



Town of Stephenville Municipal Growth Plan



Final Report

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Prepared by

UPLAND

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For the Town of Stephenville



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1. Background Review



1.1 Introduction

Economic Context

Through its history, Stephenville has grown in waves of rapid development whenever a new economic activity arrived to Town, and it appears that just another such wave may be on its way to the shores of St. George's Bay. The development of a hydrogen plant and 164 onshore wind turbines represent an opportunity for the Town and are expected to bring 1,800 rotational workers to Stephenville for the start of construction works. Once this development occurs, there are already plans for new commercial, residential and industrial projects to support future residents as the Town's population is about to boom. Additionally, there are long-term plans calling to triple the size of the clean energy project. The precise pace of growth will depend on the timeline of these projects. However, Town officials assume that the Town population of currently 6,540¹ may double by the end of this decade.

Purpose of the Plan: Guiding Urban Growth in the right Direction

These large-scale opportunities do not come without challenges however, as this type of population growth consumes significant resources and impacts all aspects of the Town's administration including utilities, transportation infrastructure, recreation facilities and more. Most importantly, the Town has only one opportunity to get the character of the growth right. The type of new buildings and neighbourhoods to result from this upcoming period of growth will define the look, feel and functionality of Stephenville for many decades to come.

Consequently, population increases of this scale require a solid plan for sustainable growth. Stephenville has

the opportunity to direct growth in favourable ways that pay particular attention to housing affordability, a range of transportation options, sustainable management of infrastructure and responsible spending and taxation.

This Municipal Growth Plan will therefore identify a scenario for development that fosters long term community sustainability while considering the impacts of different approaches to managing and directing growth. The results of this project will help to understand how policies, practices, and infrastructure can best support the development of sustainable mixed-income communities while encouraging investment and economic growth.

By identifying the key strategic infrastructure and land use planning policies that are needed to support inclusive and sustainable growth, Stephenville will be well positioned to meet the housing needs of current and future residents in a way that supports complete community development.

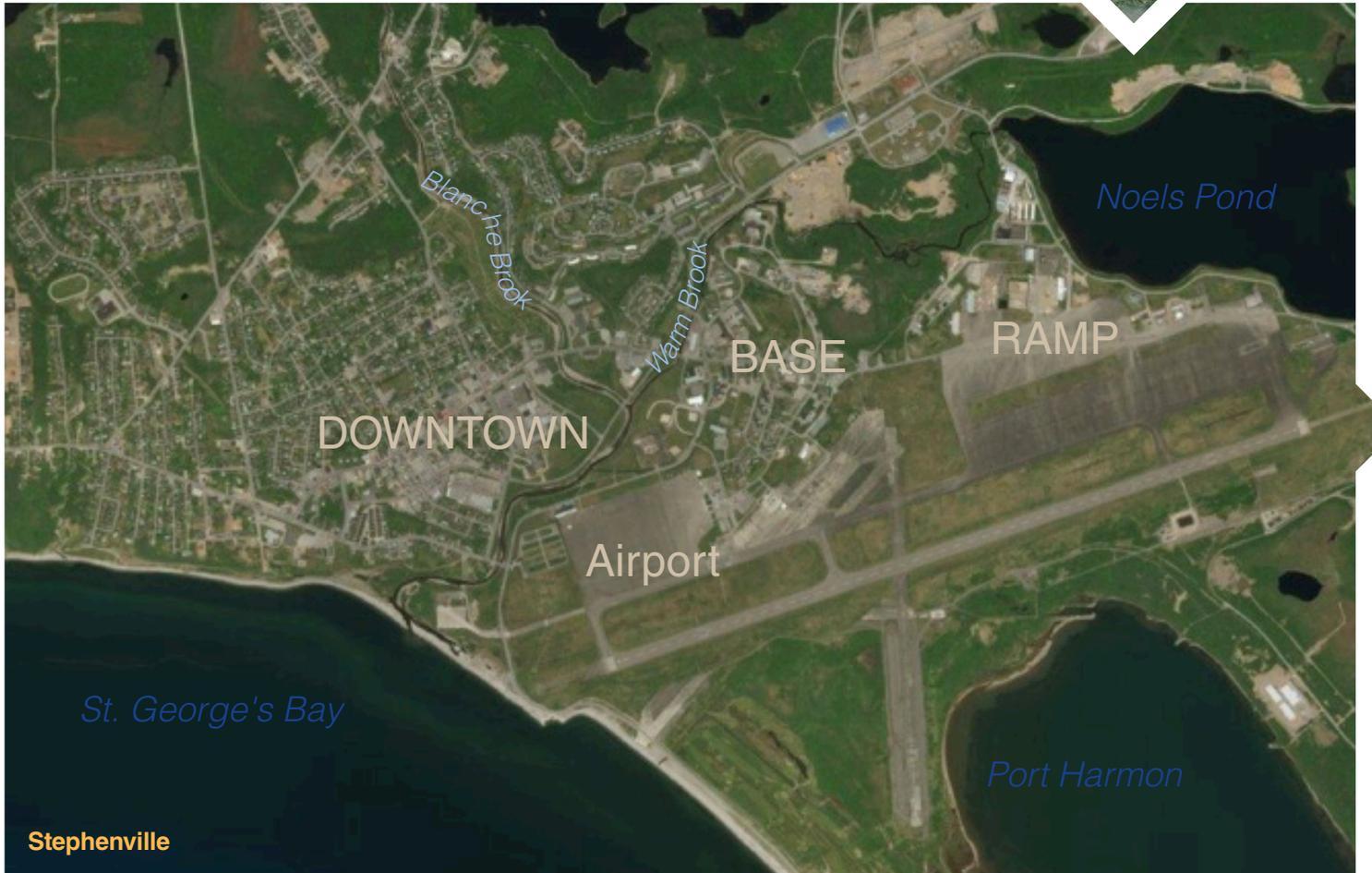
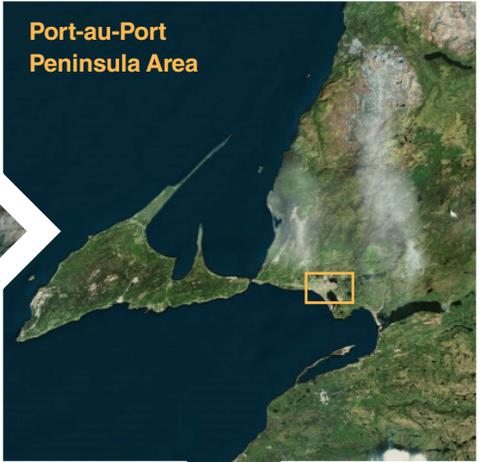
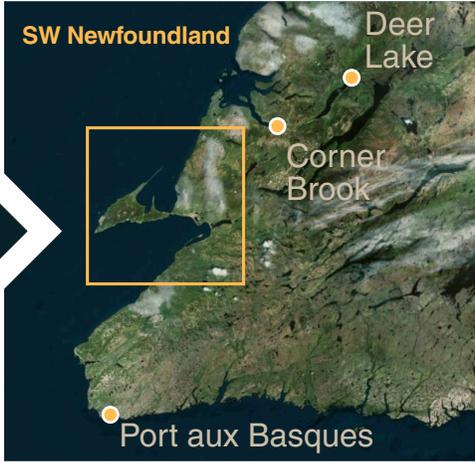
Structure of this Plan

This document begins with a background review, analyzing relevant aspects of the physical, socioeconomic and policy context of the Town of Stephenville. This review will prepare and inform the analysis of future development scenarios.

This review of facts and figures is followed by a summary of public feedback on this project, including a description of engagement activities, most frequently discussed subjects and resulting growth principles for the Town.

The final section applies these growth principles to a recommended growth scenario for the Town, showing the resulting pattern of urban footprints based on three population growth numbers. This plan then concludes with general recommendations for various areas of policy, as informed by insights gained from the scenario planning.

1 as per Census 2021



1.2 Project Area Geography and Physical Features

GEOGRAPHY

Stephenville is situated along the Bay of St. George on the Southwest coast of Newfoundland. It is situated within an approximately one hour (82.3km) drive from Corner Brook and a one and a half hour (128km) drive from Deer Lake. The Town is also easily accessible from the Port Aux Basque ferry service that runs daily from North Sydney, Nova Scotia. Stephenville is approximately a two-hour (165km) drive from the ferry terminal via the Trans Canada Highway.

Stephenville is surrounded by rugged, hilly terrain and dense forests, and is known for its scenic beauty and outdoor recreation opportunities. The town and surrounding area offer access to a variety of outdoor activities, including hiking, fishing, hunting, and boating, which are popular among nature enthusiasts and outdoor adventurers.

Prior to the pandemic, Stephenville International Airport offered seasonal flights to Halifax, Toronto, and Saint-Pierre. The airport also supported regional flights to Deer Lake and St. John's. During the pandemic the airport declared bankruptcy and was temporarily inoperational. In August of 2023 the airport was purchased by the Dymond Group of Companies, which works on restoring flight operations.

TOWN DISTRICTS

The Town provides a local service hub for Southwest Newfoundland, serving 25,000 residents from the surrounding communities, and the Downtown acts as a focal point for that hub. Downtown Stephenville extends along Main Street from West Street to Blanche Brook and includes various businesses enabling the public to shop, dine and access services.

To the north of the downtown is a relatively dense residential area generally bound by Main Street, Queen Street and the Hansen Highway. This 'Stephenville Centre' is defined by

single family dwellings on a tight grid of streets. Further north across the Hansen Highway, more recent subdivisions with larger footprints and more green space in between are more prevalent. East of Blanche Brook the urban fabric entirely changes, as buildings and street patterns are defined by the legacy of the Ernest Harmon Base. Large sections of this area are defined by multi-unit dwellings, mostly in the blocks between Oregon and Wyoming Drives which used to serve as airmen housing.

PROJECT AREA

The project area of the Municipal Growth Plan is primarily defined by the boundaries of the Town of Stephenville. However, some of the analysis presented in this report also considers parts of the Stephenville Planning Area, which extends to the north from the Town and includes the communities of Noels Pond and Cold Brook.



Figure 1: Map of project area for the Municipal Growth Plan

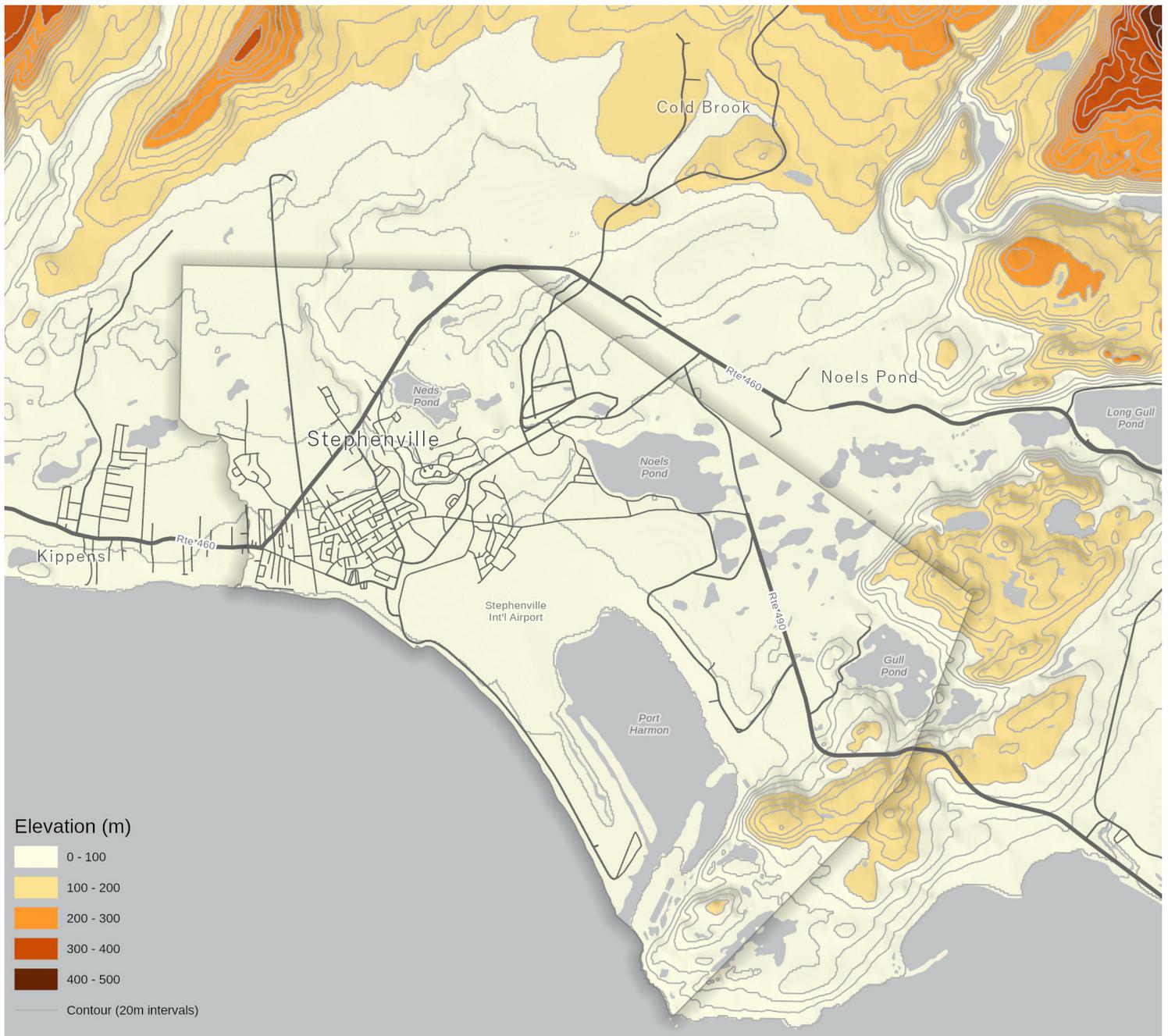


Figure 2: Elevations of land above sea level in and around Stephenville

1.2.1 Elevations

The majority of lands within the Town of Stephenville are relatively flat. Particularly in areas around the downtown and close to the airport runway, elevations are typically between 10-20m above sea level and do not feature any notable inclines. The 20m contour lines on the above map show that the terrain changes north of Hillview Avenue and at the hill north of Montana Drive, where the base's officers housing used to be located.

Within the boundary of the Town of Stephenville, the highest elevations are located at the eastern Town boundary near

Gull Pond. Further into the Stephenville Planning area, elevations increase dramatically, quickly surpassing the 100m mark and reaching peaks of 300-400m above sea level.

The hilly surroundings of Stephenville mean that developable land is in limited supply. The proximity to hilly terrain also implies flood risks from water streams in the spring time. This risk is further reviewed on the following page.

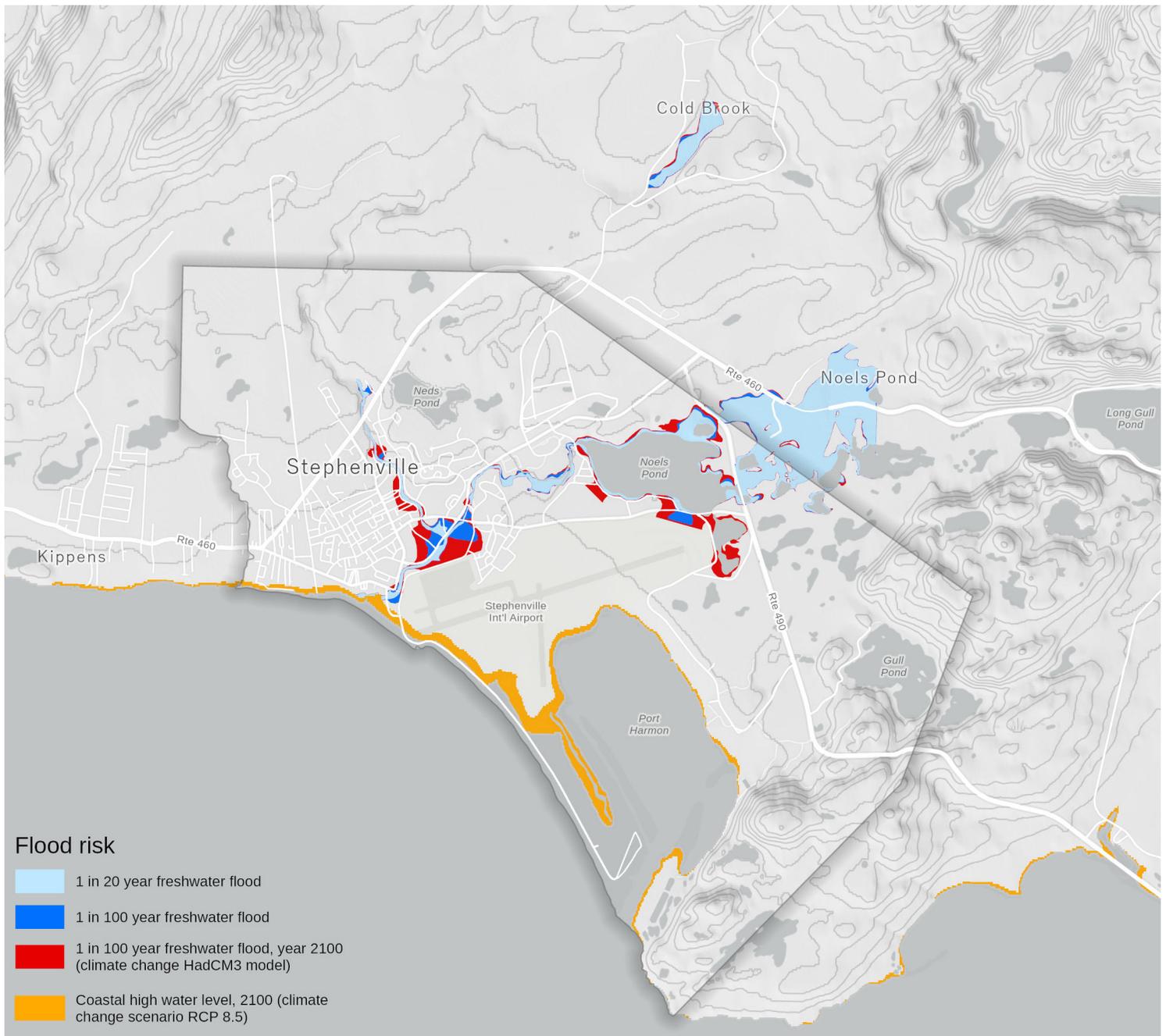


Figure 3: Elevations of land above sea level in and around Stephenville

1.2.2 Flood Risk

Although Stephenville is a coastal town, the risks stemming from sea flooding are limited within town boundaries. Downtown Stephenville is located on a plateau of at least 3-4 metres above sea level in most locations, which allows for some protection from storm surges and sea level rise. Areas adjacent to Port Harmon are more susceptible to the impacts of sea level rise, including potential impacts to the airport as well as to the Harmon Seaside Links golf course.

Overland flooding is a bigger concern in Stephenville and a 2005 storm event caused Blanche Brook to flood,

displacing 153 families. With the possibility of more frequent and intense storm events due to climate change, river flooding can become a more serious threat over time. Both Blanche Brook and Warm Brook run near densely populated areas such as the old air force base and downtown.

The area where both rivers meet is particularly prone to flooding. Much of this zone, close to downtown Stephenville, has now been identified as a floodplain and is currently a park.

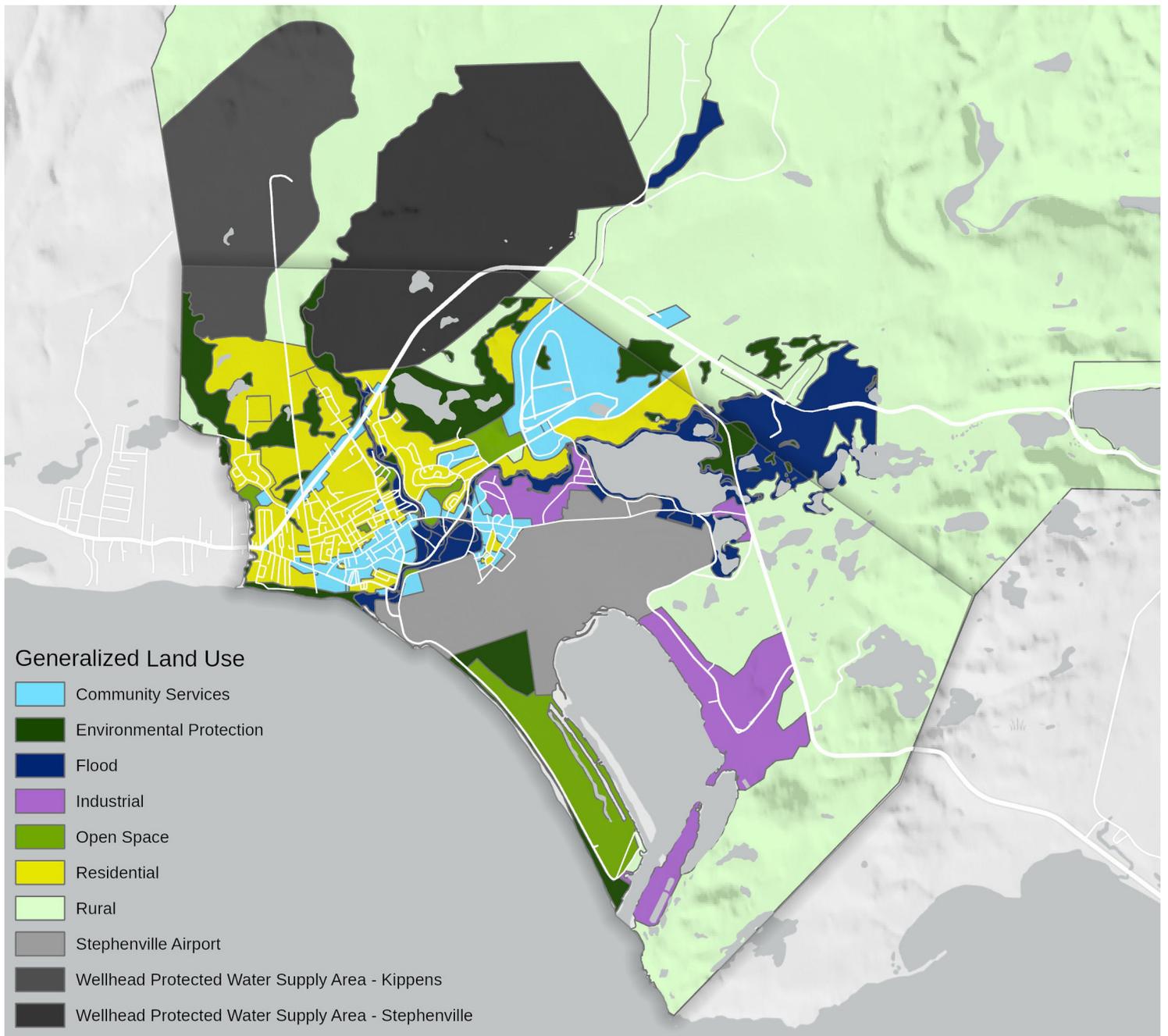


Figure 4: Generalized map of current land uses in Stephenville

1.2.3 Land Uses

With mixed-use buildings being a rare occurrence in Stephenville, most properties can be attributed to one category of land uses.

The largest category of lands within the Town boundary are actually undeveloped, rural lands. Within the developed part of the town, residential land uses and the airport take up the largest tracts of land, using about 350 and 425 hectares of land, respectively.

Industrial land uses can mainly be found around Port Harmon and north of the airport, where they have direct access to marine and air transportation.

In the northern section of the Town and Planning Area, two fresh water aquifers supplying drinking water need to be protected, and consequently limit land uses that can occur within these lands.

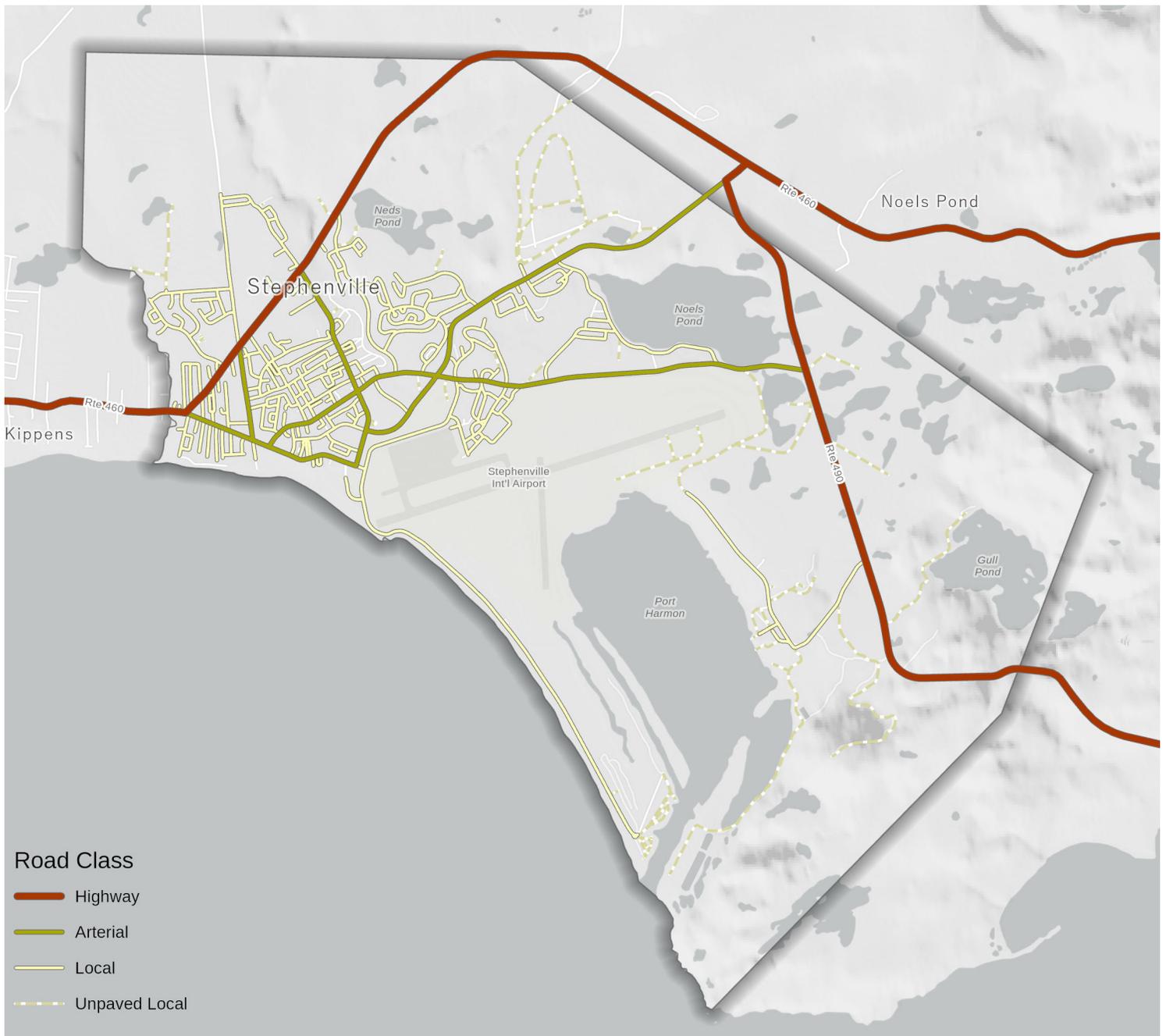


Figure 5: Transportation infrastructure map

1.2.4 Transportation

Transportation within the Town boundaries is mostly geared towards motorized vehicles. The two provincial highways No. 460 and 490 pass through the town, connecting Stephenville to the Port au Port Peninsula as well as to the TransCanada Highway via a northern and southern route.

In addition to the highways, a set of larger 'arterial roads' forms the backbone of the street network, comprising West Street, Gallant Street, Main Street, Queen Street, Minnesota Drive and Carolina Avenue. Other streets primarily serve local destinations and are rarely used as through-routes.

Sidewalks are the main form of active transportation infrastructure in the Town, matching to a large degree the network of arterial roads in Stephenville. They are complemented by a network of trails through the middle of the community, located in proximity to Blanche Brook.

Bicycle infrastructure is largely absent in Stephenville, with the exception of a bidirectional bikeway along Port Harmon Beach, which is dedicated to recreational purposes.

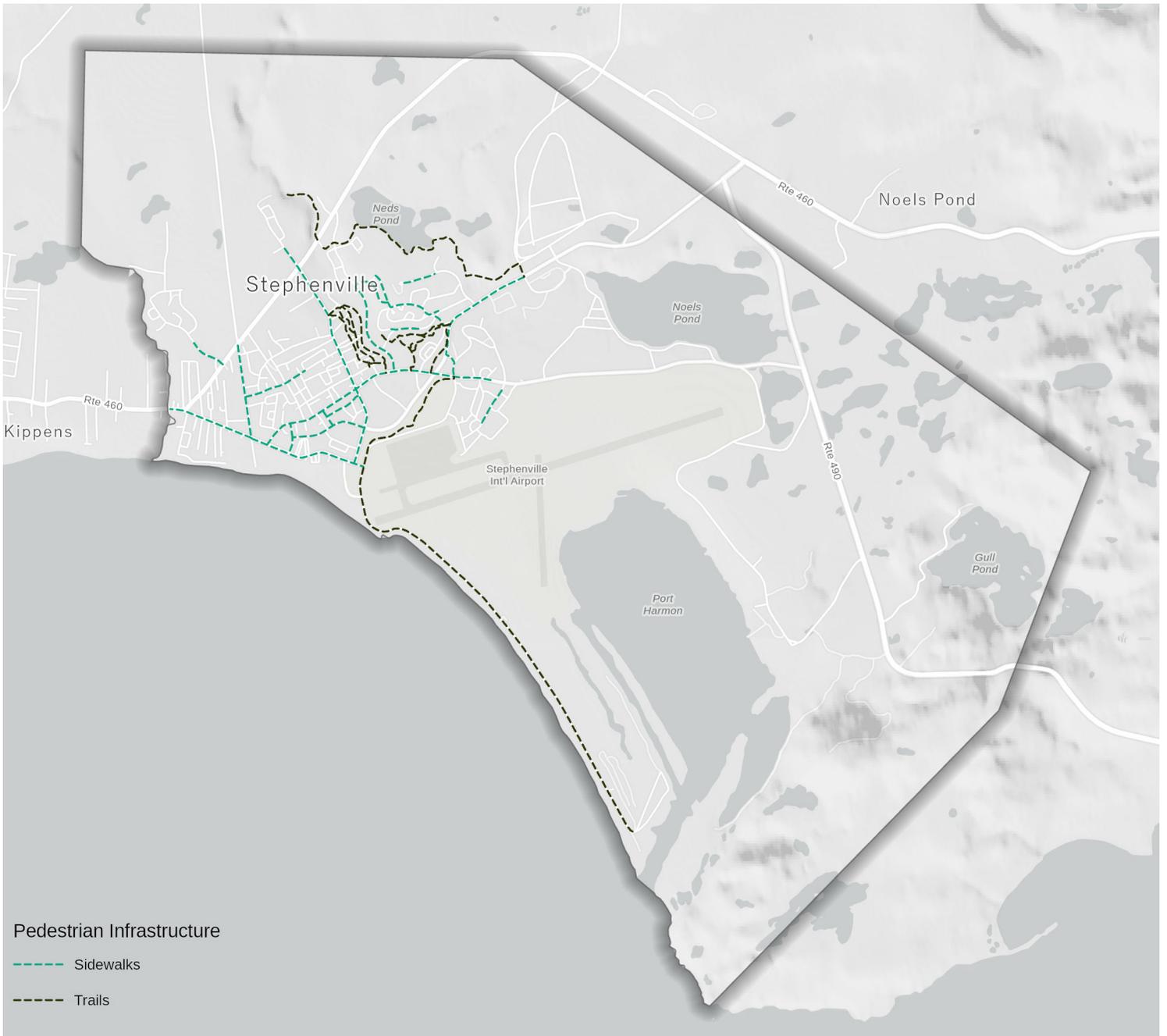


Figure 6: Sidewalk and trails map



Figure 7: Biking and walking infrastructure along Port Harmon Beach

1.3 Town Services

The Town provides a variety of services to its residents including municipal water supply, wastewater collection and treatment, storm water management, fire protection, waste management, planning, inspections and many others. From the perspective of a municipal growth plan, some of the most relevant items are water+wastewater infrastructure as well as zoning. The former two are highly important consideration for future growth, as decisions to expand these networks will

affect operational costs of the Town for generations to come. Analysis of the current zoning pattern is important because it help to understand how the Town will likely develop in the near future, and which zoning provisions may need to change in order to achieve the growth pattern that is actually desirable for the Town.



Figure 8: Stephenville Municipal Building

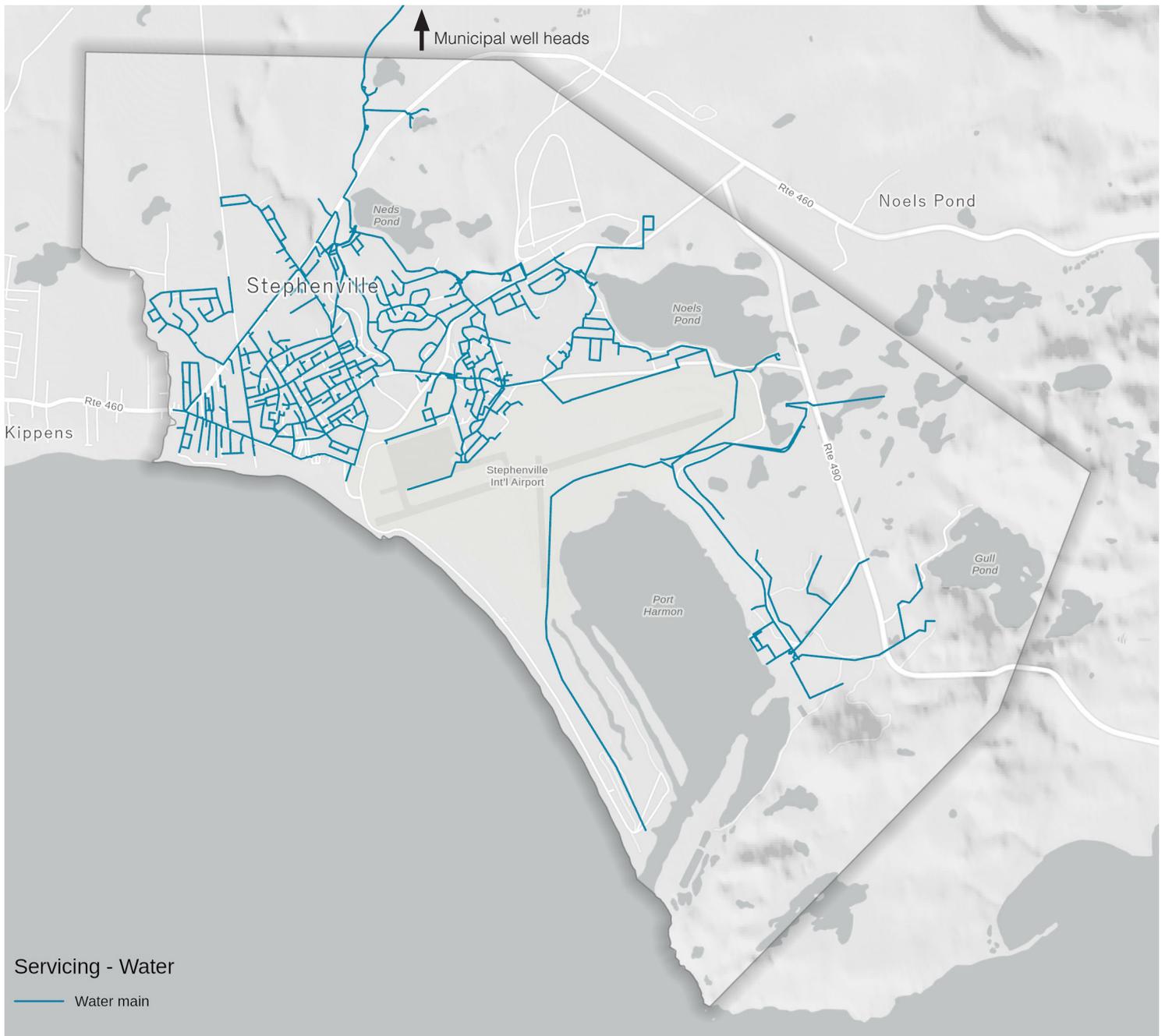


Figure 9: Municipal water supply map

1.3.1 Water

There are 104.3 km of water mains running through the underground of the Town of Stephenville, covering the vast majority of street that accommodate residential and commercial development. The water supply infrastructure is fully integrated with the former airbase and airport lands.

The extent of water supply services also covers some industrial properties east of Port Harmon. A dedicated 3km water main line connects the Little Port Harmon RV Park and the Harmon Seaside Links club house with to the water network.

The town is fortunate to have water supply sources at high elevations in relation to the Town, with well heads to both the Stephenville and Kippens aquifers being located at over 60 metres above sea level. This means that water can reach most locations within Town boundaries by gravity, which is amenable to various options for urban growth.



Figure 10: Municipal sewage system map

1.3.2 Sewage

The Town owns and operates 77.3 km of sanitary sewer lines that absorb discharge from household and businesses in Stephenville. The terrain also works in Stephenville's advantage in this case and as the landscape slopes slightly up from the coast, the topography helps to direct the raw sewage to the wastewater treatment plant. The plant is situated at one of the Town's lowest points just west of the airport runway. After being treated in this location, the treated sewage discharges from there to St. George's Bay.

Storm sewers are also managed by the Town and help to collect rainwater from streets and to prevent localized flooding during rainstorm events. Most of these sewersheds are small and discharge at the nearest point of Blanche Brook, Warm Brook, Noels Pond or some of the smaller watercourses. The largest cluster of stormwater sewer is situated within the area of the airport, including its runway, taxiing areas and parking spaces for airplanes.

Industrial lands around Port Harmon are neither within the catchment area of sanitary nor storm sewer services.

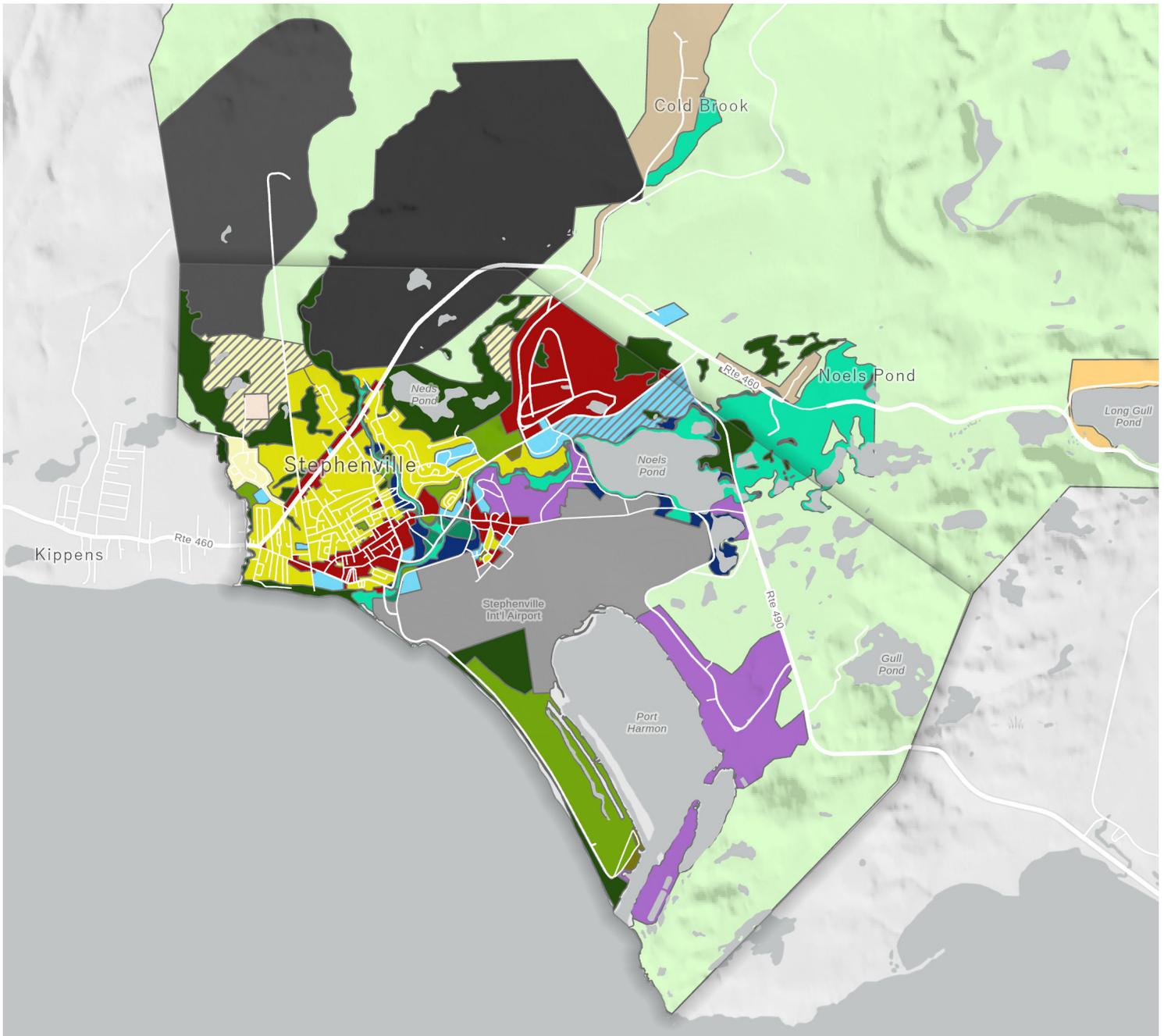


Figure 11: Zoning map from the Town's Development Regulations

1.3.3 Development Regulations

Types of permitted development in the Town of Stephenville are governed by the Town's Development Regulations, which operate under the policy framework of the Municipal Plan.

An analysis of the Development Regulations shows that the document is typical for planning rules in Atlantic Canadian towns of similar size. Generally the document aims to separate incompatible land uses, such as residential neighbourhoods and industrial facilities. The rules also endeavor to keep fully recreational or seasonal land uses such as cottages or campgrounds at a distance from



year-round land uses in order to prevent conflicts from arising between these land use categories. The regulations also include two zones dedicated to drinking water protection, with one zone covering the area of the Stephenville drinking water supply and one for the aquifer used by the neighbouring community of Kippens.

Notwithstanding these common characteristics of these planning and development rules, there are some aspects of the Development Regulations which are worth emphasizing. Since this analysis is performed in the context of a municipal growth plan and with the prospect of significant population growth on the horizon, the provisions for development of residential dwellings are of particular interest.

What is relatively unique to Stephenville in the Atlantic Canadian context is that a majority of serviced lands have a combination of permitted use classes and zoning which allow for multi-unit dwellings (i.e. apartment or condominium buildings with three or more residential units). These types of buildings are permitted in the 'Residential Medium Density Zone', which covers a large extent of the zoning map (see Figure 11).

However, while multi-unit dwellings are widely permitted in principle, they are subject to strict density limitations. Each apartment or condominium unit must correspond to at least 200 m² of lot area. This means that a typical, small walk-up apartment building with three storeys and four units per floor requires a minimum lot size of 2,400 m², which is neither realistic for the economic feasibility of such a development nor an efficient use of municipally serviced land.

Other zones permitting multi-unit dwellings are the sparsely applied 'Residential Special Zone' and the 'General Commercial Zone'. The latter zone covers the entire

Downtown, parts of lots along Hansen Highway and a large tract of land between Minnesota Drive and Hansen Highway to the north of the CNA building. This is the only zone that generally permits mixed-use buildings with e.g. commercial storefronts and upstairs apartments in the upper stories. However, multi-unit dwelling are only conditionally permitted in this zone, i.e. each mixed-use building triggers a public process for approval. This rather restrictive regime around mixed-use building helps to explain the small number of these types of buildings in Stephenville.

Potential for residential growth has also been earmarked through the 'Comprehensive Development Areas Zone', which was applied to lands at the northern end of Hillier Avenue and to some areas west of Igloo Road. This zone creates a holding area preventing development of individual lots in the short-term, but enabling growth for comprehensive development proposals that include a full layout of roads, services and public amenities to be developed as part of an urban expansion project.

1.4 Population Profile and Trends

1.4.1 General Observations

Fluctuations in the population in Stephenville are related to the Town's economic activity. In 1948, the Ernest Harmon Air Force Base, a US military base, opened in Stephenville and operated as such until 1966. Ever since the base closure, the population of Stephenville has generally been in decline. This trend continued for the last 30 years (see Table 1), with the exception of two instances when there was a slight population growth before the 1996 and 2011 Census Years.

Between 2001 and 2006, the Town saw its population decline by 7.3% to 6,588 residents, which was largely connected to two events: in 2005, the Abitibi paper and pulp mill—Stephenville's largest employer at the time—closed down. That same year, a large storm event caused flooding in the Town, resulting in the displacement of 153 families and the destruction of 132 homes. In 2011 the population reached a peak of recent history when it increased to 6,719 people, but that short uptake of growth did not reverse the general trend and the population further declined to a present-day number of about 6,500.

At a regional level, the Stephenville-Channel-Port-Aux-Basques Rural Secretariat has recorded a steeper decline in the population. For instance, between 2016 and 2021, the population in the region declined by 7.6%, while Stephenville's declined by 1.3%. Additionally, in instances when Stephenville observed growth in its population, the population in the region declined. Between 2006 and 2011, Stephenville saw its population grow by 2%, whereas the region saw a decline of 3.5%. Overall, the Town appears better suited to attract and retain population than the surrounding rural regions.

In 2021, immigrants represented 2.3% of its total population, with around half of them migrating between 2016 and 2021. Along with an increase in immigrants, the proportion of visible minorities has also increased to 3% of the population, whereas this number was 1.3% in 2006. While there has been a slight increase in diversity, the new economic activity will welcome more immigrants with diverse needs that the Town might need to meet.

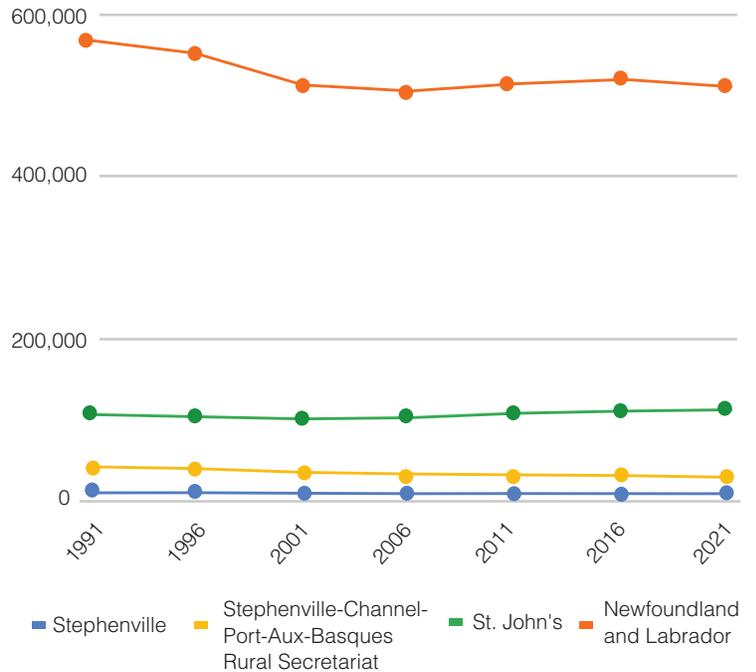


Figure 12: Regional and provincial total population comparison, 1991-2021

	Total population	% Change (from previous Census)
1991	7,621	-4.7%
1996	7,764	+1.9%
2001	7,109	-8.4%
2006	6,588	-7.3%
2011	6,719	+2.0%
2016	6,623	-1.4%
2021	6,540	-1.3%

Table 1: Stephenville total population and population change, 1991-2021

Population pyramids show how a population is distributed by cohorts (5-year age groups), and they can be compared to subsequent or previous years to understand how a population is changing. Under ideal circumstances, population pyramids are shaped like a pyramid, with a numerous working age population to support the services and economy on which others depend, and a large base of youth and young people to renew the population.

Figure 13 shows the population pyramids for the Town of Stephenville, comparing 2021 figures against 2006. The population below 20 years of age has been decreasing over time, which can be explained by the younger cohorts getting older. At the same time, this population pyramid shows that the population 50 years and above are making up a significant portion of the population. This has implications on the services that the Town can provide to an aging population. Nonetheless, when compared to the regional trends, Stephenville shows as relatively strong working-age population (15-64 years of age). This can be explained by the Town being a service centre for the region, with the Sir Thomas Roddick Hospital, the St. George Bay campus of the North Atlantic College and a Service Canada centre located in Stephenville among other employers.

The population trends observed in Stephenville follow similar ones observed for the Stephenville-Channel-Port-Aux-Basques Rural Secretariat Region, as Figure 3 shows. A key difference, however, is that the population below 40 years of age is relatively smaller at the regional level, with the population 50 years of age and above being relatively large. Additionally, we can see that, between 2006 and 2021, the age cohorts younger than 60 years of age have been getting smaller. While this can be explained by each age cohort getting older, it also means that the younger cohorts are not being replaced and possibly moving away.

The median age of the population in 2021 in Stephenville was 50.8 and in the region was 55. However, the median age in the province was 48.4, which shows that the population in the Town and in the region is generally older.

Figure 13: Town of Stephenville Population Pyramid, 2021 and 2006

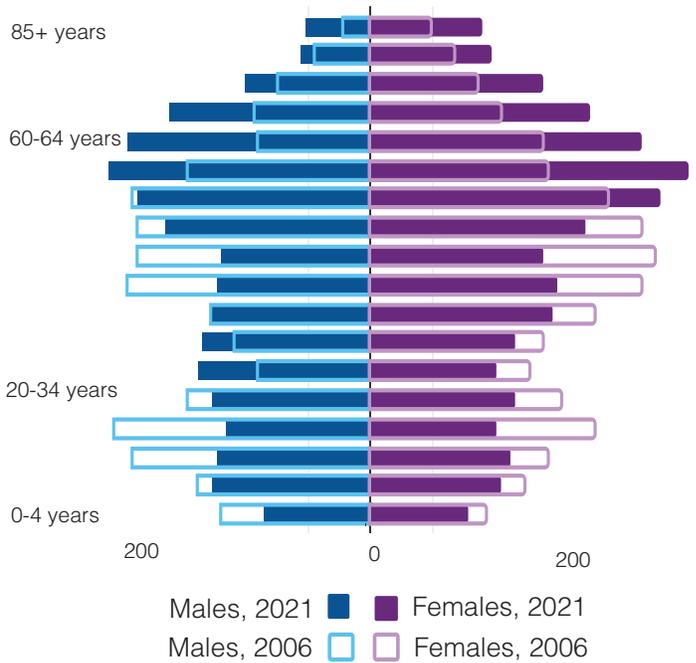
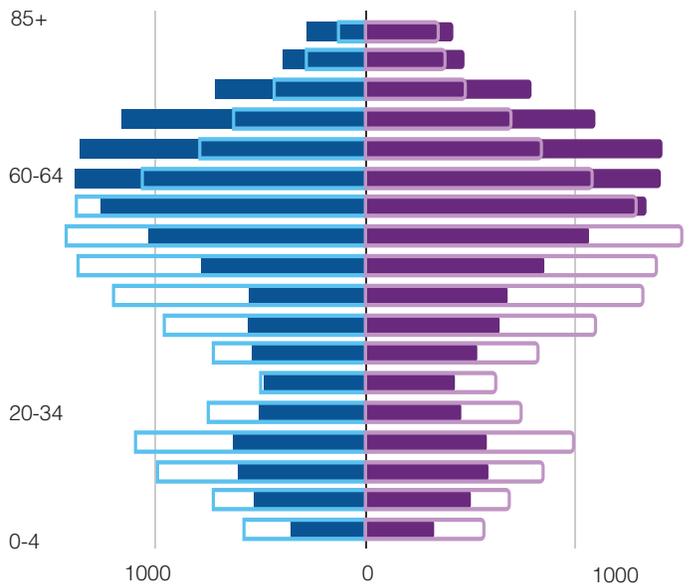


Figure 14: Stephenville-Channel-Port-Aux-Basques Rural Secretariat Population Pyramid, 2021 and 2006



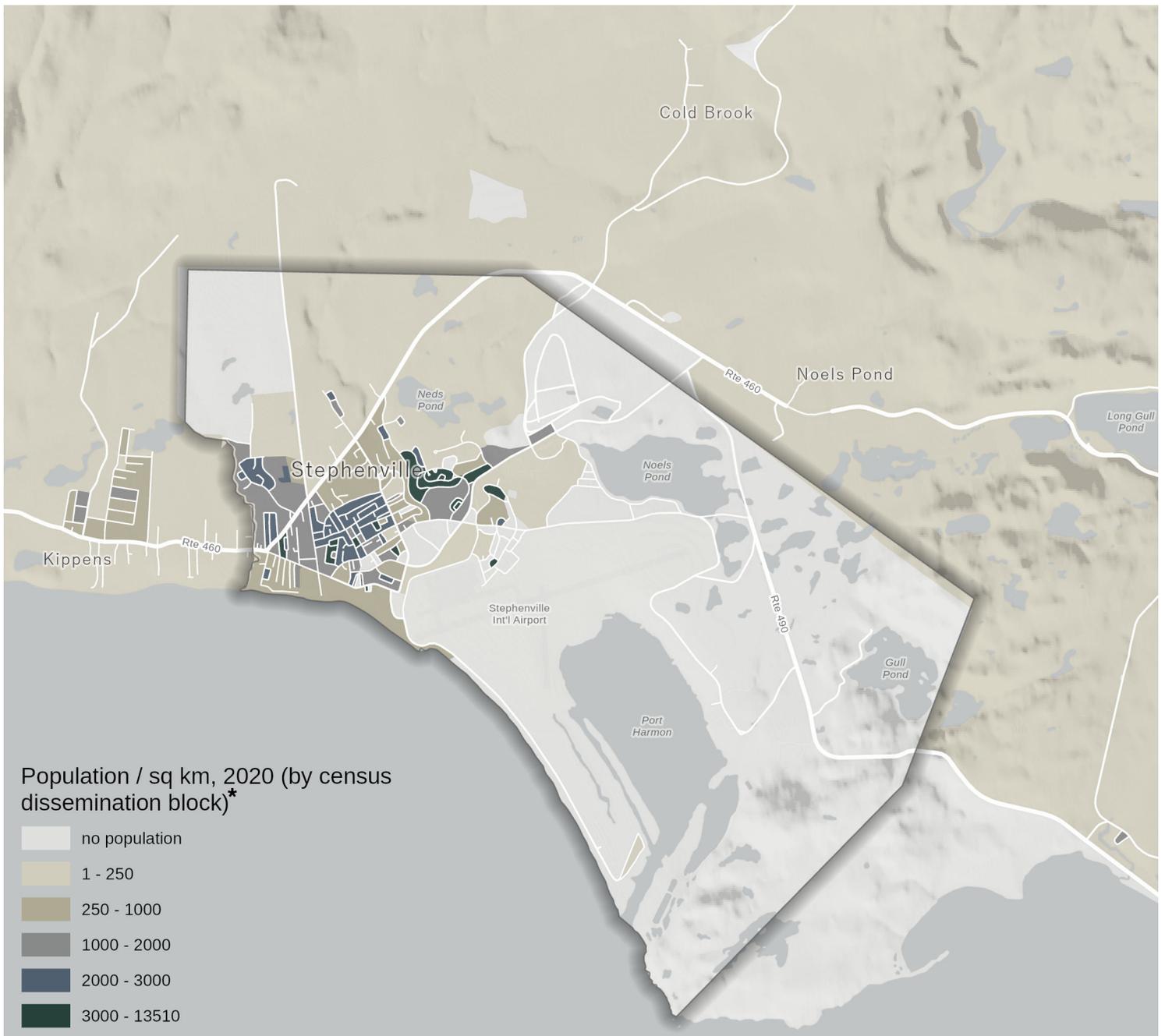


Figure 15: Population density map

1.4.2 Current Population Densities by Dissemination Blocks

Review of Stephenville Census Data on Dissemination Block Level allows for interesting insights about the distribution of population in the Town. One interesting aspect visible on this map is that the legacy of the Ernest Harmon Airbase has left over some pockets of residential areas at population densities of above 3,000 persons per km². These are values typically found in much larger towns or cities and can be primarily attributed to the concentration of multi-unit dwellings that were repurposed after the base closure. However, the Town's settlement structure demonstrates that considerably high population densities can also be reached through

compact single-family dwelling neighbourhoods north of the Downtown. Most street blocks south of Hillview Drive feature population densities upward of 2,000 persons per km². In other areas of the Town, the urban fabric is more sprawling and population densities are generally lower. The above map also shows that a very large area within the Town boundaries is entirely unpopulated.

*) Note: some statistics in this and the next section are based on the household income Census dataset, which takes data from the year prior to Census years (i.e. 2020 instead of 2021).



Figure 16: Population density changes over time

1.4.3 Population Change by Dissemination Area 2015 to 2021

Census Dissemination Areas are a more coarse unit of analysis, but they are better suited for analysis of changes over time. Figure 16 shows differences in population densities between the 2016 and 2021 Census years (top) and the current distribution of population densities (bottom).

One characteristic change to be observed is that over the last five years, all central areas of Stephenville have decreased in population density. For established urban areas, the usual explanation for that phenomenon is that average household sizes have shrunk in these geographies.

Due to the findings related to aging population in Section 1.4.1, this is a plausible explanation for this trend. However, the decrease in population density between Wyoming and Oregon Drive has been so drastic, that likely some residential units in that areas have been vacated over the last five years.

The only areas of Stephenville that gained population in this period are a few street blocks in the vicinity of New Mexico Drive and around Dutchess Drive. It is not clear why these areas experienced growth, as there was no recent development in these areas.

1.5 Households in Stephenville

1.5.1 Current Household Characteristics

As previously mentioned in the population analysis, the high concentration of apartment buildings and compact street patterns is an anomaly for a town of this size. The Town therefore offers a variety of housing types. Nevertheless, the the dominant type of dwellings are still single-detached houses. Few apartments have been built since the closure of the army base, leading to a general increase in the share of single-detached houses over time. Currently more than 53% of the housing stock in Stephenville is made up of single detached houses.

At the same time, the composition of households is such that individual persons living by themselves are the most common type of household in Stephenville. Over 40% of the Town's residents reported living by themselves in the 2021 Census, followed by another 35.7% that live with just one other household member. Households with three or more members represent less than a quarter (23.7%) of the profile.



Figure 17: Various types of dwellings lining the shore of Blanche Brook.

Type of Dwelling	Housholds in Dwelling Type	% of total households
Single-detached house	1,700	53.3%
Semi-detached house	440	13.8%
Row house	490	15.4%
Apartment or flat in a duplex	40	1.3%
Apartment in a building that has fewer than five storeys	345	10.8%
Apartment in a building that has five or more storeys	130	4.1%
Other single-attached house	10	0.3%
Movable dwelling	45	1.4%
Total Households in 2021	3,190	100%

Table 2: Stephenville dwelling characteristics in 2021

Household Size	Number of households	% of total households
1 person	1,285	40.3%
2 persons	1,140	35.7%
3 persons	415	13.0%
4 persons	235	7.4%
5 or more persons	105	3.3%
Total Households in 2021	3,190	100%

Table 3: Stephenville household sizes in 2021

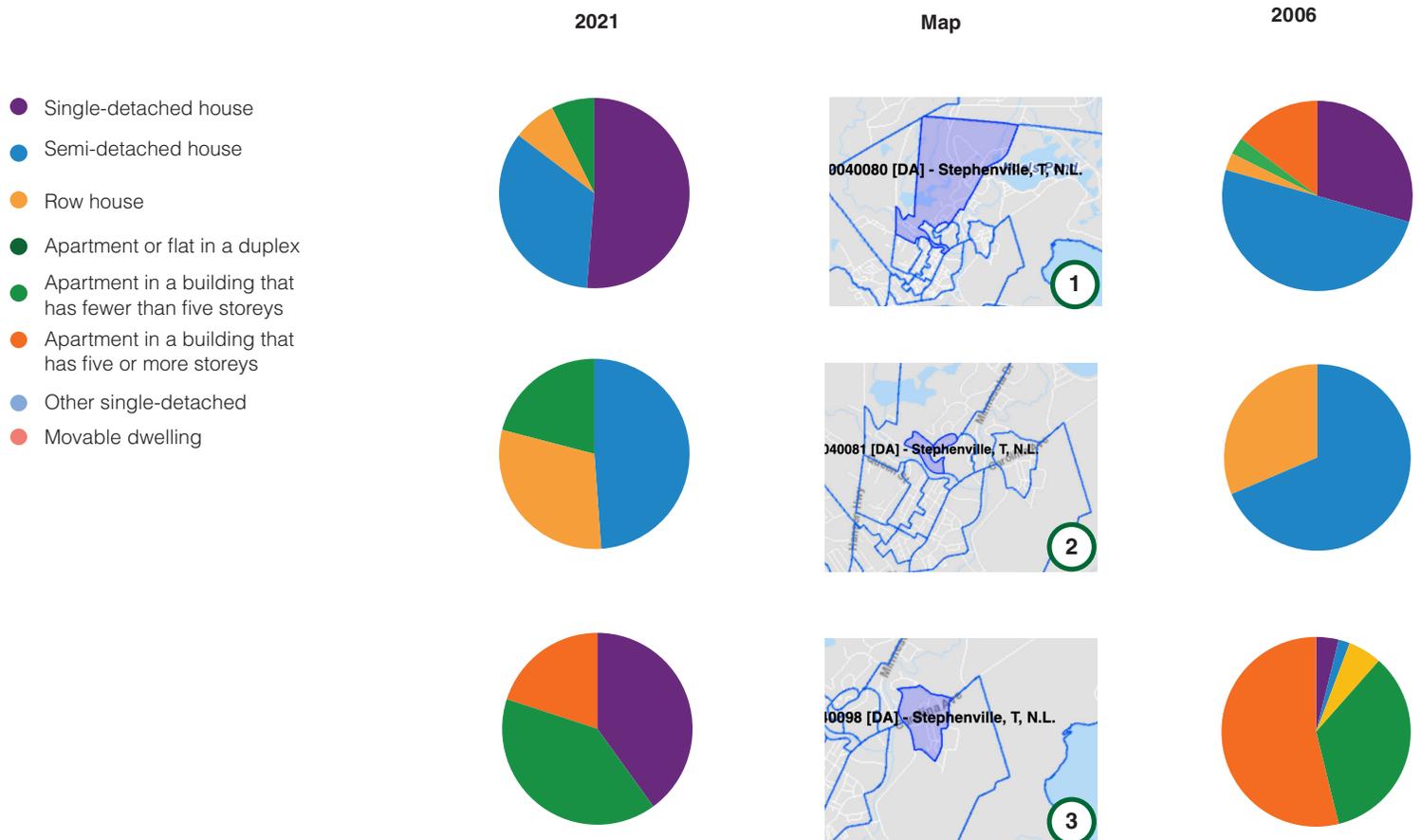
1.5.2 Current Household Characteristics

The figures below show the dwelling types by each Census Dissemination Area and compare the 2021 figures against 2006. Since Dissemination Areas are a geography that relates to the neighbourhood level, this analysis helps with the understanding of how housing forms have changed over time in the Town, and in which neighbourhoods these changes have taken place.

Although single-detached houses were already the dominant type of dwelling in the Town in 2006, most dissemination areas have shown an increase since then.

Among the more notable changes over the last 15 years is the stark increase of the share of single detached homes around Ned's Pond (DA #1).

The DA that encompasses the College of the North Atlantic campus, Stephenville Manor and other services and amenities south of Carolina Avenue (DA #3) saw large number of residents vacate an apartment building, resulting in a sizeable shift of dwelling types in this area. Single-detached houses now make up 40% of the dwelling types in this location, whereas this was less than 4% in 2006.



Some changes in Dissemination areas can be clearly attributed to ongoing renovations in old air base apartments, since in cases such as DA#2 new apartments show up in the statistics where no new housing was built. These types of shifts in occupancy of old apartment buildings seem to cause much of the changes between 2006 and 2021, such as in the cases of DA#4 and DA#5.

Apart from these changes of building uses around the base, there seems to be relatively little movement with regard to dwelling types and the changes seem to be incremental. Most of the Dissemination Areas, however, display slight increases of lower-density housing forms over time.



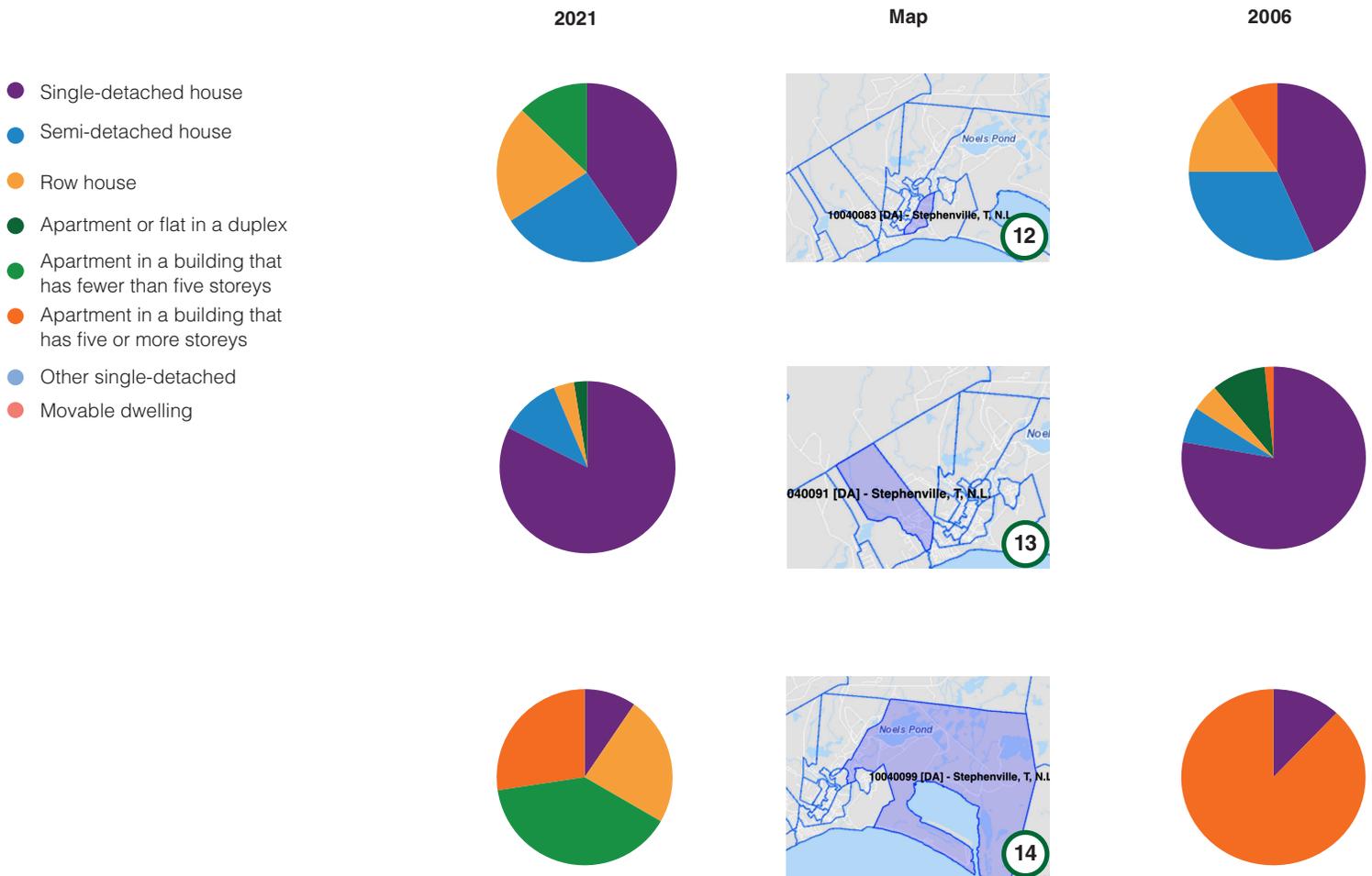
A notable change since 2006 has been the increase of movable dwellings in the Dissemination Area that encompasses the western half of Ned's Pond. This can mostly be attributed to the tiny home development on Brook Street. The change is represented by the 'coral' colour in the 2006 and 2021 pie charts of DA#9.

Although counted as a separate dwelling category by Census Canada, mobile and mini homes are technically single detached dwellings for all accounts and purposes of a household profile. The changes show that there is a clear need for small types of individual dwellings, and that the true number of detached homes is actually higher than reported in the Census.



The southern part of the Downtown (DA#12) has seen some structural shifts in the housing composition, and a large apartment building appears to have been replaced by a lower-rise multi-unit dwelling. Interestingly, existing mobile homes on Park Avenue are not accounted as such in this dataset, presumably because their permanent installation on-site was interpreted as 'non-movable'.

The area south of Noels Pond (DA#14) experienced a tremendous increase in apartment units. It is not clear if this increase is related to units included in the new subdivision south of the Stephenville Dome, or whether some residential units were occupied in proximity to the airport.



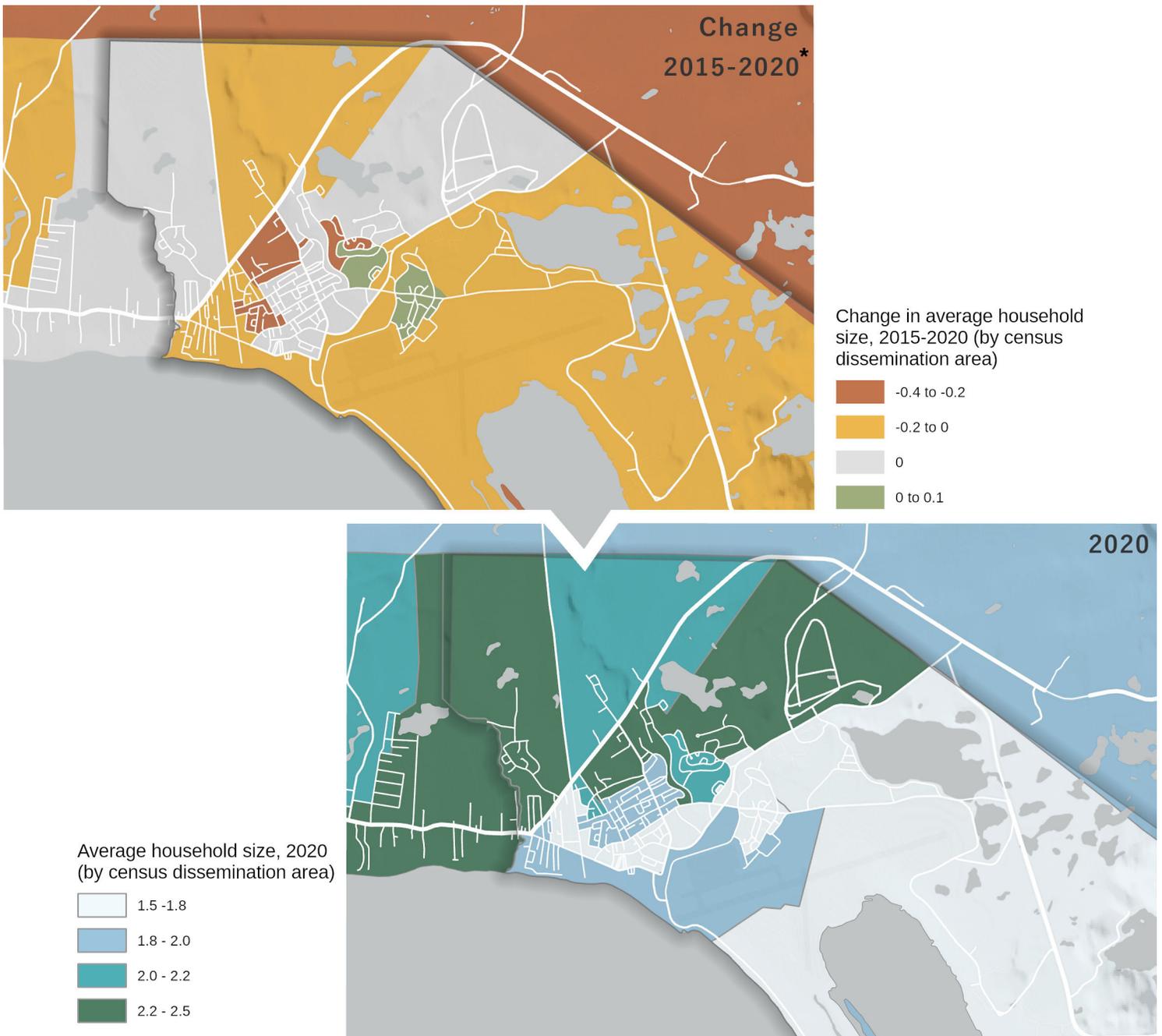


Figure 18: Household size changes over time

1.5.3 Household Sizes

Between the Census Years of 2021 and 2006 (some data items are reported for the previous years, i.e. 2020 and 2005) the average household size in Stephenville decreased town-wide from 2.4 to 2.0 persons per household. This decrease is visible in most areas of the town, as the vast majority of neighbourhoods report a similar trend of decreasing household sizes. The only areas that show increasing slightly household sizes are all located within the former base, in the upland locations of Montana Drive and in proximity on both sides of Carolina Avenue.

The areas that show a growing household size trend do not match the areas that still have the largest households. On average, households with most members living in the same dwelling can be found in suburban neighbourhoods close to the boundary of Gadons Brook, north of Hillview Avenue and in the urban outliers around Ned's Pond.

*) Note: some statistics in this and the next section are based on the household income Census dataset, which takes data from the year prior to Census years (i.e. 2020 instead of 2021).

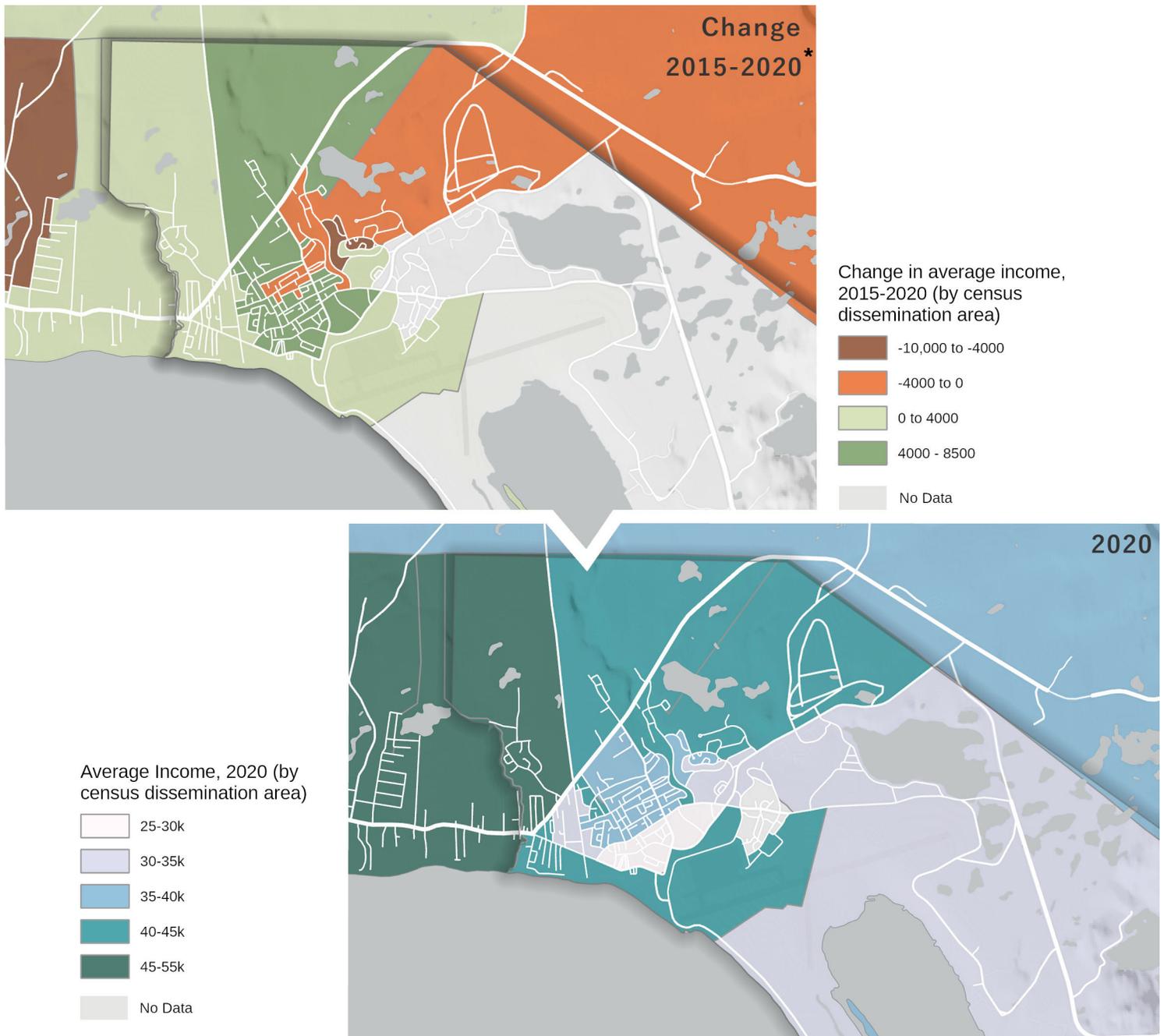


Figure 19: Household income changes over time

1.5.4 Household Incomes

The median income of private households in Stephenville has increased from \$35,109 in 2006 to \$50,000 in 2021. The increases in household income were not uniform across the Town. The biggest beneficiaries of the increase were households north of the downtown between Main Street and St. Clare Avenue, as well as further north in the vicinity of the Queen Street and Hansen Highway intersection. The largest drop in average household incomes occurred in proximity to New Mexico Drive on the former base, which is an area that stood out in terms of population density increases and household size increases on previous maps.

With regard to the current levels income, the highest levels within town boundaries can be found in the subdivision near Gadons Brook in the western end of the Town. Interestingly, the above map also shows how the average household income is clearly higher in the unincorporated area of Kippens, where no municipal servicing is provided but where tax rates are lower.

1.6 Conclusion

Stephenville is facing enormous economic opportunities that may entirely change the Town's trajectory of population decline and ring in a new period of prosperity and growth. A significant influx of immigrants from around the world—that would be required to operate the large-scale industrial plants in the long-term—can also help to solidify the aging population pyramid and expand the base of workforce-aged residents as well as younger families with children.

These workers will all need places to live, and the good news is that Stephenville is uniquely positioned to create a new home for many new families. The legacy of the Ernest Harmon Air Base can be felt throughout the urban fabric of the Town, and Stephenville has a variety of housing forms, a range of services and amenities that goes beyond typical Atlantic Canadian towns in the range of 6,000-7,000 residents.

On top of that, Stephenville also features great recreational opportunities with riverfront trails situated right in the core of the Town, and the great outdoors of western Newfoundland just at the doorstep across the Town boundary. The overall density and compactness in most parts of the town can generally support active transportation and transit, especially if the growth of the Town occurs through infill development.

However, there are also still challenges to be resolved. While there is a decent trail system for recreational purposes, utilitarian active transportation is still in its infancy. Sidewalks are only present on a handful of streets and overall walking connectivity needs to be improved. A more comprehensive walking network will also be crucial to establish a transit system, since riders will need to be able to walk the first and last mile from and to the bus stop.



Figure 20: Trail infrastructure at Ned's Pond



Figure 21: Airport runway with Port Harmon in the background

The analysis of population and household profiles also points to some potential problems. The characteristics of the residential dwelling stock are juxtaposed with the demographic trends. The aging population with decreasing household sizes is likely not well served by the majority of single detached homes. Large homes and properties are difficult to maintain for small households, and the age of the housing stock suggests that many dwellings may not have been built with accessibility in mind. This is particularly true for the multi-unit dwelling at the Harmon Air Base, which would have been all first built prior to 1966.

Over the next 10 to 15 years, Stephenville can expect a wave of older adults looking for downsizing and rental options. These options are currently not in supply, and the Municipal Growth Plan needs to be supportive of creating a wider range of housing options.

The rental market will likely play a larger role in meeting the Town's housing needs in the mid-term future. The fact that 41% of rental households spend more than 30% of their income on housing suggests a present shortage of affordable rental units.

These are existing housing issues which can be inferred from the Census data, and do not account for the upcoming wave of growth to further complicate matters. With immigrant workers arriving from around the world, it is especially the rental market that can be expected to be exposed to enormous pressures and price increases without a proper strategy.

The Municipal Growth Plan will therefore need to prepare the Town of Stephenville to respond to these existing and anticipated challenges in a way that allows to harness the positive effects of the growth and to turn them into a long term advantage for the Town and its residents.



Figure 22: Beaver at Ned's Pond



2. Community Feedback + Plan Principles



2.1 Engagement Summary

The first phase of engagement involved a public presentation and discussion group, opinion survey and stakeholder interviews. Most of these engagement elements were offered online. The goals of the engagement were to integrate community participation into the Municipal Growth Plan by gathering input that will help to answer questions and inform decision making, as well as to inform community members about the process.

Survey Results

An online survey was conducted with local residents in March-April 2023 with 66 residents submitting responses.

ABOUT LIVING IN STEPHENVILLE

Respondents to the survey highlighted easy access to nature and recreational opportunities such as trails and parks as the best parts of living in Stephenville. Respondents also felt that family and friends, and long-standing connections to the area played a positive role in their experience of the town. Over one third of respondents expressed that economic issues such as a lack of employment opportunities and businesses present a challenge to living in Stephenville.



Figure 23: The Fossil Forest Footpath along Blanche Brook.

Access to healthcare and social services is also a challenge to many. About three quarters of respondents stated that they plan to stay in town for the foreseeable future. Those who plan to stay in Stephenville consistently cite family connections, homeownership or retirement as their reason to remain. The other quarter of respondents feel that there are better employment opportunities elsewhere.

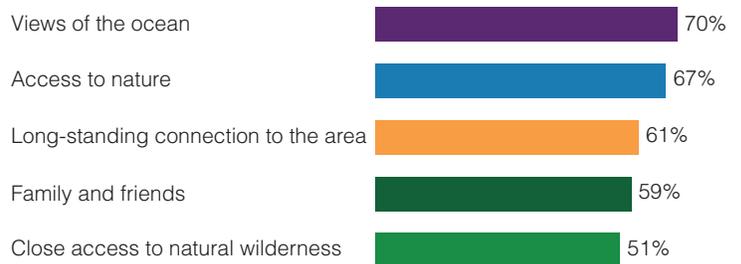


Figure 24: Top 5 about living in Stephenville according to respondents

HOUSING SITUATION

Residents consistently expressed that the availability and affordability of housing present a challenge, with a lack of rental options singled out as a particular problem. Most respondents felt that finding housing was at least somewhat difficult, with over a third feeling that there is a shortage of housing options. None of the respondents felt that finding housing was very easy. Both owners and renters stated that

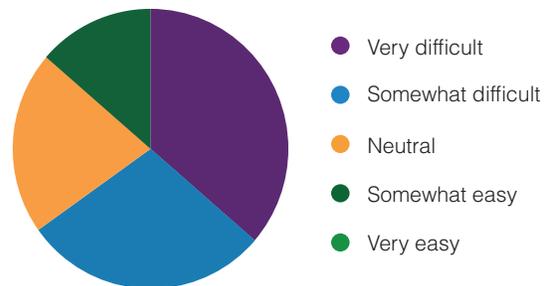


Figure 25: Community perceptions on the topic of housing in Stephenville



Figure 26: New low-density housing subdivision near the hospital.

their housing were in need of major maintenance or repair, and some homeowners stated that they have difficulty paying their monthly mortgage payments or property taxes.

While residents overall prefer single detached homes or duplexes, they strongly supported increasing housing diversity and affordability by renovating existing apartments or building new apartments. Residents were also in favour of both creating new neighbourhoods as well as infill development. Options such as building apartment units above downtown shops, tiny homes, and mobile homes had some support but were less popular overall.

While a clear majority of respondents felt that they could comfortably access the amenities needed for daily life (grocery stores, corner stores, etc.) by walking or using active transportation, many pointed out the lack of pedestrian infrastructure like sidewalks and crosswalks, as well as cycling infrastructure like bike lanes and bike parking. Some also pointed out that winter conditions made walking difficult.

Most respondents envision Stephenville as a more thriving area, with better housing affordability and availability, more businesses such as shops and restaurants and more recreational opportunities. Respondents expressed the

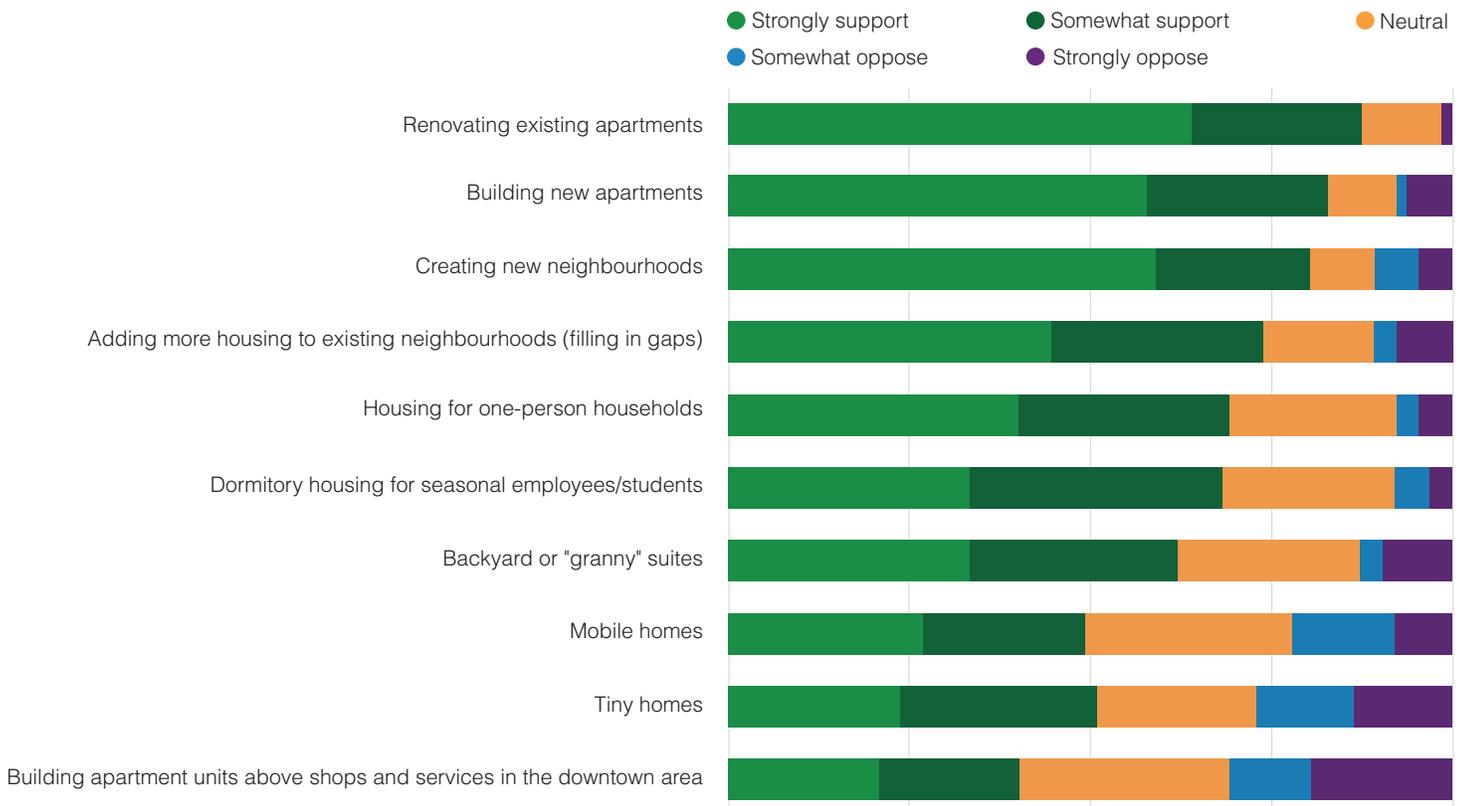


Figure 27: Support for different types of housing development

need to make the town more attractive to younger people and families, for example by improving childcare availability. Many highlighted that they wanted to see infrastructure improvements such as better maintained roads and crosswalks, and a cleaner town overall. Some respondents want to see more transparency and communication from the local government on development projects.

Public Discussion

In general, feedback received after the presentation suggests that residents are in favour of developing complete communities, with an emphasis on walkability and liveability, diverse residents, and mixed-income neighbourhoods. Green spaces and more recreational facilities such as tennis courts are desired. Residents are not in favour of concentric outward expansion and prefer growth with a focus on quality of life. Attendees of the public presentation were supportive of co-housing and co-op living arrangements as described in the presentation, especially the sustainability benefits and amenities that these arrangements provide for seniors.

Seniors' housing is preferred in a more tranquil location such as Area 13 or 14, with transit connection to downtown. Clear separation of industrial and residential areas is also preferred. Attendees suggested that with growth, improvements are needed to healthcare and security. Support is also desired for businesses to help with retention and expansion, and co-working spaces were suggested to support start-ups and retain remote workers.

Stakeholder Interviews

A series of seven interviews were conducted in May and June 2023 with stakeholders representing a number of different interests in Stephenville. Some representatives from local organizations had a positive outlook on Stephenville's resilience and recent growth and improvements to recreation. Examples include improvements to trails, a new museum,

more immigrants, and growth in aquaculture and prospecting sectors. They believe that encouraging tourism will bring money into the community, and that Stephenville has a lot of potential in this area. While some stakeholders felt that Stephenville has experienced cultural growth, others felt that local and Indigenous cultures needed to be highlighted much more, since a lot of commemoration in the Town currently revolves around the former US air force base.

INFRASTRUCTURE

Some stakeholders envision a "hypergrowth model" and highlight the need for rapid expansion of infrastructure (such as the airport, fire hall, and public transit), housing, and businesses, even suggesting the establishment of tourism and entertainment districts. Some noted that further improvements are needed to Main Street and to recreational facilities such as the stadium, recreational centre (YMCA) and the pool.

We heard from some stakeholders that greater investment from the Town in amenities and public spaces are desired. Improving the quality of life for the residents who currently live in the community was said to pay off down the road and promote not only the attraction of new residents, but also the retention of existing ones. A central services building was suggested, and some stakeholders also highlighted the need for community and professional event spaces.

BUSINESS AND INDUSTRIAL GROWTH

Various stakeholders pointed to a history of boom-bust cycles in the town, resulting in strong feelings of uncertainty around economic development and skepticism. This uncertainty has created hesitance for existing businesses to expand and for new businesses to start up. Some stakeholders suggested that the Town should focus on small-scale growth and investment in business expansion and retention. We heard that better communication is needed between organizations

and the Town, to improve transparency, build partnerships and encourage business development and expansion in the community. Some stakeholders felt that this improved communication would positively impact the business climate in Stephenville and improve trust in municipal staff and elected officials. The need for open and consistent communication about large-scale economic development projects in the area was repeatedly stressed by residents and stakeholders.

From an indigenous perspective, feedback also involved a general concern about uncertainties associated with growth triggered by industrial projects. Historically, resource-based economic projects have often created negative spin-off effects on indigenous populations across Canada. Industrial work camps are usually staffed by predominantly male workers, which can introduce social problems to communities and create risks for local women, especially those with indigenous background. Substance use disorders are a common occurrence in work camps, and it is felt that there are no adequate social services in Stephenville to mitigate potential impacts on the community. Consequently, there was a call to anticipate and counteract these effects ahead of time and to ensure a strong social safety net.

COMMUNITY DEVELOPMENT

Some stakeholders also pointed out the need for better commercial and industrial zoning and land designations, as they believe the current designations do not allow for efficient growth.

It was pointed out that Stephenville is in a unique position as the Town owns large tracts of land that can be made available for development. Environmental protection and riparian buffers are also seen as important, especially the impacts of potential industrial developments on current resources such as fishing, traditional hunting, harvesting areas, and water quality.

Stakeholders highlighted the need for retention and immigration of younger people and educated professionals, to counter stagnation by creating jobs and bringing disposable income into the community. They pointed out that the College of the North Atlantic brings in students and provides employment, and should receive more support to improve quality of life for students and retain potential entrepreneurs.



Figure 28: The Town Square on Main Street is one of several recent infrastructure improvements in Downtown.

HOUSING NEEDS

We heard that housing is needed across the spectrum to support a wide variety of household sizes and needs. The Town is already experiencing a shortage of affordable housing, and the current housing stock consisting of large single family homes often does not meet the needs of smaller households looking for affordable options.

In May of 2023 Newfoundland Labrador and Housing had a waitlist of 78 persons for the 173 rental units which this government agency operates in Stephenville. The waitlist numbers were usually far lower in the past, indicating that housing supply challenges have been recently compounding.

Accessibility issues are also a concern. Stakeholders stressed that consideration needs to be given to incorporating more affordable housing into new residential development as the Town grows. Some stakeholders pointed out that investment is needed to refurbish many buildings in the town, and that the housing stock is generally poorly maintained. One stakeholder suggested that incentive programs for housing maintenance could assist property owners with upkeep and protect existing housing stock.

Other housing needs mentioned included downsizing options for seniors, single-detached homes for new workers with families, housing for students, and rental units to accommodate a range of household compositions.

In addition to the types of housing available, some stakeholders stressed that access to amenities such as stores, schools and childcare is also an important factor. We heard that some residents are unsure of whether they should stay in Stephenville or leave, given delays with large projects and the uncertainty they feel about future prospects in the community.

TRANSPORTATION

One stakeholder pointed out the need for better road maintenance, and the potential negative impacts of increased heavy commercial vehicle traffic on local roads as a result of industrial growth. Some stakeholders did not feel that the area has the critical mass to support public transportation, and pointed out that most residents own a car. However, others feel that transit service is needed for sustainable growth, and will allow the distribution of growth to neighbouring communities such as Stephenville Crossing as well.

2.2 Guiding Principles

Introduction

This chapter forms a synopsis of previous background research and public engagement. Research of data available for Stephenville has highlighted many different aspects of the community's current demographic, economic, social and infrastructural characteristics. The engagement phase has enriched these hard facts with context, stories, anecdotes and realities of everyday life and business in Stephenville.

Before all this analysis is translated into strategies and solutions, it is helpful to synthesize these insights into guiding principles. This exercise of pooling all data and conversations resulted in five guiding themes for the Town of Stephenville Municipal Growth Plan.

There is a good amount of overlap between these five principles. They reinforce each other, and likely none of these principles could be accomplished in isolation without consideration of the others. To plan for sustainable prosperity in Stephenville, the Town is advised to embrace all these principles in unison.

Stephenville is on the verge of major growth spurred on by major industrial projects. This growth will create both challenges and opportunities that will affect all areas of life in the Town. Summarizing the insights from the background analysis and engagement summary, it appears that Stephenville is well placed to attract and retain population, especially when compared with the surrounding region. However, a prudent growth strategy will also need to focus on improvements to quality of life and economic development.

If Stephenville is an attractive, convenient and affordable place to live for a diverse population, residents will become increasingly able to support the growth of services and businesses that will be needed to meet the demands of a growing population. As newcomers arrive, they will depend

on existing services provided by the locals that already live in Stephenville. An improvement of the current residents' quality of life will therefore make the anticipated growth in Stephenville more sustainable, and both newcomers and current residents will equally benefit from the same measures.

The five principles of the Municipal Growth Plan are:

- + Embrace Sustainable Growth
- + Diversify Housing Options
- + Vitalize Core and Services
- + Make Use of Natural Assets
- + Grow the Economy in a Spirit of Cooperation



2.2.1 Embrace Sustainable Growth

When shaping strategies for Towns, it is often advisable to focus on existing strengths that can be further built upon. A key strength of the Town of Stephenville is that there are many dense and compact areas of the Town with a tight grid of streets, especially Downtown and adjacent residential areas, that can support active transportation and transit. In this sense, Stephenville is in a much better position than many other Atlantic Canadian towns of similar size.

Apart from the individual benefits for each resident that result from being closely located to various amenities, compact growth also benefits the fiscal health of a Town as a whole. By locating growth on or in proximity to existing municipal services, the Town can avoid unnecessary water and sewer line extensions which would create indefinite maintenance obligations. Today's decisions about urban growth will impact municipal budgets for future generations.

Extensions of municipal infrastructure beyond the currently serviced area are among the most impactful long-term decisions and need very careful consideration. Due to the magnitude of growth pressures to be expected in Stephenville, it is possible that 'greenfield' growth beyond the current urban footprint cannot be prevented in every case. However, when these urban extension occur, they should feature a 'green community' model which embraces core values of sustainable growth from the very beginning, i.e. co-location of residences and amenities, responsible use of resources and design for walkability.

Walkable communities that provide housing close to employment and everyday amenities make it easier and more affordable for residents to get where they need to go. Persons can be excluded from certain amenities simply because they cannot afford to drive a car to reach them. Walkable communities are better for people who cannot drive or people who choose not to own a vehicle.

Overall, good utilization of existing serviced lands and compact outward growth are set as core tenets for future growth. In order for that vision to come to fruition, pedestrian infrastructure will need to be improved throughout the Town and included in new subdivision designs from the very beginning.

VISION ELEMENTS:

- + Prioritize the utilization of existing infrastructure to its fullest practical capacity over service extensions.
- + Where greenfield extensions are needed, build those based on a complete community model.
- + Consider long-term fiscal and economic impacts of service extensions.
- + Remove barriers to compact growth in the Development Regulations.
- + Ensure that new development serves the most urgent needs of the community.



2.2.2 Diversify Housing Options

Shortage of housing units is evident from both data analysis and the public engagement. The demand for housing units is likely to keep increasing in the future and will be especially spurred on by the development of large industrial projects in the region. Large amounts of housing will be needed to support the construction and operation of new industrial facilities. Additionally, to see local businesses and residents thrive, creation of affordable dwellings in central areas is vital and therefore one of the key principles of this strategy. The Town currently has a restrictive system around the development of mixed-use and multi-unit buildings. This Growth Plan will explore policy options for infill developments and densification of residential neighbourhoods.

Seniors make up a significant portion of the Town's population, but the residential dwelling stock is largely composed of single detached homes which are not well suited to an aging population with smaller households. The aging population will require access to affordable housing options that suit needs in terms of dwelling sizes and amenities. This Growth Plan will thus prioritize the availability of downsizing and rental options that are not currently in supply. Seniors also benefit from co-housing and co-op style residential developments, and the creation of complete communities with easily accessible services and amenities.

VISION ELEMENTS:

- + Promote access to affordable and adequate housing options for all stages of life.
- + Release public lands for housing development, using conditions of sale and covenants that maximize housing provision and servicing efficiency.
- + Plan for the housing needs of an aging population, giving long-time residents of Stephenville options to age in their community.
- + Create framework conditions suitable for densification of residential neighbourhoods.
- + Support options to downsize from single detached dwellings. This will also free up larger dwellings for larger households or commercial uses.



2.2.3 Vitalize Core and Services

Stephenville residents want to see the area thrive, with more options for dining and shopping, and more recreational opportunities, especially indoors during the winter. More options will also help make the Town more attractive and inviting to newcomers and families arriving in Stephenville. These services and amenities will also help the Town attract and retain younger people and college graduates. Community building requires spaces where community life can flourish year-round, in the summertime as well as during the winter.

A central hub for services and amenities is also beneficial to seniors as it helps make it easier for them to access all their needs easily. As the regional service provider, Stephenville can also attract residents from neighbouring communities to spend their time in the Town by providing a core that is inviting and easy to navigate.

There are two locations in Stephenville where such a mix of amenities already exists and where it can be further built upon. The primary centre of commercial offerings is the Downtown Main Street area. There is already a critical mass of food and retail options within this part of the Town, and there is an active Business Improvement Association which has started with transformative projects such as the installation of a central square. It is important to continue with streetscape improvements and urban design measures based on the 2018 Downtown Stephenville Master Plan to make the spaces more attractive.

What is equally important is to locate more population within and in proximity of the Downtown to help businesses settle and grow. The benefits of more population downtown will go both ways: both seniors and newcomers will enjoy living close to amenities in a walkable environment.

Another area offering a cluster of amenities is situated between Town Hall and the airport terminal building. The area contains several restaurants, two hotels the Arts and Culture Centre and a recreational campus including a swimming pool, curling club, tennis courts and other sports facilities. With an appropriate vitalization plan, this area has potential to become a secondary downtown and to serve the residents living within the area of the former Harmon Airbase.

If greenfield expansions are required for some of the high-growth scenarios under this plan, a third central amenity area may need to be designed in a suitable location for residents of these future neighbourhoods.

VISION ELEMENTS:

- + Shape services and amenities in proximity of residents, and settle residents in proximity of services.
- + Create inviting downtown or neighbourhood centre environments that entice residents to socialize, spend time and frequent local businesses.
- + Make it easier for residents to reach the central areas of the Town.
- + Reduce parking requirements in central areas and/or designate centralized, public parking spaces.



2.2.4 Make Use of Natural Assets

A strength of Stephenville that was mentioned repeatedly during the engagement was the vast natural beauty that surrounds the Town, and the potential for tourism as a backbone of local economy.

Tourism in Stephenville could provide sustainable and stable economic growth. The natural beauty of the area should also be utilized to attract and retain residents, and to offer an improved quality of life to all residents. This could occur through better integration of active transportation infrastructure with the recreational trail network.

Trails and walking options can be improved to allow visitors, newcomers and existing residents to better enjoy the natural beauty that Stephenville has to offer. New developments should include more pedestrian infrastructure and connectivity with park areas as a standard.

Another aspect of a prudent growth strategy is environmental conservation. Development needs to occur in a way that is respectful of Stephenville's natural assets, in order to maintain the Town's advantages over other places to live.

VISION ELEMENTS:

- + Preserve and protect natural features of Stephenville to maintain its ecology and natural beauty.
- + Ensure that natural features can be accessed by the general public.
- + Build amenities that work well for locals and can also be co-utilized by tourists.
- + Formalize trails with improved wayfinding and signage.
- + Create connections to water for recreational purposes.



2.2.5 Grow the Economy in a Spirit of Cooperation

The development of large industrial projects is expected to create a lot of economic opportunity for Stephenville. For residents of Stephenville to fully benefit from this growth, it is equally important that this economic growth creates positive spin-off effects for as many local businesses as possible. The Town should therefore strive to create an environment that is conducive to business start-ups and expansions. While large industrial developments will create jobs, the small and medium business environment will help to ensure long-term economic stability.

Urban planning can play a role in creating vibrant environment for small and medium enterprises. For modern start-up in knowledge-based industries, it becomes increasingly important to offer attractive streetscapes and a wide range of community amenities. Younger generations of workers tend to place greater weight on the location of work places.

Part of this strategy also needs to entail the removal of current barriers to growth, such as the availability and affordability of housing for workers. When workers cannot find housing or basic amenities such as childcare in the community, they are less likely to contribute to the local work force. Availability of transit services is also an important enabler for workers who cannot or choose not to drive.

By promoting long-term perspectives that are not dependent on external factors, the Town can help encourage businesses and build confidence in the Town's economic prospects. More information and communication about large developments can also help promote business, as can partnerships with existing local organizations to leverage their full potential in encouraging business growth.

More cooperation across various organizations will also help the Town to pursue its sustainable growth targets. Many activities which will improve the business environment—such as the provision of affordable housing or important social services—can be delivered by non-profit businesses or similar organizations. It is important to maintain a good dialogue with non-profits to recognize opportunities for cooperation.

VISION ELEMENTS:

- + Create an urban environment that attracts young workforce.
- + Make it easier for local businesses to grow, find workers by introducing or improving services.
- + Increase co-operation between local non-profits and municipality.

3. Growth Scenarios



3.1 Approach

BASIC ASSUMPTIONS FOR GROWTH

When the anticipated industrial projects arrive in Stephenville and trigger a population boom, the Town needs to be ready and know where to accommodate the growing population. In this document, population growth will be planned for three scenarios with the following assumptions:

- + **Model A:** an addition of 2,000 residents (total target population of approx. 8,500);
- + **Model B:** an addition of 4,500 residents (total target population of approx. 11,000); and,
- + **Model C:** an addition of 12,000 residents (i.e. total target population of approx. 18,500).

The main tools at the Town's disposal to guide and direct that growth are:

- + The Development Regulations under the Municipal Plan; and,
- + Disposal of public property for the purpose of development.

Large tracts of land within Town boundaries are held by either the Town or the Province. These land mostly encompass 'greenfield' lands at the urban fringe, but some public land holdings are also located in the urban core and offer infill potential.

The Town could designate such areas for urban growth and either directly market town-owned property, or ask the Province for Crown Lands to be released. Apart from

the Town's development regulations, desired types of development can also be guided through conditions posted in requests for proposals and sales agreements.

MODELLING GROWTH WITH 'SAMPLE BLOCKS'

To be useful for analysis and discussion, growth scenarios need to satisfy two basic requirements: first they need to show a realistic development vision for neighbourhood patterns which could conceivably be built in the near future, and second, the growth of the Town must be modelled in a way that allows for analysis of various metrics and characteristics.

In order to achieve both of these requirements, the approach to scenario planning in this document involves the following steps: across Stephenville, existing areas that are typical for a certain type of development are identified.

Most of these areas are bound by streets from all sides, which means that they align with Dissemination Blocks as defined by Statistics Canada, and have assigned population and dwelling values from the Census 2021 data. Additional data on property assessment values is provided by the Town of Stephenville.

CHOICE OF 'SAMPLE BLOCKS'

The chosen composition of blocks reflects a typical residential or commercial environment in each of the examples. Six of such sample blocks (5 residential, 1 mixed-use) were identified in Stephenville. These sample blocks will be colour-coded with orange markers on the following pages.

Since this Municipal Growth Plan aims to show how innovative urban development and housing forms can support the creation of sustainable communities while encouraging investment and economic growth, it is helpful to include some examples that go beyond development types currently found in Stephenville. The demographic analysis of the background report has shown that the current building stock does not fully meet the needs of Town's aging population. Consequently, it is important to look for other types of housing solutions as an inspiration.

By providing some development examples from other locations, the document will exhibit how Stephenville can position itself to meet the housing needs of current and future residents in a way that supports complete community development. The sample block examples from other Atlantic Canadian communities are colour-coded with blue markers.

EXISTING BLOCKS

Figure 29: Markers for sample blocks identified in Stephenville

POTENTIAL BLOCKS

Figure 30: Markers for sample blocks in other Atlantic communities



Figure 31: Panoramic view of Stephenville capturing various forms of development.

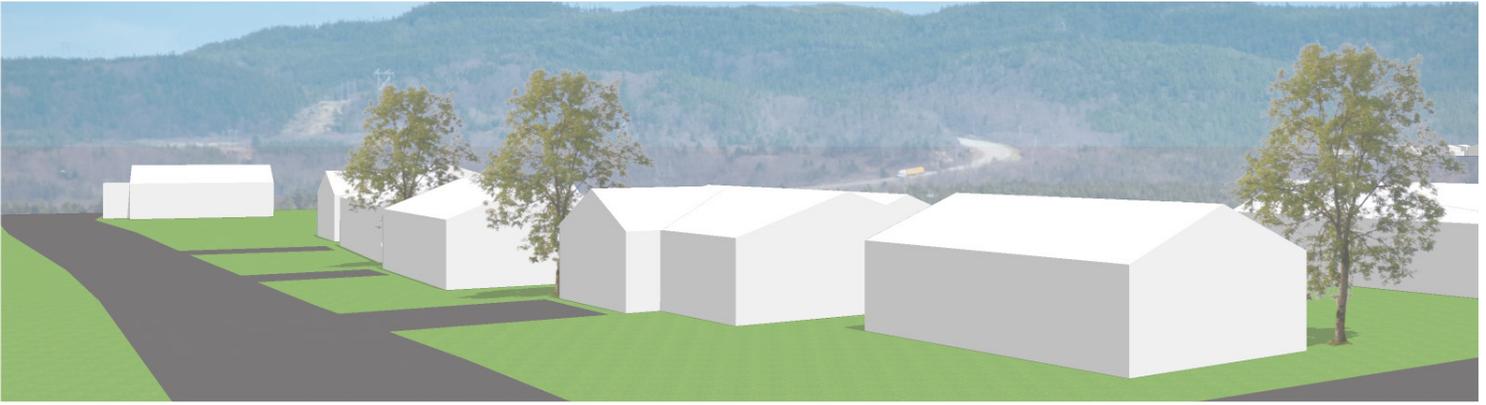
3.2 Stephenville Street Block Profiles



Figure 32: Commercial real estate forming a street block on Main Street

Some of the growth in Stephenville will likely be similar to development that already exists. This has to do with established market preferences, builders' acquaintance with certain building styles and the economy of scale associated therewith. Consequently, a good starting point to model future development patterns is by capturing typical existing development types. The following urban structure categories of urban fabric were gathered for this sample block collection and will be available for growth scenarios:

- + Dense low-rise blocks
- + Suburban blocks
- + Townhouse blocks
- + Apartment building blocks
- + Tiny home blocks
- + Mid-density mixed-use blocks



Residential

COMMON: MID-DENSITY LOW RISE (CR1)

Block Profile

Located near downtown, this block is composed of single family homes. Lots are relatively small compared to outer suburbs, and population densities of the area match those of neighbourhoods in larger towns and cities.

There are no garages, as most homes have adjacent parking pads. While low-rise in nature, these types of residential areas tend to accumulate large numbers of residents on a relatively small footprint.

Property values are low in this area, which can mostly be attributed to the age of buildings prevalent in this part of the Town. If new buildings were constructed in this street layout, the assessment values would be considerably higher.

Population

36

Dwelling Units

17

Non-Commercial Assessment

\$1,830,200

Commercial Assessment

N/A

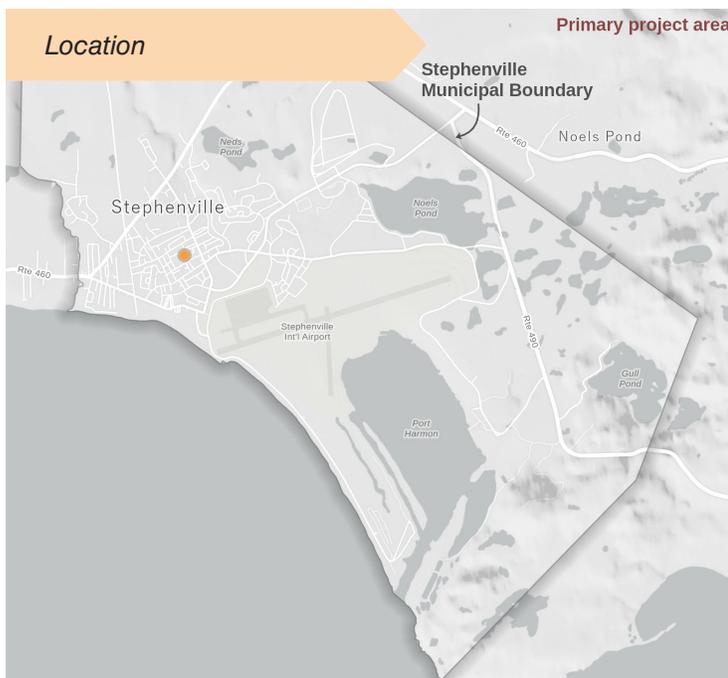
Average Lot Coverage

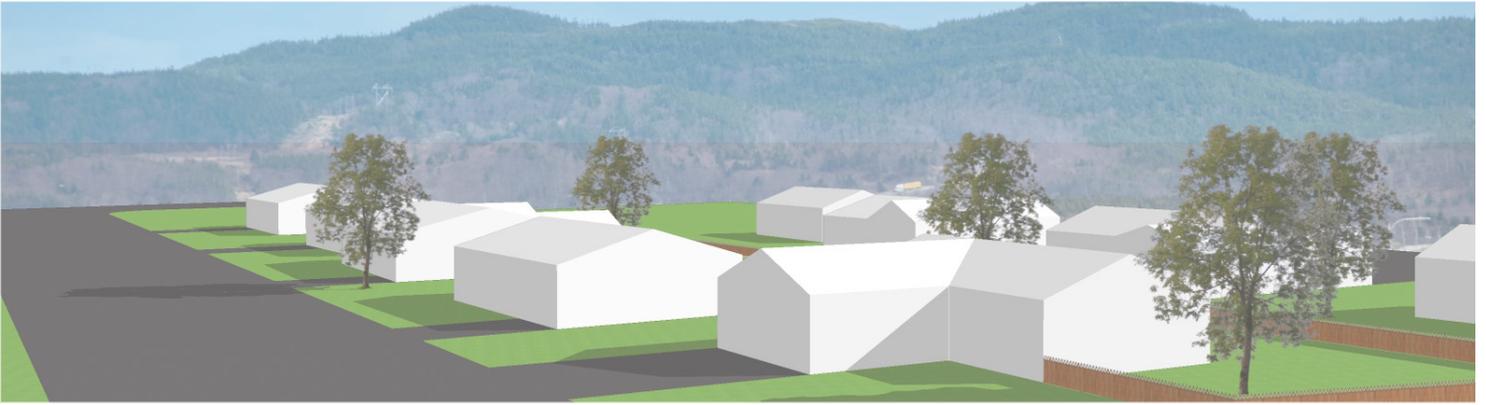
23%

Population Density

20 people / acre

Location





Residential

COMMON: SUBURBAN (CR2)

Block Profile

This block is defined by single family homes on relatively large lots. Most homes feature attached garages. This form of development is close to typical suburbs found around cities all over Canada. The population density of this type development is at about the minimum threshold to support basic forms of transit service.

Note: For accuracy of calculations, three undeveloped lots in this block were not included in the numbers of the block profile.

Population

37

Dwelling Units

12

Non-Commercial Assessment

\$5,159,900

Commercial Assessment

N/A

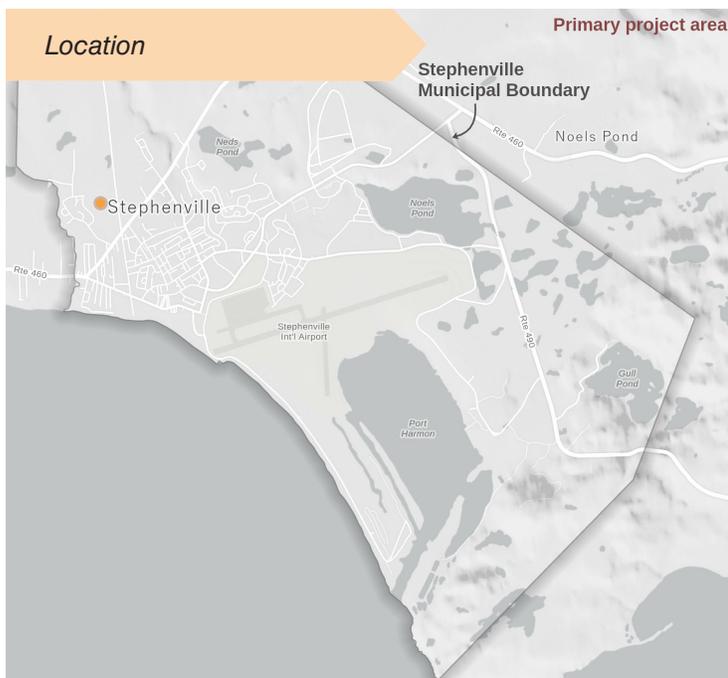
Lot Coverage

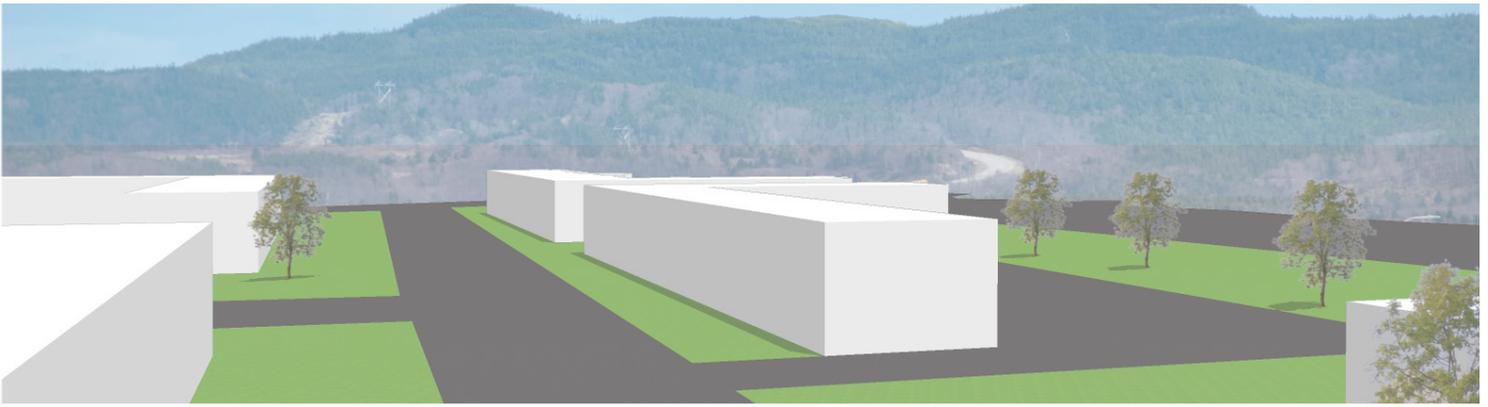
19%

Population Density

11 people / acre

Location





Residential

COMMON: APARTMENTS (CR3)

Block Profile

Dwellings in this block are comprised of 2 storey apartment buildings surrounded by a relatively large amount of green space. The area contains parking lots to accommodate residents' vehicles and some green space, which could potentially be used for recreational amenities for residents.

Even though large stretches of land are left undeveloped in this block, the residential density equals the traditional neighbourhood blocks to be found north of Main Street.

Population

126

Dwelling Units

116

Non-Commercial Assessment

\$4,889,400

Commercial Assessment

N/A

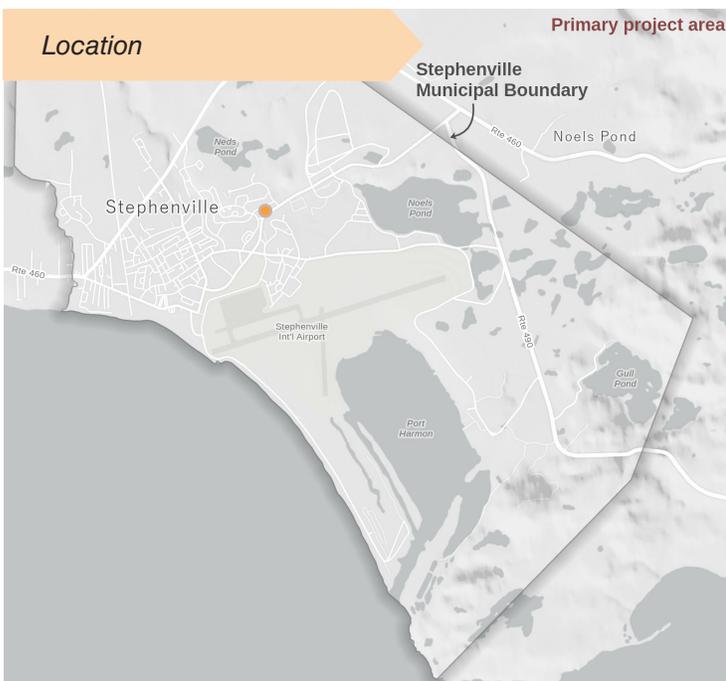
Lot coverage

17%

Population Density

19 people / acre

Location





Residential

COMMON: TINY HOMES (CR4)

Block Profile

This block features tiny home lots created through subdivision. Tiny homes offer lower-cost housing options that are more energy efficient and easier to maintain. In this example, the tiny homes are fixed-base, allowing for the inclusion of basements if desired.

If this type of development was to be extended to an entire street block, it would result in a development form that is among the most efficient in all of Stephenville. The population densities reach values comparable to downtowns of large cities, the servicing efficiency for the city is high while the individual investment by owners is very low (see assessment values).

Population

24

Dwelling Units

12

Non-Commercial Assessment

\$849,600

Commercial Assessment

N/A

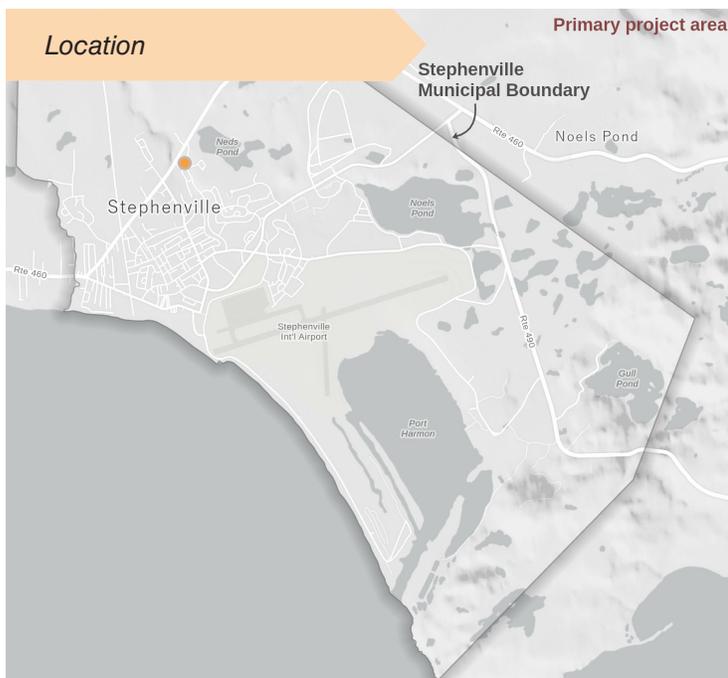
Lot Coverage

22%

Population Density

34 people / acre

Location



3.3 Exemplary Atlantic Canadian Block Profiles



Figure 33: Recent mid-rise, mixed-use development in Charlottetown, PEI.

A total of eight development blocks from across Atlantic Canada were chosen to include useful examples of urban development in the growth scenarios. The sample includes five entirely residential blocks, one mixed-use example and two types of commercial development. In order to portray real estate that could realistically be developed in Stephenville, the examples were mostly taken from small Atlantic Canadian

Towns such as Stellarton (population 4,007), Antigonish (population: 4,656), Bridgewater (population 8,790), New Glasgow (population 9,471), Truro (population: 12,954) and Charlottetown (population: 38,809). Only one example of a commercial building was identified in a larger city environment. All of the selected examples have been chosen as potential role models for development in Stephenville, and are deemed to fit the intent of the 'Guiding Principles' of this document.



Residential

INNOVATIVE: SMALL SCALE APARTMENTS / CONDOS (IR1)

Block Profile

This three-storey apartment building example from Antigonish consists of 15 two-bedroom apartments. Parking is provided at the rear of the building, with one space for each unit.

One property of this type requires about 1,930 m² of lot area, with just under a quarter of that space being allocated to the actual building footprint. If four to six of such properties formed one street block, it would be the densest form of development in the Town. However, a well-designed apartment form as this one — containing visual articulation and three stories — leaves a relatively gentle visual impact on a neighbourhood.

Population

30

Dwelling Units

15

Non-Commercial Assessment

\$1,919,500

Commercial Assessment

N/A

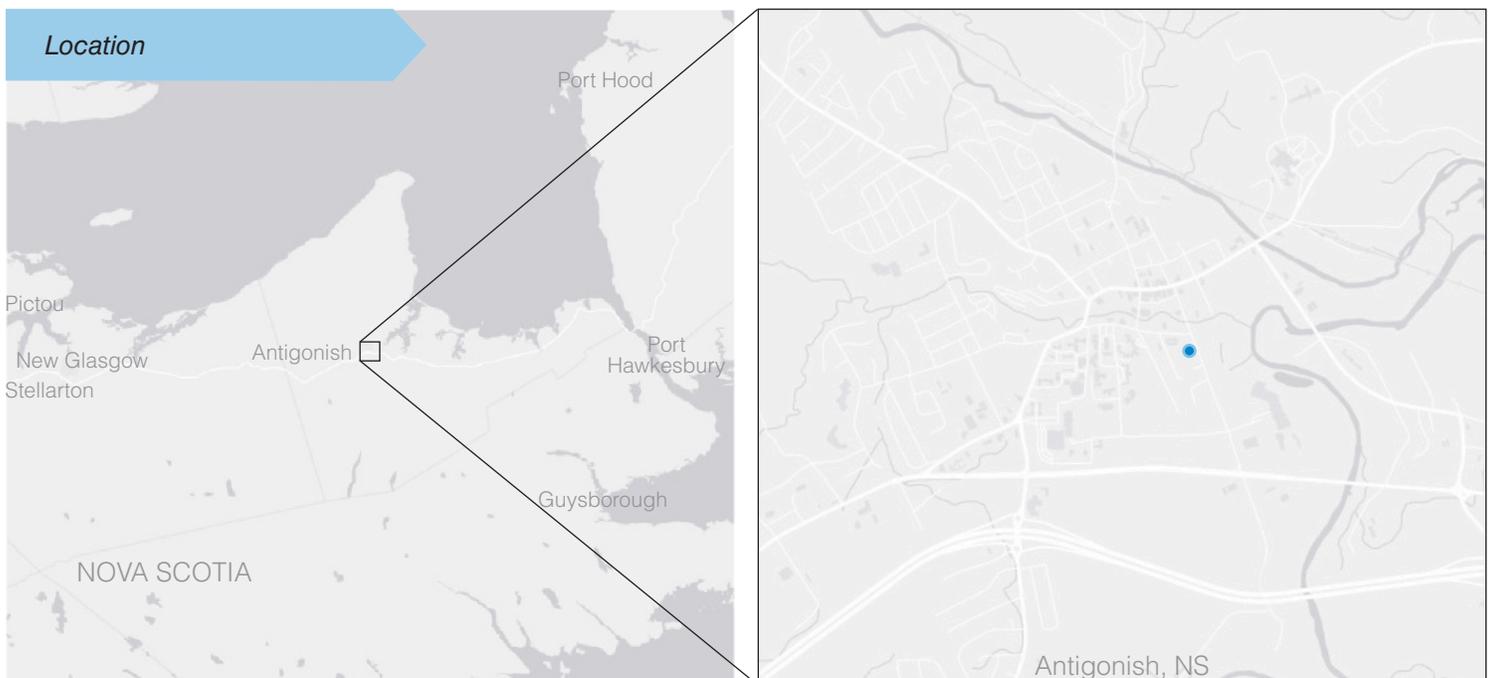
Lot Coverage

23%

Population Density

63 people / acre

Location





Residential

INNOVATIVE: MICRO TOWNHOUSES (IR2)

Block Profile

This townhouse development in New Glasgow consists of 16 three-storey townhouses, clustered in groups of 4 or 6. Each townhouse contains a single dwelling, with a garage on the lowest level. The townhouses are located close to a large commercial area and the town centre.

A full street block of such townhouses was to be developed, its residential density would be close to a block full with Brook Street tiny homes. However, the comparably more resource-heavy type of development creates property values and construction cost similar to apartment buildings.

Population

33

Dwelling Units

16

Non-Commercial Assessment

\$2,010,800

Commercial Assessment

N/A

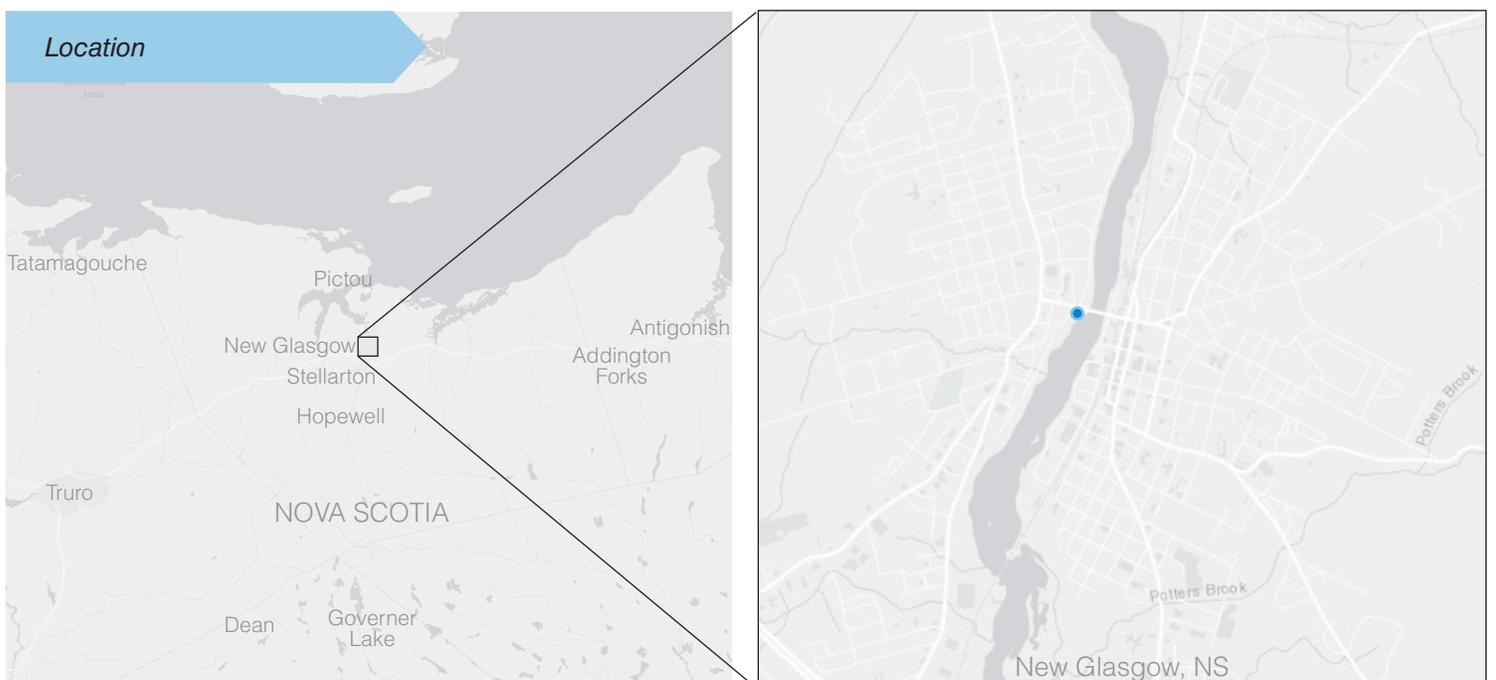
Lot Coverage

25%

Population Density

41 people / acre

Location





Residential

INNOVATIVE: MODERN APARTMENTS / CONDOS (IR4)

Block Profile

This apartment complex in Downtown Truro features a four-storey apartment building containing a total of 35 apartment units.

This form of development is capable of providing housing to more than 200 residents within a hectare of land. A street block featuring this type of development would likely be among the densest forms of new development suitable for Stephenville.

Population

70

Dwelling Units

35

Non-Commercial Assessment

\$5,252,400

Commercial Assessment

N/A

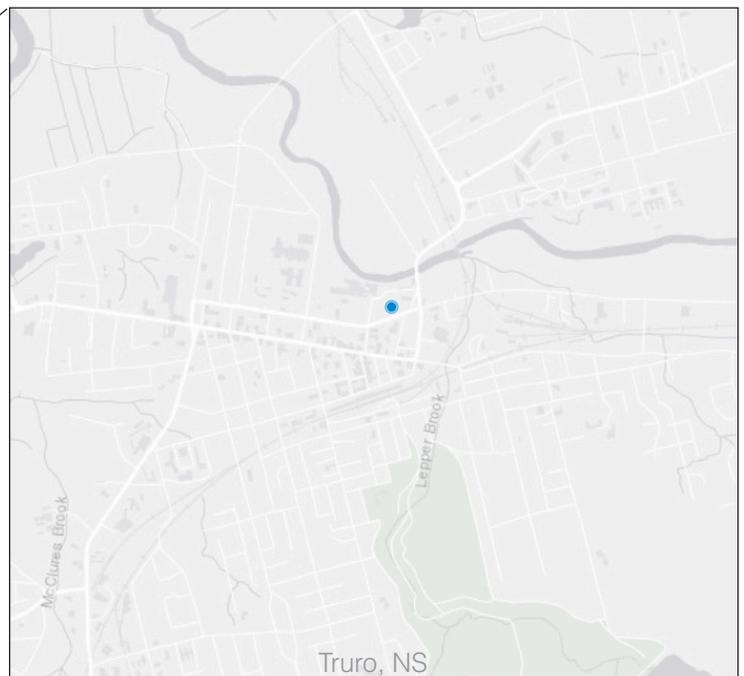
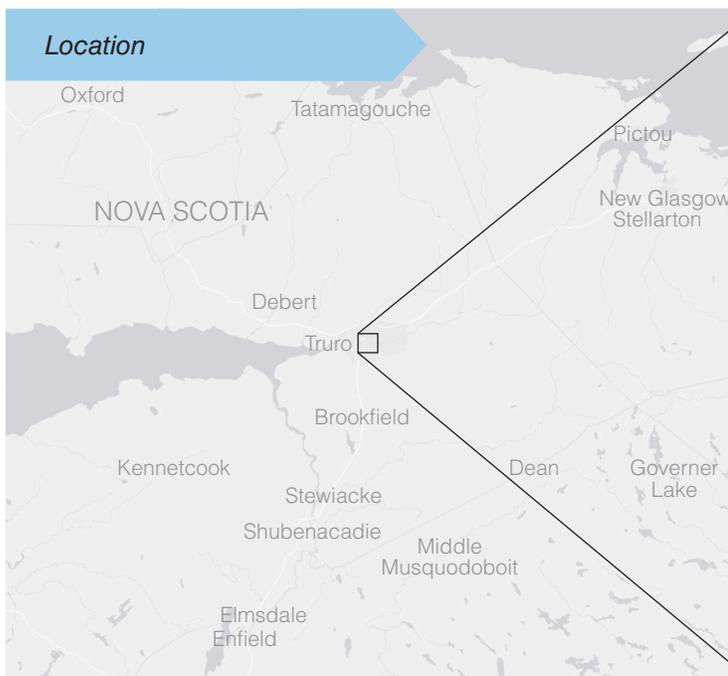
Lot Coverage

34%

Population Density

83 people / acre

Location





Residential

INNOVATIVE: MICRO APARTMENTS (IR3)

Block Profile

This recent apartment development in Charlottetown offers a valuable example of how some level of density and affordability can be offered in low-rise buildings.

This two-storey apartment block contains 11 units, with a parking lot in the rear. This form of development does not require large lots and works well for infill on small properties. Nevertheless, it offers potential to absorb a relative large number of residential units, as compared to the small footprint it covers.

Population

24

Dwelling Units

11

Non-Commercial Assessment

\$761,000

Commercial Assessment

N/A

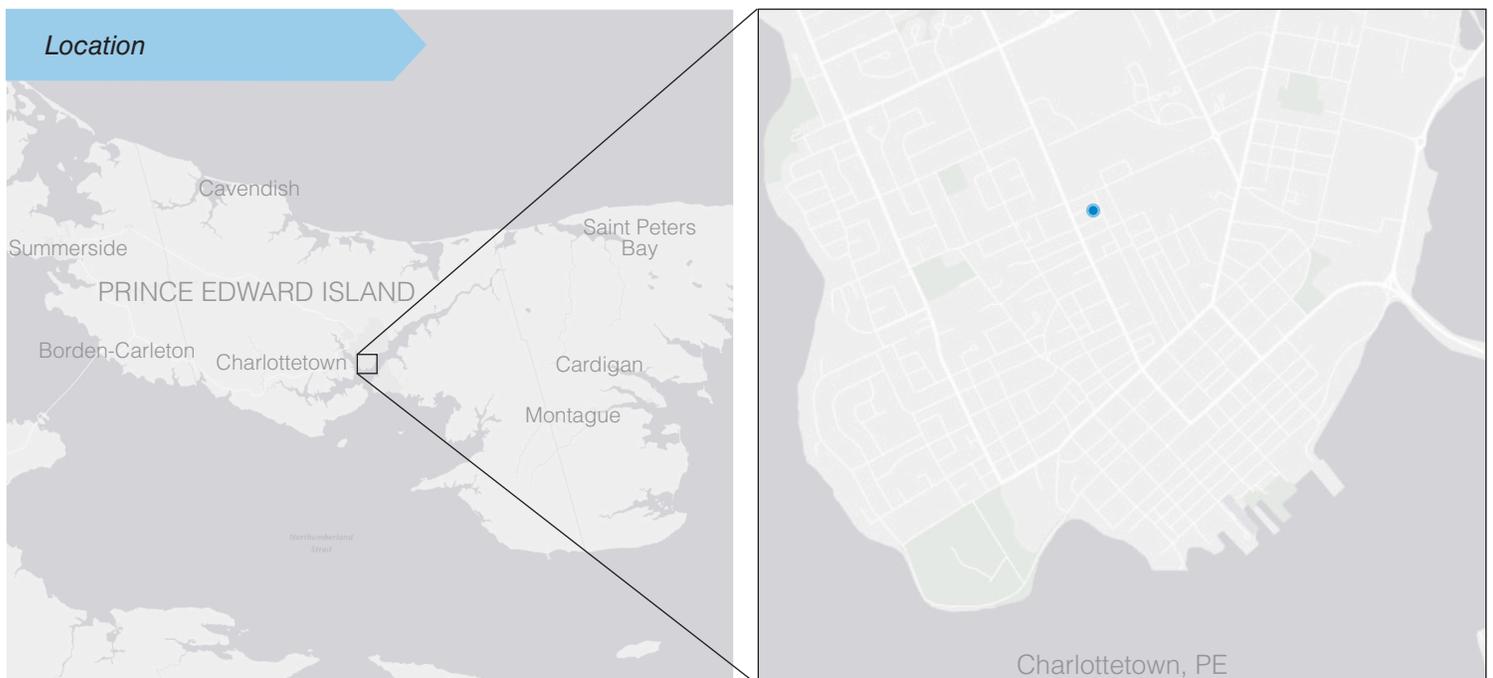
Lot Coverage

30%

Population Density

78 people / acre

Location





Mixed Use

APARTMENTS OVER SHOPS, WITH LOWER DENSITY SIDE STREETS (MX1)

Block Profile

Another example from Charlottetown is this existing street block containing 3-4 storey mixed-use buildings and lower density residential buildings. The combination of one mid-rise buildings and many low-rise buildings on the same block yields high density values.



Population

133

Dwelling Units

65

Non-Commercial Assessment

\$4,687,300

Commercial Assessment

\$924,800

Lot Coverage

36%

Population Density

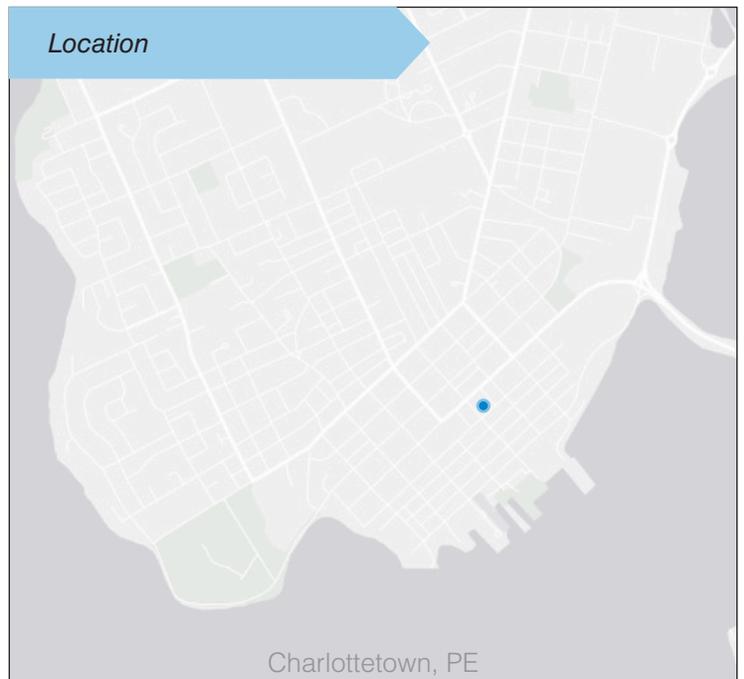
60 people / acre

Block Boundaries



Image credit: Google Maps

Location



Charlottetown, PE



Mixed Use

MAIN STREET DEVELOPMENT (MX2)

Block Profile

This mixed-use building on Antigonish Main Street provides 10 apartments, as well as space for shops and small businesses at the street level. Parking spaces are provided for residents at the rear, while patrons of businesses utilize on-street parking or a public parking lot across the street.

If an entire street block was developed from this building category, it would create a highly walkable area with many residences and commercial offerings in close proximity to each other.

Population

20

Dwelling Units

10

Non-Commercial Assessment

\$1,234,000

Commercial Assessment

\$308,500

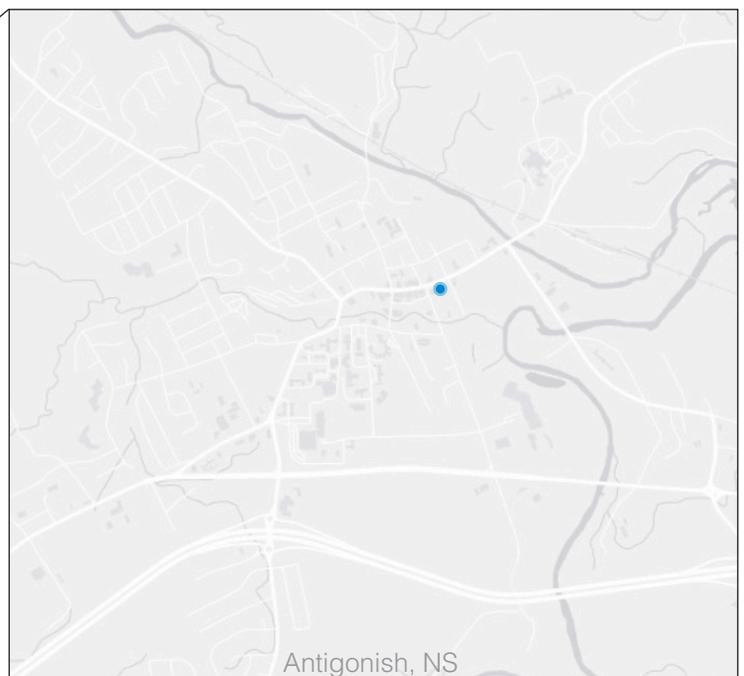
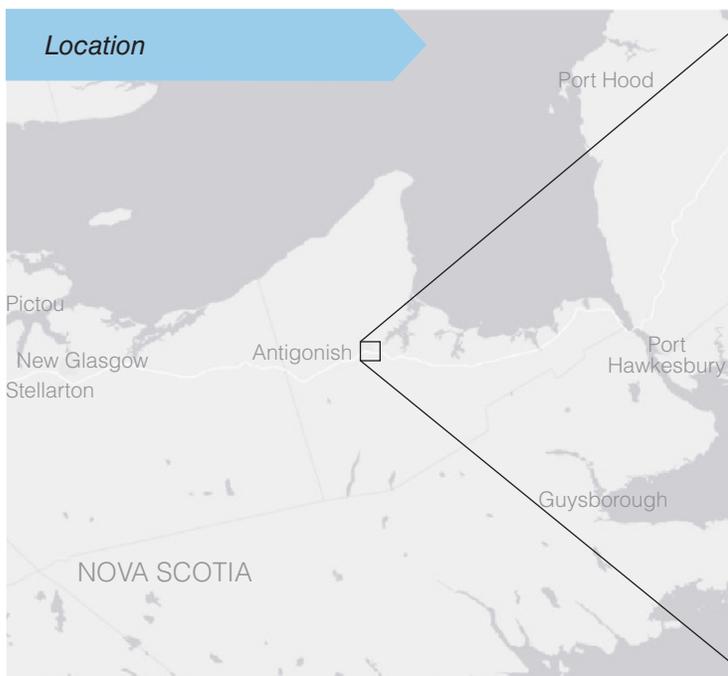
Lot Coverage

42%

Population Density

86 people / acre

Location





Commercial INCUBATOR CAMPUS (INC)

Block Profile

The Town of Stephenville contains vast stretches of land with commercial potential, especially the vacant lands along Carolina Avenue, formerly belonging to the army airfield. This and other areas may be suitable for a high-tech incubator campus, which could look similar to the buildings from this sample block.

This set of two inter-connected two-storey office buildings offers an example for potential incubator or coworking spaces to support entrepreneurs and small business start-ups. This example of buildings originates from Stellarton.

Gross Floor Area

6,840 m²

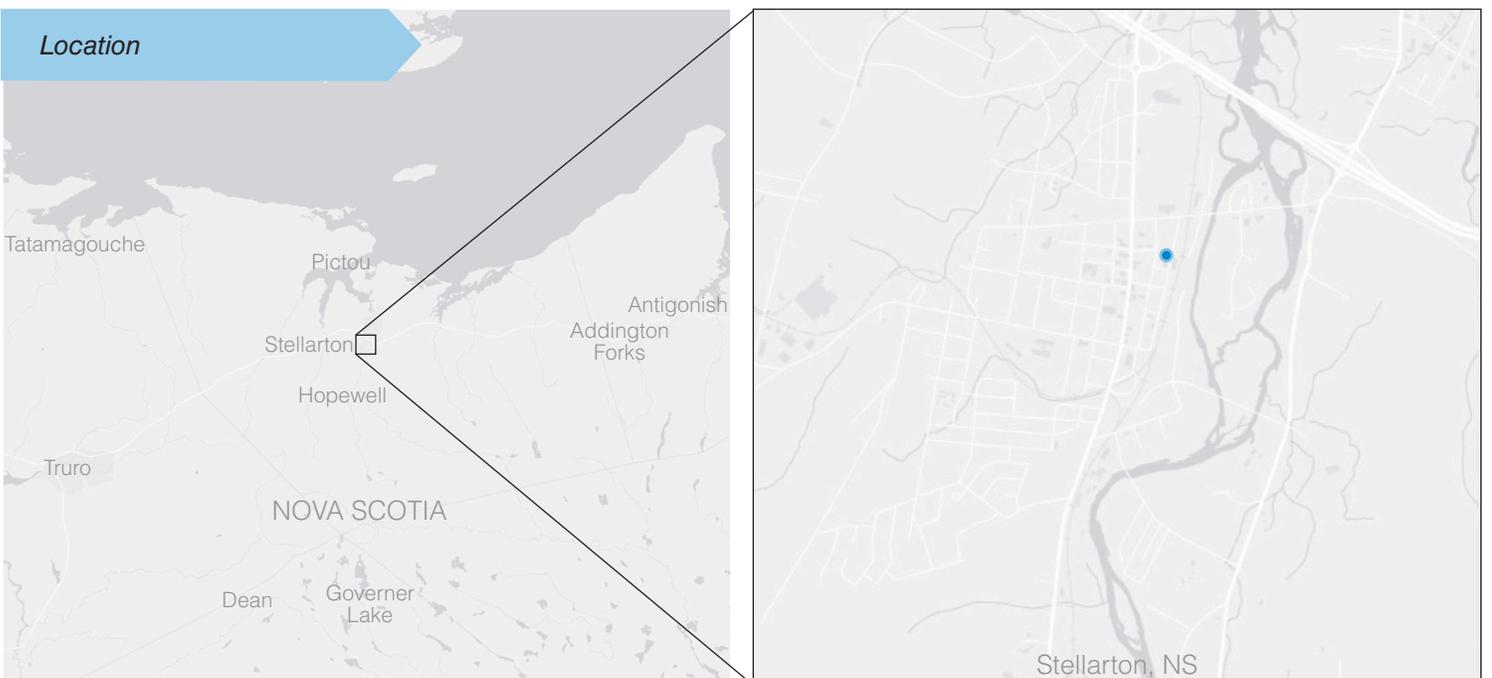
Commercial Assessment

\$10,901,400

Lot Coverage

22%

Location





Commercial BUSINESS PARK (BSP)

Block Profile

Further to specific spaces for high-tech business start-ups, a growing economy will also require general commercial space in a business park.

This example of developments in a business park provides large amounts of office space, which is suitable for areas outside the dense core of the community. Such buildings are ideally located in proximity to other large commercial and industrial facilities.

Gross Floor Area

14,520 m²

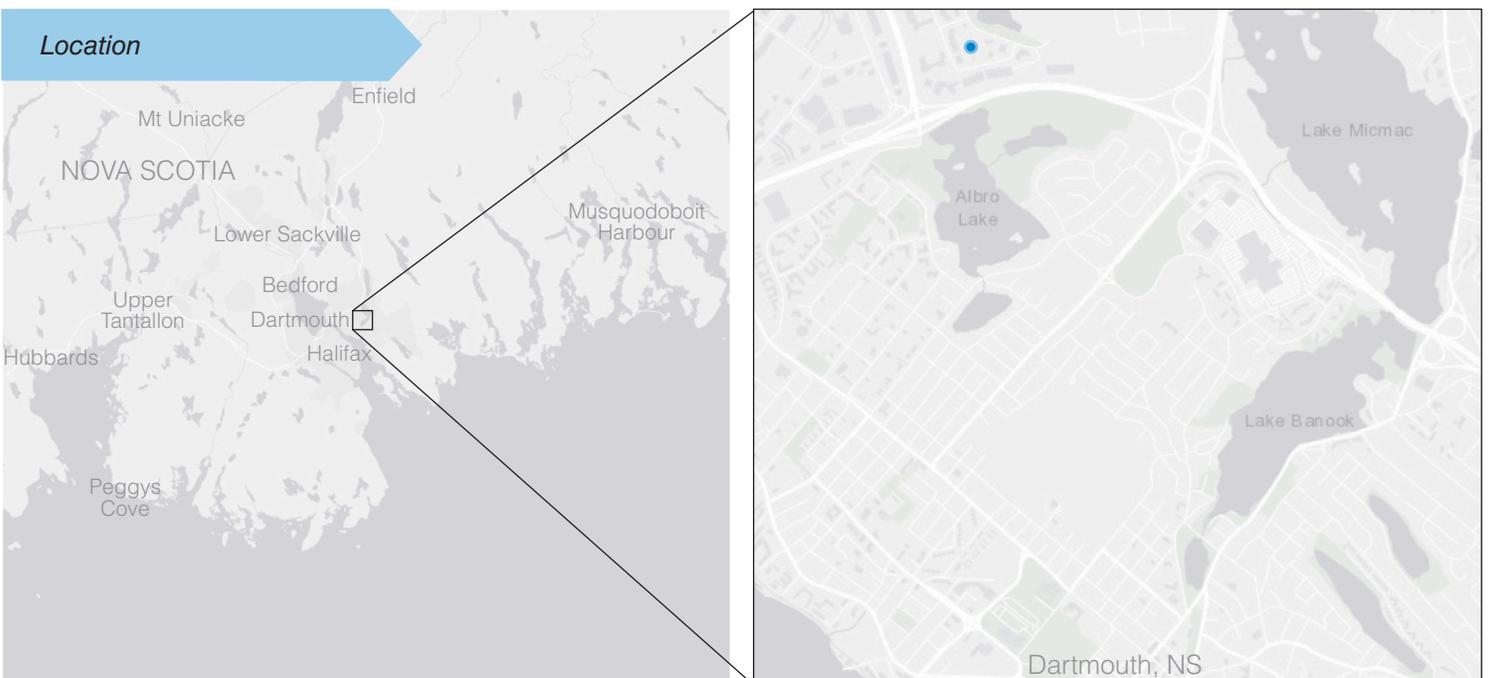
Commercial Assessment

\$11,928,100

Lot Coverage

25%

Location



3.4 Growth Scenarios

3.4.1 Growth Model

GROWTH RESPECTING THE GUIDING PRINCIPLES

The main purpose of the scenario planning method is to show how the assumed number of additional residents can be accommodated in Stephenville, which lands need to be earmarked for growth and what type of development will be most suitable to match the goals of the Guiding Principles established in the earlier chapter.

The scenarios will have implications for infrastructure, municipal finances and the character of created urban environments. It is therefore important to model growth scenarios which consider the data reviewed in the Background Report as well as the insights from public engagement. The Guiding Principles have established key considerations including matters such as:

- + Prioritizing infill growth over outward expansion;
- + Creating a diverse range of housing options to cover the various needs of Stephenville's current and future residents;
- + Bringing places of residence, services and amenities closer together;
- + Integrating access to nature into urban planning; and,
- + Creating attractive neighbourhoods for families and a younger workforce.

METHOD

The starting point for the scenario planning approach is straightforward: since each of the existing and recommended street block profiles includes a population density measure, it can be mapped how much of a certain type of development is needed to accommodate the overall population increase for any given growth scenario.

The more complicated part of the scenario design is to map the growth areas in consistency with the aforementioned



Figure 34: Home Construction on Pioneer Drive

Guiding Principles and under consideration of existing environmental constraints. The scenarios were built to direct growth away from flood plains, municipal source water areas or other limiting factors such as the noisy CNA heavy machinery training ground.

The next pages show an overview of the scenarios (see the appendix for large, detailed drawings). Using the Guiding Principles of the Plan, areas were added to the footprint of Stephenville. In order to meet the targets for compact growth and sustainability, the majority of growth was conceived as infill for the first phases of growth. As it will be evident on the next pages, this is only possible to some extent. Once the growth reaches a threshold of about 4,500 new residents, it becomes unrealistic to accommodate all incoming population through infill and greenfield areas need to be accessed.

Ownership of land was an important consideration for the placement of development areas. The scenarios consider the fact that the Town of Stephenville has limited influence on how private lands are developed. The Town can place rules on private property through the Town's development regulations or incentivize development through lenient development rules. However, that still does not mean that housing will actually be built in those locations. Land owners may not be interested in the most lucrative use of their land, not have the knowledge how to develop or hold off with development for speculative purposes. For that reason, a probability factor of 25% was applied to all population growth on private property.

As further detailed in section 3.1 of this plan, the Town's abilities to influence development on public property are much wider. However, it is possible that some of these conceptual blocks cannot be built due to geological, environmental issues or other risks. To reflect this uncertainty, a probability factor of 75% was applied in those cases.

Sample Block Types

- Mixed-Use Main Street (MX2)
- Mixed-Use with Side Streets (MX1)
- Commercial - Business Park (BSP)
- Commercial - Incubator Campus (INC)
- Commercial - Work Camp (WRK)
- Common - Apartments (CR3)
- Common - Mid-Density Low Rise (CR1)
- Common - Suburban (CR2)
- Common - Tiny Homes (CR4)
- Innovative - Micro Apartments (IR4)
- Innovative - Micro Townhouses (IR2)
- Innovative - Small Scale Apartments / Condos (IR1)
- Innovative - New Apartments / Condos (IR3)

Environmental constraint zones

- Climate Change Flood
- Designated Floodway
- Environmental Protection
- Floodway Fringe
- Wellhead Protected Water Supply Area

Other Layers

- Town boundary

Figure 35: Legend of sample blocks and other symbols on scenario maps

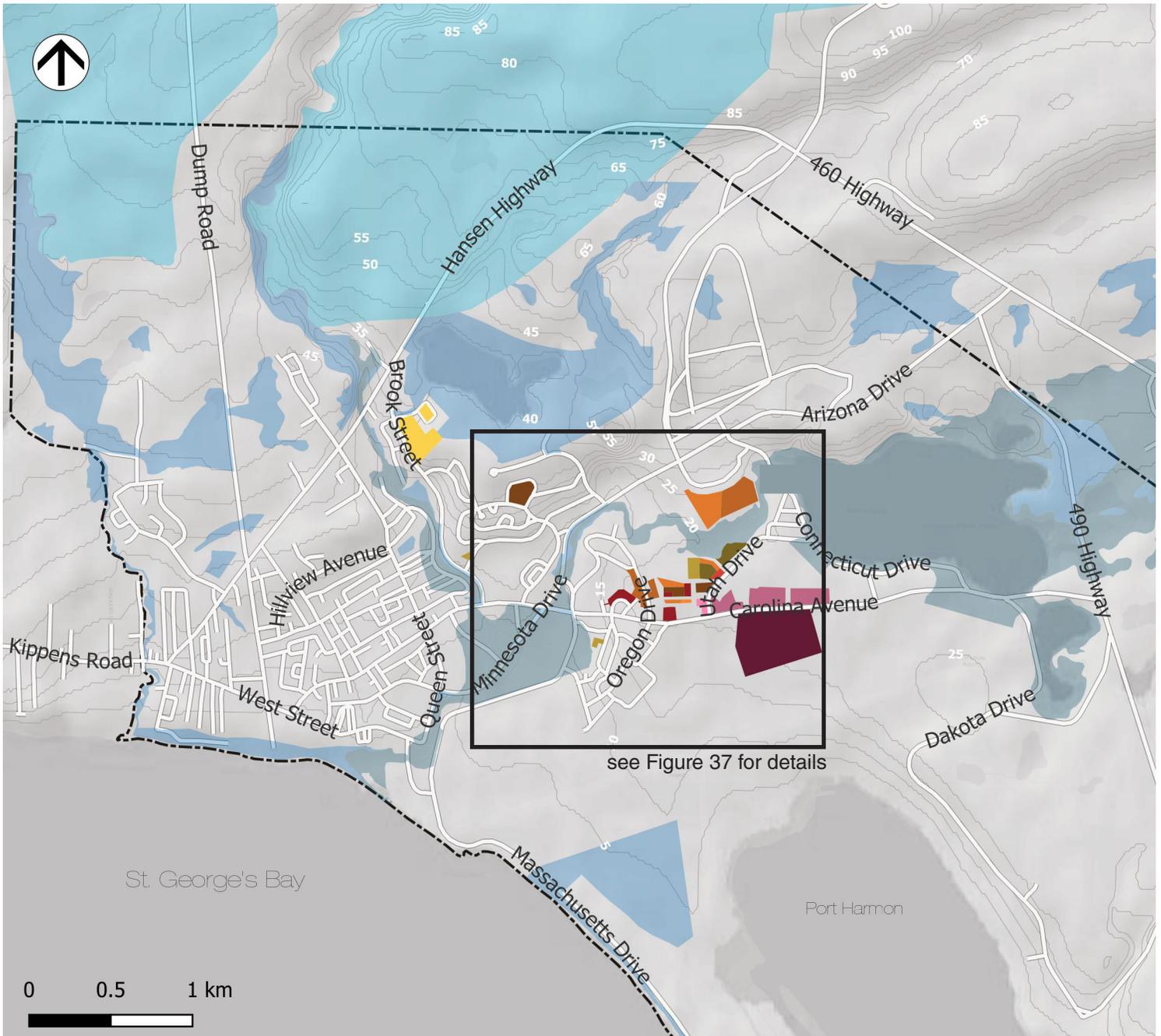


Figure 36: 'Sample blocks' were distributed over an area capable of accommodating 2,000 additional residents.

3.4.2 Phase 1: 2,000 additional residents

During the first years of growth in Stephenville, it is recommended to direct the majority of growth on lands of the former Air Base. Vast tracts of land are publicly owned in this area, giving the Town opportunities to actively accelerate housing development when it will be urgently needed. Lands between Town Hall and the Industrial park are key to a rapid redevelopment of the area.

Historically, this part of the Town was cut off by a railway loop and loading facilities for the air base. Since the removal of the tracks, part of the area has been used as a storage

yard and maintenance workshop of the municipal public works department. However, much of the lands's potential is still untapped. Another asset of the area is the proximity to existing amenities. Apart from Town Hall, several businesses, a hotel, a restaurant and an entire recreational campus are located within walking distance. Other significant opportunity sites for urban infill include lands around Alexander Heights and the former military hospital site on New York Drive. Should the contamination of that site make redevelopment unviable, alternative development sites in the area are available next to the CNA head office.

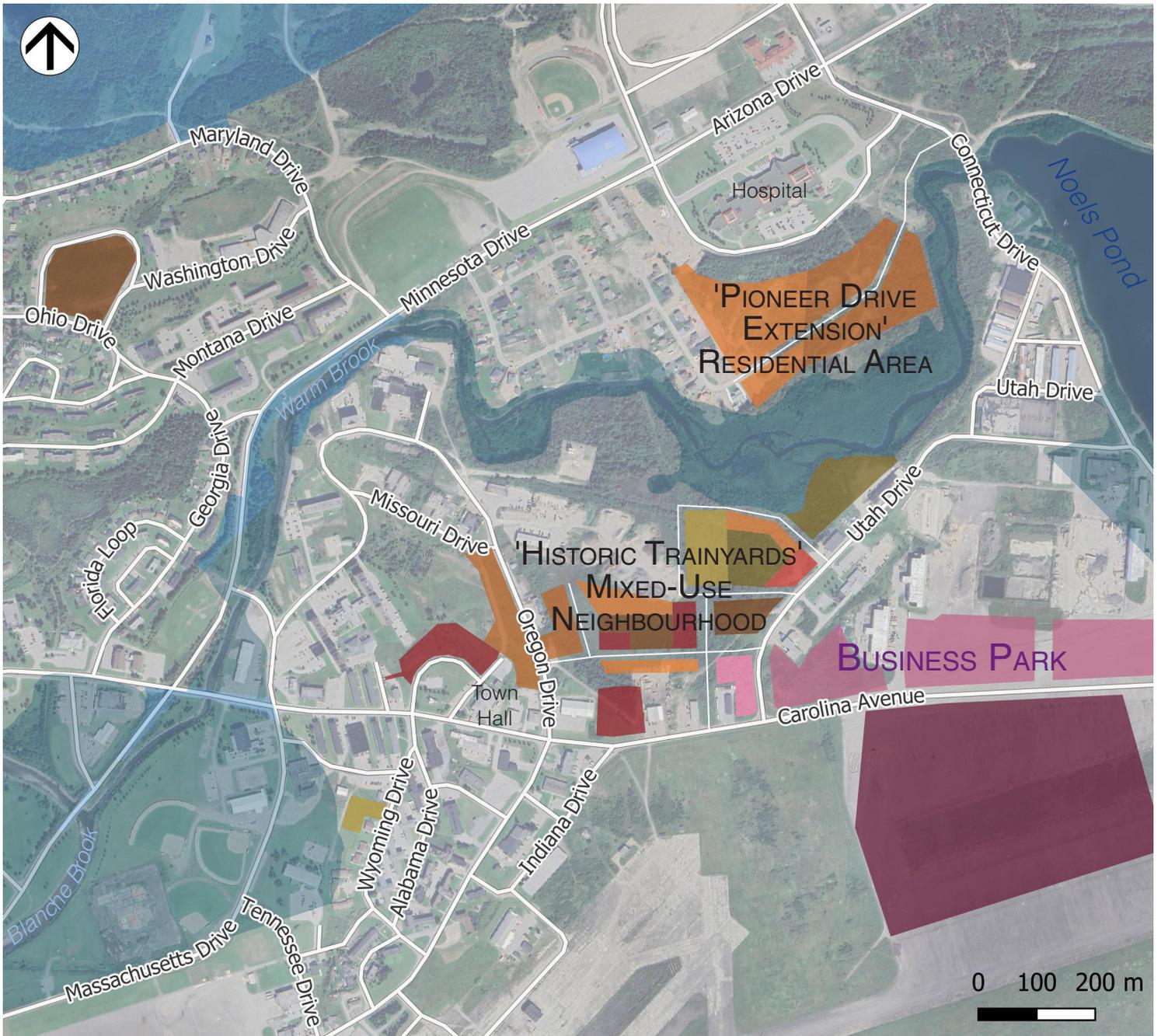


Figure 37: Detail of former Air Base lands.

Sample Block Types

- Mixed-Use Main Street (MX2)
- Mixed-Use with Side Streets (MX1)
- Commercial - Business Park (BSP)
- Commercial - Incubator Campus (INC)
- Commercial - Work Camp (WRK)
- Common - Apartments (CR3)
- Common - Mid-Density Low Rise (CR1)
- Common - Suburban (CR2)
- Common - Tiny Homes (CR4)
- Innovative - Micro Apartments (IR4)
- Innovative - Micro Townhouses (IR2)

- Innovative - Small Scale Apartments / Condos (IR1)
- Innovative - New Apartments / Condos (IR3)

Environmental constraint zones

- Climate Change Flood
- Designated Floodway
- Environmental Protection
- Floodway Fringe
- Wellhead Protected Water Supply Area

Other Layers

- Town boundary

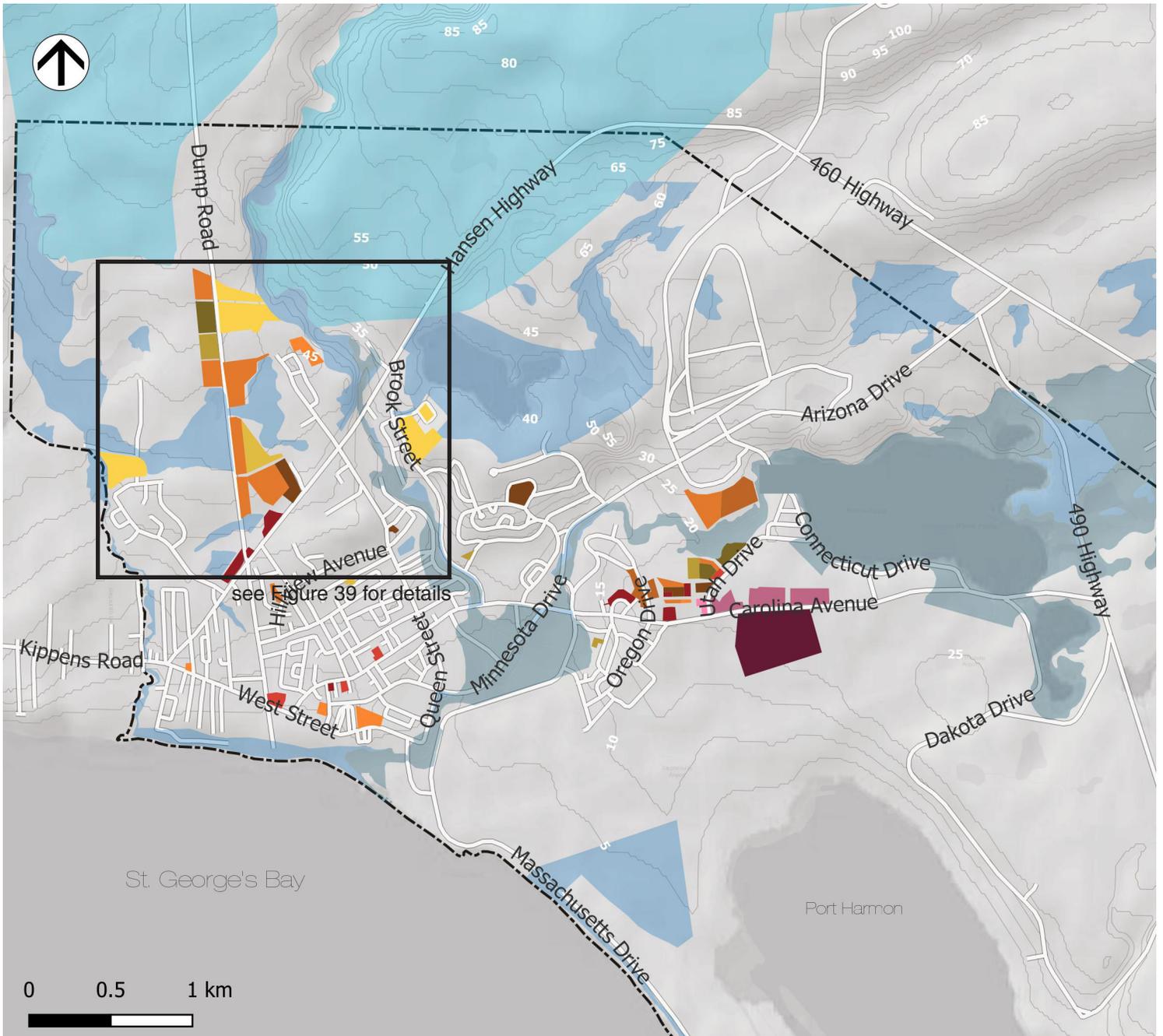


Figure 38: 'Sample blocks' were distributed over an area capable of accommodating 4,500 additional residents.

3.4.3 Phase 2: 4,500 additional residents

In the past, there was very little construction in Stephenville and development rarely took any forms other than single home subdivisions. However, one can assume that after a few years of population growth, the private sector will start adapting, harnessing the resources and capacities needed to develop larger and denser housing forms.

Over time, developers will likely start buying up central areas of land and build up underutilized sections of the Downtown as well as properties along Hansen Highway. Consequently, this phase of growth is a time when market forces are likely

to make a larger contribution to the housing market and more development activity west of Blanche Brook can be expected if the Town creates a regulatory framework that supports this kind of infill growth. However, private lands alone will presumably not be sufficient to absorb this entire number of newcomers, and public lands along Dump Road may need to be accessed and serviced to provide needed housing units. The model limits development on Dump Road to 400m north of the last intersection with Queen Street Extension. Leading a linear thread of development past that point could pose challenges for walkability, settling of commercial land uses and provision of future transit services.

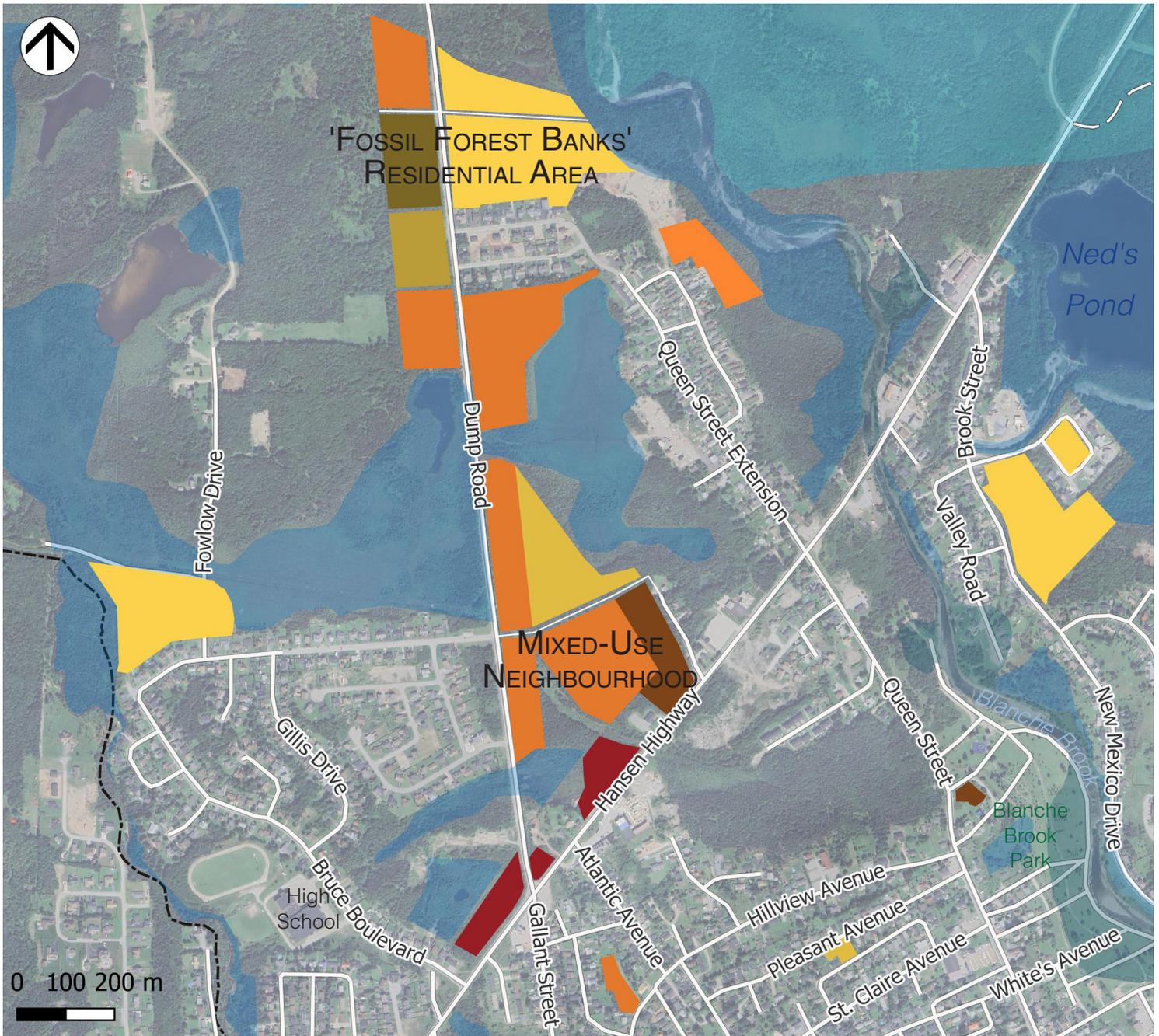


Figure 39: Detail of proposed residential areas near upper Blanche Brook.

Sample Block Types

- Mixed-Use Main Street (MX2)
- Mixed-Use with Side Streets (MX1)
- Commercial - Business Park (BSP)
- Commercial - Incubator Campus (INC)
- Commercial - Work Camp (WRK)
- Common - Apartments (CR3)
- Common - Mid-Density Low Rise (CR1)
- Common - Suburban (CR2)
- Common - Tiny Homes (CR4)
- Innovative - Micro Apartments (IR4)
- Innovative - Micro Townhouses (IR2)

- Innovative - Small Scale Apartments / Condos (IR1)
- Innovative - New Apartments / Condos (IR3)

Environmental constraint zones

- Climate Change Flood
- Designated Floodway
- Environmental Protection
- Floodway Fringe
- Wellhead Protected Water Supply Area

Other Layers

- Town boundary
- Potential new road

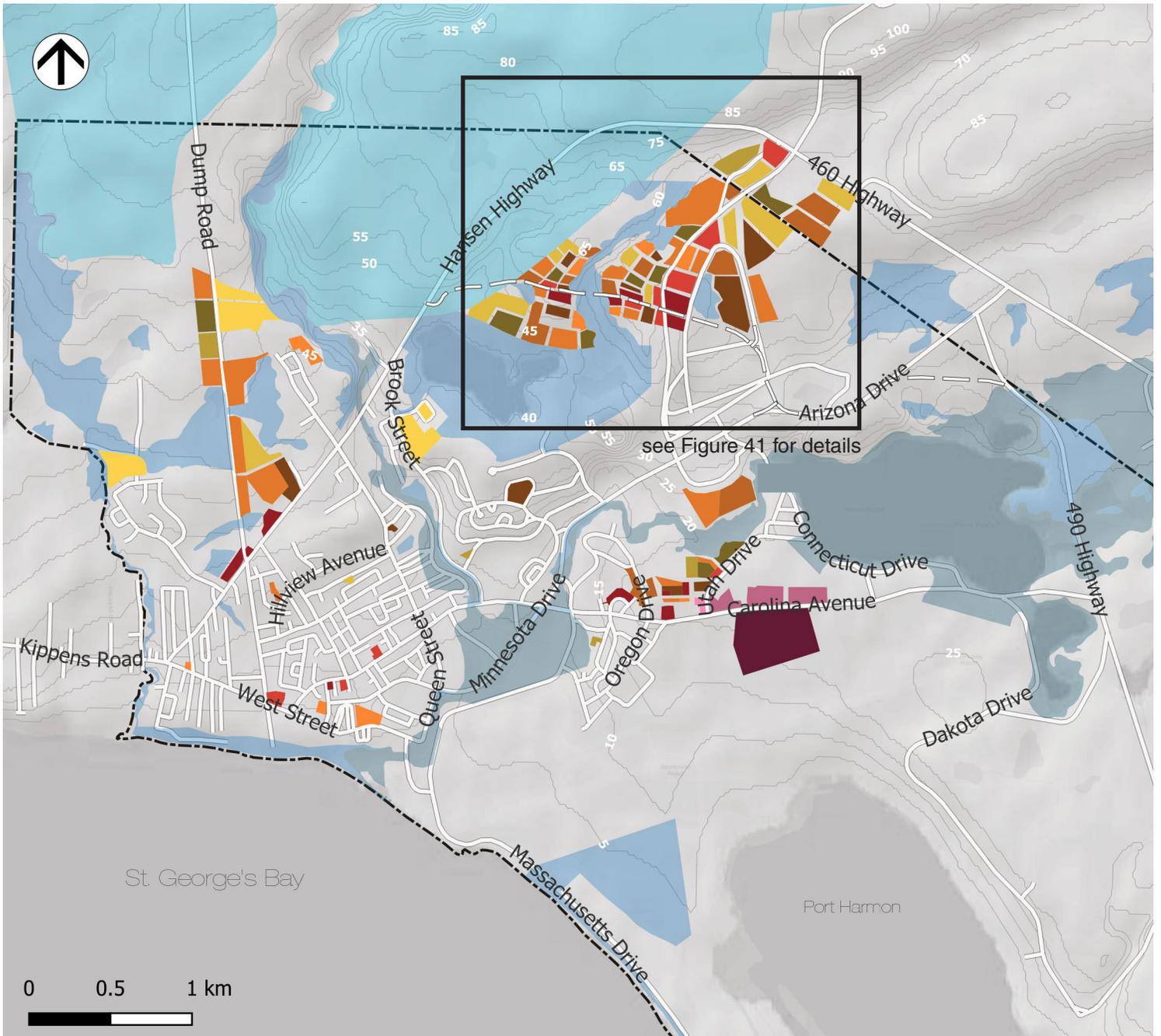


Figure 40: 'Sample blocks' were distributed over an area capable of accommodating 12,000 additional residents.

3.4.4 Phase 3: 12,000 additional residents

Based on the insights from this Plan's 'Guiding Principles', outward growth into new urban areas should be discouraged for as long as possible. The model shows that this point will be reached at a total population of 11,000, or 4,500 additional residents.

This threshold occurs when opportunity sites within existing urban areas will be mostly filled in by development, and further growth into the Blanche Brook river valley is not practicable anymore. Once it will become evident that the growth number of 4,500 is within reach, the Town will need

to intensify efforts to ready an entirely new urban area. It is recommended that this new Town quarter be located along the planned arterial bypass road from Hansen Highway to Highway 490, which will eventually be needed to guide traffic from and to the electrolyzer plant around the Town core. With high traffic volumes to be expected on that road, this is an ideal setting for more businesses to locate and to create a sustainable neighbourhood with many amenities within reach. The model shows how a population of about 7,500 residents could call this area north of Neds Pond home, if this entire part of Town is built using compact development forms.

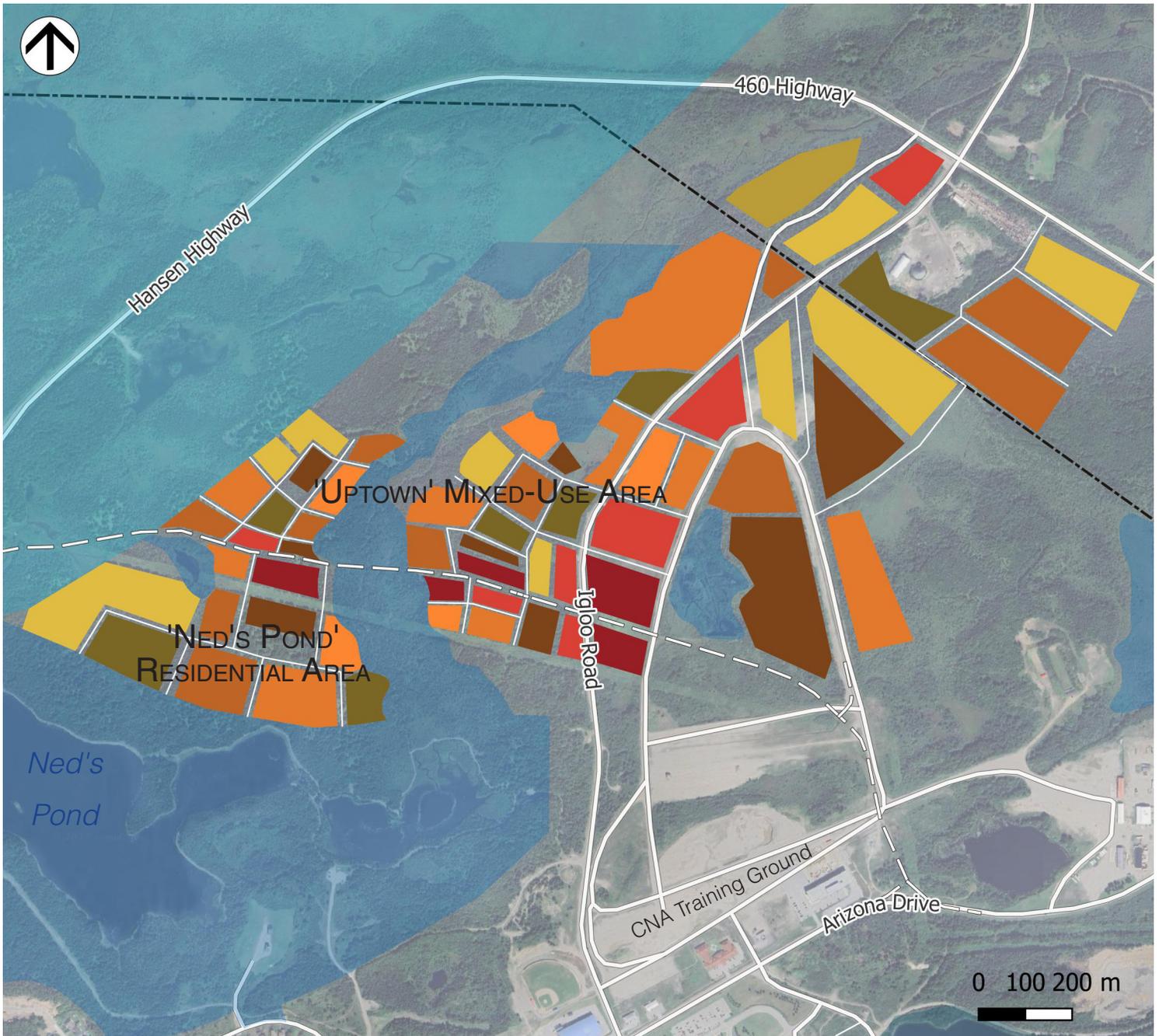


Figure 41: Detail of the proposed 'Uptown'.

Sample Block Types

- Mixed-Use Main Street (MX2)
- Mixed-Use with Side Streets (MX1)
- Commercial - Business Park (BSP)
- Commercial - Incubator Campus (INC)
- Commercial - Work Camp (WRK)
- Common - Apartments (CR3)
- Common - Mid-Density Low Rise (CR1)
- Common - Suburban (CR2)
- Common - Tiny Homes (CR4)
- Innovative - Micro Apartments (IR4)
- Innovative - Micro Townhouses (IR2)

- Innovative - Small Scale Apartments / Condos (IR1)
- Innovative - New Apartments / Condos (IR3)

Environmental constraint zones

- Climate Change Flood
- Designated Floodway
- Environmental Protection
- Floodway Fringe
- Wellhead Protected Water Supply Area

Other Layers

- Town boundary
- Potential new road

3.4.5 Insights from Growth Mapping

The growth model shows a realistic footprint of urban growth based on development types prevalent in Stephenville, and such development that can be considered good practice in small towns of Atlantic Canada.

One key insight from this exercise is that the Town does initially not need to rush 'greenfield' expansions of urban subdivisions. There is enough space within and adjacent to existing urban areas to accommodate a population growth of approximately 4,500 new residents through infill of the urban core and servicing of 'Dump Road'. This means that compared to today's population of about 6,500, the Town of Stephenville can grow by almost 70% until expansions into completely new areas become necessary.

Holding off with the provision of services to entirely new urban areas can save a lot of funds for the Town and its taxpayers, especially if the population growth does not materialize as quickly as expected.

The growth model also makes a strong case for compact growth. The following Table 4 and Table 5 compare the metrics of the presented compact growth scenario with an entirely suburban growth. For the suburban growth scenario, it is assumed that all residential growth in Stephenville would

be absorbed by the suburban-style 'CR2' sample block, which represents existing development in the vicinity of Fowlow Drive. Many urban areas of Newfoundland keep growing in such a pattern. It is possible that without specific Town guidance to channel the upcoming growth, most of the new urban footprint would develop in similar forms.

The resulting numbers show the expected picture: if Stephenville was to grow almost entirely based on suburban subdivisions, the added footprint to the Town would be almost three times larger than in the case of the presented growth scenario, which is based on the earlier established Guiding Principles.

SMARTER GROWTH THROUGH COMPACT FORM

Comparing the two development scenarios, the higher residential property tax revenue from the suburban growth scenario may be deceiving at first. The key to an integrated contemplation of the preferred type of growth is a close monitoring of the cost side of the equation. While for an additional population of 12,000 residents the suburban approach to growth would yield 65.6% more in residential property tax revenue than the compact approach, it would also create 181% more urban area that needs to be serviced.

Added Population	Compact Growth Scenario Mapping			Suburban Subdivisions		
	Footprint (acres)	Residential tax assessments	Property Tax Revenue	Footprint (acres)	Residential tax assessments	Property Tax Revenue
+2,000	55.62	\$173,840,217	\$1,251,650	181.82	\$278,916,529	\$2,008,199
+4,500	163.96	\$427,051,431	\$3,074,770	409.09	\$627,562,190	\$4,518,448
+12,000	388.42	\$1,010,335,461	\$7,274,415	1090.91	\$1,673,499,173	\$12,049,194

Table 4: Comparison of land consumption and municipal revenues in compact and suburban growth scenarios.

Over 2.5 times the amount of urban area would also create a similar scale of increases in kilometres of roads, water pipes, sewer pipes and other associated costs that increase with the footprint of a town.

In addition to the direct costs to be borne by the Town's municipal budget, a more dispersed type of growth would also create various costs for households. Large homes on large lots create more municipal tax revenue because they are more expensive to purchase. In reality, this type of development would not be affordable for many residents in Stephenville, and would fail to deliver the much-requested affordable housing in the Town. Other goals from the Guiding Principles such as proximity to amenities or provision of transit services would also be difficult to achieve, adding to the social cost of sprawling growth.

It is therefore important for the Town to pursue the compact growth scenario as a role model for absorption of future population growth. This type of growth cannot be taken for granted, but will require active efforts from the Town to achieve infill growth targets. The activation of underused public lands within the Town core needs to be high on the

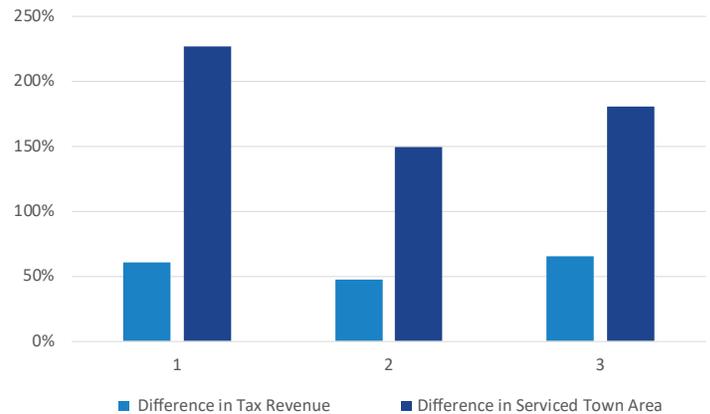


Figure 42: Quantitative differences in compact and suburban growth.

agenda to achieve this objective. Comprehensive planning guidance for redevelopment areas needs to be embedded in the Municipal Plan, and the municipal Development Regulations will need to be revised to allow for development that contributes to the objectives of this plan. A strategy for the creation of transit services and the expansion of the Town's recreational offerings needs to be planned as an integral part of the vision to allow for benefits from growth to be maximized.

Added Population	Tax Revenue		Fully Served Urban Footprint in Acres		Comparison of Suburban to Compact	
	Compact	Suburban	Compact	Suburban	Δ Tax Revenue	Δ Footprint
+2,000	\$1,251,650	\$2,008,199	55.62	181.82	+60.4%	+226.9%
+4,500	\$3,074,770	\$4,518,448	163.96	409.09	+47.0%	+149.5%
+12,000	\$7,274,415	\$12,049,194	388.42	1090.91	+65.6%	+180.9%

Table 5: Integrated comparison of growth numbers.



4. Outlook + Next Steps



4.1 Roadmap for Growth

WHERE TO GO FROM HERE?

The growth scenario mapping showed how the anticipated population increases can be accommodated in Stephenville, and in which patterns the Town should ideally grow when they occur. By defining these desirable growth patterns, this Municipal Growth Plan created a foundation for future decision making as it relates to many aspects of municipal governance.

"Knowing where to go" is an important first step for the Town of Stephenville, but it also leads to new challenges resulting from the question of "how to get there?". Going forward, the Town will need to find strategies for two types of challenges:

- + Decision making **enabling** the right type of growth;
- + Decision making **supporting** growth, while observing equity and sustainability considerations.

This Municipal Growth Plan will touch on implementation within four areas of municipal governance, and bring forward some initial recommendations on these subjects.

On the **enabling** side:

- + Municipal Plan Update and Development Regs
- + Development of Public Lands

On the **supporting** side:

- + Transit
- + Recreation

While this is an initial list of subjects to be considered through the lens of this Municipal Growth Plan, this is not an exhaustive list of relevant matters. In order to enable and support the anticipated population growth, new approaches and strategies will also be required in areas such as servicing infrastructure and servicing capacities, social services, placemaking, economic development, transportation masterplanning, etc.



Figure 43: Overview of this Plan's Growth Principles.

4.2 Implementation Recommendations

4.2.1 Municipal Plan + Development Regulations

CONNECTION TO GROWTH PRINCIPLES

The Municipal Plan and Development Regulations (i.e. the 'planning documents') are the most relevant municipal documents when it comes to shaping development and built environments. They create the planning framework for the Town of Stephenville, and are therefore connected to several growth principles:



NATURAL ASSETS

Public engagement highlighted the need to embed access to natural features in all planning activities. The Municipal Plan can play a stronger role in protecting areas of natural value and securing access to nature through active transportation infrastructure.



SUSTAINABLE GROWTH

The documents set rules for what can be built where, and therefore constitute the main tool to guide growth in a sustainable way. An important part of this equation is to make sure that the current documents do not discourage or prevent desirable types of development to be built.

DOCUMENT REVIEW

The current planning documents date back to 2014 with final adoption in 2016. They were written during a time of tragic events (catastrophic flooding, mill closure etc.) and population decline, with a need for stability consequently being outlined as a key element of the municipal vision. With this foundation which the documents are based on, it is foreseeable that they may soon become inadequate to regulate the Town's needs.



DIVERSE HOUSING

Related to the previous point, the documents have a key role in ensuring that provisions are made to enable and promote the development of the most needed types of housing. The Town's planning framework can additionally take on the important role of unlocking vacant public lands for new development.

As soon as the new industrial projects in Stephenville become certainty and economic reality, the Town will need to move forward with a full review of the Municipal Plan and Development regulations under the provisions of the *Urban and Rural Planning Act*. The new documents will need to be based on a solid public engagement and embrace the new challenges and opportunities which result from the arrival of growth.



VITAL CORE + SERVICES

A vibrant and growing Town needs a strong centre, and several placemaking and streetscape improvement initiatives are helping with that vision. What is additionally needed is a careful review of municipal planning documents to ensure that no regulations are in the way of an attractive downtown environment.

When reviewing the Municipal Plan, the following aspects will need to be addressed to meet the intent of this Municipal Growth Plan and its Growth Principles:

- + The plan needs to establish a clear vision for usage of vacant lands. This includes both the infill of small underutilized properties on existing streets as well as the expansion of the Town's footprint into areas which have not been previously subdivided.

- + On the latter point, Secondary Plans can prepare new areas of the Town for growth. Secondary Plans will help with the planning of infrastructure, subdivision of land and subsequent Use Zone provisions. Importantly, Secondary Plans will also serve as a demonstration of a comprehensive approach for new Town areas and facilitate the release of Crown Lands for housing in a dialogue with Provincial authorities.
- + A clear vision for equitable development of Town services and amenities needs to be embedded in the document, ensuring that no residents of Stephenville are left behind during periods of growth and change. To implement this vision, the Plan will need to outline how equity translates to subjects such as housing, transportation or recreation and enable the establishment of detailed strategies on these matters.
- + Areas required to protect environmentally sensitive habitats or important recreational assets need to be earmarked for conservation in the plan. Strategies should be formulated that define how these areas will be protected from development in the long-term.
- + Discretionary planning approvals create slow processes and uncertainty for developers. Whether it is private investors or non-profit housing coops—unknown factors in the development planning process make housing plans difficult for them. Having mixed-use buildings including commercial and residential elements to go by default through discretionary procedures is problematic in a context of growth.
- + A possible solution to the above-mentioned problem could be a finer-grained differentiation of commercial Use Zones. The Town should also establish clear form-based codes during the document review which create predictable approval criteria for mixed-use developments in central areas.
- + Further on the matter of design rules, basic form requirements in the Development Regulations will help to create interactive streetscapes and public spaces, which are very important to create attractive environments for younger generations to call Stephenville 'home'.

During the review of Development Regulations, the following aspects will need to be addressed:

- + The current regulations appear to be limiting housing forms. As previously analyzed under "1.3.3 Development Regulations", the strict low-density standards applied to apartment buildings presumably make many forms of affordable housing development unfeasible. This is a particularly impactful provision of the regulations, since all forms of dwellings with three or more units are defined as 'apartments'. In order to create regulations written around the needs of a growing Stephenville, an entirely new approach to housing will need to be built into new regulations.
- + Current Regulations need to be attentively reviewed to identify provisions that may prevent desirable forms of development from being built. For example, the reduction of off-street parking requirements should be considered for Downtown areas or non-profit developments.
- + Subdivision regulations need to include requirements related to active transportation infrastructure. Less reliance on provincial road standards and an adoption of Town-specific cross-sections for certain road categories can also help with pedestrian, bicycle and transit usage of streets in Stephenville.

4.2.2 Development of Public Lands and Secondary Plans

RATIONALE

The growth scenarios show three distinct areas of urban expansion in Stephenville. Each of these areas would be built on previously undeveloped land, where infrastructure provision has to be conceived, planned and built from the ground up. This circumstance poses great challenges and opportunities at the same time. A significant effort is required to plan the details of transportation infrastructure, servicing, urban design and public spaces for an entire new neighbourhood. At the same time, this means that Stephenville can grow in these places as exactly the type of Town it wants to be.

Based on the Growth Principles of this plan, this means that prior to subdivision and development of such new areas, much planning is required to establish desired housing types and future Use Zones, pedestrian connectivity, functionality, environmental aspects, geological suitability and relationship with other parts of the Town.

The current Development Regulations apply 'Comprehensive Development Area' Use Zones to some prospective growth areas. The approach of these Zones is that development under such Zoning is prohibited, until *someone* creates a comprehensive plan outlining all of the above-mentioned infrastructure and design aspects for the entire Use Zone.

In the context of rapid growth, the responsibility for this type of planning should not be left to the private sector. Instead, the Town should be in the driver's seat and prepare this development vision ahead of time through Secondary Plans. These Secondary Plans can constitute an appendix to the Municipal Plan and define all aspects of urban growth within the specific Comprehensive Development Use Zones. Conversely, Development Regulations should require compliance with the Secondary Plans for development in those areas.

Secondary Plans will also help with release of lands from the Province for urban development. Presumably, when the Town approaches the Province with land needs for new urban neighbourhoods, the timeline to review these requests is much shorter when a comprehensive development plan is already in place and can be presented to the Province.

As growth in Stephenville arrives, the following Secondary Plans are recommended to be developed over time.

HISTORIC TRAINYARD SECONDARY PLAN

When needed: 1st phase of growth; needed immediately as soon as industrial projects are confirmed.

Secondary Plan's population target: ca. 1,000 residents.

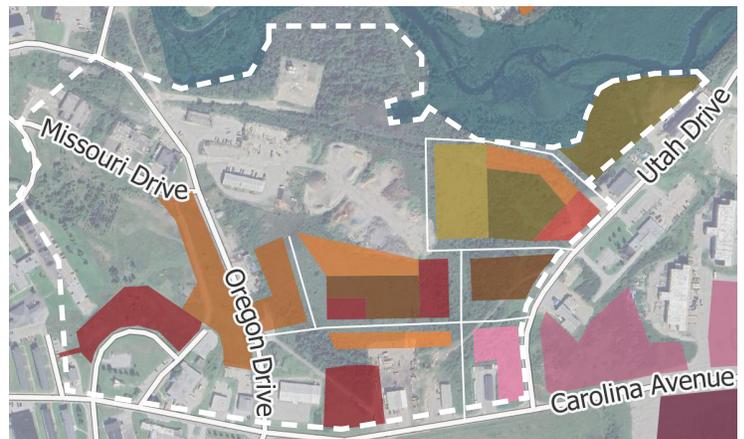


Figure 44: Proposed area of study for Trainyard Secondary Plan.

An area between Carolina Avenue and the Town's Public Works yards offers room for the first wave of growth to arrive, yet it is in close proximity to a host of the Town's recreational amenities and a stone's throw away from Town Hall. At the same time, the area is within a short commuting distance to the Town's industrial districts.

The study area of this Secondary Plan should also extend to vacant lands held by the College of the North Atlantic and the Public Works facility, to determine how both of these areas can fit into the overall land use concept. Some of the College's lands could potentially absorb shares of the growth, in case geotechnical conditions or contamination prohibits development in other parts of the study area.



Figure 45: Historic plan of the Ernest Harmon Base showing the trainyard.

FOSSIL FOREST BANKS SECONDARY PLAN

When needed: 2nd phase of growth; after + 2,000 residents.

Secondary Plan's population target: ca. 2,000 residents.

This second phase of growth—possibly overlapping with the first—could be directed to the area generally centred around the road which is currently addressed and known as 'Dump Road'. Since the namesake municipal landfill at the end of the road has gone out of operation for many years, this central artery of the future residential area may benefit from a renaming such as 'Fossil Forest Road', referring to the ancient fossil trees regularly found in nearby Blanche Brook.

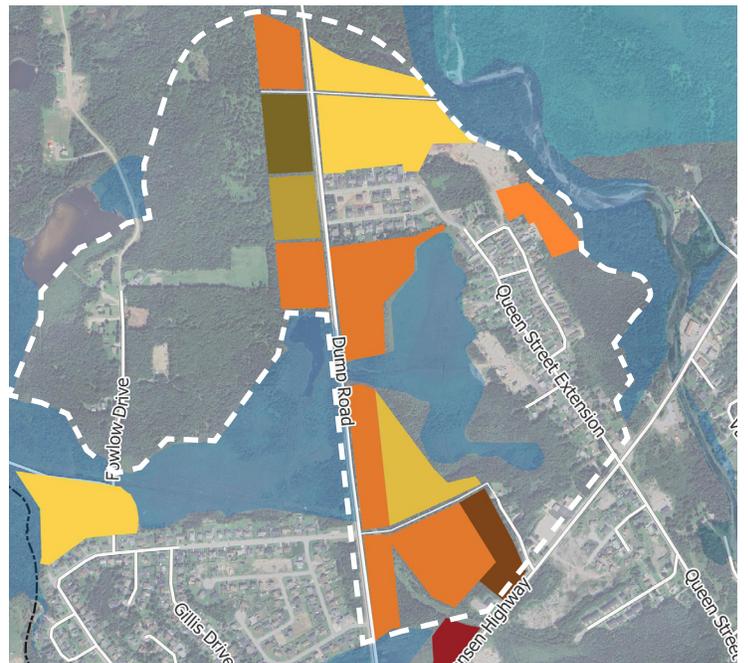


Figure 46: Proposed area of study for Fossil Forest Banks Secondary Plan.

The study area of the Secondary Plan can extend to Fowlow Drive. Since parts of the area are known to be wet, a larger study area will allow for more flexibility in case some of the development needs to be redistributed due to geotechnical or environmental conditions found on the ground.

UPTOWN SECONDARY PLAN

When needed: 3rd phase of growth; after + 4,500 residents.

Secondary Plan's population target: ca. 8,000 residents.

As shown in the growth scenarios, the Town of Stephenville will be able to grow in a contiguous manner, i.e. within or close to existing urban areas, until a threshold of about 4,500 additional residents. Once the economic development is in full swing and population growth exceeds this number,



Figure 47: Proposed area of study for Uptown Secondary Plan.

the growth scenario shows that the Town will struggle to accommodate such population numbers through infill development or small additions to the urban footprint.

At that point, an entirely new part of the Town will need to be created in an area that situated between Ned's Pond, Noel's Pond and the Hansen Highway. Due to the higher elevations of these lands, this new part of Stephenville can be provisionally referred to as 'Uptown' for the time being. If appropriately planned, this area is capable of absorbing a population in the order of 8,000 residents, i.e. more than the entire current population of Stephenville. Uptown would therefore require its own commercial streets, recreational facilities and transportation infrastructure.

In order to make best use of the land and public investment into the area, all of Uptown should be zoned for

medium-density residential areas with only few pockets of land being available for traditional single detached homes.

Commercial developments in Uptown should presumably be planned in proximity to the Town's planned arterial bypass road between Hansen Highway and Minnesota Drive. Wherever possible, mixed-use should be applied to commercial developments to make optimal use of land and public investment into infrastructure. As it is the case with the previous two area, the Uptown Secondary Plan will also need to accommodate a geotechnical budget to determine suitability of soils before moving ahead with further plans.

The natural area surrounding Ned's Pond—including the ravine to the north which belong to the same watershed—could serve as the main passive recreational amenity of the area featuring trails. However, additional urban park space

will also need to be planned into the Uptown street blocks in order to serve the needs of such a large population.

Building a completely new part of Stephenville from the ground offers room for innovation that could position the Town as a true leader of the green energy transition. Apart from driving novelty on the energy generation side, Stephenville could also set new standards for climate change mitigation and adaptation through the development of a hydrogen-based district heating system.

With the distance between Uptown and the proposed electrolyzer facility only being ca. 5 km, it is conceivable that a district heating facility could be directly connected to the hydrogen plant through a short pipeline. That way, green hydrogen produced in Stephenville could not only benefit international markets, but also heat homes directly in town.



Figure 49: Artistic rendering of hydrogen-powered district heating plant.

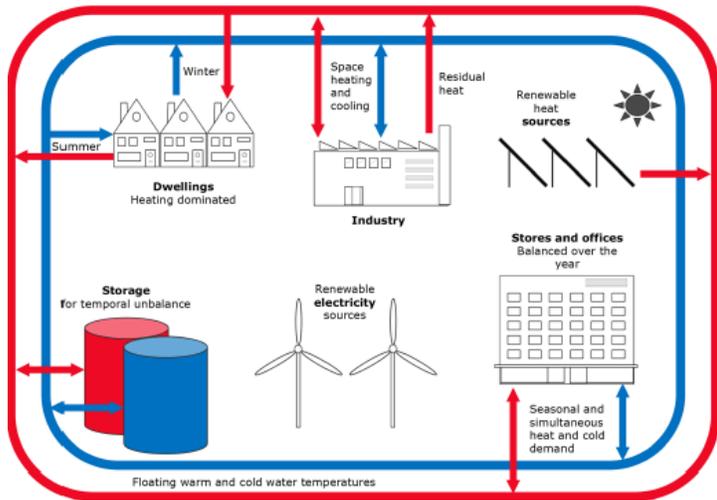


Figure 48: Basic schematic of a district heating system (Credit: Boesten et al.)

Recommended further studies + projects

- + Municipal Plan Review
- + Development Regulations Review
- + Preparation of Secondary Plans including all aspects of Comprehensive Planning
- + District Heating Feasibility Study for Uptown

4.3 Transit System Recommendations

CONNECTION TO GROWTH PRINCIPLES

As the growth arrives in Stephenville, the availability of a public transit system will become increasingly important. This need is connected to at least two growth principles:



INCLUSIVE ECONOMY

To become an attractive place to live for a younger workforce includes the need to become more family-oriented. Transit services remove the need for every household to own several cars. Transit particularly increases the independence of teenagers too young to drive or young adults who do not choose to own a vehicle.



VITAL CORE + SERVICES

Transit is a contribution to vitalize the Downtown core. By making the area accessible to residents of all ages and abilities, it makes a larger segment of the population more likely to become patrons in Downtown businesses. It also creates more equitable access to the recreational features of the Town.

Stephenville may already have the right size to introduce a basic version of transit service, and will certainly be in the position to do so when the first wave of growth arrives. For comparison, the Towns of Antigonish and Bridgewater in Nova Scotia operate regular, scheduled transit services with populations of approximately 5,600 and 8,800 (based on Population Centre geographies in the 2021 Census).

METHODOLOGY TO CREATE TRANSIT SYSTEM

In order to arrive at these preliminary recommendations for a transit system structure, ESRI's ArcGIS Transportation Analyst software was employed. The software was given the following data layers to include in the model:

- + Origins of trips based on residential densities in Stephenville, both based on the existing situation and on the complete growth scenario of 12,000 additional residents;
- + Destinations of trips including current employment centres (downtown, hospital, CNA campuses, government buildings), future employment centres (the electrolyzer plant, airport terminal etc.), recreational facilities, public services and amenities;
- + The road transportation network; and,
- + Active transportation network (sidewalks and trails) to determine the ease of walking access to prospective bus routes.

The software used the geodata inputs to create routing suggestions which connect these origins and destinations in a most efficient way. The resulting transit maps were manually adjusted to reflect specific characteristics of some Town areas.

Based on the outcomes of the analysis, the Town should likely approach transit system development in a two-phased approach. Consequently, two stages of transit development are discussed in this report: Stage 1 to be considered for introduction in the near future, and Stage 2 for a time when the population growth has significantly increased the footprint of the Town.

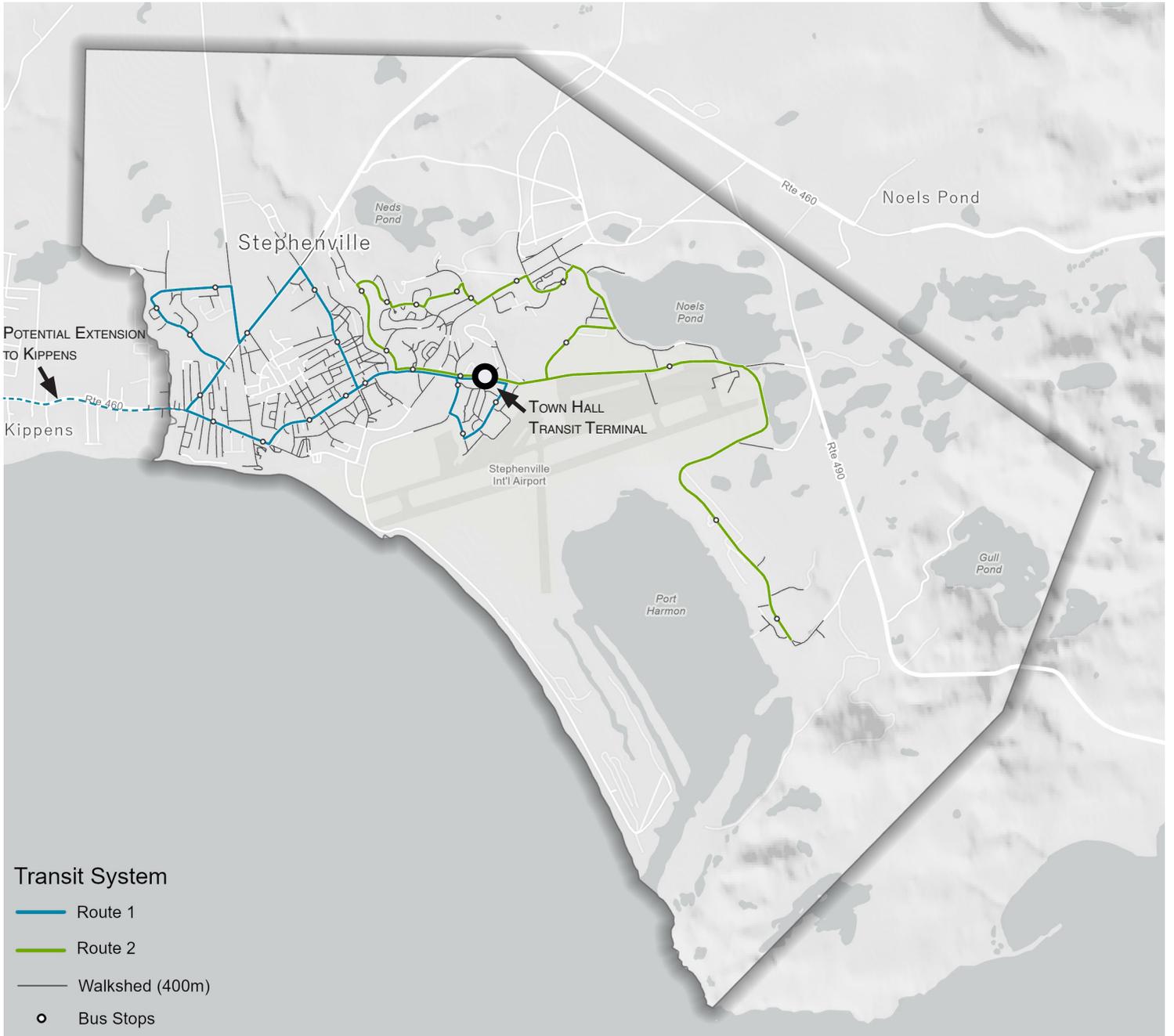


Figure 50: Initial transit system in the near future (Stage 1)

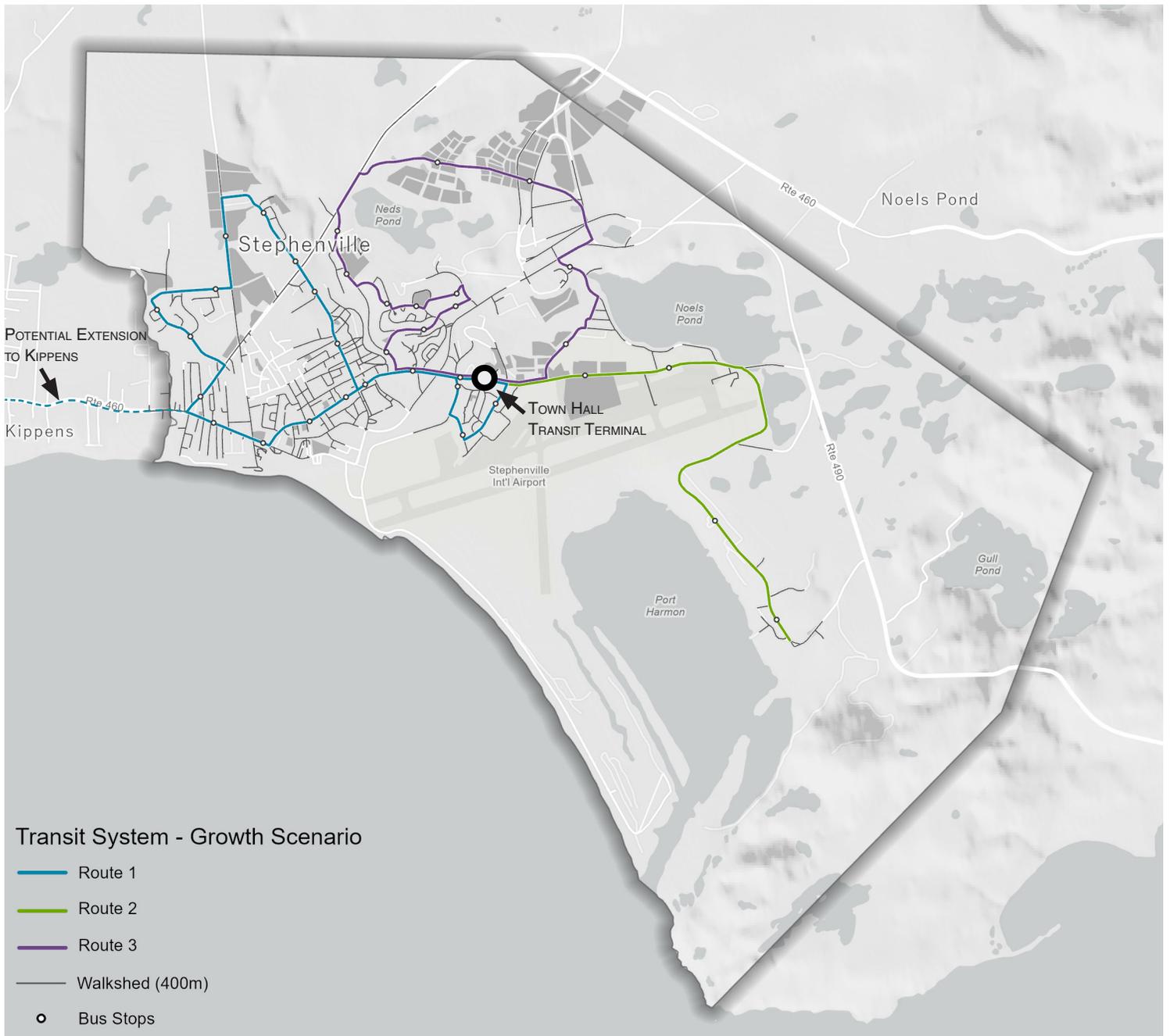


Figure 51: Transit system during a later stage of growth (Stage 2). New urban footprint from growth scenarios showing in dark grey.



Figure 52: Typical mini coaches used in community transit—example from Antigonish, NS.

TRANSIT FLEET OPTIONS

For the foreseeable future, transit services in Stephenville will be relatively small and can be expected to operate under low ridership. During these early stages of the transit system’s development, it will be therefore important to run an efficient and flexible fleet which can keep transit fares affordable without becoming a significant burden to municipal budgets.

At the beginning of operations, the vehicle fleet will likely consist of mini coach buses and similar small bus options. As time progresses and the Town grows, busier routes could also be served by 30 to 35 foot long transit buses as an introductory option. As the Town grows further, larger models can subsequently be introduced. A transit feasibility study will help to determine predicted ridership and will narrow down the range of vehicle types to be considered for the Town’s first transit fleet.

The Town of Stephenville is currently interested in four types of bus technologies, to be discussed in the following paragraphs.

Battery-electric buses offer numerous advantages as a transit energy source. They produce zero tailpipe emissions, reducing air pollution and improving overall air quality in urban areas. Additionally, they are generally quieter than traditional buses, contributing to reduced noise pollution. However, challenges include limited range per charge and the need for extensive charging infrastructure, which can be expensive to install and maintain.

Fuel-cell electric buses utilize hydrogen fuel cells to generate electricity, emitting only water vapor as a byproduct. They offer longer ranges compared to battery-electric buses and shorter refueling times. For most municipalities, the procurement of hydrogen and the creation

of infrastructure for hydrogen refueling is the main challenge to consider when introducing this technology into their transit system. However, in Stephenville it is conceivable that the Town could cooperate with the hydrogen plant on both issues, and that workforce with knowledge about hydrogen infrastructure could be available in the future.

Hybrid-electric buses combine an internal combustion engine with an electric propulsion system, offering improved fuel efficiency and reduced emissions compared to conventional diesel buses. They can operate on electric power at lower speeds and switch to the combustion engine for higher speeds. However, they still rely on fossil fuels to some extent and may have more maintenance requirements due to the complexity of dual power systems.

Clean diesel buses are essentially conventional buses, but they utilize advanced emission control technologies to minimize pollutants and enhance fuel efficiency. They benefit from a well-established refueling infrastructure and have a longer range compared to many electric buses. However, despite advancements, clean diesel buses still emit greenhouse gases and air pollutants. As pricing and taxation for fossil fuel products may also be expected to increase in the long-term, this may be the most practical but least future-oriented option among the four technologies considered.

OPEN QUESTIONS

While some initial transit routing concepts and transit service approaches are discussed in this Municipal Growth Plan, further analysis will be required before the Town will be in the position to begin to plan for transit services.

More clarity is needed about the transit systems service objectives, predicted ridership, required service levels etc. Once these high-level goals of the transit system are established, a technical analysis of route frequencies, peak times, headways and a detailed, technical assessment of the route proposals will be required.

Towards the end of the process, the Town will need to establish a financial plan including funding concept and fare strategies, before moving forward to select the right type of vehicle fleet based on all of the above-mentioned considerations.

Recommended further studies + projects

- + Transit Service Demand Study
- + Transit Feasibility Study
- + Technical routing and fleet procurement options
- + Public engagement activities on transit service



Figure 53: Small transit bus in Stratford, PEI. This bus model comes in lengths between 30' and 35'. (Photo Credit: Sean Marshall; CC BY-NC 2.0)

4.4 Recreation Recommendations

ALIGNMENT WITH GROWTH PRINCIPLES

Stephenville offers a diverse array of recreational opportunities, spanning from outdoor adventures on trails and sports fields to cultural experiences in theaters and arts centers, catering to a wide range of interests. With growth on the horizon in Stephenville, it becomes vital to both maintain and enhance these offerings. By investing in recreation planning, Stephenville can continue to build a resilient community, prioritizing health, environmental sustainability, and economic prosperity. The need for these community characteristics aligns with at least three growth principles:



INCLUSIVE ECONOMY

Effective recreation planning is crucial for fostering an inclusive economy. Through strategic planning, recreation initiatives not only promote economic growth but also contribute to a thriving and equitable community. Furthermore, by enhancing recreational opportunities, more visitors are attracted, thereby boosting tourism and further bolstering the local economy.

Prioritizing active transportation infrastructure has a dual effect: it enhances travel equity and accessibility, ensuring all residents can participate in economic activities. Moreover, it stimulates the recreation industry, generating employment opportunities and cultivating a healthier, diverse, and resilient workforce.



VITAL CORE + SERVICES

Enhanced active transportation infrastructure and increased recreation opportunities are pivotal in revitalizing the Downtown core. By ensuring the area is easily accessible to residents of all ages and abilities, it encourages a broader demographic to engage with Downtown businesses while accessing essential services. Moreover, offering recreation activities in the heart of Stephenville will attract more residents and visitors, who are likely to explore other nearby spots, contributing to the vibrancy of the area and fostering a dynamic atmosphere.



MAKE USE OF NATURAL ASSETS

By strategically designing recreational spaces and trail networks that capitalize on the town's vast natural beauty, more residents and visitors will be drawn to explore and appreciate the surrounding environment. Increased usage of these spaces not only enhances community engagement but also fosters a deeper connection with nature. This heightened appreciation for the environment can contribute to a society that values and prioritizes environmental sustainability.

APPROACH

Various factors influence an individual's likelihood to engage in recreation, spanning from personal and social aspects to community standards, built and natural surroundings, and policies. Therefore, an effective approach should recognize the connections between individuals and their political, social and physical contexts. In alignment with this perspective, recommendations have been developed and organized into three categories:

- + **Policy and Procedure:** Ensure equitable access to recreation by enabling policy and procedure that effectively caters to the diverse and evolving needs within Stephenville.
- + **Social Environments:** Foster inclusive and supportive social environments that promote recreation for all.
- + **Physical Environments:** Establish barrier-free and welcoming physical environments (natural and built) that actively support and encourage engagement in recreation, while accommodating growth.

RECOMMENDATIONS

Policy and Procedure

Develop and implement a comprehensive Active Transportation (AT) Plan to foster a healthier and more sustainable community where AT is not only safe and practical but also an enjoyable experience for all.

- + Integrating active transportation infrastructure with existing trail networks (e.g. the Walk-A-Way

Active transportation (AT) is a broad term that refers to all modes of human-powered transportation, including walking and wheeling (referring to the use of assistive devices), cycling, roller blading and skateboarding, seasonal activities such as kayaking, canoeing, skiing and snowshoeing, and some motorized forms of transportation like e-bikes and electric wheelchairs. Some people depend on active transportation to get where they need to go due to lack of alternative transportation, while others choose to use active transportation as a preferred form of commute, exercise, recreation, or leisure.



Trail Network) is key. This integration allows residents and visitors alike to enjoy improved access to Stephenville's natural assets while simultaneously reducing reliance on cars, thus minimizing environmental impact. Furthermore, any new developments should prioritize pedestrian infrastructure and connectivity with park areas. This ensures that future growth respects and enhances Stephenville's natural assets, thereby maintaining its allure as a desirable place to live and visit.

- + Implement a formal Access and Inclusion Policy to ensure that as Stephenville grows, equitable access to recreation remains a priority.
- + Partner with local community organizations to enhance community capacity and increase the number of qualified recreation program leaders in Stephenville. Recreation training resources can be found through the [RecreationNL Rec Zone](#).

- + Establish a annual engagement process to assess resident and stakeholder satisfaction with recreation services in Stephenville. Ongoing evaluation is key to ensure that as the Town grows, recreation opportunities are remaining relevant.

2. Social Environments

- + Enhance recreation volunteer capacity and create a comprehensive volunteer database, with guidance from the RecreationNL [Volunteer Recreation Leadership Toolkit](#).
- + Create and improve areas that promote socializing and unstructured play. This initiative focuses on designing spaces that can accommodate growth while encouraging community interaction and spontaneous play, contributing to a vibrant and welcoming environment.

3. Physical Environments

- + Prioritize multi-purpose indoor and outdoor facilities that cater to the diverse and evolving needs within the community. By moving away from traditional stand-alone, single-purpose facilities, Stephenville can ensure that its recreational spaces are adaptable and inclusive.
- + Multi-purpose facilities offer a versatile platform, accommodating a variety of services and programs for residents of all ages, abilities and interests. This approach not only enhances community engagement but also optimizes the utilization of resources, providing a cost-effective solution for the growing population. As Stephenville continues to evolve, these flexible facilities will play a pivotal role in fostering a sense of community, promoting health and well-being, and meeting the dynamic recreational interests of a growing population.



Figure 54: Residents playing baseball on the Philip Parsons Memorial Field

- + Implement initiatives that decentralize offerings, to extend services to neighbourhoods that are less central. This could include portable play boxes, neighbourhood community gardens, and enhancing Stephenville's existing equipment loan program.
- + Using a "[Parks for All](#)" approach, explore strategies to improve the accessibility of facilities and outdoor spaces. Ensure the evaluation includes both the physical and social environment (e.g. gender-neutral washrooms, language, etc.) and encompasses a comprehensive range of facilities.
- + Provide access to age-friendly parks and open space access in all neighbourhoods in Stephenville, based on the guidance of the World Health Organization's [National Programmes for Age-friendly Cities and Communities Guidelines](#).
- + Implement a Trail Strategy to ensure that trail improvements and development can accommodate for growth in Stephenville, while ensuring the quality and sustainability of existing trails are protected. This should be done in alignment with the existing *Motorized Snow Vehicles and All-Terrain Vehicle Regulations*, and any future Action Transportation Planning.

Recommended further studies + projects

- + Active Transportation Plan or Policy
- + Resident and Stakeholder engagement activities on recreation services
- + Access and Inclusion Policy
- + Trail Strategy



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