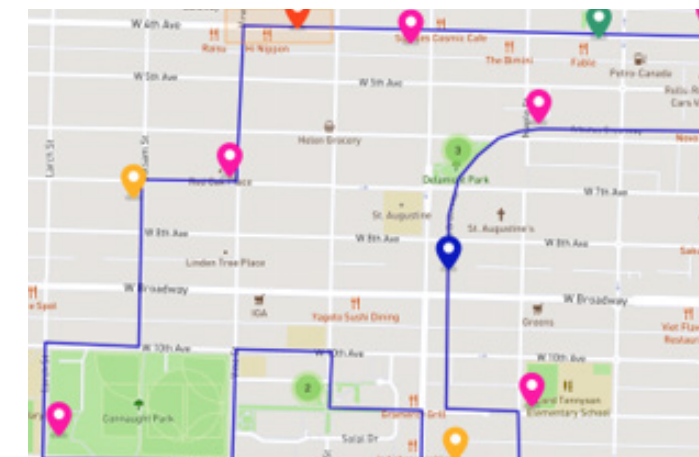


Figure 16.
Vancouver's Shape Your City neighbourhood planning event

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APPENDICES

Appendix A. OCP Indicator Tables

Table 1. OCP Indicators Explored in Booklet:

* = indicator created for booklet











	Dike Upgrades	Emergency Notifications	Single Occupancy Vehicle (SOV) Mode Share	Daily Water Consumption per Capita	Waste Diversion Rate	Social Resilience*
	Neighbourhood Food Assets	Farmed Area	Childhood Vulnerability	Air Quality	Physical Activity	Neighbourhood Parkland Dedication
	Transit Ridership	Transit Mode Share	Squamish Public Library Visits	Wheeled Travel* (adapted from Health: Cycling Mode Share)	Walkability* (adapted from Health: Walking Mode Share)	Proximity and Connectivity*
	Housing affordability	Housing Variety	Local employment	Local business	Aging in Place*	Neighbourhood Amenities*
	Sub-area plan completion (Moved from Livability)					

Table 2. Additional OCP Indicators not Explored in Booklet

	Waste Disposal Per Capita	Vehicle Ownership Per Capita	Corporate Greenhouse Gas Emissions			
	Environmentally-sensitive Areas Protection	Wildlife Attractant Bylaw	Licensed Childcare Space Ratio	Annual Active Transportation Capital Investments	Walking Mode Share	Cycling Mode Share
						
	Residential Growth	Purpose-built Rental Housing	Rental Vacancy Rate			
	Municipal Voter Rate	Published Open Data Sets				

Appendix B. Engagement in Action:

Case Studies along the IAP2 Spectrum of Public Participation

The International Association of Public Participation (IAP2) Spectrum can be a useful tool for both the District of Squamish and other municipalities in British Columbia. It allows an organization to evaluate the extent to which they are directly involving the public in a decision-making process. It is not, however, a measure of effective communication or decision-making.

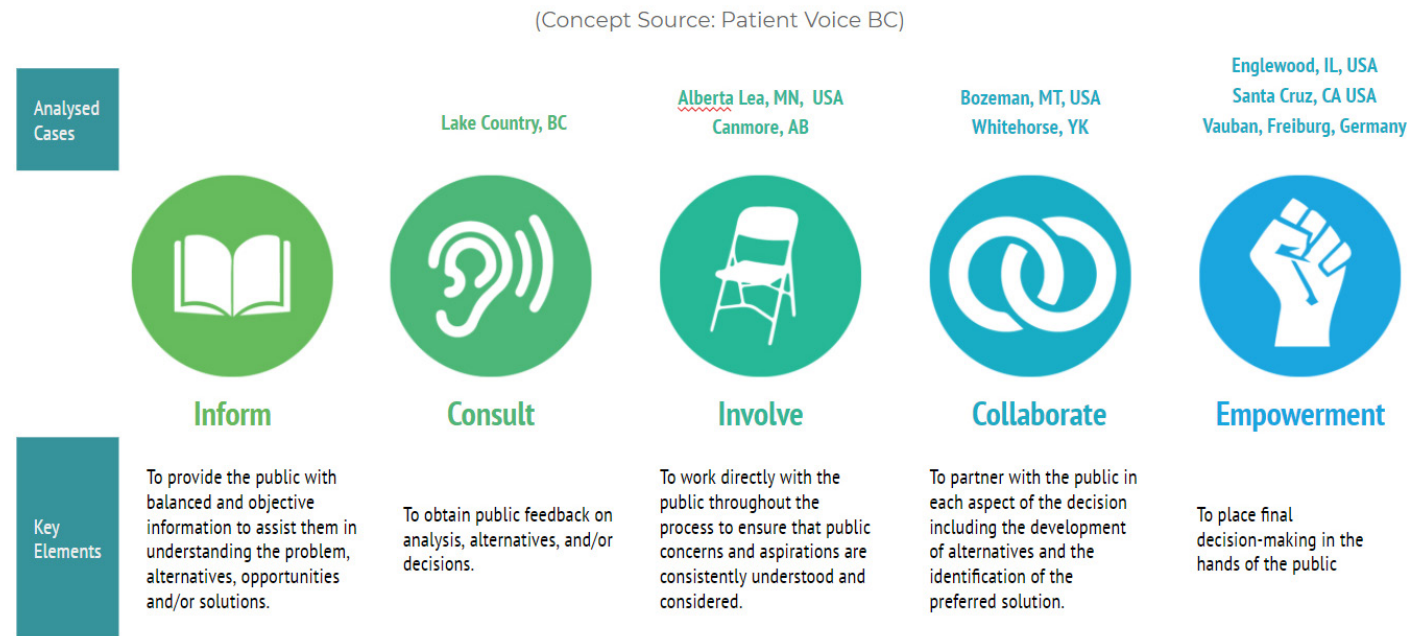


Figure 17.
IAP2 Spectrum of Public Participation

The case studies demonstrate that governments have experienced success by practicing the public engagement at all levels on the IAP2 spectrum. Engagement strategies rarely sit neatly in one place on the IAP2 spectrum over the course of a project. The following eight case studies focus on a variety of community objectives relevant to complete communities and explore what engagement looks like at various IAP2 levels

Engagement is a tool to understand and address the needs of stakeholders and generate support for projects.

2 Key Takeaways from the Case Studies:

01. IAP2 levels can be achieved through different engagement approaches

The “empower” designation on the IAP2 spectrum can be daunting to municipal governments. Rethinking who controls governing decisions carries inherent risks. Consider the cases in Santa Cruz and Englewood, however. Both of these projects demonstrate a very high level of engagement, despite the fact that one is top-down and the other is grassroots. In Englewood, the socioeconomic circumstances generated a citizen-led initiative that has partial financial support from the City of Chicago. In Santa Cruz, on the other hand, the process was initiated by the local government. The City heard the concerns of the community through engagement at the “involve” level, but the policy they created returned decision-making to community members through deregulation and incentives. This kind of diverse engagement offers local decision-makers options when seeking more meaningful public participation.

02. Lower levels of engagement can be an appropriate choice depending on context

While the IAP2 spectrum is organized as a hierarchy, “empowerment” is not always the right choice. Pressure on time and resources force governments to prioritize, and the case studies illustrate when the highest levels of engagement are necessary. The diversity of uses found in mixed-use areas can create challenges for local governments in spite of the social and climate benefits they provide. More resources and time need to be committed to projects in these areas in order to address complex community issues and maintain public support.

Appendix B. Engagement in Action:

RESILIENCE

CASE 1: Range Road North, Whitehorse, Yukon Territory



The City continually engaged participants from the very beginning of the process. It asked stakeholders about their concerns before the plan was created and involved the community throughout the design process to successfully incorporate community values and concerns for when the document was made.



IAP2 Designation: **COLLABORATE**

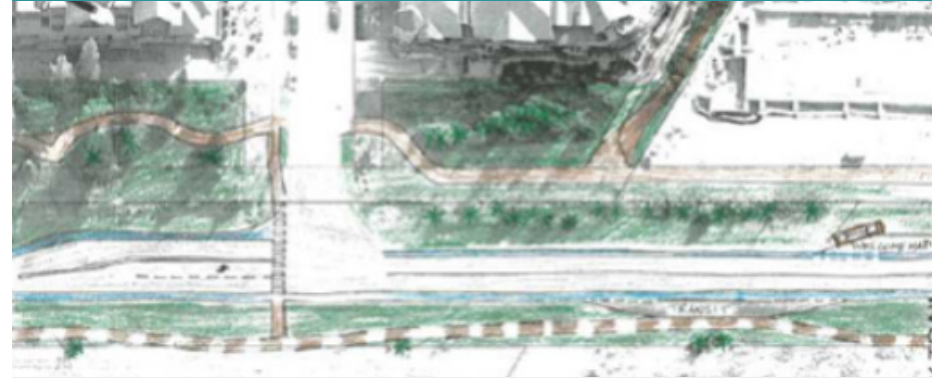
Disaster Preparedness

Whitehorse is located on a natural floodplain, with the Yukon River bordering the city to the east. Numerous watercourses have created steep and potentially unstable escarpments within the City leading to policies that encourage growth outside of hazard areas (Whitehorse OCP, 2010). During the City's 2-year public consultation process for their 2010 OCP, residents commented on issues surrounding the Range Road neighbourhood area, and the OCP recommended a development plan for this area (Range Road Neighbourhood Plan, 2014). Subjects that arose during this consultation period were followed up on when the Range Road neighbourhood consultation was underway.

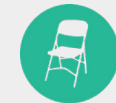
After the public consultation process, the council adopted the Range Road neighbourhood plan in 2014. Community members had significant input that steered the course of the plan. They attended walks, workshops, and open houses in addition to giving interviews (Range Road Neighbourhood Plan - Appendix, 2014). However, it should be noted that the plan lacks integration of some other city initiatives, like the Energy Sustainability Initiative.

Image Credit: City of Whitehorse, Range Road North Neighbourhood Plan- Appendix

CASE 2: Bow Valley Trail Area, Canmore, Alberta



The community helped inform principles, but the plan didn't denote that community members directed how certain areas of the plan were to be developed.



IAP2 Designation: **INVOLVE**

Social Resilience

The town of Canmore has 3 area redevelopment plans and 5 area structure plans, broken down by neighbourhood. The area redevelopment plan for the Bow Valley Trail Area (2013) was chosen as a case study because it focuses on a previously developed neighbourhood. A barrier identified with the Bow Valley Trail was its lack of sense of place, which the area redevelopment plan addresses through a rebranding and wayfinding effort (Bow Valley Trail Area Redevelopment Plan, 2013)

In the plan, community needs for a more multi-modal-friendly streetscape are defined. Additionally, mini pull-out parks are designed as part of the plan, too, to create more community gathering spaces. However, the focus on visitors/tourists eclipsed the social needs of local residents, contributing to housing pressures in the following years (Tools for the Future, 2018).

Image Credit: Conceptual Streetscape: North of 17th and South of Benchlands, Bow Valley Trail Area Redevelopment Plan Bylaw 11-2012

Appendix B. Engagement in Action:

HEALTH

CASE 3: Vauban, Freiburg, Germany



The development of the neighbourhood was organized by Forum Vauban and community activists, contracted by the city. The association was supported by several funding sources, including German Environment Foundation and the EU environment program LIFE.



IAP2 Designation: **EMPOWERMENT**

Equitable Childhood Development

Vauban is a university town redeveloped to accommodate the fast-growing population in the area. Similar to DoS, it wants to provide a place for all different age groups, with predicted large group young and middle-aged populations. (Sperling, 2006)

This redevelopment project was a grassroots approach from the beginning. The Forum Vauban (a community organization) was an effective mediator between municipal government and local residents. (Schroepfer & Hee, 2008, p. 71)

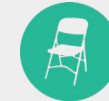
While this process achieves the level of Empower, its education component was lacking. Resources for the public were scarce, and crucially youth were not involved in the process. Ultimately, the children-friendly neighbourhood secured children's rights in the society in terms of the right to survive, clean environment, peace, choice, play, safety, and education.

Image Credit: BAMBINI Project

CASE 4: Albert Lea, Minnesota, USA



The City of Albert Lea used discussions within the local community to guide and inform the visions and objectives of their comprehensive plan. The government listens to suggestions and responses from the community in the planning process. The design consultants were present for all the planning workshops that took place.



IAP2 Designation: **INVOLVE**

Supporting the Wellbeing of Seniors

Albert Lea is one of the places with the longest longevity globally. The city has a relatively aged population and emphasizes a lot on keeping not only the physical characteristics of the community, but also the connectedness and social cohesiveness within the neighbourhoods. (City of Albert Lea, 2014)

With the support of the Blue Zone consultants, the city was able to bring interventions in the city with health considerations. It understands the relationship between health and walkability, healthy food, social connectedness, and nature. Albert Lea has ranked up from 69th to 34th place in the Minnesota County Health Rankings. The city was able to save \$8.6 million in annual health care costs for employers as a result of a decline in smokers and add 2.9 years to lifespans (projected) within one year. (Blue Zones, 2019)

Image Credit: Blue Zones Project

Appendix B. Engagement in Action:

CONNECTEDNESS

CASE 5: Bozeman, Montana, USA



The process of creating a new bus system was driven by the local university and a community organization with the support of the local government. Community needs and interests were at the centre of this process. However, final decision making lay with the municipality.



IAP2 Designation: **COLLABORATE**

Efficient Public Transit

Bozeman, MT created an independent commission to look into the viability of a bus system in their town. The commission was unable to come to a conclusion that was satisfactory to all parties (Forbes et al., 2012, p.22). Following this, the local university partnered with a community organization and conducted a study. Five years later, they launched Streamline, which was a bus system with four lines specifically tailored to different parts of the community (e.g. students).

The plan was created as a deliverable for the Greater Bozeman Area Transit Development Plan, which included three formal public hearings, as well as multiformat outreach.

One year after opening, ridership numbers exceeded projections by 400% (p.23). This is an example of a successful transit system in a smaller city, and they had the freedom to personalize their transportation system because of the size of the project. A report on the bus line attested to this when stating, "In rural areas, with their smaller and more isolated population, transit planning, implementation, and advocacy takes on a personal focus, where the needs of individual residents may drive the process," (p.11).

Image Credit: Bozeman Daily

CASE 6: Bottom Wood Lake, Lake Country, British Columbia



The first instance of public 'consultation' occurred in the month that the project broke ground. It is challenging to believe that any meaningful changes were made to a project so far along.



IAP2 Designation: **CONSULT**

Neighbourhood Identity

Each year British Columbia awards local governments the Active Transportation Infrastructure Grant. In 2019, the District of Lake Country was among the governments selected. This District is similar in size to the District of Squamish and crucially has an OCP that includes a Nodal Growth Model. The grant was used to fund active travel infrastructure projects around a middle school and adjacent recreation centre.

This project was designed to achieve some of the goals set out in the recently completed OCP, namely "Getting around Lake Country in safe and enjoyable ways." In a statement about the project, the Mayor said, "Citizens of Lake Country have been very vocal in calling for, and supporting, roadway improvements aimed at improving vehicular, cyclist and pedestrian safety – especially on routes frequently used by children," (As cited in Miller, 2020). The use of words like 'vocal' and 'support' further indicates the low level of decision-making the public had in this project. Activism and participation are fundamentally distinct.

Image Credit: District of Lake Country

Appendix B. Engagement in Action:

LIVABILITY

CASE 7: Santa Cruz, California, USA



This incentive program's highest demonstrated level of engagement is "empower," while many other levels are evident. The City informed residents about the program through a "how-to" manual after Involving them in community workshops. The final program was collaborative in nature by empowering homeowners through deregulation.



IAP2 Designation: **EMPOWERMENT**

Affordable Housing Options

The median home to income ratio in Santa Cruz is 10.3 compared to the national average of 4.3 (Bank Strategist, 2020). This has resulted in many residents being priced out of the city and amenities such as schools to shut down because of a lack of families. To address a factor of their affordability crisis, the city of Santa Cruz and the state of California reduced regulations on the development of accessory dwelling units (ADUs) to increase housing stock that maintained neighbourhood character and would be largely resident-driven.

The city hosted five community workshops to both educate the public about ADUs and hear concerns. The local newspaper ran a series about the workshops, extending out the education materials. 400 residents attended at least one of the workshops (ILG, 2015).

Residents have engaged in ADU development at a high rate, with 40-50 ADU being built yearly, which is equivalent to a 200 unit high-density development being constructed over a 5-year timeline (Burnett, K et al., 2008).

Image Credit: Visit Santa Cruz County

CASE 8: Englewood, Chicago, Illinois, USA



The City of Chicago provided a \$1.75 million grant to support this grassroots revitalization project (Golden, J.N., 2020). Decision-making fell almost entirely in the hands of community members and organizations.



IAP2 Designation: **EMPOWERMENT**

Neighbourhood Identity

The Englewood neighbourhood on the South Side of Chicago is experiencing a surge of community-driven organizing and planning to revitalize the neighbourhood and create opportunities for its residents (Teamwork Englewood, 2015). Englewood community groups have partnered with local business incubators, legal organizations, and developers to plan a project that is "a holistic approach for a vibrant neighbourhood" (GoGreenonRacine).

Community leaders partnered with LISC Chicago New Communities Network to draft a "Quality of Life Plan" in 2016 to identify the community strengths, accomplishments, and objectives for meeting their needs. This project is an extension of this plan.

Despite losing out on the \$10 million "Chicago Prize," Englewood neighbourhood has begun work on the project using other sources of funding. The community market is set to be completed in the winter of 2020-21, and the supportive housing and reentry program is expected to be completed in 2022 (Golden, J.N., 2020).

Image Credit: Ben Joravsky

Appendix C. OCP Goal Maps - GIS Analysis

Overview

The team developed a series of Geographic Information System (GIS) maps based on the OCP goals and indicators to better understand the community's local context. These maps use open data information from the 2016 census, DoS open data portal, and the province to communicate the OCP goals spatially.

While the main body of the booklet illustrates how the various OCP goals intertwine through narrative and indicators, these GIS maps visualize the spatial overlap of the OCP goals. Although each of the maps is distinct to represent resilience, health, connectedness, and livability, there are common features across all of them to help situate the viewer.

These common features are: the District of Squamish's municipal boundaries, which are shown as a light grayed out polygon; the study area, Garibaldi Estates, which is shown as a medium gray polygon; and the buildings in the DoS, which are shown as dark gray. Other common features are: bodies of water, and the Sea-to-Sky highway.

The map on the right includes all of these common features, as well as the Growth Management Boundary, which shows the boundary determined by DoS for where residential growth, develop and infrastructure investment should be developed in Squamish over the next 20 years ([2017 Squamish OCP](#)).

In this booklet, we explore a community node that is placed in the southern part of the Garibaldi Estates (highlighted in yellow on the map). However, this is only a small portion of the Garibaldi Estates neighbourhood. It is important to note that the proposed node would not change the buildings in other parts of the neighbourhood. The entirety of the Garibaldi Estates neighbourhood is highlighted in medium gray in Appendix C. GIS maps to provide context and viewers.

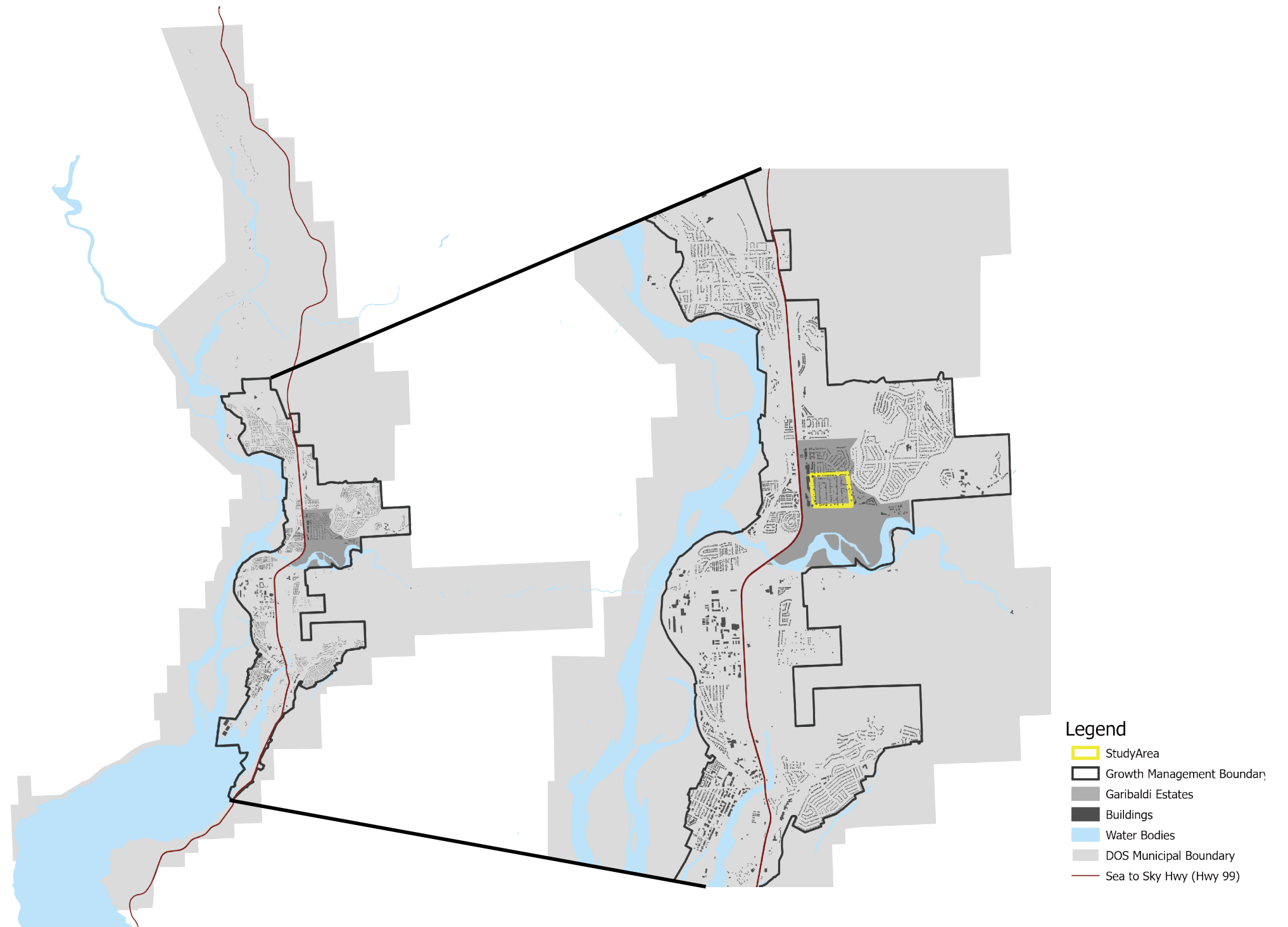


Figure 18. Growth Management Boundary Map

Appendix C. OCP Goal Maps - GIS Analysis

RESILIENCE

The resilience map looks at potential flood hazard in the District of Squamish, and the resilience indicator: Dike Upgrades, specifically targets the ongoing effort to upgrade DoS dikes.

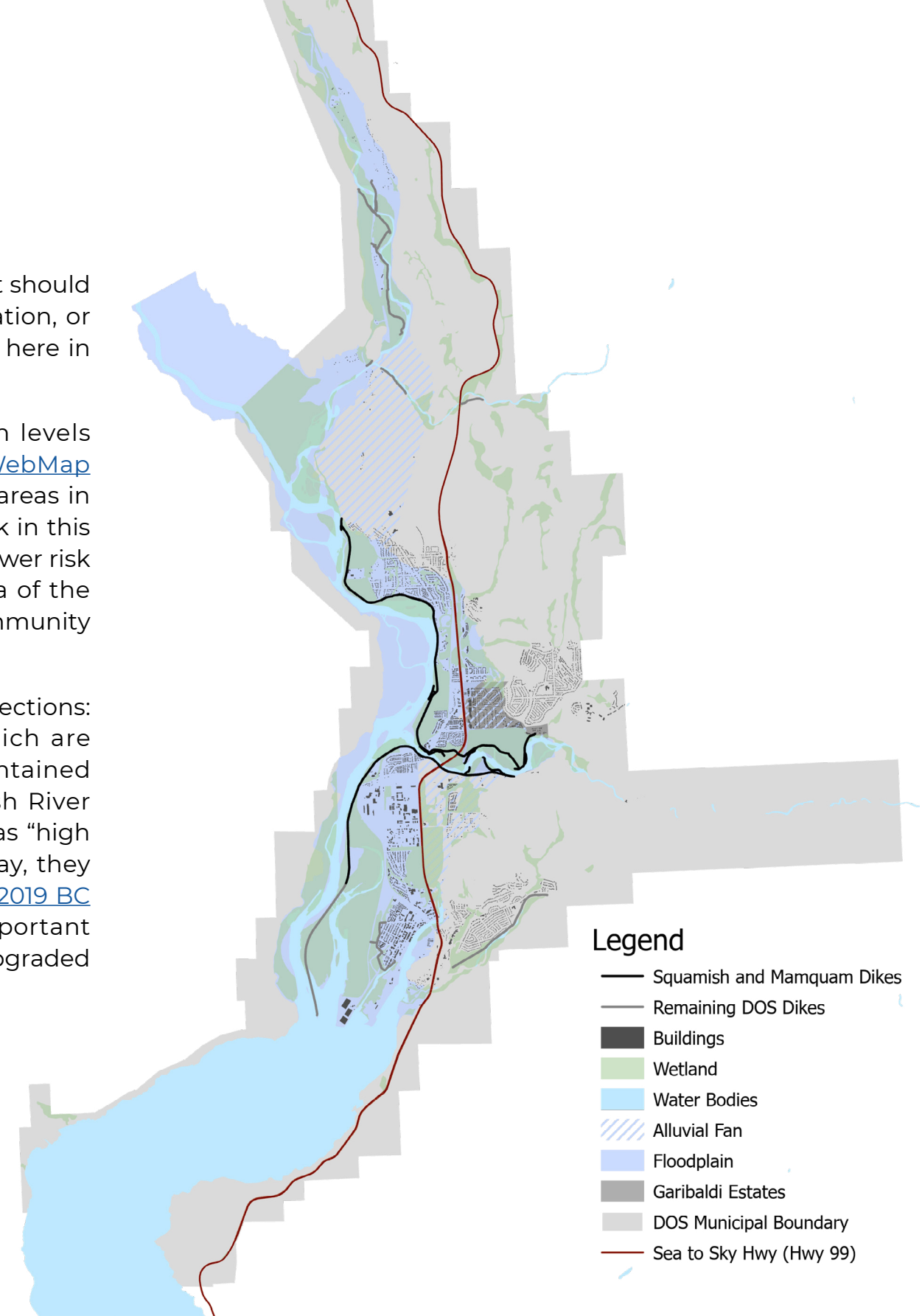
Although DoS has exposure to the second-highest number of hazards in the province, this map only focuses on the flood risks. The large map on the right shows areas of flood hazard, which is one of the primary hazard concerns for the District of Squamish. The DoS 2015 Community Risk Assessment states that a moderate to a major flood in the District poses a moderate-high risk to the community. ([Community Risk Assessment, 2015](#))

In addition to the common features on all the GIS maps, the map on the right has layers that include: wetlands, historical provincial floodplains, and dikes. Wetlands are important to consider when analyzing floodplains for the essential role they play in water storage. The more intact a wetland ecosystem is, the more water it can store during a heavy rain or flood event. This means that water will flow into the river more slowly, averting a more severe flood event ([US Environmental Protection Agency](#)). Floodplains are the areas that a river will likely flood into. Although there are many types of floodplains, the one on the map to the right was developed to reflect a 1:200 year flood event. The 1:200 year flood event, or 200-year flood, does not come once every 200 years, rather, there is a .5% chance the river will flood to that extent in any given year. Due to climate change, it is anticipated that although BC's climate will be drier overall, heavy rain events are likely to be more intense and more frequent, increasing the likelihood of flooding ([Government of BC](#)). The map here uses historical provincial floodplain data from 1999, accessible on [BC's Data Catalogue](#).

Please note, this data may not be accurate today. It should not be used for flood hazard assessments, mitigation, or anything other than the illustrative purpose used here in this booklet.

The DoS has also developed flood construction levels (FCLs), which can be viewed on the [Squamish WebMap portal](#). Although the Garibaldi Estates -like most areas in the District- is located in a floodplain, the flood risk in this area is only for overland flood hazard. Due to this lower risk level, the FCL does not actually apply to the area of the Garibaldi Estates, where we are exploring the community node.

The diking layer on the map is divided into two sections: the Mamquam and Squamish River Dikes, which are in black, and the remaining dikes that are maintained by the DoS (gray). The Mamquam and Squamish River Dikes are emphasized because they are indicted as "high consequence dikes" by the Province. That is to say, they protect a medium to large portion of urban land ([2019 BC Dike Consequence Classification Study](#)). It is important that these dikes continue to be maintained and upgraded over time.



**This map is designed for illustrative purposes only and may use outdated information. To access the most recent published data on floods, please visit the [Squamish WebMap](#).*

Figure 19. Resilience Map

HEALTH

Nature is highly valued by DoS residents, especially for the recreation and tourism opportunities and spaces for children it provides. As a community, residents promote the protection of natural spaces and seek to improve access to nature.

The health map primarily examines park space in the District of Squamish. Although the area is surrounded by nature, designated public parkland can be scarce in some neighbourhood areas. Connecting to nature can be challenging for children, seniors, and people with disabilities, and right now, the community depends primarily on private vehicles to go from point A to B. This implies that access to nature in DoS may be limited to a certain set of the population.

In the booklet study area, Garibaldi Estates, most residents do not have access to public parkland within a 400-meter distance. The golf course, while a green space, is not accessible to the public. As single-family homes with large lots are the dominant building typology in the area, there is currently low demand for pockets of public green spaces. However, public and private green spaces serve different functions, as public spaces encourage social interaction.

Like the Connectedness map, the Health map also shows the trails in and around DoS. The trails that are shown are the same in both maps. In "Health," they represent the Physical Activity indicator.

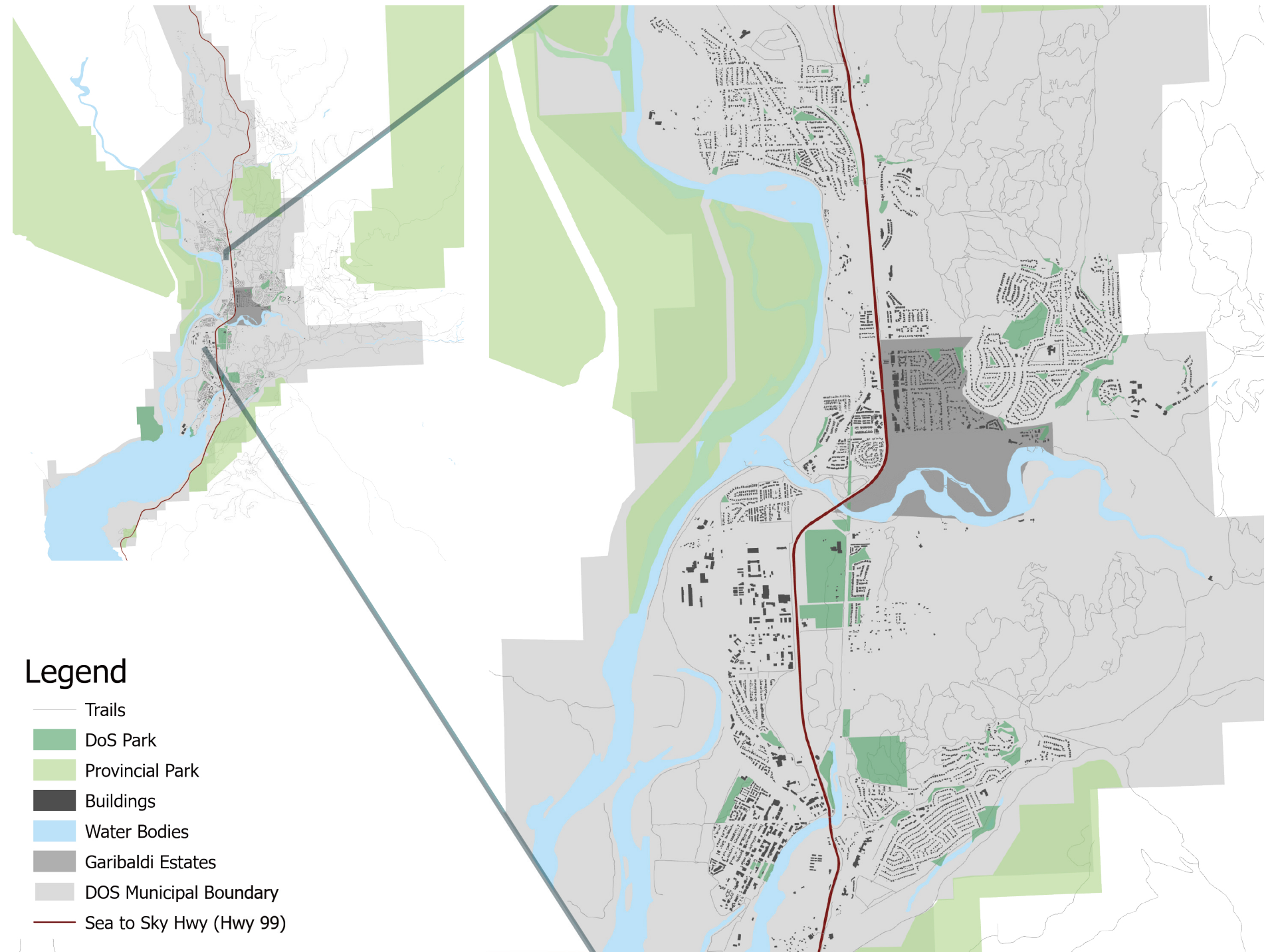


Figure 20. Health Map

CONNECTEDNESS

This map illustrates the current network of trails and local public transit routes in the District of Squamish. Although sidewalks are too small a scale to be portrayed in this map, they are also an important aspect of connectedness, which relies on residents feeling safe from cars while walking around their community. Apart from major roads, many streets in the District of Squamish - including the Garibaldi Estates - do not have sidewalks ([2016 DoS Active Transportation Plan](#)). Another aspect of connectedness omitted from this map is wheeled travel. At the time of writing, there were no published datasets on bike lanes in the DoS.

The trails shown on the map are a mix of walking trails in town, through parks, and into the surrounding mountains. Categories of trails are: paved roads, forestry roads, access roads, hiking trails, and others ([Squamish Open Data](#)).

There are five local bus routes, shown in orange on the map, that service the community year-long. Three of these routes run seven days a week, while two of the routes run from Monday to Friday. The majority of transit intervals for these routes, even during morning and evening commuting hours, is only once an hour ([2020 Squamish Transit: Rider's Guide](#)).

Most of the bus routes already service the Garibaldi Estates, making this neighbourhood more accessible than some others in the District. In addition, it is easier to expand and provide higher service frequencies on pre-established transit routes than it is to create new routes.

Table 3. District of Squamish Sidewalk Coverage
([2016 DOS Active Transportation Plan](#))

Number of Sidewalks	% of network
0 (No sidewalks on either side)	90%
1 (One side of the street)	6%
2 (Both sides of the street)	4%

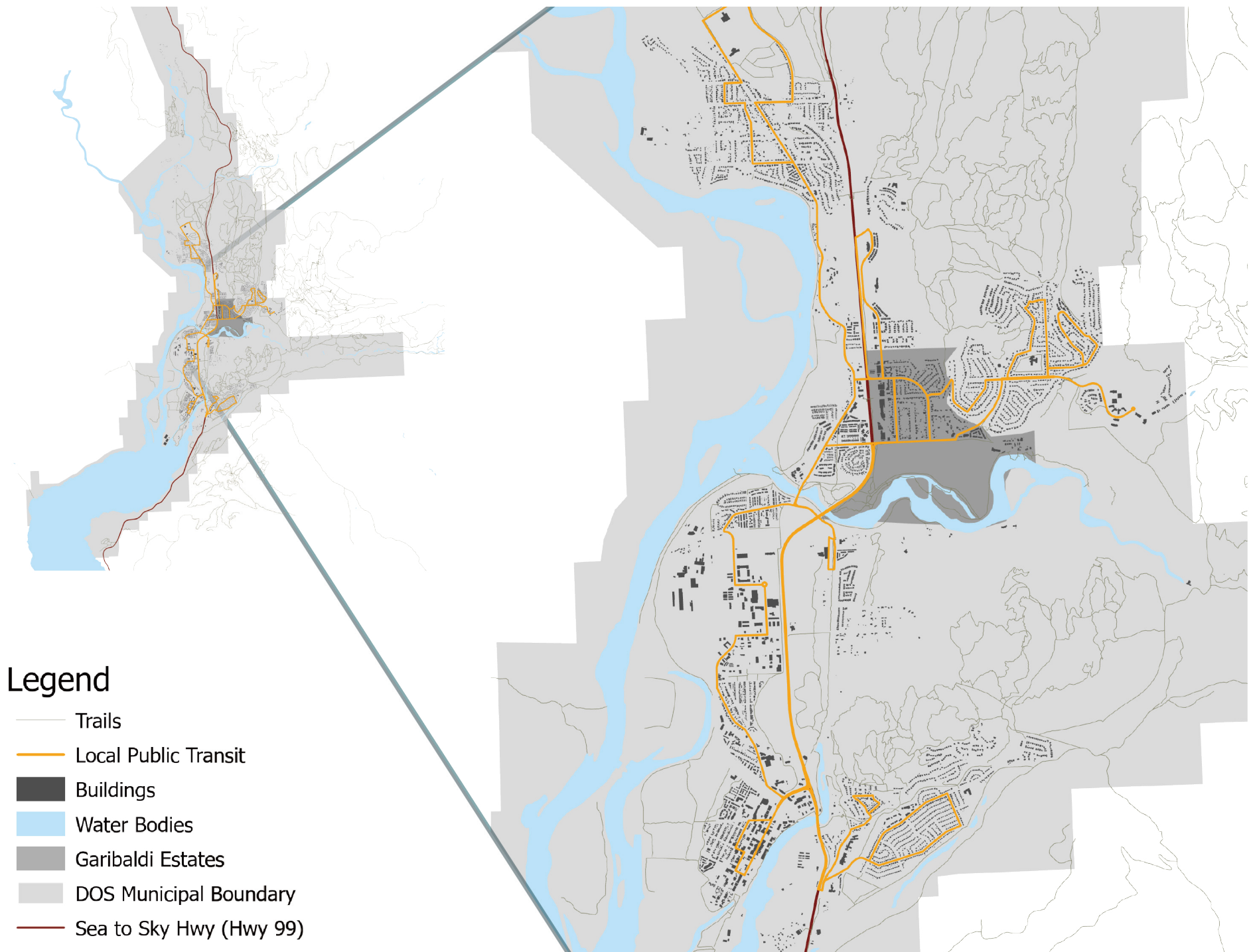


Figure 21. Connectedness Map

Appendix C. OCP Goal Maps - GIS Analysis

LIVABILITY

The Livability map focuses on two aspects of this OCP Goal: community amenities and local employment. As seen on the map, the majority of community amenities are currently found south of the Mamquam River. The amenity layer on the map does not cover all community amenities, though. It accounts for: firehalls, libraries, recreation centres, the senior's centre, the youth centre, the municipal hall, the police station, and Quest University. Secondary schools, have been omitted.

This map focuses on the local employment aspect by using 2019 Annual Business License Data and 2015 North American Industry Classification System (NAICS) data. The top 5 industries by labour force in DoS are: accommodation, construction, health care, retail and professional services. Together, these industries account for 6,380 jobs, or 55% of the workforce (Squamish Townfolio). Although some of these employees commute out of DoS, the majority of positions in these sectors are located locally. For example, construction has contributed to over 320 net new jobs since 2014. Outside of construction, activities that supported road transportation (like towing), specialty food stores, and full-service restaurants were the other largest net job creators since 2014 (2018 Data Analysis for Sector Recommendations).

At this time, the full impact of COVID-19 on local businesses and the economy unknown, however we can expect to see further employment shifts during the future economic recovery.

Table 4. District of Squamish 2015 NAICS Employment Data
([Squamish Townfolio: Labour Force by Industry](#))

NAICS Industry	Total Employed	NAICS Industry	Total Employed
Accommodation	1,510	Manufacturing	395
Construction	1,400	Other	390
Health Care	1,255	Finance	335
Retail	1,250	Information	275
Professional Services	965	Agriculture	210
Education	775	Wholesale	200
Transportation	620	Real Estate	140
Public Administration	600	Mining	120
Administration	545	Utilities	90
Arts & Entertainment	480	Management	15

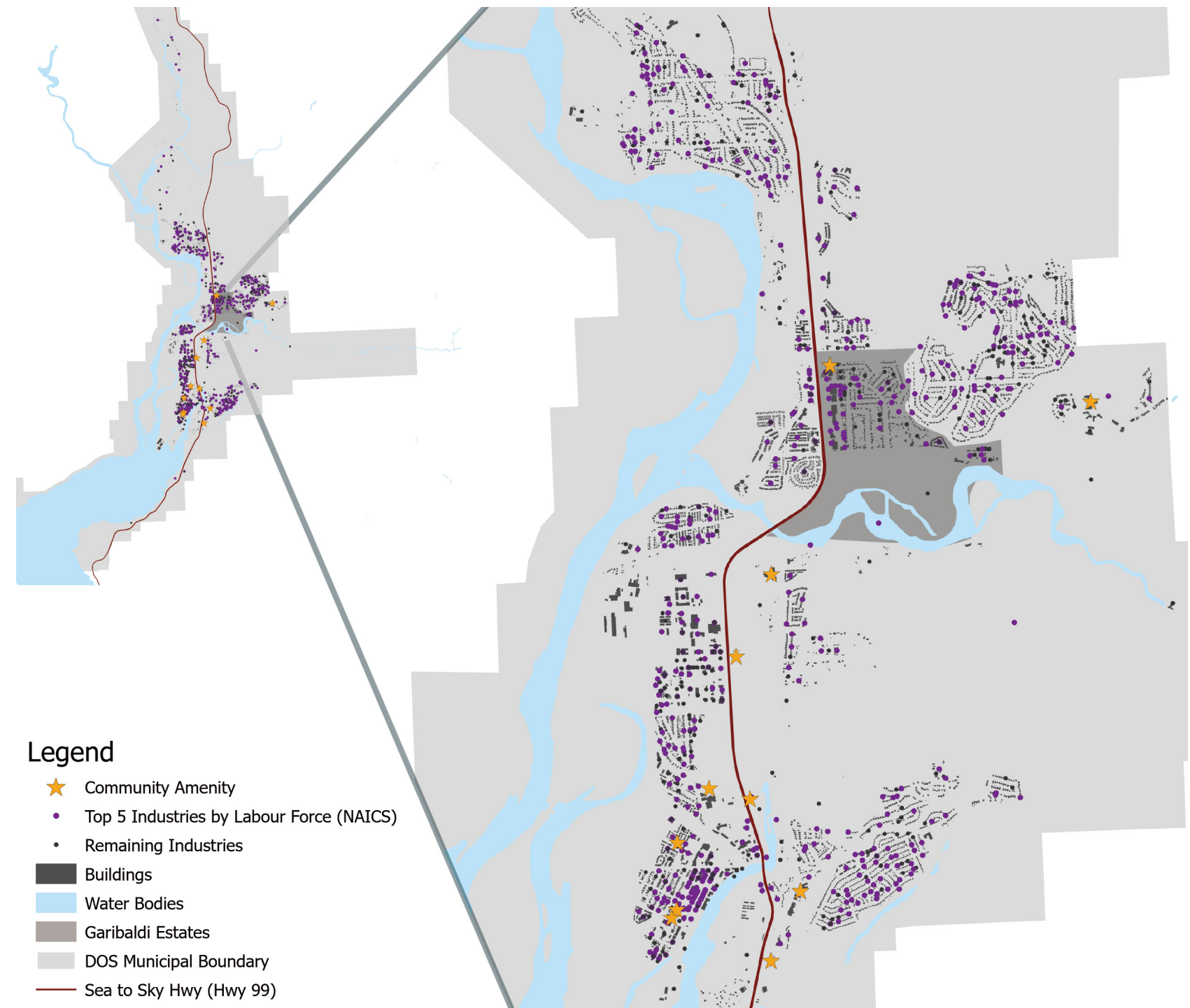


Figure 22. Connectedness Map

Appendix D. Comparison of Population Densities in the District of Squamish

Table 5. Population Densities by Neighbourhood in the District of Squamish

Neighbourhood Name	Population 2016	Area (m ²)	Area (hectares)	Density (ppl/hectare)
Business Park, North Yards	1,120	3,156,106	315.61	3.55
Loggers Lane East	260	7,256,111	725.61	0.36
Valleycliffe	2,570	1,548,084	154.81	16.60
Downtown	2,305	3,879,824	387.98	5.94
Garibaldi Estates West	2,270	1,511,761	151.18	15.02
Garibaldi Highlands, University	3,635	5484,524	548.45	6.63
Brackendale	3,365	5,517,269	551.73	6.10
Squamish North	330	44,626,135	4,462.61	0.07
Squamish South	145	6,974,748	697.47	0.21
Hospital Hill	500	441,000	44.10	11.34
Dentville	1,230	802,240	80.22	15.33
Garibaldi Estates East	2,220	3,857,419	385.74	5.76
			Average	7.24

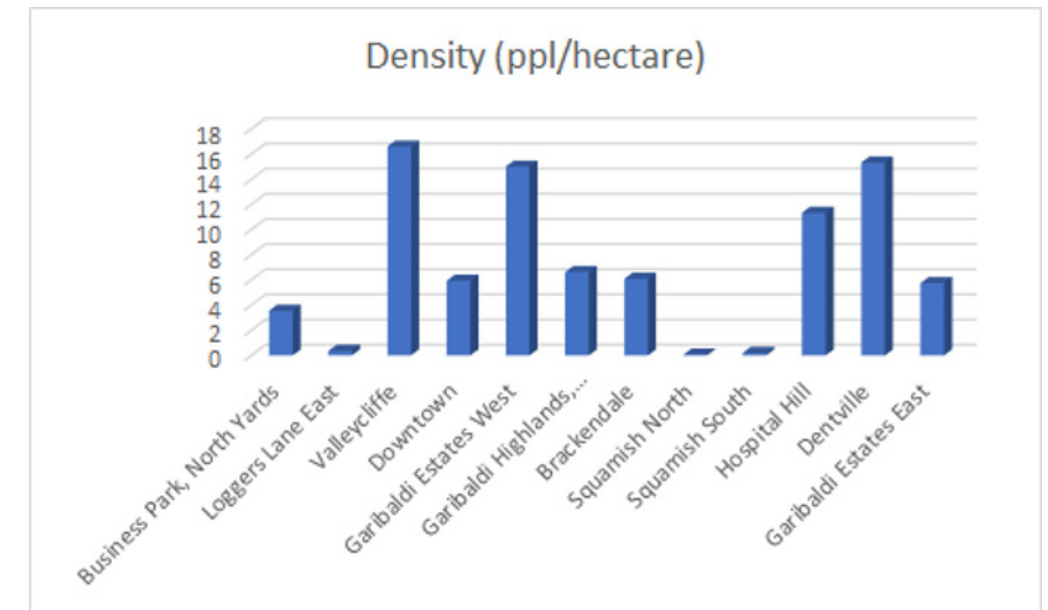


Figure 23. Population Densities by Neighbourhood in the District of Squamish

This was an interesting early step in the investigation. While the neighbourhood designation Garibaldi Estates West does not correspond with the boundaries we've used here, it does show that population density across the board in Squamish is much lower than some of the thresholds we investigated. That being said, these numbers include a great deal of open space, and there's a case to be made for measuring population density at a finer scale.

According to this analysis, Squamish South is the least dense neighbourhood, and Valleycliffe the densest.

Appendix E. Model Population Projections

MODEL 1

Table 6. Model 1 Population Projections

Building Area	Footprint (m ²)	Number of Stories	Total	Number of Buildings		
New Residential	600	5	45,000	15		
	600	4	45,600	19		
	600	3	41,400	23		

Total Residential				Actual Floor Area	132,000	m ²
Net/Gross Ratio	0.8		Area per unit	Number of Units	Persons/Unit	Population
Studio	30%	31,680	33	960	1.1	1,056
1 bedroom	30%	31,680	46	689	1.5	1,033
2 bedrooms	25%	26,400	66	400	2	800
3 bedrooms	10%	10,560	84	126	2.4	302
4 or more bedrooms	5%	5,280	100	53	4	211
	Total Area	105,600		Designed Population		3,402
				Kept Population		1,073
				Total Population		4,475

The population was projected assuming that 80% of the total floor area of new residential buildings is habitable (20% for elevators, hallways, etc.). In addition, we assumed a division of units that would provide more opportunities for young people and down-sizing couples to live in the Garibaldi Estates (lots of studios and one-bedrooms). This is not necessarily in the control of the local planning department as development would likely be performed by the private sector who would dictate unit composition based on what is profitable. Considering that the number of residents does not increase at the same rate as the number of bedrooms in these situations, it's feasible that the population projections are functionally optimistic.

Appendix E. Model Population Projections

MODEL 2

Table 7. Model 2 Population Projections

Building Area	Footprint (m ²)	Number of Stories	Total	Number of Buildings		
New Residential	600	5	24,000	8		
	600	4	19,200	8		
	600	3	43,200	24		
	600	2	42,000	35		

Total Residential				Actual Floor Area	128,400	m ²
Net/Gross Ratio	0.8		Area per unit	Number of Units	Persons/Unit	Population
Studio	30%	30,816	33	934	1.1	1,027
1 bedroom	30%	30,816	46	670	1.5	1,005
2 bedrooms	25%	25,680	66	389	2	778
3 bedrooms	10%	10,272	84	122	2.4	293
4 or more bedrooms	5%	5,136	100	51	4	205
	Total Area	105,600		Designed Population		3,309
				Kept Population		984
				Total Population		4,293

Despite the differences in building heights and distribution, these two models support populations within 5% of one another's.

