

Bradner – Mt. Lehman Neighbourhood Systems of Environmental Protection Project Report

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Fraser Valley Conservancy
Placing lands in trust for our future

Acknowledgements

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Introduction

The underlying theme of all work done for this project is “environmental protection”. The Fraser Valley Conservancy (FVC) is a land-trust dedicated to the conservation of the local environment for future generations. With decades of combined experience in ecology and environmental education, the FVC is always looking to improve its work by keeping up to date with the latest information and techniques. Systems change approaches to conservation are becoming more widespread and this project offers a unique opportunity for the FVC to develop this new approach to our work.

This document sets the groundwork for what is known about the Bradner - Mt. Lehman Neighbourhood (BMLN) and summarizes the results of surveys, interviews, and community engagements undertaken in our 2019 “Investigating Systems of Environmental Protection” Vancouver Foundation Develop Grant. The information collected from this project is used to provide a preliminary systems analysis, describing the current social, political, economic, and ecological systems at play as they are understood by the FVC. While these topics have been discussed and investigated by staff for many years, this is our first attempt to formally document challenges and opportunities in various systems related to environmental protection. This document aims to identify where the Fraser Valley Conservancy (FVC) may best be able to influence systems of environmental protection in the BMLN, while also shedding light on larger systemic issues standing in the way of progress.

Background

The Bradner-Mt. Lehman Neighbourhood (BMLN) is an area comprised of two smaller, distinct communities, Bradner and Mt. Lehman, in northwestern Abbotsford. Long-time residents describe these two historic communities as being “like brothers”, willing to help each other out like family while facing separate challenges. It makes sense, then, that the City of Abbotsford (CoA) groups them together as one neighbourhood area (Figure 1). This 63 km² (6,297 ha) neighbourhood is geographically large but has a small population of roughly 4000 people¹. The BMLN is completely within the provincial Agricultural Land Reserve (ALR), with the land used predominantly as either hay and fodder (34%), berries (30%), or corn (18%)¹.

The FVC has typically avoided engaging with landowners in agriculture-dominated communities. Having spent many years working on species at risk protection in the Fraser Valley we have found agricultural land to be particularly challenging to work in due in large part to conflicting economic and ecological needs, and insufficient, confusing legislation. Additionally, our Nature Stewards program, which helps teach landowners how to steward their properties

¹ City of Abbotsford. 2014. Bradner – Mt. Lehman Demographic Profile. <https://www.abbotsford.ca/Assets/2014+Abbotsford/Planning+and+Development/Planning/Statistics/2014+Bradner+Mt.Lehman+Demographic+Profile.pdf>

for nature, focuses on properties with intact and/or important ecological features for species at risk that can be restored and protected. Industrialized, intensely used farmland often lacks important ecological features for species at risk. Despite these challenges, the FVC acknowledges the importance of agricultural land to the health of our native species and their ecosystems. Other groups, such as the Langley Environmental Partners Society (LEPS), have worked to raise awareness of environmental issues in this area (i.e. the Nathan Creek watershed which straddles Langley and Abbotsford) for over two decades.

The Bradner – Mt. Lehman Neighbourhood is a unique agricultural area in the Fraser Valley for various reasons:

- Numerous creeks and streams in this area have intact riparian buffers
- High density canopy cover, including forests, on the farmland
- Several hobby farms
- Active community groups and politically active residents
- Many long-term residents with historical ties to the area

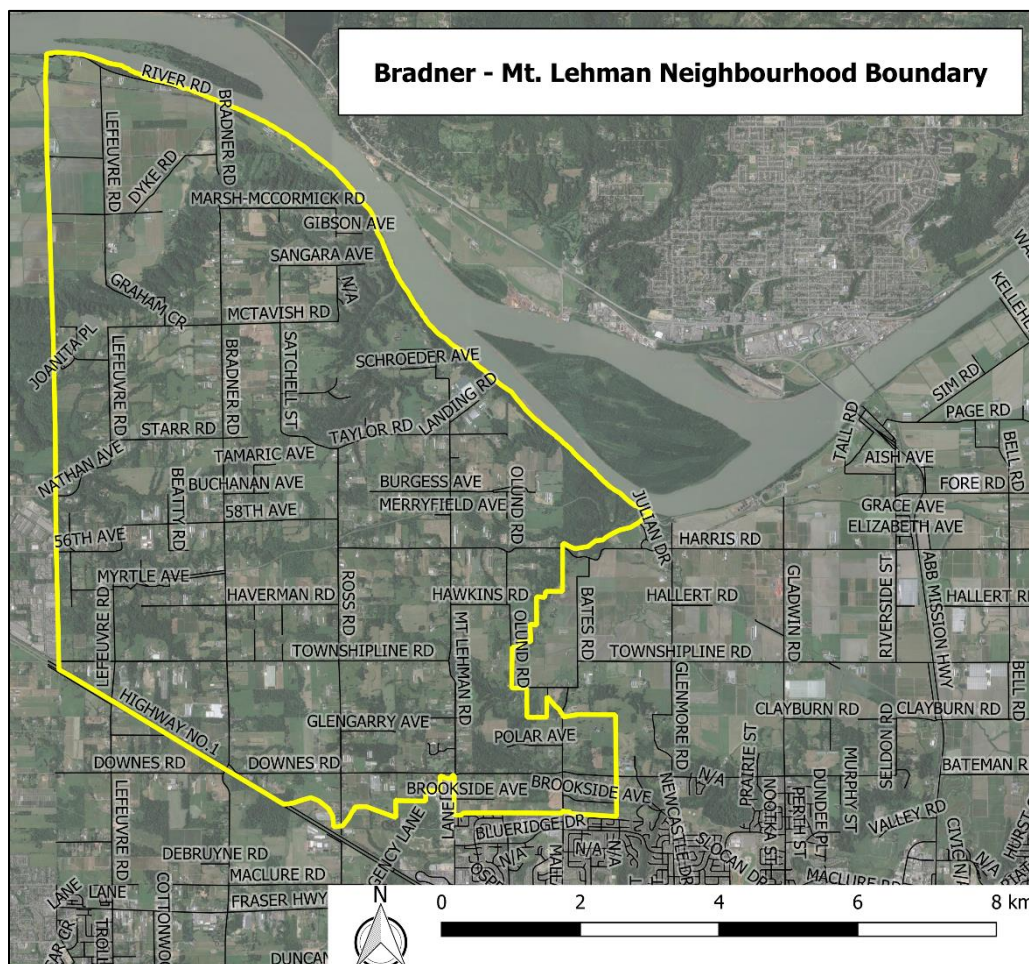


Figure 1: The boundary for the Bradner – Mt. Lehman Neighbourhood in West Abbotsford. The Fraser River marks the northern extent, with the Trans-Canada Highway 1 to the south. The Township of Langley borders this neighbourhood to the west.

A large group of BMLN residents have been fighting against removing parcels from the ALR to be converted to industrial land for several years (<https://www.abbynews.com/news/removal-of-properties-from-alr-will-destroy-bradner-council-told-at-public-hearing/>). Issues surrounding the local mushroom composting facility and its impacts to the environment are also widely discussed in this community (<https://www.abbynews.com/news/abbotsford-mushroom-farms-fined-after-complaints-about-polluted-water/>).

Goals and Objectives

Goals

The goal of the BMLN project is to understand how various systems are influencing environmental protection in this unique agricultural neighbourhood. We are driven to conduct this project by questions such as:

- Why does there appear to be better management of the environment here when compared to neighbouring agricultural communities? What is contributing to this?
- What do the residents think about the environment in their neighbourhood?
- Where can the FVC have the most impact/influence in this neighbourhood?
- How could changes here translate to larger systems changes?

Highlighting the various influences on environmental protection in the BMLN will reveal larger systemic challenges and opportunities, allowing for the development of future projects to ensure our work can be conducted in the most meaningful and productive way possible.

Objectives

The objectives of this project include:

- Engage with the community to create spaces for dialogue.
- Interview people within and outside of the community.
- Conduct a survey on environmental protection for BMLN residents.
- Host a community event based on BMLN interests.
- Create and distribute a project report.

The fundamental nature of this project involves doing work in a community that wants this work to take place. If the citizens of the BMLN are not interested in participating in environmental protection research or are not willing to have conversations about these topics, this project cannot continue. Success of this project will be measured by the residents' level of engagement and willingness to participate in this work.

Grant Activities

The following activities took place during the timeline of this grant, and the results are summarized in their own sections.

Activity Type	Activity	Description
Community engagement	Community event attendance	Attended Bradner Parade, Bradner Mother’s Day Breakfast, bake sales, City of Abbotsford urban forestry meeting, and other community functions where conversations could take place about what is important to residents and land managers regarding environmental protection in this area.
	Mt. Lehman Garden club	Attended monthly meetings to better understand residents’ interest in environmental protection on private property.
	Community conversations	Ongoing conversations with residents at any opportunity, describing the project and gauging interest in different environmental issues.
Interviews	Heather - Bradner Barker	Prior to survey, BMLN residents and editor of the community newspaper was asked for her perspective on local issues.
	Emma - Young Agrarians	During survey, agriculture instructor and farmer interviewed on issues important to the agricultural community.
	Lisa - LEPS	During survey, long-time environmental educator interviewed on the history of engaging with the BMLN and challenges to environmental protection.
Survey	Conduct online survey for residents of the BMLN	Environmental protection survey was created online and distributed thanks to City of Abbotsford mailout, online promotion through social media, and word of mouth during community engagement.
Special Event	Educational evening for residents	Hosted an evening educational event for residents of BMLN based on interests revealed in survey results. Offered free hot dog BBQ with support from the City of Abbotsford.

Results

The following summarizes the results of the grant activities. For more information on any of these activities please contact Aleesha with the Fraser Valley Conservancy.

Community Engagement

Overall, the community was very receptive to conversations about environmental protection in the BMLN. We attended various events as observers and noticed residents spontaneously brought up and discussed ALR land conversion and tree protection. In fact, tree canopy protection was one of the most referenced concerns. The CoA tree by-law was often criticized for not protecting neighbourhood trees. Additionally, informal conversations with residents often referenced challenges with the local mushroom composting facility causing air and water pollution issues, with little or no action by either the City or the provincial government. While the topics discussed were often negative, the tone was positive in several of these conversations. Many residents were grateful that we were interested in their concerns and looking to raise awareness of these issues. The negative feedback we received was often due to residents feeling that we would not be able to make a difference due to corruption, greed, and political apathy.

In conversation with the community there was a clear sense of pride and ownership over this neighbourhood. The BMLN has a small community feel and it is very important to the residents we spoke to that it remain that way. We did not encounter a resident who wanted this area to change or grow. The FVC's lead researcher is a new resident of this area, having moved to Bradner in the summer of 2019. Without this tie to the community we believe many of these conversations would not have taken place. It was clear to us that the mood in many conversations changed considerably once residents were assured that we were also from the BMLN. Residents were more open to sharing their dissatisfaction with the government and other Abbotsford communities once they learned this research was being conducted by a neighbour. Admission to meetings and club memberships were also dependent on proving we were locals.

Aside from a few BMLN residents the FVC communicates with regularly, this community was unaware of who we are or what we do. In fact, even though we stressed we were a non-profit conducting research, many community members were initially suspicious and quickly put-off by any mention of collaboration with the CoA. It seems there is a lot of distrust between some members of this neighbourhood and both municipal and provincial government bodies.

Interviews

Three informal interviews were conducted: Heather, Emma, Lisa. These interviews were not structured or static – conversations took place in an open format with no end goal in mind. Each interview subject has an important area of knowledge that helped to build a better understanding of the Bradner – Mt. Lehman neighbourhood, the agricultural community, and the history of environmental protection initiatives in this area.

Heather: Editor of the local Bradner Barker newspaper, Heather and her family live in the BMLN. She is outspoken and actively working to raise awareness about issues in her community, including environmental issues.

The biggest take-aways from my conversation with Heather were: 1) just how much information she had compiled about these issues, and 2) how many people are actively engaged. There is a long history of the ALR exclusion debate and the Gloucester developments and most of it is documented on the Bradner Barker website. This is a great resource for the community to have their own local concerns and struggles so well archived. Over 150 people from the neighbourhood are part of an email chain that regularly reports concerns to the Agricultural Land Commission (ALC) and the Minister of Agriculture. For such a small community, having such a large, active group engaged in such a complicated issue is impressive. This demonstrates to us that this neighbourhood is well informed about certain negative issues like water and air quality concerns, or the impacts to the community that will be felt if industry continues to spread into agricultural land. For residents, especially Heather, it seems these issues are important from an environmental context, but more significantly, from a principled context. The residents have done their due diligence and reported their concerns to the proper authorities. They have not given consent to industry, mega homes, truck traffic, or continuous air pollution. Yet these things are forced upon them. One of the most alarming aspects of our conversation was the distrust of CoA and how different funds are managed, suggesting there is a lot of controversy around the big two big environmental issues (ALR exclusion and the mushroom operation). When asked what the BMLN needs, Heather responded that more friends and support in the upper levels of government, including the federal level is needed.

Emma: An agriculture instructor, supporter of sustainable agriculture, and environmental conservation advocate, Emma is working hard to grow the next generation of farmers with the future in mind with the Young Agrarians. She is also a FVC board member.

My conversation with Emma was a refreshing, honest look into farming mentality. While not a resident of the BMLN herself, she has many connections in the farming community there. She offered insight into recent ALC changes: restructuring of regional panels into a singular panel will potentially change how we see the ALR managed, and many local farmers are currently upset with the latest manure spreading laws. As a farmer herself, she stressed the importance of a collaborative approach rather than an instructive approach, but also cautioned expecting too much from a small organization. If a farming group does not have a large enough membership, or enough influential people, collaborating with it will do very little to impact the tone in the community. Like Heather, she is concerned about water pollution and subdivision of properties. With older residents selling, and larger parcels continuously being subdivided, Emma believes this results in new residents lacking the opportunity to see their property as part of the bigger environmental picture, and therefore the incentive to keep the small pieces of natural

environment on their property is lessened. However, she also believes that the new influx of residents may be a source of potential, as many new residents are more open to learning how to farm sustainably. The biggest threat to environmental protection in this area, according to Emma, is the lack of enforcement. Like Heather, Emma has little faith in by-laws being enforced, and when they are, the penalty is too small to be an actual deterrent. The biggest challenge she sees in achieving better environmental protection on agricultural land is changing overarching mentality of “this is how it has always been done, so this is how it should be done”. There is a backlash against things that will reduce yield, even by a small amount. This mindset is shifting, but very slowly.

Lisa: A veteran of environmental education and conservation in the Lower Mainland, Lisa’s work with the Langley Environmental Partners Society (LEPS) has been instrumental to many of the success stories in this area. She offered a frank review of what has been done in the BMLN and adjacent watersheds.

The Glen Valley Watersheds Society (GVWS) has been around for approximately 15 years. This watershed sits above the Nathan Creek watershed, and also straddles the Langley/Abbotsford border. In its earlier years, the group put out quarterly newsletters which were well received by the community. Articles ranged from invasive species management, to manure storage, to septic field care. While this program was successful it was very expensive to run and eventually was discontinued. LEPS also struggles with promoting environmental protection and conservation on agricultural land but saw a lot of success with planting programs that operated alongside fencing programs. Residents were offered free fencing of riparian areas, provided they allowed these areas to be planted and made an effort to protect them in the future. These fences were often hinderances to future landowners clearing the riparian area. This was not always the case, however; many plantings projects were eventually ruined by livestock or cleared by new owners. The GVWS still has an active presence in the community and regularly has new email signups and interests from residents at events. However, there is very poor attendance to community cleanups or native plantings. Lisa also spoke of a common theme in this neighbourhood and many others: people are interested in protecting the environment where they live but aren’t willing to do something on their own properties. The Environmental Farm Plan (EFP) may help to form a bridge between people already interested in making their properties more environmentally friendly, and the groups who are working to protect the environment. Lisa suggested the EFP focus on climate change mitigation and future planning, instead of the current trend, which seems to be focused only on the present. She envisions working in tandem with a group like LEPS to assist with planting things like hedgerows or large trees.

Survey

The keystone component of this project was the BMLN Environmental Protection Survey. This survey was hosted online as a Google Forms Survey (Figure 2). Participants were directed to the Fraser Valley Conservancy website which contained a link to access the survey and background information on the project (<https://fraservalleyconservancy.ca/survey/>). Two gift certificate prizes (to local businesses) were offered to incentivize survey completion.

The survey was live from June 05 – July 12, 2019 (37 days). On June 20th, the City of Abbotsford printed and mailed approximately 1,426 invitations to the BMLN (Figure 1). The FVC began promoting the survey via social media on June 22nd. The local newspaper, the Bradner Barker, picked up the story and shared the survey invitation (<https://www.bradnerbarker.com/news/environment-survey-for-bradner-and-mt-lehman-residents>).

One survey was completed on the launch day however, the remaining responses came in from June 22 – July 8 (16 days). In total, 71 survey responses were received. Considering approximately 1,400 residences and business were invited to participate, the household response rate was around 5%. Participants were asked to weigh-in on how they perceived environmental protection in the Bradner – Mt. Lehman neighbourhood through a series of 15 questions, both multiple choice and long-answer.

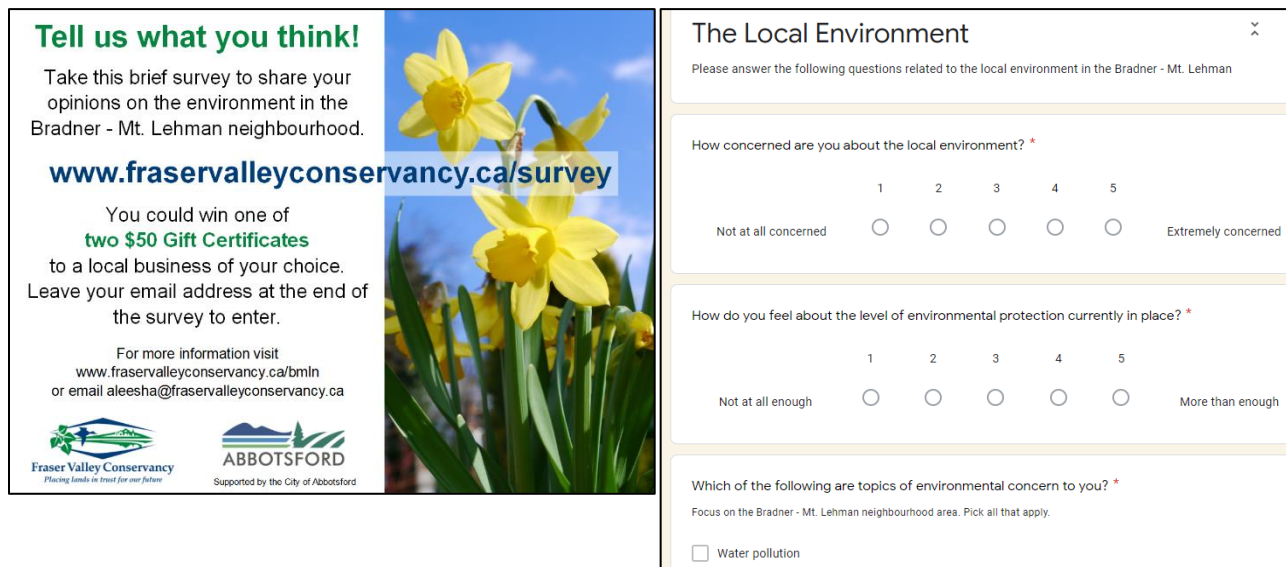


Figure 2: Left: Invitations to participate in the survey. These were printed (4 to a page) and mailed to over 1,400 residences in the BMLN courtesy of the City of Abbotsford’s Parks, Recreation and Culture department. Right: A snapshot of the online survey.

The following is a *summary of interesting findings* from the survey results. Charts and raw data can be found provided upon request. Interpretations are preliminary suggestions for potential trends in this neighbourhood. A larger sample size would help to ensure these generalizations more accurately represent the thoughts and opinions of BMLN residents.

Demographics

Results

- 96% of survey respondents were BMLN residents. All demographics included below pertain to residents only.
- The most represented age class was 35-44 years old (25%), while 38% of respondents were over the age of 55.
- 31% of respondents claimed to have lived in the neighbourhood over 31 years. Nearly 74% of respondents claim over 10 years of residency.
- Approximately 79% of respondents are the primary owners of the property where they live.

Interpretation

The BMLN is unique in the City of Abbotsford to have so many long-term residents. The older generations (55+) are interested in having their opinions heard about environmental issues in their neighbourhood. These residents are strongly invested in how the area is managed as many are the primary owners of the properties, having lived there for decades.

Environmental Awareness

Results (Figure 3)

- 58% of respondents were extremely concerned about the local environment, with 96% at least moderately concerned.
- 48% of respondents felt the current level of environmental protection was less than enough, as opposed to 21% who felt it was enough.
- The highest rated topics of environmental concern include loss of farmland to industry (76%), loss of habitat (61%), water pollution (63%), and invasive species (58%).

Interpretation

A large majority of the survey respondents were concerned about environment in the BMLN. The survey was able to capture the most contentious issue in this neighbourhood, the conversion of agricultural land to industrial land, while also revealing concerns about habitat quality and invasive species. This could suggest that, for at least some of the residents, concerns about industrialization are linked to environmental degradation, as opposed to other common concerns such as increased traffic or noise. The FVC is concerned about industrialization due to the loss of farmland ecosystem functionality, including habitat loss, water and air quality, water retention, pollution, etc.; however, we were not certain if residents shared these concerns. This is an important discovery to make.

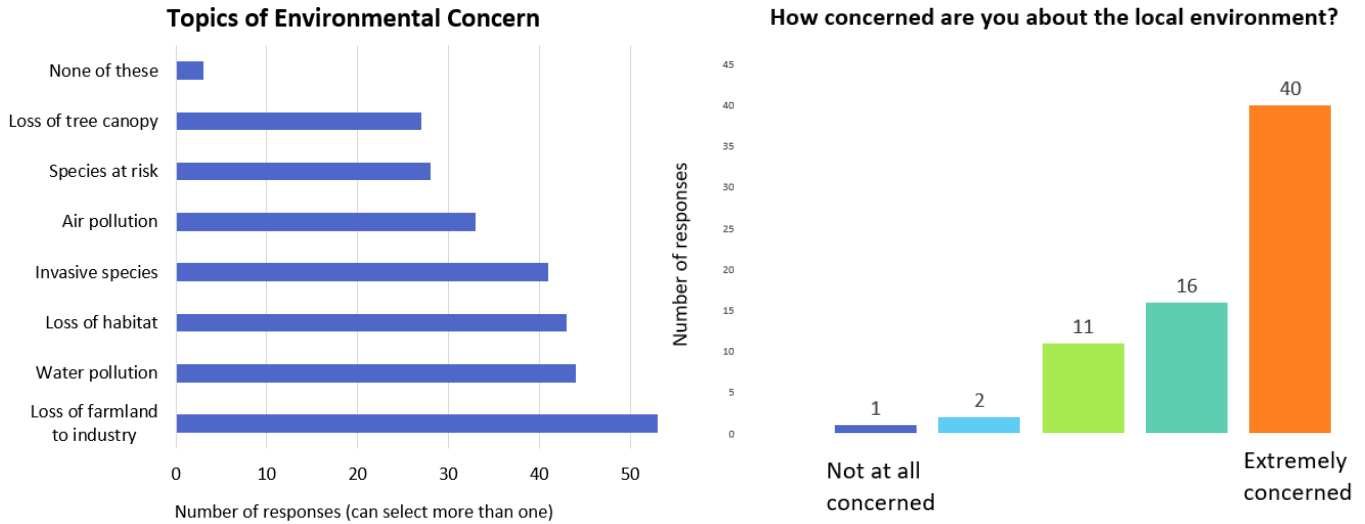


Figure 3: Environmental awareness summary charts.

Environmental Attitudes

Results (Figure 4)

Respondents were asked optional long-answer questions concerning what they felt was going “right” and going “wrong” regarding environmental management and/or protection in this neighbourhood. The responses were analyzed for trends:

Going “right” trends: (49 responses)

- ALR/ALC (protection): 16 = 33%
- Laws (bylaws, environmental regulations): 9 = 18%
- Nothing “right” (too little, other negative comment): 8 = 16%
- Community (consciousness, involved, dialogue, neighbours): 7 = 14%
- Housing (limiting development, size): 3 = 6%
- City maintenance (mowing, preserving trails, habitat, roadways): 3 = 6%
- Water (waterway protection, escarpments) 3 = 6%

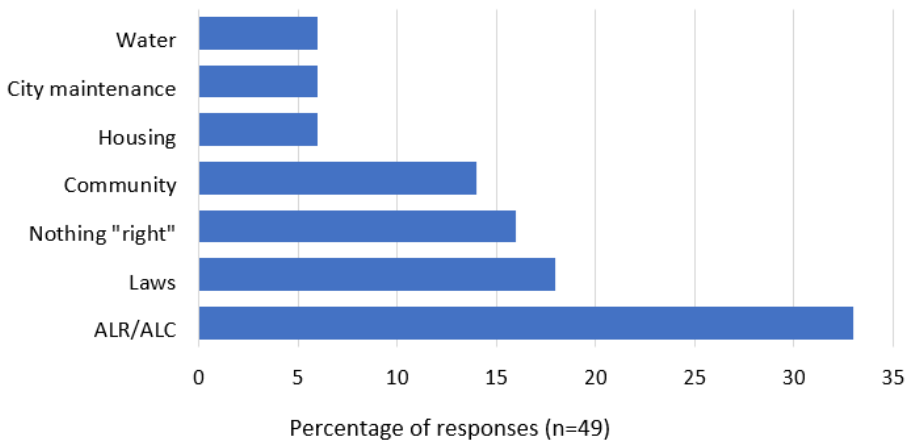
Going “wrong” trends: (59 responses)

- Land use (inappropriate farming, truck parking, blueberry, gravel in-filling): 21 = 36%
- Laws (lack of enforcement, non-compliance): 19 = 32%
- Habitat issues (pollution, dumping, creek health, habitat loss, invasive species): 18 = 31%
- Industrialization, development, big houses: 18 = 31%
- ALR exclusion (removing land from the ALR): 9 = 15%
- Canopy loss (tree removal, land clearing): 6 = 10%

Interpretation

The ALR is seen as an important tool for environmental protection and management in this neighbourhood, however, land uses in the ALR are the most referenced negative complaint. In this way, the ALR is simultaneously protecting the land from being overly industrialized, while also allowing for farming operations and associated land uses that are viewed by the community as being inappropriate or harmful to the neighbourhood. This harm isn't necessarily from an environmental perspective, as truck parking and associated truck traffic was cited as a "wrong" way to manage the ALR. Laws also come up on both sides of the "right" and "wrong" spectrum, with many suggesting the laws themselves are good, but the enforcement of these laws is inadequate to result in effective environmental management. Many of the answers to these questions offer an interesting dichotomy of things both being "right" and "wrong". The graphs below, without the context of the answers, do not explicitly demonstrate the differences.

What is going "right" regarding environmental protection/management?



What is going "wrong" regarding environmental protection/management?

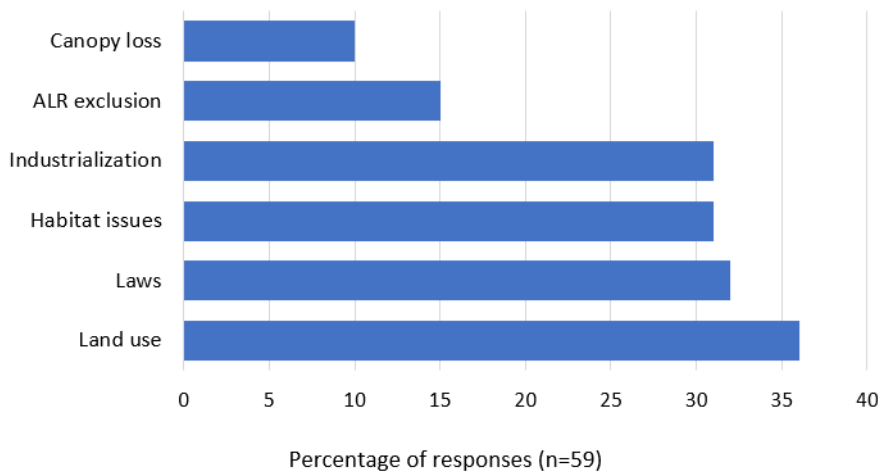


Figure 4: Environmental attitudes summary charts.

Environmental Actions

Results (Figure 5)

- 67% of respondents were more than moderately interested in learning about ways to protect the local environment, with only one respondent “not at all interested”.
- Residents were interested in learning about dealing with invasive species and natural, sustainable farming approaches including gardening and keeping spaces natural.
- While only 5 respondents claimed to be Environmental Farm Plan participants, another 29 were interested in learning more about the program.
- More than half of respondents were interested in attending a community even focused on environmental protection, and another third would consider attending.

Interpretation

The BMLN seems to be interested in learning about environmental protection. These results could be due to the fact that a majority of people who chose to fill out a survey about the environment are those who want to protect it, but with a survey like this it is hard to avoid that situation. The results of this survey suggest environmental education, at least around the topics of interest for the BMLN, would be welcome in this neighbourhood. Of particular note is the interest in the Environmental Farm Plan Program and the sustainable farming methods, as these are topics the Fraser Valley Conservancy would consider seeking outside support to deliver.

Community Vision

Results (Figure 6)

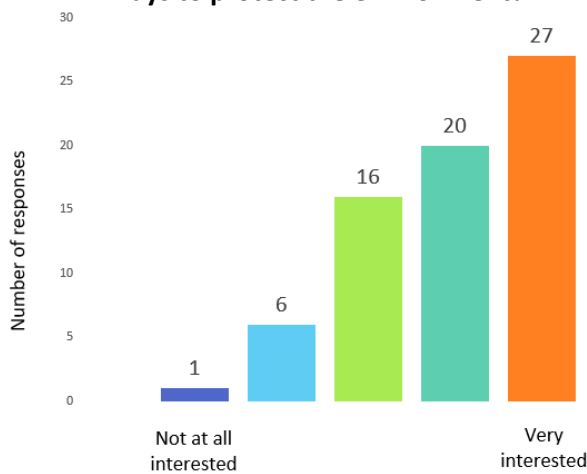
Respondents were asked a long-answer question about what they envisioned for the future of environmental protection in their neighbourhood. These responses were analyzed for trends. It is important to note that any single response may have contained references to multiple topics. BMLN residents were also asked to select from a list who they believed could have the greatest impact on environmental protection and what they believed challenges to achieving their vision may be.

- 33% of respondents envisioned the neighbourhood with farming prioritized over any other land uses. Keeping land in the ALR, preventing industrialization, and protecting farmland, were present in varying ways in many of the responses: 70% of answers contained this theme.
- The BMLN residents saw neighbourhood landowners having the greatest impact on environmental protection.
- 40% of respondents believe CoA mayor and council can have the greatest impact on environmental protection, and the highest selected challenge to achieving their community vision was “Municipal issues” at over 60% of responses.
- Non-profit and the federal government potential impacts on environmental protection scored low at ~15%.

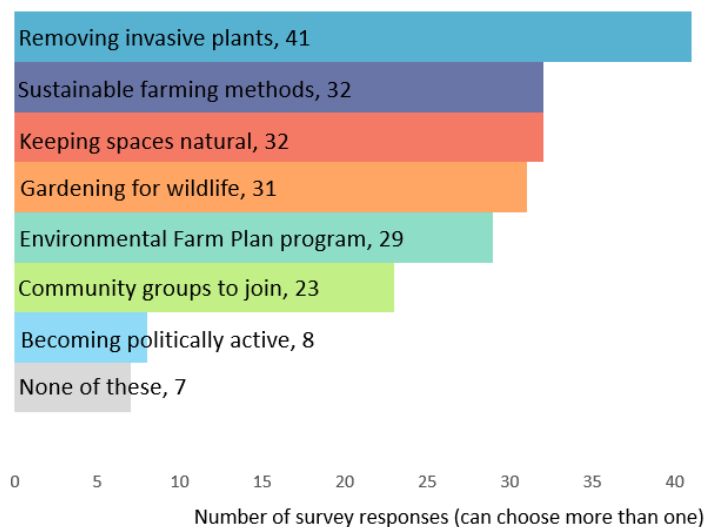
Interpretation

The BMLN has a unified vision of remaining an agricultural community. This doesn't seem to be about simply keeping the land in the ALR for economic purposes, or to be hugely productive—small farms, hobby farms, and natural, sustainable farming methods were referenced repeatedly. A smaller percentage of respondents referenced biodiversity, healthy creeks and streams, wildlife and forests. This, combined with the desire to keep these farming areas natural and sustainable, bodes well for a collaborative environmental protection and ALR protection approach. Well not referenced anywhere else in this survey, financial constraints to environmental protection appeared for the first time in the challenges question, although exactly what this entails was not elaborated. The BMLN strongly considers environmental protection in this neighbourhood to be dependant on the landowners and the City of Abbotsford.

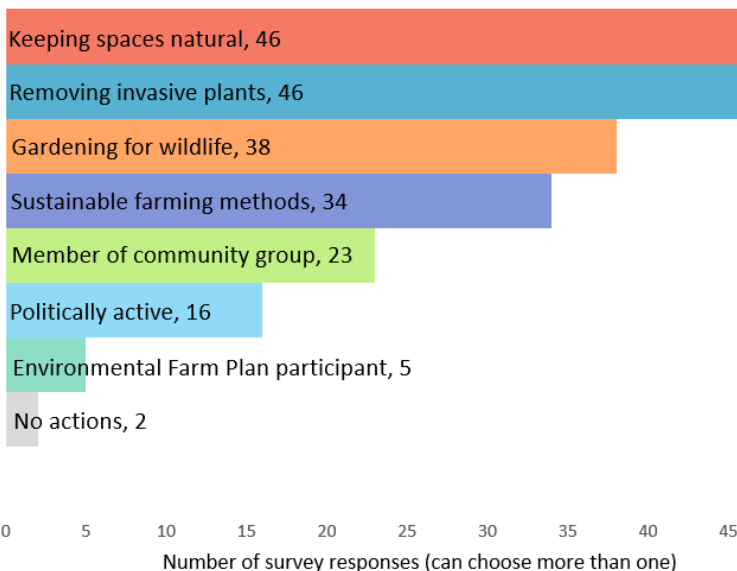
How interested are you in learning about ways to protect the environment?



What are you interested in learning about?



What are you doing to help the environment?



Would you be interested in attending a community event focused on environmental protection?

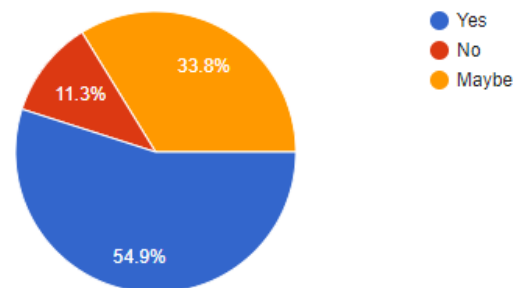
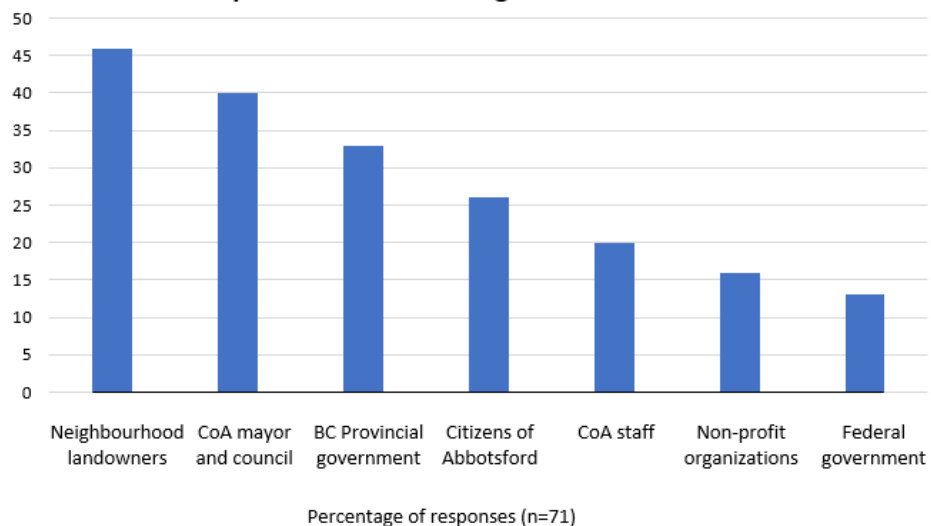
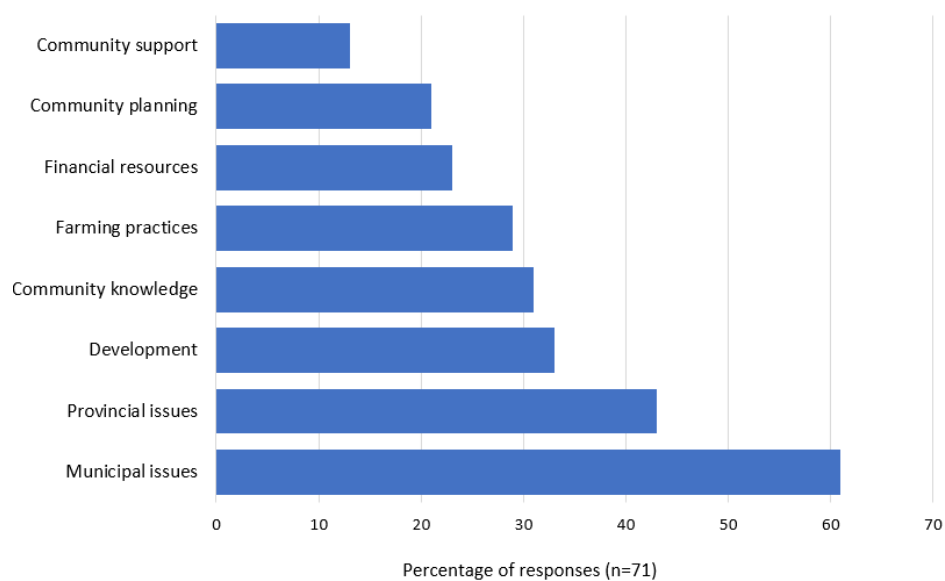


Figure 5: Environmental actions summary charts.

Who can have the greatest impact on environmental protection in this neighbourhood?



What are the challenges to achieving your community vision?



Residents' visions for the future of the neighbourhood

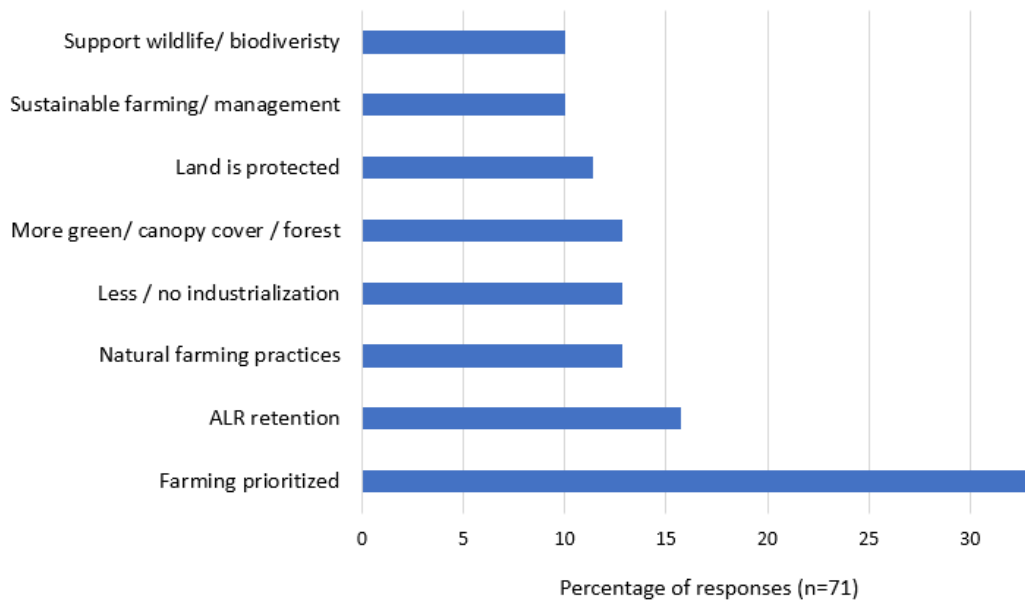


Figure 6: Community vision summary charts.

Special Event

The survey indicated BMLN residents would be interested in attending a community event focused on environmental protection. Two highly rated topics of interest were chosen: invasive plant removal and gardening for wildlife. Kathy Ma Green of the Fraser Valley Invasive Species Society and Tamsin Baker of the South Coast Conservation Program were invited to present on these topics at the Mt. Lehman Community Hall. The City of Abbotsford supported this event by printing flyers, which were mailed to BMLN residents, and providing a BBQ kit and tents. Sue Federspiel donated her time to help with cooking and serving hot dogs.

A total of 17 guests attended the presentations. Many guests were engaged, particularly in the invasive species presentation, asking questions about certain plants or sharing their knowledge about recent infestations with Kathy. During a short break, guests were able to browse more information about the FVC at a display table and continue to converse with staff and presenters. A short overview of the BMLN survey results was presented at the end of the evening. Interestingly, no single resident present that evening had heard of the survey. Apparently the first mailout had missed a significant portion of the neighbourhood, while the second mailout reached more people. Therefore, all of these residents in attendance were also interested in invasive species removal and native plant gardening, just as the survey predicted. Describing the preliminary survey results, guests agreed with the community vision of protecting ALR land and challenges with the CoA.

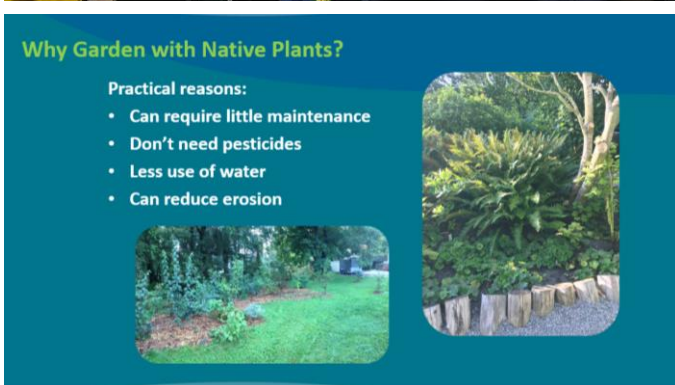


Figure 7: Top left: Kathy Ma Green (Fraser Valley Invasive Species Society) speaks about invasive plant species at the BMLN event, Bottom left: Slide from Tamsin Baker's presentation on gardening with native plants, Right: Poster promoting the event.

Systems Analysis

Factors Breakdown

All systems are interconnected at some level and systems impacting environmental protection are no exception. Four major systems (economic, ecological, sociological, political) are identified, and the key factors relevant to environmental protection are highlighted and summarized. As with all the work done for the project, this analysis is based on the BMLN survey, community conversations, interviews, and any additional knowledge on these issues held by staff. This is not an exhaustive exploration of environmental protection in this area, and as such, further investigation into these systems and their complex interactions should be conducted. Specific areas of interest where the FVC could make significant changes are identified in the *Creating Change* section of this report.

Economic

Key factors to consider in the economic systemic analysis include:

- Cost of land in the Lower Mainland
- Benefits of ALR land exclusion for industry
- Regional/municipal versus local (neighbourhood) economic impacts/growth
- Financial incentives or challenges for environmental protection on farmland
- Net benefit of different farming types (e.g. high-density berry crops versus hobby farms)

Speaking with BMLN residents it seems the most pressing challenges to environmental protection come from outside of the community, either from developers, landowners who do not reside in the neighbourhood, or municipal and provincial governments. Many of these challenges are thought to be economic in nature: developers want to see farmland excluded from ALR so it can make more money, and landowners from “outside” can create profitable truck parking lots or smelly composting facilities without having to deal with the issues. There is a pervasive, disturbing trend amongst BMLN residents believing there is significant financial corruption in municipal actions regarding the ALR exclusion.

For a private landowner in this neighbourhood, financial incentives for environmental protection are not well understood. For example, newer residents appear to be to clear trees from their property for a new farm type, obtaining money from the harvest; however, this is not always the case, as long-time residents have been observed downing trees or negatively altering the natural environment. There is little incentive to keep trees in the ALR, and no penalty for removing them for the purposes of farming. Similarly, financial penalties for environmental damage are considered small and the laws, poorly enforced. There is a common theme talking to residents, community members, and environmental professionals: the long-term, often “invisible” economic benefits to protecting the environment on agricultural land do not appear to outweigh to obvious, immediate economic benefits of industrialization and development.

Ecological

Key factors to consider in the ecological systemic analysis include:

- Sensitive habitat and species at risk
- Connectivity between habitats, adjacent watersheds
- Invasive species and habitat degradation
- Farming management issues such as effluent, pollution, and habitat alteration
- Continued loss of habitat on private property

Ecologically, the BMLN is much more intact than many other Fraser Valley watersheds dominated by agriculture. Environmental protection in this area is primarily focused on three aspects: the water, the watercourses (including riparian) and the upland habitats, including forests (tree canopy cover) and fields. Habitat types in this area range from functional (e.g. salmon-bearing streams) to completely disfunction (e.g. truck lots). One of the most visible differences between BMLN and most other agricultural communities in the Fraser Valley is the large amount of canopy cover in the riparian corridors; in flatter areas, farming often occurs right up to the edge of a watercourse. Much of the remaining riparian habitat in this neighbourhood is found in escarpments unfit for farming. Interestingly, there is quite a lot of tree cover on farmable private land, either in gardens, small forests, or simply lining the property. This canopy cover has been steadily decreasing over the last 20 years² but remains one of the defining features of the BMLN. As small areas of tree canopy are lost piece by piece, and farming practices continue to move towards densification and industrialization rather than smaller farms, habitat will continue to degrade for the native and at-risk species residing in this neighbourhood.

The mushroom farming operations have come up many times in conversations and research on this neighbourhood. Facilities have been penalized and reprimanded by the City of Abbotsford and the provincial government on multiple occasions, however, they continue to pollute the watercourses and the air. The ecological damage perpetrated by these single facilities is substantial³, however, many other farms and farming practices can and do contribute to the poor water quality found in this neighbourhood. Water quality is a critical concern in this neighbourhood, and from an environmental protection perspective, this is one of the most important issues to address. Many of these watercourses are salmon spawning channels, important amphibian habitat, and act as corridors to other sensitive watersheds.

As a target area for environmental protection efforts, Bradner – Mt. Lehman is a prime candidate. The Glenn Valley Watershed Society's work in this area is a testament to this fact. FVC connections with various municipal, regional park, and provincial government staff have demonstrated their desire to ensure this area remains protected and the ecological functional.

² Based on mapping analysis from <https://www.globalforestwatch.org/>

³ <https://www.bradnerbarker.com/news/water-test-results-on-polluted-creeks-are-240000-x-over-the-normal-limit>

Political

Key factors to consider in the political systemic analysis include:

- Agricultural Land Reserve and the Agricultural Land Commission
- City of Abbotsford's desires for the neighbourhood
- Industrialization, developers, and the City of Abbotsford
- Community activism
- Laws, roles, and responsibilities of governments

The issues around the ALR land exclusion and the CoA versus BMLN mentality has already been discussed in this document. Clearly, there are many political implications for this type of situation. The CoA is often considered a “developer-friendly” municipality, and it certainly has large goals for economic growth. This doesn't have to be an issue for environmental protection as new developments could be built in more ecologically-sustainable ways, however, this is very rarely the case. The City has identified a lack of industrial land available in Abbotsford, and despite numerous rejections, continues to consider removing a section of this neighbourhood from the ALR.

The interplay between the CoA and the provincial government is complex and confusing. In fact, most environmental management issues require an in-depth knowledge of various government laws. A stream in Abbotsford could have many, simultaneous laws governing it, including the federal Fisheries Act, provincial Water Act, and municipal Waterways Protection by-law, just to name a few. Including the ALR means yet another, separate provincial governing body, the Agricultural Land Commission, comes into play. It is no wonder environmental protection in the BMLN is so complicated, and residents are often confused about who to contact about their issues. We witnessed several conversations from BMLN residents about tree protection in their neighbourhood, and how they were upset with the CoA's tree protection by-law. Not a single person we heard talking about this issue was aware that the CoA tree by-law does not apply in the ALR. Likewise, many BMLN residents were shocked to learn the provincial Riparian Areas Regulation does not apply in the ALR. Frustratingly, at a CoA open house about potential upcoming revisions to the tree by-law, a resident brought up a similar complaint about tree protection in the ALR, but the staff did not clarify which laws do not apply. This reveals a strong need for both citizen and staff training around which laws apply, when, and how environmental protection can be achieved in this area. This also demonstrates how something like tree protection can fall through the cracks if governments aren't working together to identify loopholes and blind spots in their overlapping legislation.

Sociological

Key factors to consider in the sociological systemic analysis include:

- Community structure
- Community vision

- Outside interests – community desires versus the rest of the city
- Attitudes and beliefs, social expectations
- Knowledge about environmental issues
- Knowledge about how individual properties/ community impacts environmental issues

Environmental protection on a neighbourhood scale requires some level of sociological unity. This could be imposed by strict laws and enforcement, financial incentives and penalties, or cohesive community visioning and self-policing. In the case of the BMLN, a unified vision for the area as a small farming community certainly exists, and a close-knit, small town atmosphere has allowed for continuous reinforcement of shared ideals. This is changing, however, as the older generation is retiring and leaving the land to a generation that is not interested in small farming operations. Land is being bought and subdivided, farm uses are changing, and the community reinforcement that kept Bradner – Mt. Lehman from becoming like the rest of Abbotsford is at risk of disappearing.

There is a lot of pride in this community for their history and connectedness to the land, their beautiful gardens and tall trees, and their self-sufficiency. Survey results indicate residents were aware of ecological issues ongoing in their neighbourhood, including water quality issues and invasive species. This knowledge has resulted in a lot of anger in the community, particularly directed towards “newcomers”, developers, and the City. There is, however, a strong desire to “keep Bradner beautiful”, which often relates to ensuring the area looks similar to the “good old days” of the older generations. While this may be the case, there is a disconnect between understanding the neighbourhood’s environment is at risk and seeing their own property as part of that environment. This is potentially due to lessening community interactions and cooperative land management; residents see their property as disconnected from others when land is not managed together. From a sociological perspective, environmental protection in this neighbourhood hinges on what is important to the residents, how much agency they have (or think they can have) in managing their own land, and how connected their vision is to their neighbours.

Creating Change

Expecting any one plan to address all the identified factors and create in changes to all of these interconnected systems is lofty and unattainable. Instead, this document will highlight actions which should take place to begin the processes of change, based on all of the information presented in this document. In the case of complicated, multi-systemic issues such as this, no single action is more important than another. All the suggested actions should take place, but no single group should be responsible for them all. Partnerships with other groups will be essential to create meaningful, lasting change. The actions best suited for the Fraser Valley Conservancy are addressed separately, below.

In order to address some of the key factors identified, and begin to change these systems to allow for better environmental protection, the following actions should take place:

- Education
 - Neighbourhood residents
 - Understanding property laws, environmental laws, who is responsible for which issues, how to report offences
 - Stewardship knowledge: how to care for their own properties and shared spaces, invasive and native species identification, habitat identification, habitat enhancement strategies
 - Municipal staff and politicians
 - Improve understanding of ecological issues in the BMLN
 - Encourage best management practices for green spaces and parks
 - Larger community
 - Share the successes and challenges of BMLN environmental protection in search of collaboration, ideas for solutions, and as a source of inspiration
- Community building
 - Neighbourhood residents
 - Focusing on shared goals – community planning and visioning
 - Larger community
 - Encourage and establish collaboration between farming groups, agricultural communities, environmental organizations
 - More effective consultations with the CoA and BMLN
- Management planning
 - Abbotsford Official Community Plan must ensure effective connected greenspace and parks, protect ALR land
 - Establish intra- and inter-governmental think tank to get all levels of government, and other stakeholders, involved in conversations around environmental management and protection in the ALR, with BMLN as a case study
- Legislation
 - Examine current legislation for environmental protection loopholes and blind spots – work with think tank to reveal the full picture
 - Increase enforcement of current laws, both municipal and provincial
 - Ensure a healthy environment is a legal part of agricultural land protection
- Incentivization
 - Consider incorporation a program like Farmland Advantage in the BMLN
 - Determine how much it would cost to see some of the nature features in this area protected, and find a way to get it done

FVC Actions

The Fraser Valley Conservancy is uniquely poised to engage in certain actions thanks to our staff expertise and partnerships with governments and organizations. Our ongoing work includes community education and landowner contact programs, and, as we are invested in protecting

this area for generations to come, we intend to continue to seek funding to increase the amount of work we can do. The following funding/partnerships and associated actions are how the FVC can best contribute to changing systems influencing environmental protection in the BMLN:

- BC Gaming funds: This funding source allows us to continue to increase awareness of environmental stewardship in the community. We will build awareness of the FVC as resource for answering environmental questions, clarifying laws, etc.
- FVC baseline work: We will work with the City of Abbotsford staff and politicians to bring awareness to the importance of protecting the biodiversity of BMLN and provide expert knowledge and advice to environmental management concerns.
- Environment and Climate Change Canada's Habitat Stewardship Program funding: Our Nature Stewards Program focuses on the protection of private property for interested residents with a focus on species at risk.
- Royal Roads University graduate student: Aleesha Switzer will engage the community in her thesis project, centered on defining and creating a neighbourhood vision.
- Vancouver Foundation: We will apply for develop funds to begin inter-intra governmental roundtables to identify solutions to environmental protection issues.

Conclusion

This short Vancouver Foundation develop grant "Investigating Systems of Environmental Protection" in the Bradner – Mt. Lehman Neighbourhood provided many opportunities to connect with the community and better understand their level of awareness, attitudes, actions, and values regarding environmental protection. In general, the residents of this neighbourhood are focused on protecting their agricultural land from development. Some residents are compelled to do this from an environmental viewpoint, while others are driven to return to natural, sustainable farming methods and community values. Regardless of their reasons, residents are actively engaging and participating in protecting their neighbourhood in ways that they know and understand. So, what is getting in the way of more reliable, permanent, and effective environmental protection? This is a very complicated, multi-systems issue with strong interconnected economic and political implications. The prioritization of fast economic growth over sustainable land use, the confusing and ineffective suite of environmental laws, and an overall lack of awareness regarding the importance of this area to the ecology of Fraser Valley seems to be to blame. Addressing these concerns first and foremost will ensure this area is more effectively managed for generations to come, but this is no simple task. The FVC can continue to focus on educating the community and building relationships with the municipality, however we cannot tackle every action alone. This report serves as a both a summary and a calling card: here is where the issues lie in the BMLN, and here is the work to be done. Who will join us?