Impact Assessment Report re: Complete Communities

Prepared for the City of Salmon Arm
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Licker Geospatial Consulting Co.
2405 East Hastings St
Vancouver BC, V5K 1Y8

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Executive summary

The City of Salmon Arm ("the City"), with support of a UBCM Complete Communities grant, has retained Licker Geospatial Consulting Ltd and project partners MODUS Planning Design and Engagement and Water Street Engineering (collectively: "the Project Team") to conduct an analytical study into the effects of land use change in the High Density Residential Area, designated in the Official Community Plan (OCP) ("the study area") immediately to the south of Downtown Salmon Arm. The study was formulated to test the effectiveness of land use policy under two alternate scenarios to drive change in a historically static area as well as to quantify the outcomes of this expected change out to 2046.

This assessment was executed under the rubric of the complete communities assessment framework which suggests the following analytical lenses:

- **Housing:** a complete community will have a diversity of housing types that meet the communities needs and accommodate all stages of life.
- **Daily needs:** a complete community will have a wide range of amenities with a reasonable distance of residences.
- **Transportation:** a complete community will have a range of transportation options.
- **Infrastructure:** a complete community supports efficient use of infrastructure through more compact forms of development.

Through these lenses the project team generated impacts in the study area for three alternate futures for:

- Housing diversity;
- Access to transit;
- Access to daily needs;
- Water and sewer infrastructure;
- 3D Massing;
- Demographics;
- Retail market and commercial viability; and
- Institutional and recreation Impacts

Key findings of the study include:

- Alternate land use regimes can produce differing housing outcomes, however these effects are limited in scale due to the size of the study area and the overall growth rate of the community
- Growth in the study area will likely not have a demonstrable impact on transit usage given historically low levels of transit mode share in the community
- Absent any new planned amenities, access to daily needs decreases in all three scenarios as growth occurs in less location efficient areas to the south of the study area
- As the study area is already within the service area for the water and sanitary sewer systems infrastructure improvement requirements are relatively minor and there are not significant differences between the servicing requirements for the three scenarios.
    - **Water**: Local watermain Improvements are required to support higher fire flows (for apartments) in the SW portion of the study area (in water pressure Zone 2). Additional water infrastructure is required to support higher fire flow requirements in Zone 2. **Sanitary sewer**: Upgrading to the Wharf St Forcemain (FM, currently 300 mm , 400 mm proposed) is required to convey increased sewer flows to the WWTP from the Wharf St Lift Station.
- Owing to the higher density nature of future development, neither alternate land use scenario will result in a dramatic increase in school age children in the Study area but both scenarios will result

in 40% more seniors than is currently in the area, should current trends continue. Additional senior-focussed amenities should be considered for the area.

- Intensification in the study will generate a reasonable demand for new retail space that could be accommodated either directly within the study area or in the lands immediately adjacent to Trans Canada Highway. Overall the study area can safely accommodate an additional 70,000-110,000 sq ft of retailing space (with a focus on food retailing, restaurants and automotive) without negatively impacting the viability of retailing in the Downtown area.
- Intensification in the study area and Salmon Arm more generally will potentially necessitate the development of new institutional spaces which could be located in the study area; this would mitigate some of the access issues detailed above.
- Finally, intensification of the study area will not lead to any significant or negative impacts with regards to access to recreational amenities due to the well provisioned nature of the study area and of Salmon Arm more generally.

Recommendations resulting from the study include:

- Significant multi-family intensification in the study area would be facilitated by a high density land use rezoning from R-10 to R-5 (or some variant thereof) which would align with the OCP high density designation.
- The new zoning should facilitate taller buildings, amend the minimum parcel size, minimum frontage and reduce side setbacks. This would allow for small apartment buildings or fourplexes. Parking minimums in the new zone should be reduced to one (1) stall per unit, and consider minimum bike parking requirements.
- To facilitate small scale commercial development in the area, consider allowing local serving retail and personal services as a conditional secondary use in this new zone.
- To focus and prioritise the study area as a main locale for growth in the community, the new OCP could tighten the areas designated as medium density in the remainder of the community.
- Consider a marketing strategy for the study area which emphasizes the strong potential of the location both municipality and regionally.
- There is sufficient market demand for commercial and retail uses in the Downtown area of Salmon Arm.
- There is no need for large scale retail rezoning and expansion in the study area. Provision of commercial/retail lands in the study should be limited as part of the rezoning
- The absence of an elementary school in the area suggests a strong opportunity for a potential capital investment. Indeed, subsequent analysis suggests that an elementary school in the study area. Further engagement with SD 83 on this matter would be beneficial in this regard.
- Additional sidewalk improvements and connections should be explored for additional protected crossings across the Trans Canada Highway.
- A review of potential transit service increases could spur additional transit usage and therefore catalyse shifts to more sustainable modes of travel in the study area. Further investigation into the generative effects of more frequent service would be beneficial in this regard.
- Existing park and open spaces are adequate to meet current needs, and likely future needs as well. Existing areas should be protected.
- No significant water and sanitary sewer infrastructure upgrades are required in the short term to accommodate planned growth under the scenarios.
- The identified infrastructure upgrades can be included in future capital planning and execution programs.
- The anticipated pace of change is fairly measured. However, should the City engage in some of the complementary activities detailed above that could potentially accelerate growth and change in the study area and if economic conditions improve, then the study area may intensify both more quickly. Should this be the case, then the City should consider complementary activities that would mitigate the pace of change.

Purpose of the Report

The City of Salmon Arm is located on the south shore of Shuswap Lake in the southern interior of BC, with a population of roughly 20,000 residents. Located within the Columbia Shuswap Regional District, Salmon Arm is the largest urban centre in the region and serves as a resident, tourist and transportation hub, serving an additional 45,000 residents in the broader region.

Since 2012, the Official Community Plan has identified policy in an area for higher density residential infill (Figure 1) - this is the subject of this report, and referred to as the study area. This High Density Residential policy (Policy 8.3.9 of the OCP) allows for:

"*[...] all forms of residential housing up to and including multiple family apartment buildings. High Density Residential developments may be permitted to a density of 100 units per hectare. Density may be increased to a maximum of 200 units per hectare for Assisted Living housing, or 130 units per hectare for multiple family housing, subject to the provision of special social or public amenities (e.g., commercial childcare facility, fully accessible dwelling units and suites, rental housing, affordable rental housing, below grade or parkade style parking, parkland, greenways or trails, green building and site design) in accordance with the Zoning Bylaw*."

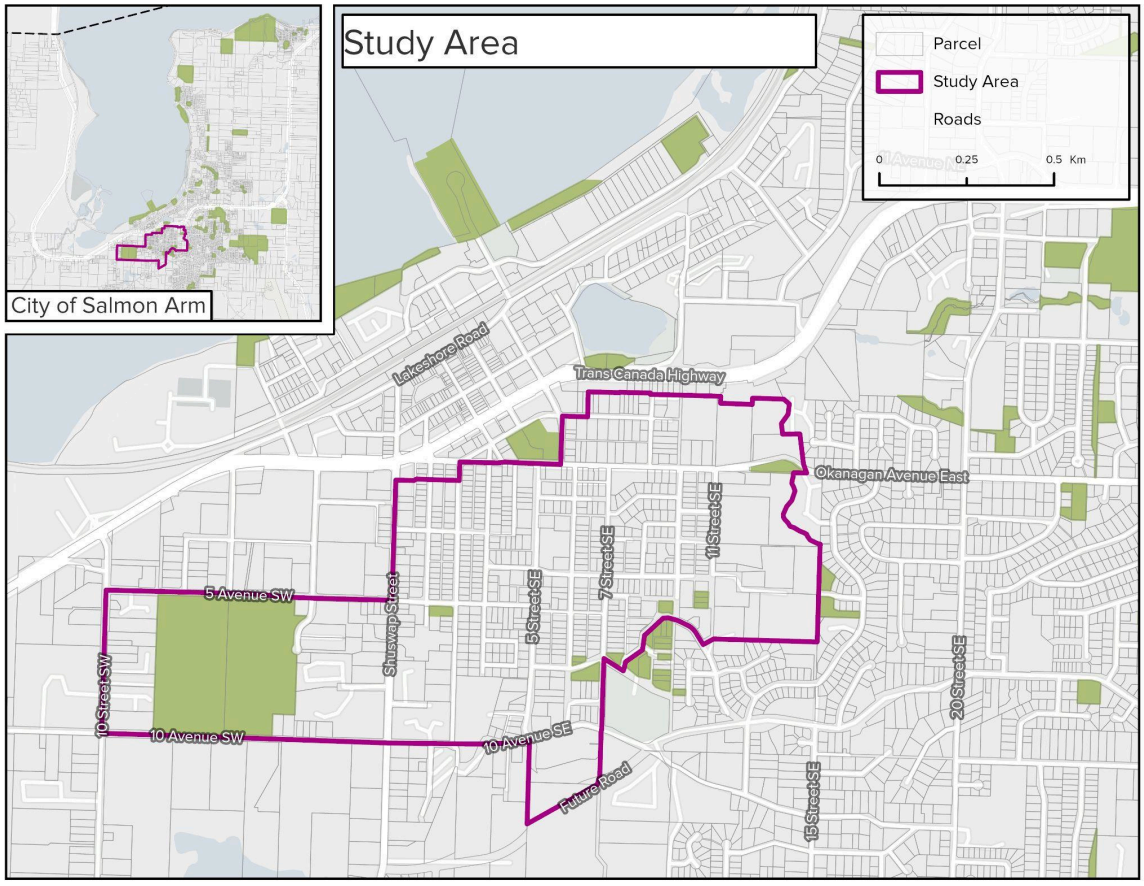

Figure 1. study area

The purpose of this project and report has been to apply a Complete Communities lens to the study area in an attempt to evaluate the residential, commercial, and institutional implications that result from a variety of growth scenarios. The Complete Communities Assessment is funded through the Provincial Government's

Complete Communities Program, and aligns with the BC Climate Action Charter's requirement that all local governments create complete, compact, and energy efficient communities.

The term "Complete Communities" is a broad concept that can be defined in several different ways. In this report a complete community provides a diversity of housing to meet community needs, and accommodate people at all ages and stages of life, and provide a wider range of employment opportunities, amenities and services within a 15-20 minute walk. This concept is defined more deeply in the "Complete Communities Guide (2023) prepared by the B.C. Ministry of Housing.

The assessment measures completeness of communities through different analytical lenses. The four components of the Complete Communities assessment are described below.

- **Housing:** a complete community will have a diversity of housing types that meet the communities needs and accommodate all stages of life.
- **Daily needs:** a complete community will have a wide range of amenities with a reasonable distance of residences.
- **Transportation:** a complete community will have a range of transportation options.
- **Infrastructure:** a complete community supports efficient use of infrastructure through more compact forms of development.

This report focuses on the assessment of the above lenses in the High Density Residential study area, by comparing the stated conditions to a Business as Usual growth scenario, and two alternate growth scenarios. Evaluating each lens results in an understanding of the strengths, weaknesses, opportunities, and threats present for a community in their path towards completeness. This analysis further suggests the potential and limitations of land use change and population growth to affect the completeness of a community as it grows and changes.

The structure of this report is as follows:

The following section, Growth Scenarios, reports on the growth scenarios and targets that were developed for this project. The proceeding section, Scenario Modelling Results, provides the results of modelling in the form of an impact assessment. Each of the four lenses above are measured and reported on, and several additional indicators are also measured for supplementary information. The final section of this report, Methodology, includes insight into the methodology for scenario development, scenario modelling, and each indicator assessed.

Growth Scenarios

Growth Scenarios

Ultimately, two alternate growth scenarios were created in addition to the Business as Usual base scenario through a collective charrette process[1]. All three modelled scenarios extend to 2046, and build out to the same housing targets for each archetype (see Table 1). Therefore, the total net new units stay consistent across scenarios, while the distribution of density and housing types differ. By modelling growth in this way, we are able to highlight how changing the land use and allowable density inside the study area could shift the potential allocation of new units and proportion of high density archetypes into the study area. An overview of each scenario and how they differ is presented below.

In the alternate scenarios, existing land uses from the OCP are held static in the areas outside of the study area and only land uses within the study area are altered. By altering land use, we were able to modify densities and the resulting economics of land development to develop alternate residential outcomes (distributionally) in the study area and beyond. Additionally, we have kept our housing demand factors largely constant which allows us to analyse and interpret the theoretical distributional impacts of development between scenarios on an apples-to-apples basis.

Table 1. Housing targets derived from a combination of BC stats household forecasts, historic building permit analysis for Salmon Arm and analysis of Provincial Housing Statutes (Bill 44)

Housing Archetype	2046 Housing Targets
Additional Suites or Carriage Houses	1133
Single Family Dwelling	1402
Ground Oriented (Townhouse)	390
Three or four-plex	125
Apartment - Purpose Built Rental	390
Apartment - Strata	261

Scenario 0 - Business as Usual

Business as Usual - This is a growth scenario that anticipates continued typical growth directions pursuant to the current OCP and associated City plans. Housing growth is based on historic trends and follows patterns prescribed in current OCP land use policy. In this growth scenario, no substantial policy changes occur from the current state as it exists today. Table 2 is presented below to show the assumed densities and uses pursuant to the OCP that would drive growth in this scenario.

Table 2. Scenario 0 - Business as Usual residential land use and density assumptions table; used as an input for growth scenario modelling

Land Use	Allowable Density (UPH)	Allowed Residential Archetype
Residential High Density	100; 40	Apartment; Ground Oriented
Residential Medium Density	40	Ground Oriented
Residential Low Density	22	Single Family Dwelling, Suite, SSMUH

[1] Please see the methods section for further information about the charette and scenario development process.

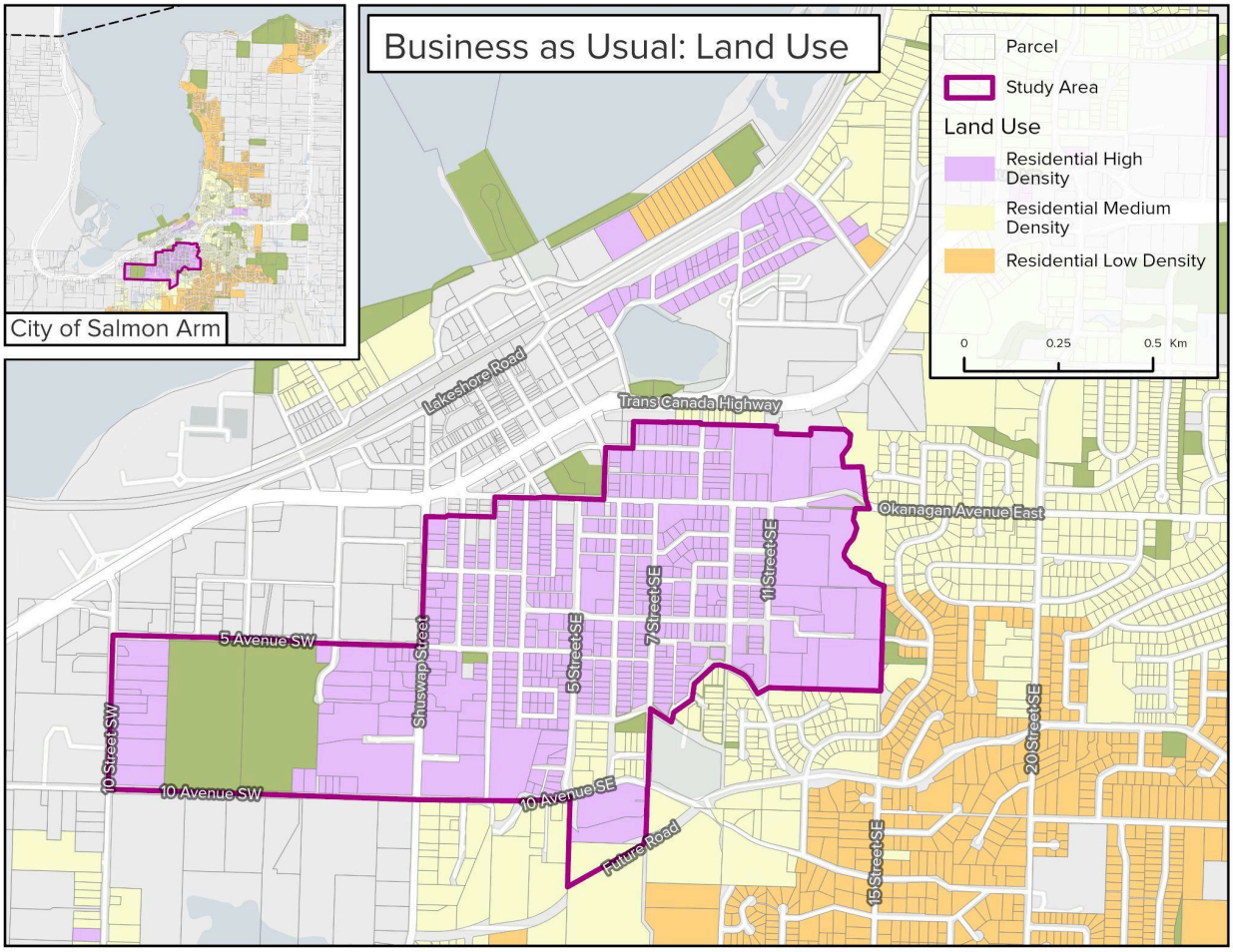

Figure 2. Business as Usual residential land use in the study area as per the current Official Community Plan.

Scenario 1

This is a growth scenario that anticipates increased levels of growth in the study area as well as a broad shift in housing demands from single detached to attached dwellings.

The study area is organised around two main commercial nodes - “pocket plazas” - to the northeast and in the centre of the study area. These commercial nodes will form the study area’s heart and will be centres for housing, transportation, public gatherings, social events and commercial activity. The pocket plazas contain the highest density apartments in mixed use buildings. Density then gently declines outwards, with the lowest density ground oriented land used in the south of the study area. This situates the lower density furthest away from the Downtown core. Table 3 is presented below to show the assumed densities and uses pursuant to this modified land use plan that would drive growth in this scenario.

Table 3. Scenario 1 residential land use and density assumptions table; used as an input for growth scenario modelling

Conceptual Land Use	Allowable Density (UPH)	Allowed Residential Archetype
A	150	Apartment
A1	200	Mixed Use (Apartment)
B	70	Ground Oriented

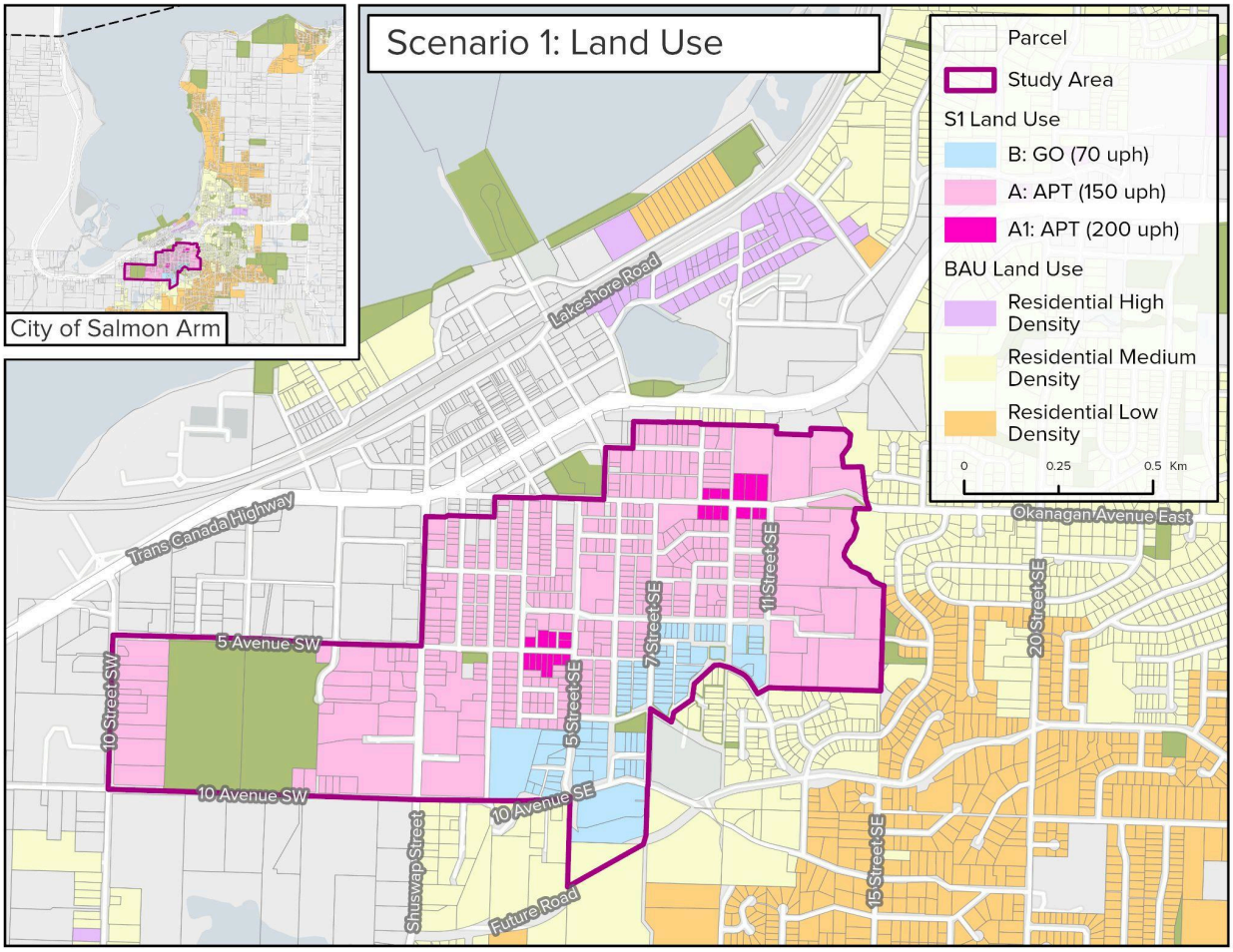

Figure 3. Scenario 1 theoretical residential land use within the study area; Business as Usual residential land use as per the current Official Community Plan outside the study area.

Scenario 2

This scenario introduces an overall lower density than Scenario 1. In contrast to Scenario 1, there are no central nodes imagined in this scenario. Rather, growth is oriented North-South, and ground oriented land use is provided with increased space. Meanwhile, apartment residential land uses are mixed in with ground oriented (townhouse) units. Table 4 is presented below to show the assumed densities and uses pursuant to the modified land use plan that would drive growth in this scenario.

Table 4. Scenario 2 - residential land use and density assumptions table; used as an input for growth scenario modelling

Conceptual Land Use	Allowable Density (UPH)	Allowed Residential Archetype
B	70	Ground Oriented
D	150, 70	Apartment, Ground Oriented

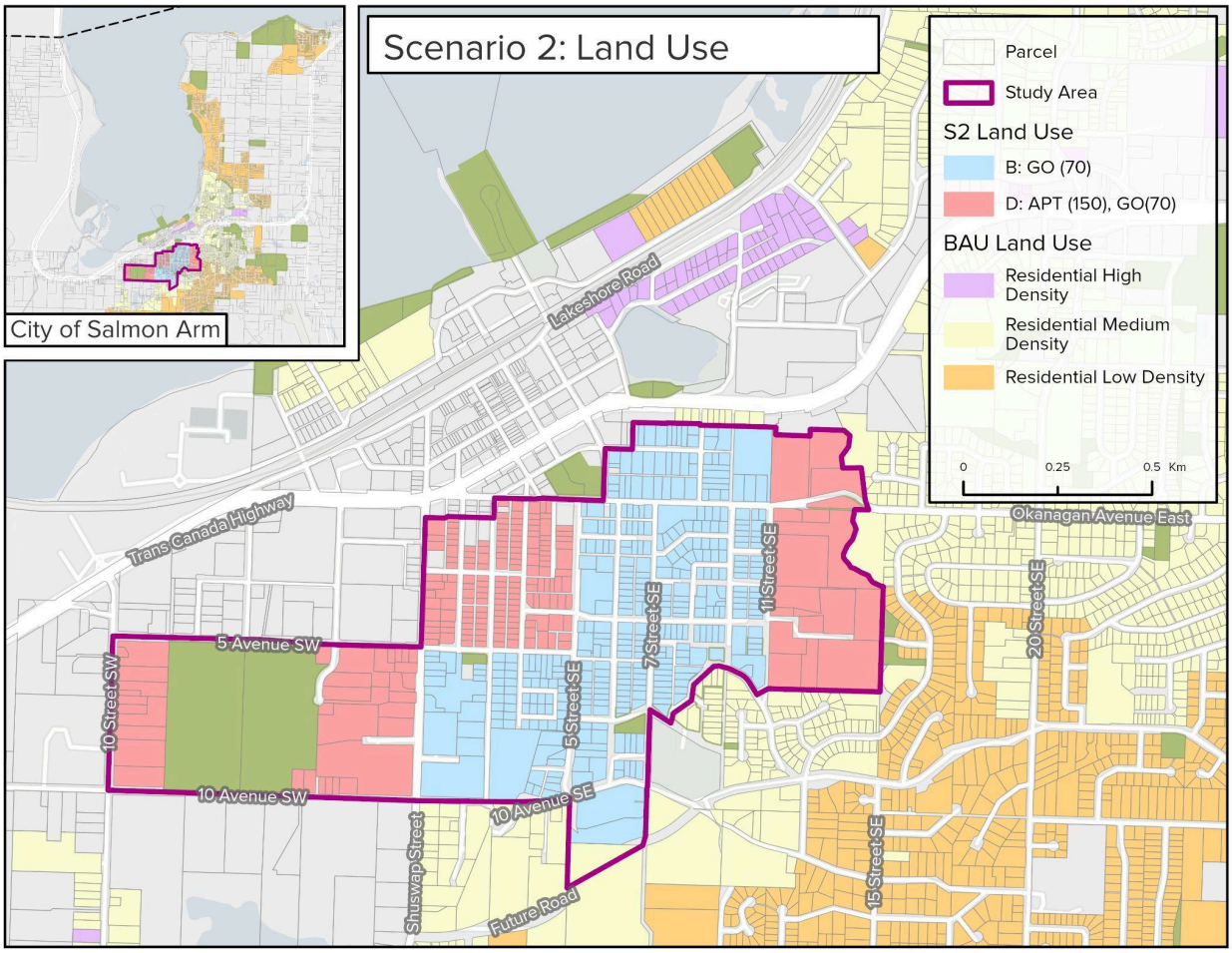

Figure 4. Scenario 2 theoretical residential land use within the study area; Business as Usual residential land use as per the current Official Community Plan outside the study area.

Scenario Modelling Results

Scenario Modelling Results

Housing

While the same housing targets City-wide were used for all three scenarios, different land use and density allowances have resulted in differences to the spatial distribution of development outcomes (distribution and types of units) both within, and, outside of the study area. As seen in Figures 7, 8 and 9, the distribution of net new units changes gradually within the study area, with Scenarios 1 and 2 increasing density the most.

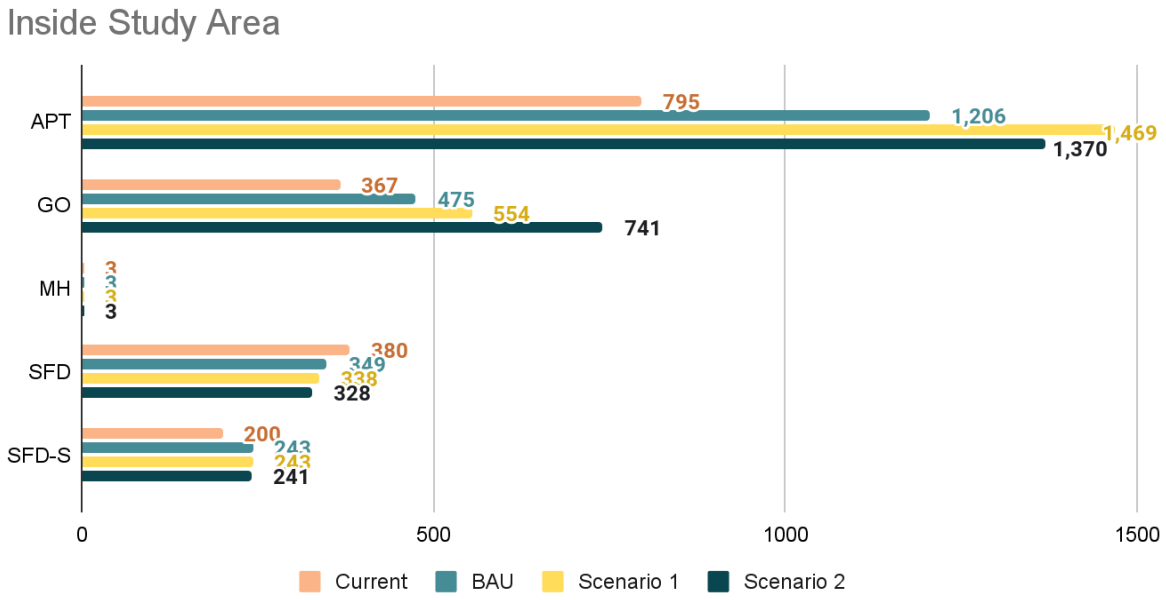

Figure 5. The number of units within the study area by dwelling type for current conditions and modelled scenarios.

The study area's housing stock currently includes single-family homes, single-family homes with suites, multi-family units including duplexes, as well as apartments (the number of units can be seen in Figure 5 and the proportions can be seen in Figure 6). Currently, a combined 33% of the study areas housing units are single-family homes and single-family homes with suites, while 46% are apartments. In comparison, the cumulative City of Salmon Arm is made up of 68% single-family and single-family with suite homes, and only 13% are apartments.

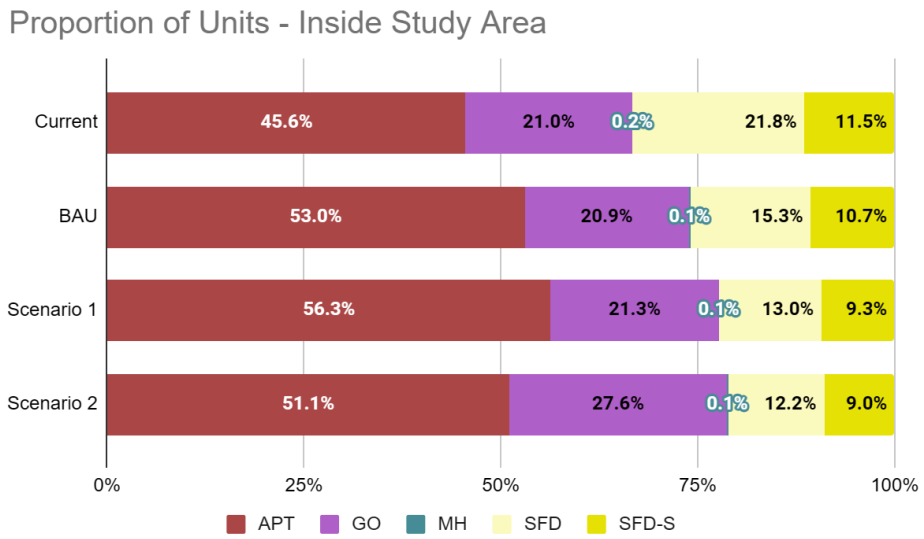

Figure 6. The proportion of units within the study area by dwelling type for current conditions and modelled scenarios.

Under all growth scenarios, the study area's housing stock typologies remain unchanged but differ substantively in their distribution when compared to current conditions. In all scenarios, apartments remain the most prevalent housing type, but growth is most significant in Scenario 1 - Pocket Plazas, nearly doubling from 795 current apartment units, to 1,469 (see Table 5).

Of note, in the Business as Usual scenario, ground oriented units slightly decrease in terms of their relative proportion of the total in the study area. The growth in the number of units is due to growth in all housing types, but there is no preference for ground oriented units in the study area under this scenario. In comparison, ground oriented units increase most significantly in Scenario 2, from 367 to 741 units.

One constant is a development of apartments in the eastern portion of the study area at Okanagan Ave E and 11 St SE, representing a currently in-stream development proposal. In addition to this, Scenarios 1 and 2 add further apartments around this area. There are several other in-stream development proposals held constant through all scenarios, but this one is the largest.

Table 5. Current number of units within the study area, and total number of units in 2046 for each scenario buildout.

	Current	BAU	Scenario 1	Scenario 2
APT	795	1,206	1,469	1,370
GO	367	475	554	741
MH	3	3	3	3
SFD	380	349	338	328
SFD-S	200	243	243	241
	1,745	**2,276**	**2,607**	**2,683**

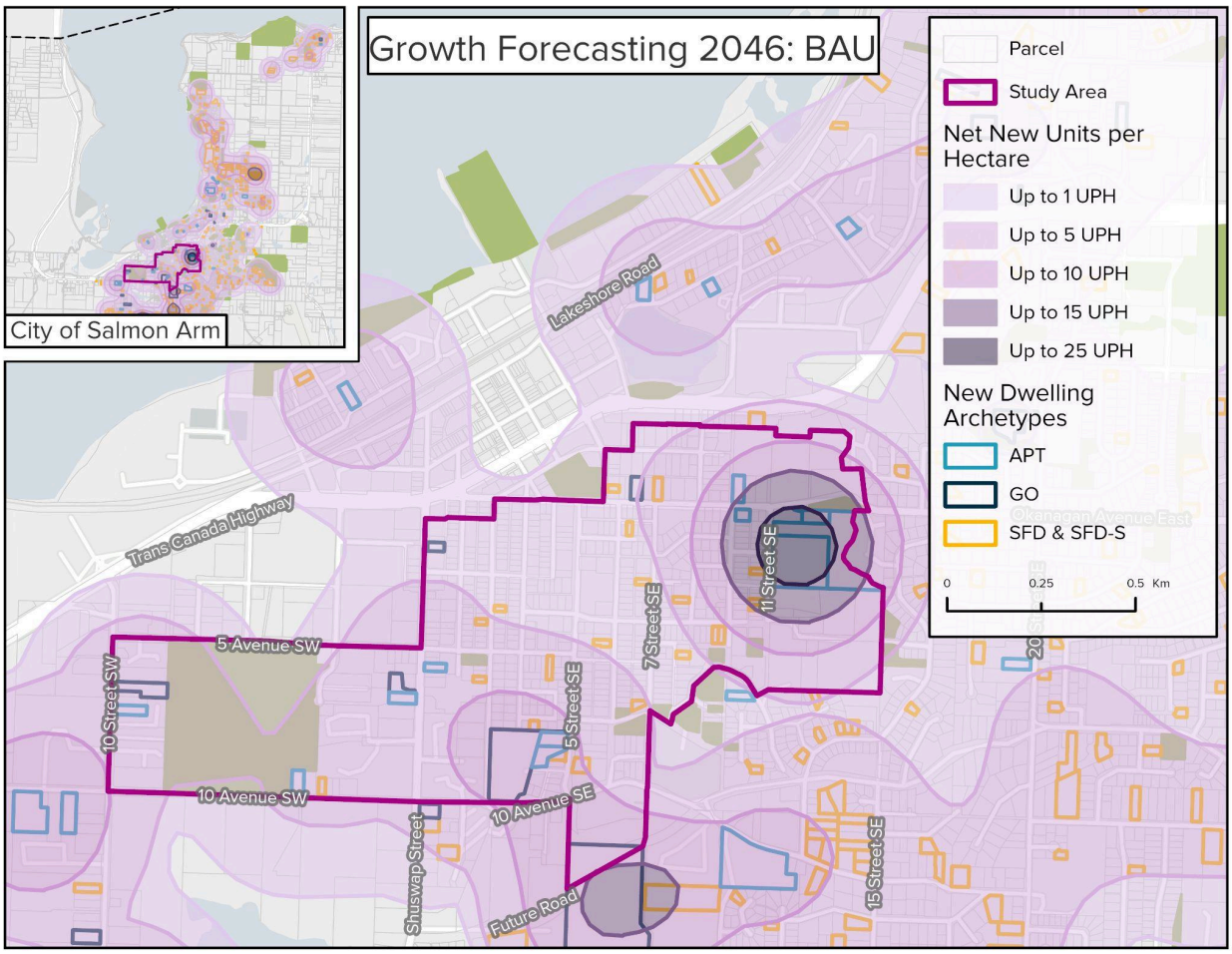

Figure 7. The study area showing growth forecasting results (net new unit distribution and dwelling archetypes) for Business as Usual scenario.

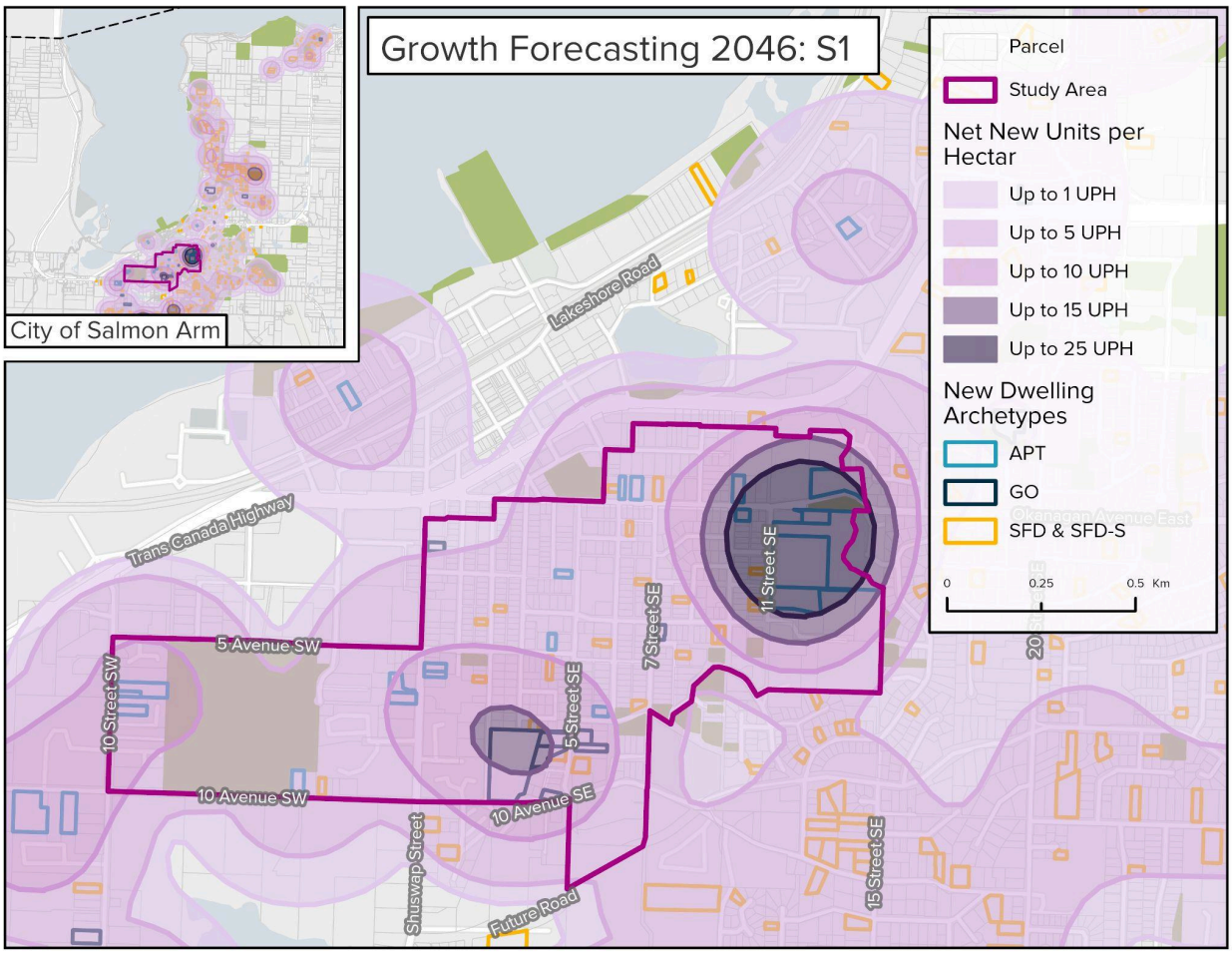

Figure 8. The study area showing growth forecasting results (net new unit distribution and dwelling archetypes) for Scenario 1

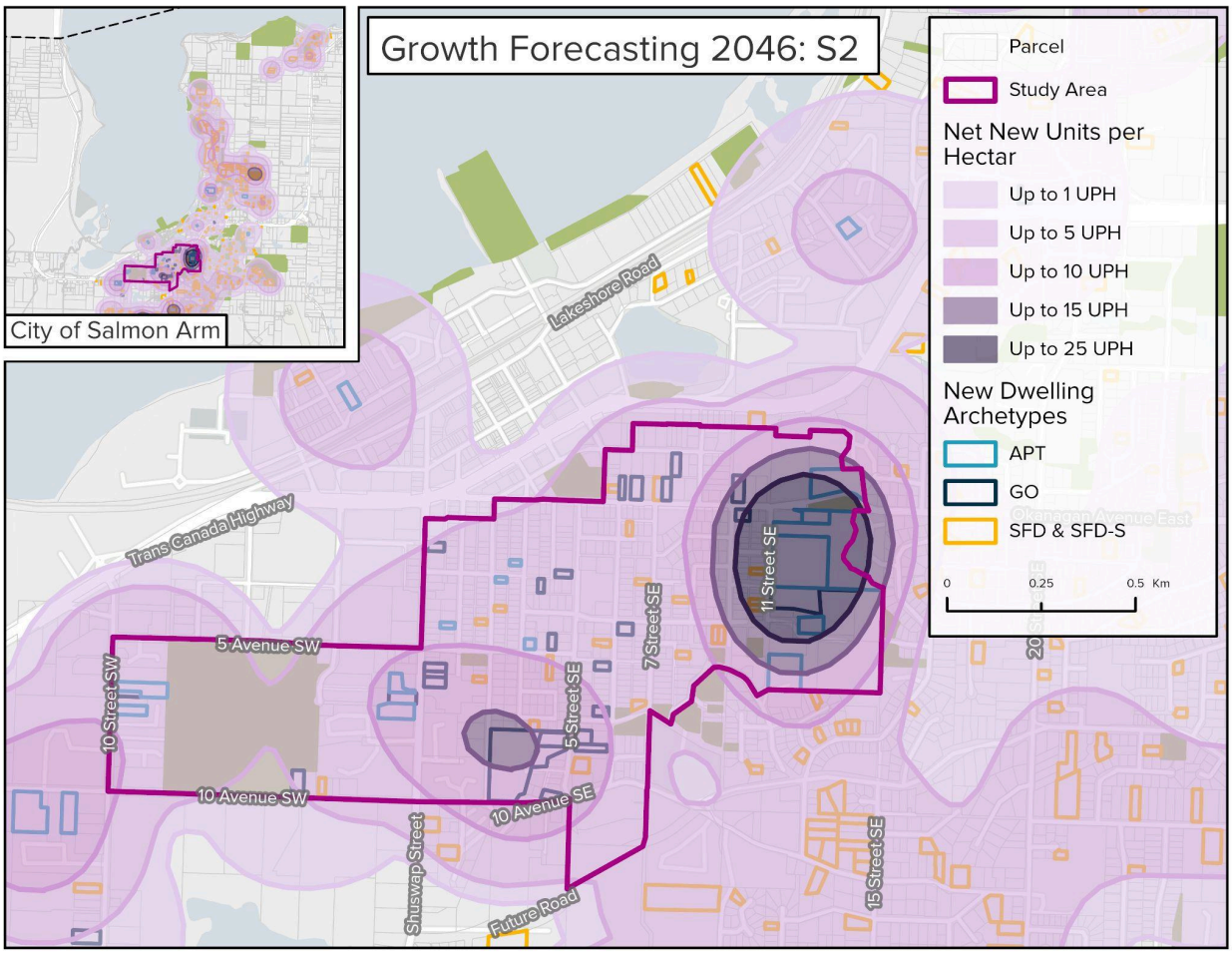

Figure 9. The study area showing growth forecasting results (net new unit distribution and dwelling archetypes) for Scenario 2.

Transportation

Transportation in the study area currently consists of 3 bus routes - the 21 - West Loop, 22 - College/Hillcrest, and 25 - Shopper's Shuttle. The primary route is the 21, running through the centre of the study area.

As shown in Figure 10, the majority of the study area is within 300m of a transit stop. However, a portion at the south of the study area still falls outside this threshold, and as seen in the previous section, this area shows moderate to significant growth in all three scenarios.

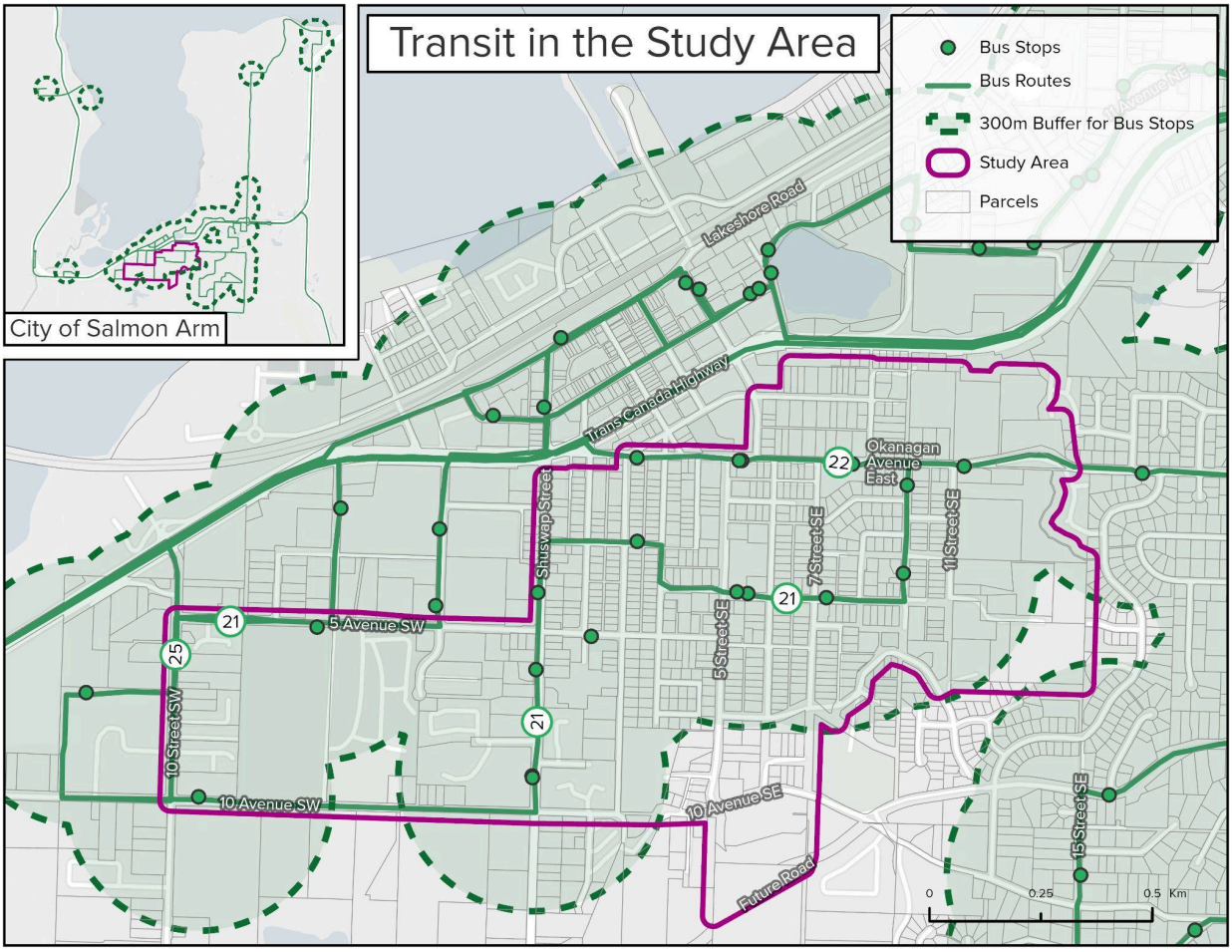

Figure 10. The study area showing existing transit infrastructure (bus stops and bus routes) and a buffer of 300m surrounding each bus stop.

In general, while the study area has good access to transit stops on a purely distance based measure, there are several important considerations:

- **Frequency of service:** Currently, all routes servicing the study area depart on an hourly basis, and all three routes are scheduled around the same time. This significantly limits the use of these routes for both work commute and personal uses.
- **Increased population:** In all scenarios, the study area sees a significant amount of population growth compared to the City as a whole. This implies a significant need for increased transit service that adequately transports residents to amenities and employment centres. Inadequate transit service in this area that caters to families, retirees, and working people, will result in an unsustainable amount of car dependency. Changes in population within 300m of a transit stop can be seen in Tables 6 and 7.
- **Location efficiency:** The study area is already primed in a location-efficient manner, with transit access putting it reasonably close to amenities and employment centres. With adequate transit access, burden on car use would be lessened in this area. That is to say, this is not a rural or even semi-rural area - it is already reasonably close to amenities and could result in residents with very low vehicle needs, if they received adequate transit coverage.

Table 6. Population within 300m of current bus stops from current conditions and the three land use scenarios.

	Current	BAU	Scenario 1	Scenario 2
Inside study area	3093	▲ 360	▲ 661	▲ 738
Outside study area	16181	▲ 53	▲ 74	▲ 55

Table 7. Percent change in population within 300m of current bus stops from current conditions to the three land use scenarios.

	BAU	Scenario 1	Scenario 2
Inside study area	▲ 13.4%	▲ 24.6%	▲ 27.5%
Outside study area	▲ 55.0%	▲ 76.3%	▲ 56.9%

Daily Needs

Figure 11 shows locations in the study area that have the highest access to daily needs. In this context, daily needs are considered to be bus stops, day cares, schools, grocery stores, parks, and employment areas. A parcel is considered “highest access” if it is closest, by road length, to each of these amenities as compared to other parcels in the City.

As may be expected, the areas with highest access to amenities are those in the northern portion of the study area (Figure 11). Logically, this is due to proximity to the Downtown core, which contains the highest variety of amenities in the area. In contrast to this, as seen in the housing section above, the greatest density of development in all three scenarios occurs in the south and far east portions of the study area - the areas with lowest access to daily needs in the study area. Currently 35% of residents in the study area are within 1500m of amenities, and 86.6% are within 3300m. This drops to 28-29.8% and 81.9-84.2% respectively in all growth scenarios, due to most new units being placed furthest away from existing amenities (Figures 12 and 13).

While the entire study area does have relatively good access, these results imply that new facilities will be required in a variety of locations to cater to increased population and maintain current levels of service. Of significant note are schools - the entire study area has low access to schools as compared to the rest of the City. An increased need for schools may become an increasing concern in particular if household demographic trends continue to change, with more family household compositions being seen in apartments and ground oriented units.

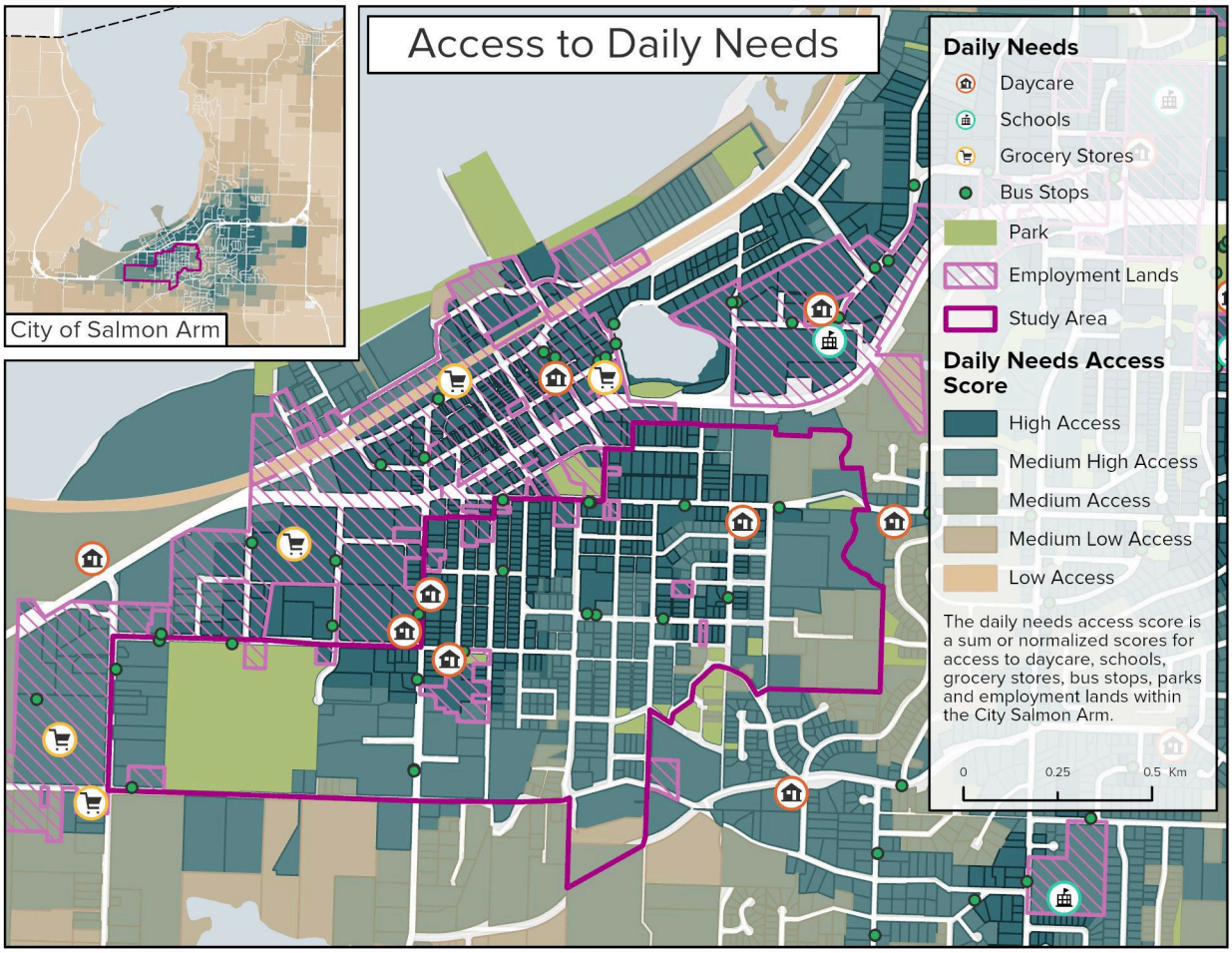

Figure 11. The study area showing access to the six categories which were determined to be daily needs for residents.

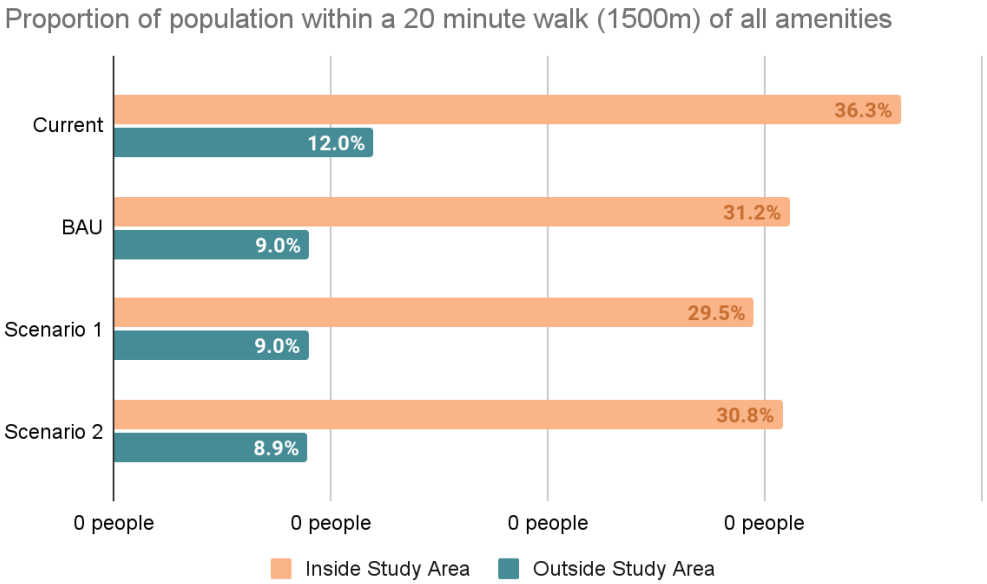

Figure 12. Proportion of population inside and outside the study area who have access to all amenities within 1500 metres, approximately 20 minutes walking.

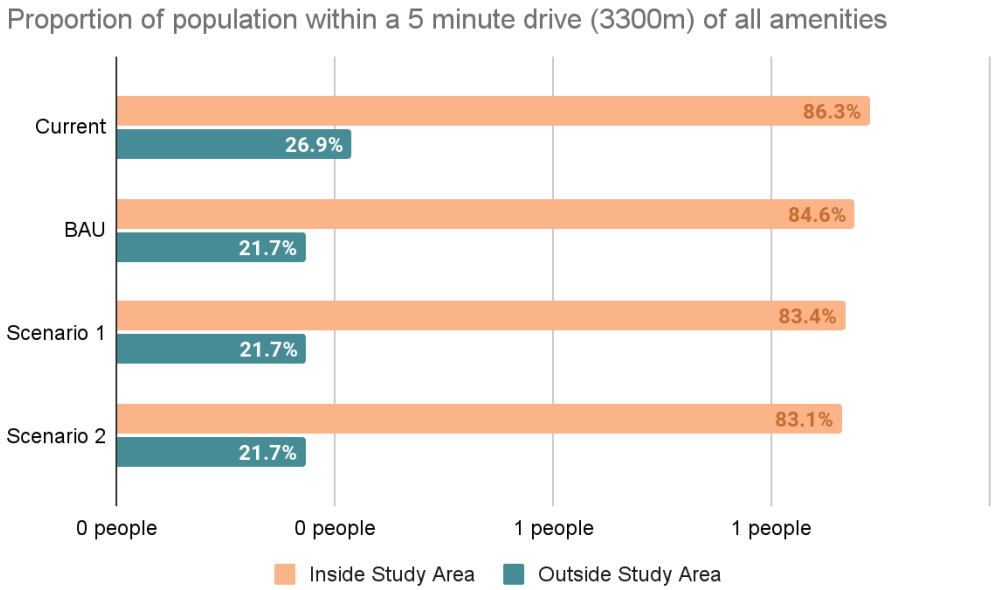

Figure 13. Proportion of population inside and outside the study area who have access to all amenities within 3000 metres, approximately 5 minutes driving.

Water Infrastructure

Please see Appendix A for a water and sanitary sewer infrastructure assessment technical memorandum completed by Water Street Engineering.

The significant findings of the water and sanitary sewer infrastructure assessment were:

- **General:** As the study area is already within the service area for the water and sanitary sewer systems infrastructure improvement requirements are relatively minor (compared to greenfield development).
- **General:** There are not significant differences between the servicing requirements for the three scenarios.
- **Water**: Local watermain Improvements are required to support higher fire flows (for apartments) in the SW portion of the study area (in water pressure Zone 2).
- **Water**: Additional water infrastructure is required to support higher fire flow requirements in Zone 2. The solution recommended is creating a Zone 4 to Zone 2 PRV station with Zone 4 water main improvements to supply it. Alternatively, a local Zone 2 reservoir south of the study area could be considered.
- **Sanitary sewer**: Upgrading to the Wharf St Forcemain (FM, currently 300 mm , 400 mm proposed) is required to convey increased sewer flows to the WWTP from the Wharf St Lift Station.
- **Sanitary sewer**: As a lower priority, upgrading to the Wharf St lift station (LS downstream of the study area, pumping to the Wharf St FM) will eventually be required to accommodate the forecast increase in sewer loads. An alternate upgrade would be a new lift station (connecting to the Wharf St FM at Hudson St and Beatty Ave) cutting off flows from the study area currently flowing to the Wharf St LS. The Wharf St Forcemain should be upgraded first to improve the capacity of the existing lift station.

3D Massing

Below is a basic rendering of 3D buildings in the study area, built to the maximum possible height as allowed in the relevant land use, under each scenario.

Of note, as our scenario models are only conceptual in nature, none of the “future housing” is associated with any formal drawings or site plans. As such, they are all built out to the maximum possible extent on a parcel-by-parcel basis, purely for demonstration purposes. In comparison, existing buildings (in white) are built using existing building footprints and heights, and are thus more realistic in nature.

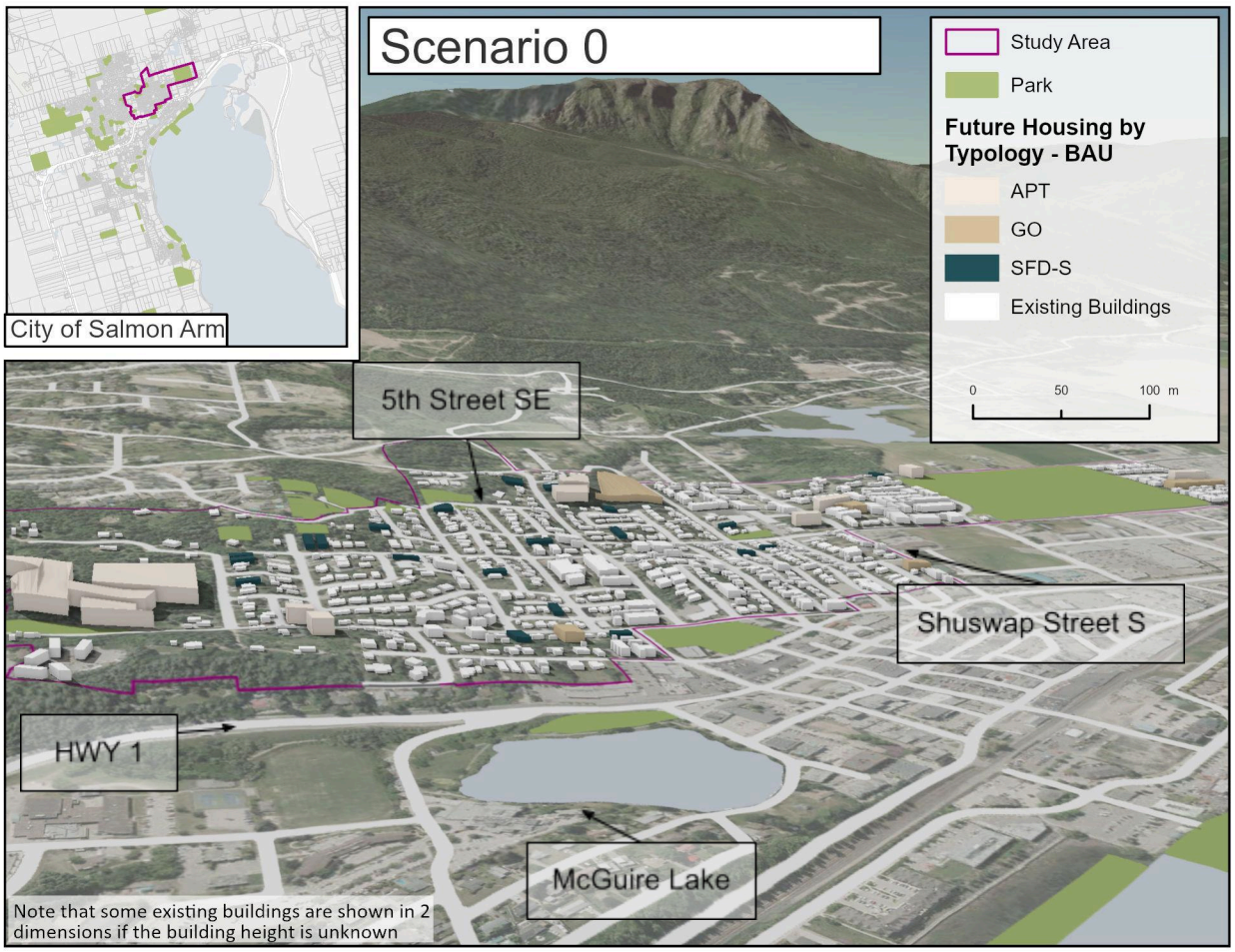

Figure 14. Rendering of 3D buildings in the study area for scenario 0.

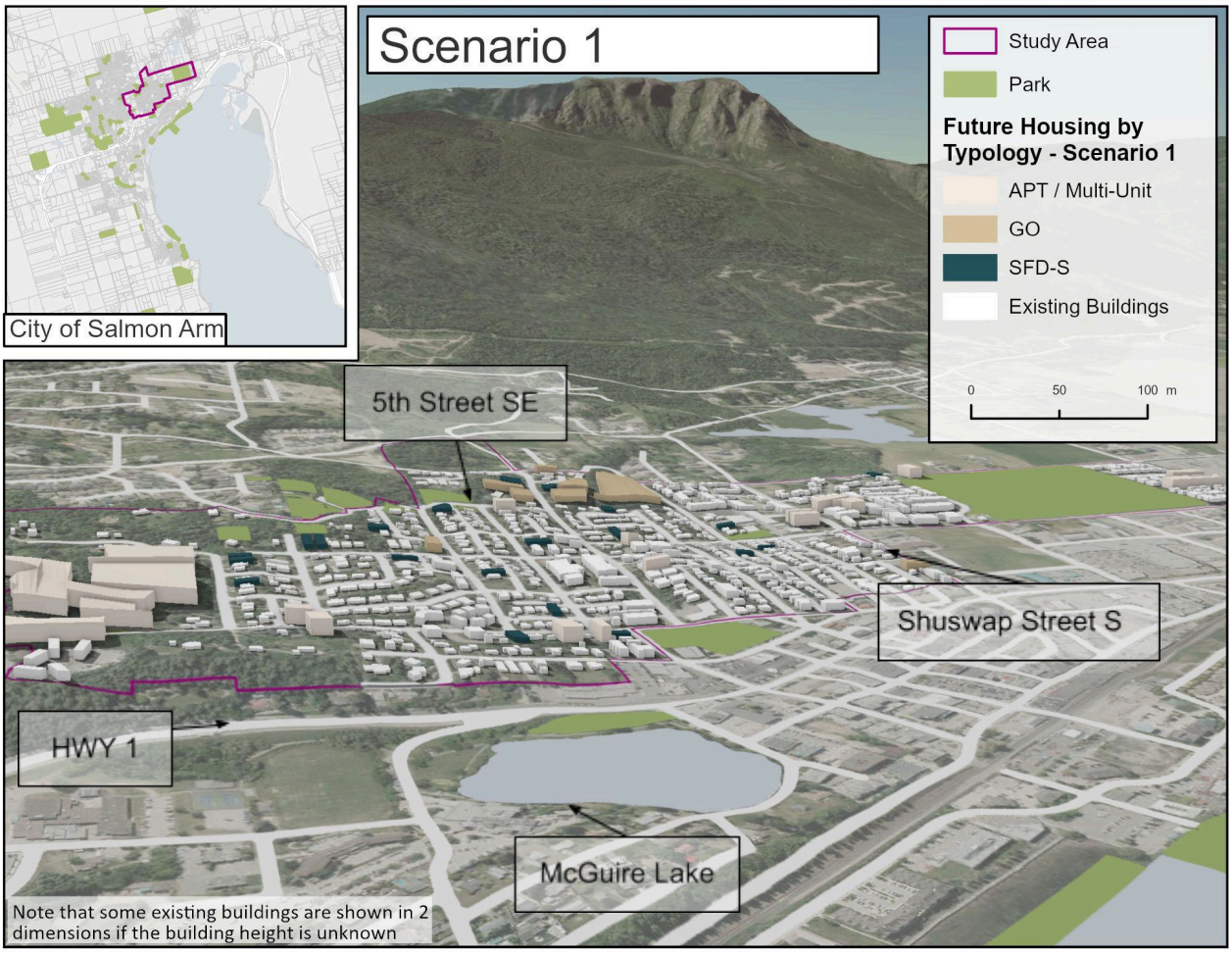

Figure 15. Rendering of 3D buildings in the study area for scenario 1.

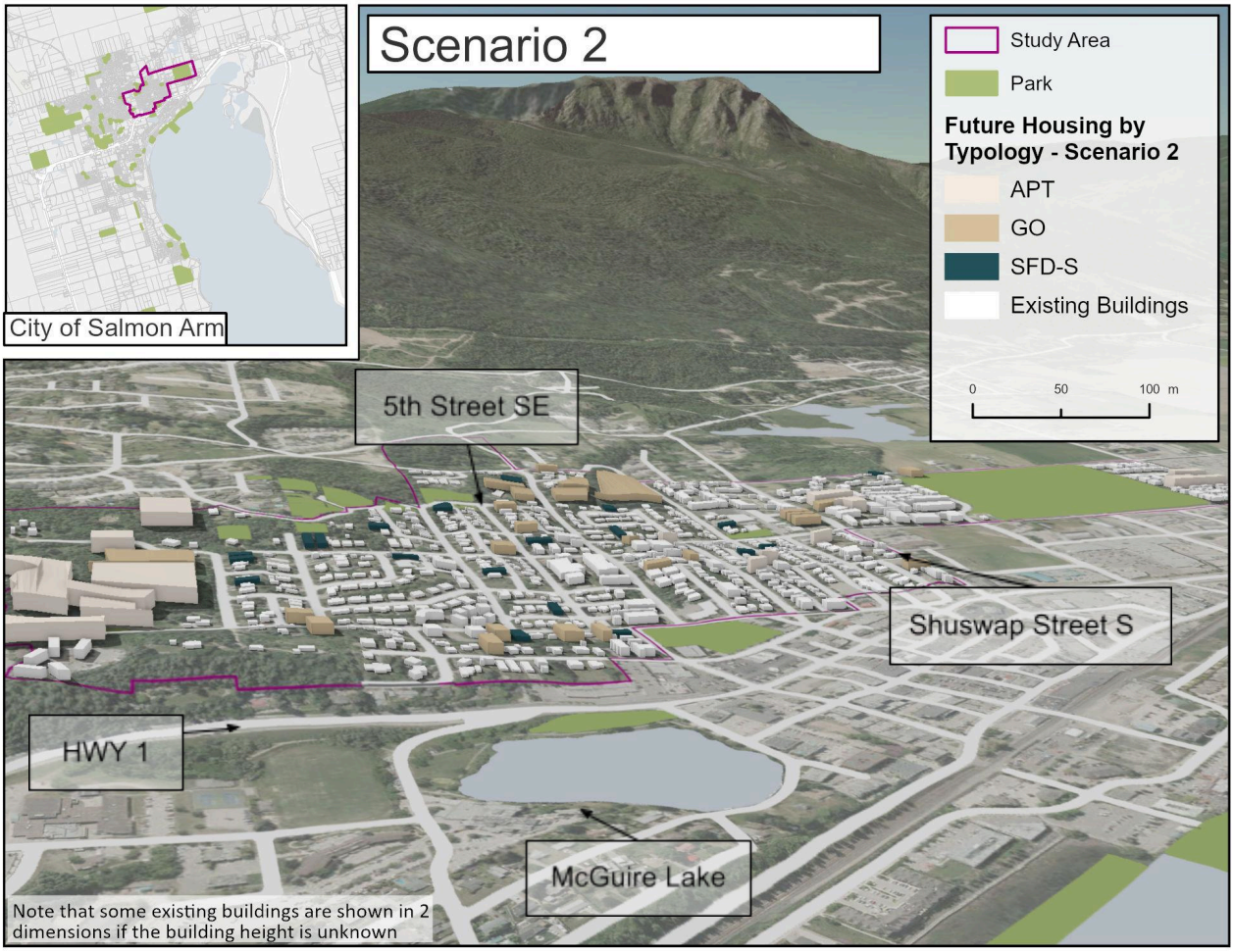

Figure 16. Rendering of 3D buildings in the study area for scenario 2.

Demographic impacts

The project team has conducted significant modelling to comprehend the demographic outcomes resulting from land use change, both in the study area and City-wide. To develop the occupancies (modelled population per unit) in Table 8 below, our team used regression analysis with an estimated number of units from the BC Assessment data and population counts from the Federal Census at the Dissemination-Area level. The results of this regression modelling suggest very low occupancies in apartments, townhomes and mobile homes. These occupancies can be explained partly by the timing of the Census, and partly in how BC Assessment counts units. The Census counts population in May which is not peak season in Salmon Arm and furthermore the Census occurred during the COVID-19 pandemic. In our experience BC Assessment identifies considerably more units than the Census does, as the Census does not count vacant units or unoccupied units such as non-rented secondary suites or seasonally occupied mobile homes. Despite these issues, we suggest the use of these occupancy data sets for assessment. The modelling in this project uses unit projections, which realistically incorporate both vacancies and seasonal populations which are the reality of population dynamics in Salmon Arm.

Table 8. People per household by dwelling archetypes, divided by age cohorts. Anticipated change rates based on rate of change between 2006 and 2021 census and applied to population per dwelling 2021 to forecast population per dwelling 2046.

	Modeled Census Population per BC Assessment Identified Unit					
Dwelling Archetype	**Children 0-14**	**Adults 15-64**	**Seniors 65+**	**Population per Dwelling 2021**	**Anticipated change in occupancies to 2046**	**Population per Dwelling 2046**
Apartments	0.03	0.65	0.47	1.15	-11%	1.02
Ground-oriented (Townhomes)	0.20	0.35	0.57	1.12	-9%	1.01
Older Single Detached Dwellings	0.39	1.61	0.51	2.51	0%	2.51
Newer Single Detached Dwellings	0.39	1.06	0.95	2.41	0%	2.41
Mobile Homes	0.21	0.63	0.17	1.01	0%	1.01

Of additional note in our demographic modelling are the occupancies in single detached homes which our team disaggregated by age to capture occupancy effects at an age cohort level. Specifically we note that older single detached dwellings (i.e. constructed before the year 2000) have a much higher estimated proportion of adult occupants in comparison to newer single detached dwellings, 1.6 adults to 1 adults per older and newer single detached homes respectively. Whereas newer single detached dwellings show high occupancies of senior populations, 0.5 seniors to 0.95 seniors per older and newer single detached homes respectively. While it is outside of the scope of this project to speculate, it is assumed that newer homes are being marketed at incoming senior populations with the means and capital to afford these typically more expensive homes. Newer single family homes in Salmon Arm cost ~$1.1m in comparison to older homes which cost ~$0.7m). Older homes can be purchased by households led by adults, or first time homebuyers who may require larger mortgages or lower purchase prices.

In terms of outcomes, we note that all three scenarios do not result in a substantial increase in the number of new children in the study area; however, there are commensurate increases in adults and seniors in both alternate scenarios in comparison to the BAU (see Table 9 for changes in population, and Figure 17 for changes in proportions). Also notable, is the fact that more homes are being added to the study area than people. This is because our team assumed a decline in home occupancies based on a 15 year analysis of past Census occupancies (2021 compared to 2006). While we noted no real declines in single detached homes, both apartment and townhome occupancies are trending downwards based on past data. As such, all scenarios may result in more homes but commensurately reduced populations, which is a concern both in Salmon and throughout British Columbia.

Table 9. Current population within the Salmon Arm study area, divided into age cohorts for current conditions and modelled future scenarios.

	Current	**BAU**	**Scenario 1**	**Scenario 2**
Children (<14 years old)	326	▲ 25	▲ 42	▲ 69
Adults (15-64)	1,559	▲ 221	▲ 381	▲ 365
Seniors (65+)	900	▲ 167	▲ 312	▲ 360
Total	**2,785**	**▲ 414**	**▲ 735**	**▲ 793**

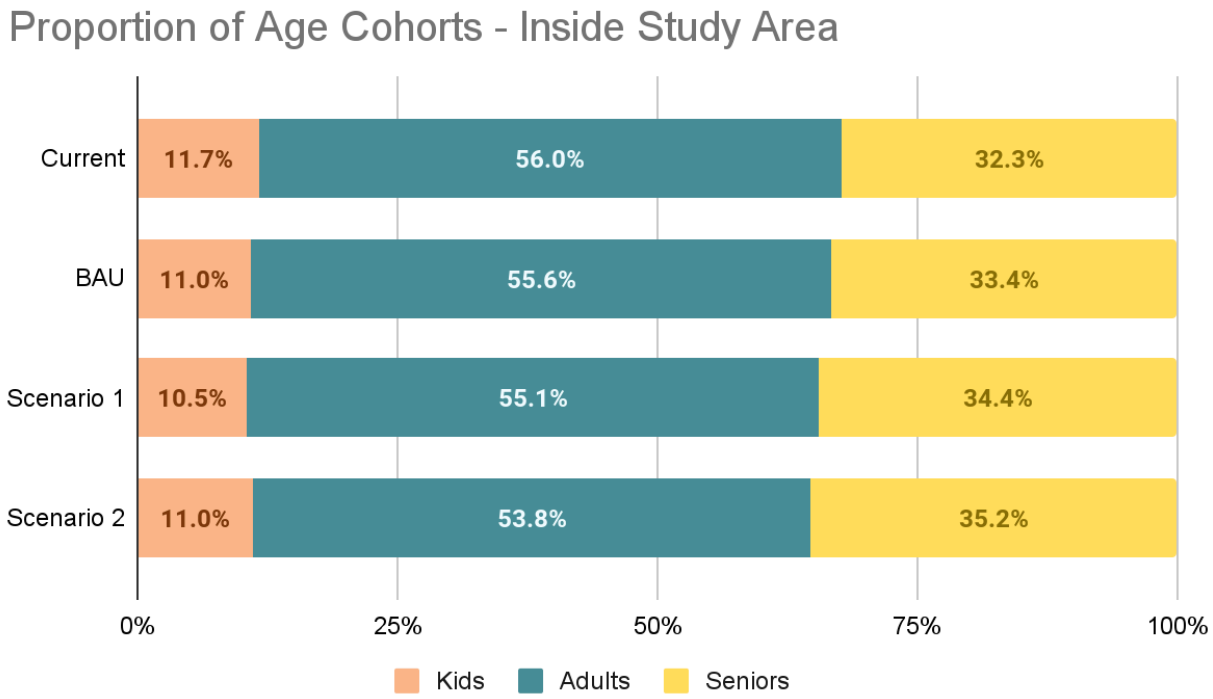

Figure 17. Proportion of population by age cohorts within the study area for current conditions and future scenarios.

Retail Market and Commercial Viability impacts

Salmon Arm currently has a well-served retail market with a substantial Downtown commercial and service node, two malls and a bix box retailer West on the Transcanada Highway and a mix of service commercial East on the Transcanada Highway and in the Industrial Park. Our modelling for these areas suggests that, absent any population growth, the area is well serviced for retailing of all sectors, but specifically for service commercial (ie professional and medical services), fast food and grocery retailing. The area may currently be overserved for durable goods retailing, but owing to its position within the greater Shuswap Area, we suspect that the substantial seasonal and daytime population will continue to sustain the viability of retailing in the area in the years to come.

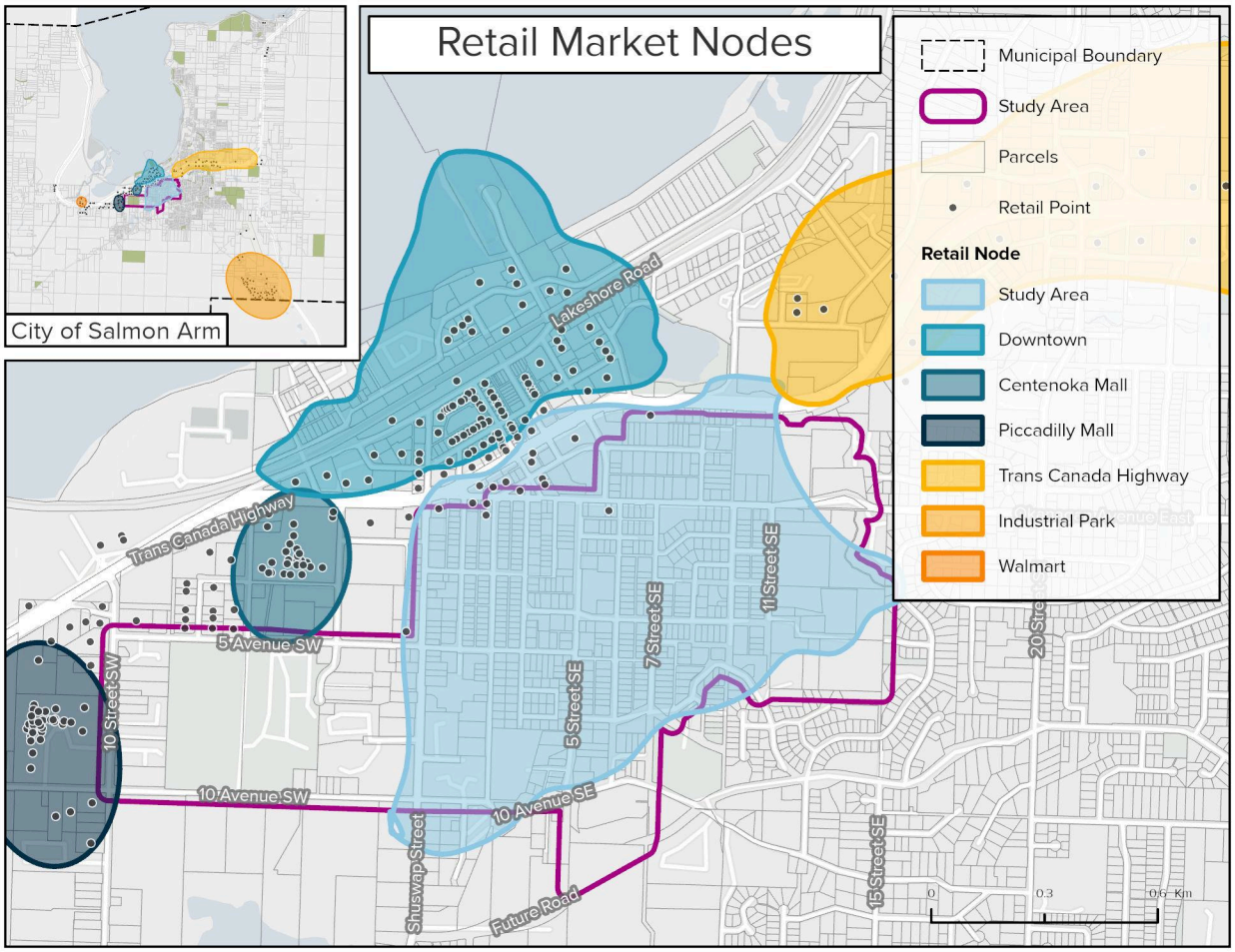

Figure 18. The City of Salmon Arm showing the seven modelled retail market nodes, and retail locations.

When forecasting retail demands, our team applied the housing outcomes identified in the sections above and recalculated demands for retailing space in all of the nodes identified in Figure 18 above. Notable in all three scenarios is the continued demand for retail space in the Downtown area which is a result of the "gravity" of this node in comparison to all other areas (i.e. the size and mix of retailing here will propel future demands for more floor area especially in the service commercial categories). In the study area, we note a substantial opportunity for retail expansion with the caveat that the study area retail note includes current retailers south of the Highway outside of the mall nodes (approx 100k square feet in retailing space). The net additional 120,000 square feet of retail space demand identified in our modelling could therefore be applied in the immediate area south of Downtown or within the study area itself without likely damaging the viability of the Downtown node (however, the viability of the two Mall Nodes and Walmart will be more questionable).

In terms of categorised net additional demand, common to all three scenarios we note additional demand for one (1) pharmacy (4,000 sqft) roughly two (2) full service restaurants, approximately six (6) quick service restaurants and the potential inclusion of one (1) small (<16,000 sqft) neighbourhood grocery store or combination convenience/grocery store. There will additionally be considerable new demand for service commercial (~40,000 sqft) and automotive services (11,500 sqft) in the area which reflects the current highway service commercial make up in the area. Finally, we note approximately 40,000 sq ft of potential additional goods retailing in the study, however we caution against this expansion as this market is quite saturated in the community already therefore expansion in the study area may reduce the viability of

Downtown goods retailers. Controlled commercial uses at the zoning level could potentially alleviate these issues. Summarised results are contained within Table 10.

Table 10. Outcomes of retail modelling for the study area and other retailing areas in Salmon Arm.

Node	Current Storefront Area (sqft)	Current Baseline Demanded Retailing Area (sqft)	BAU Demanded Retailing Area (sqft)	Scenario 1 Demanded Retailing Area (sqft)	Scenario 2 Demanded Retailing Area (sqft)
Downtown	419,719	435,418	555,632 (+32% demand)	549,493 (+31% demand)	550,929 (+31% demand)
Piccadilly Mall	278,177	187,717	243,640 (-12% demand)	242,622 (-13% demand)	243,067 (-13% demand)
Centenoka Mall	188,237	146,232	179,063 (-5% demand)	177,751 (-6% demand)	178,267 (-5% demand)
Walmart	136,223	81,240	305,378 (-22% demand)	107,141 (-21% demand)	107,200 (-21% demand)
Trans Canada Highway	132,832	160,863	305,378 (+130% demand)	305,317 (+130% demand)	305,985 (+130% demand)
study area	96,136	91,146	218,583 (+127% demand)	217,333 (+127% demand)	217,8660 (+127% demand)
Industrial Park	36,950	64,769	131,830 (+257% demand)	130,903 (+254% demand)	131,163 (+255% demand)

Institutional Impacts

Institutional amenities considered for this study are hospitals, libraries, recreation centers, and schools. Similar to the daily needs impacts, the number of people in the study area is seen as growing more quickly than outside the study area. Additionally this growth is happening in parcels furthest away from existing institutional services, implying the need for more services in close proximity to the study area. Figures 19, 20 and 21 show how additional population density differs by scenario in extent and location in relation to existing institutional amenities.

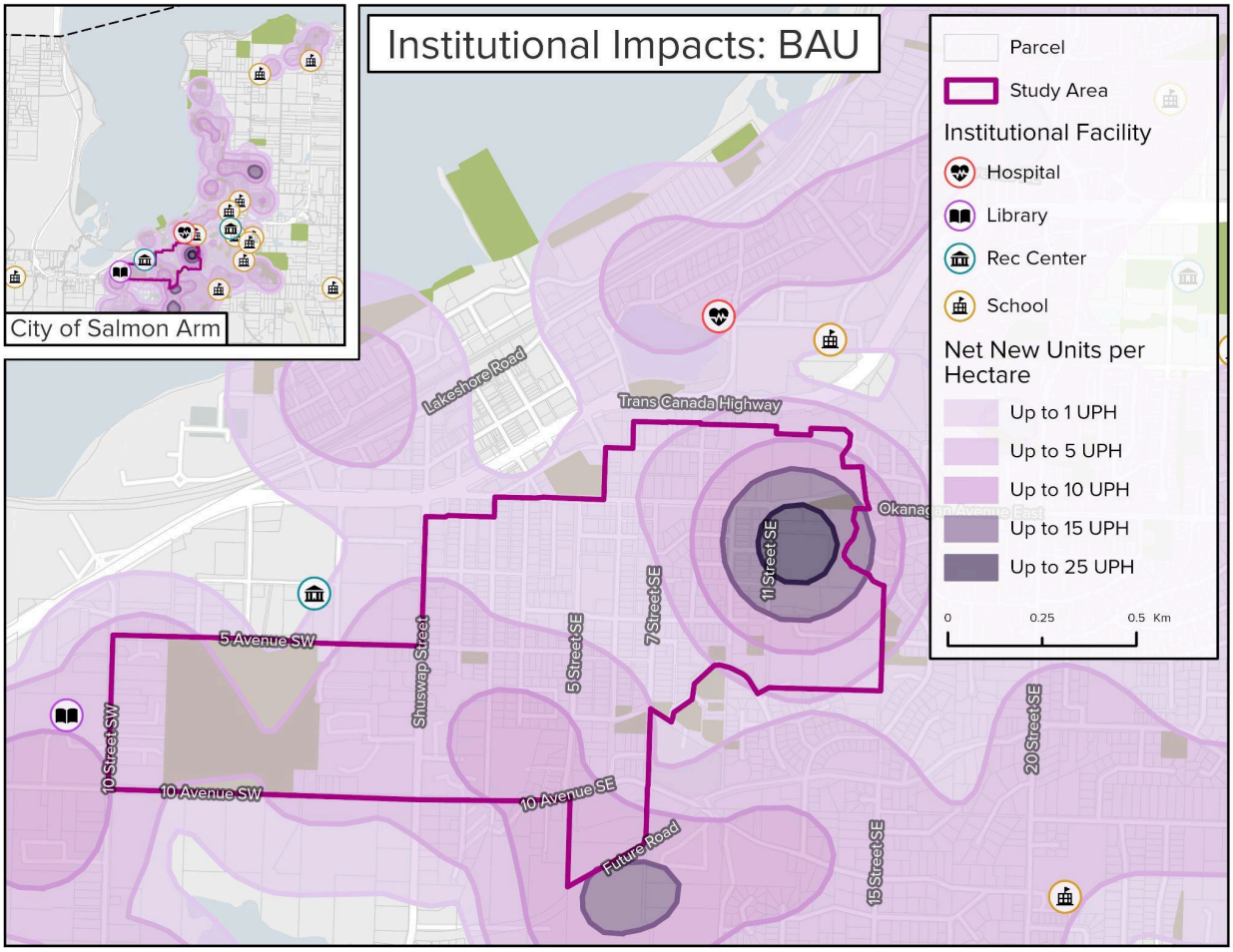

Figure 19. The study area showing Institutional facilities overlaid with Business as Usual growth forecasting results

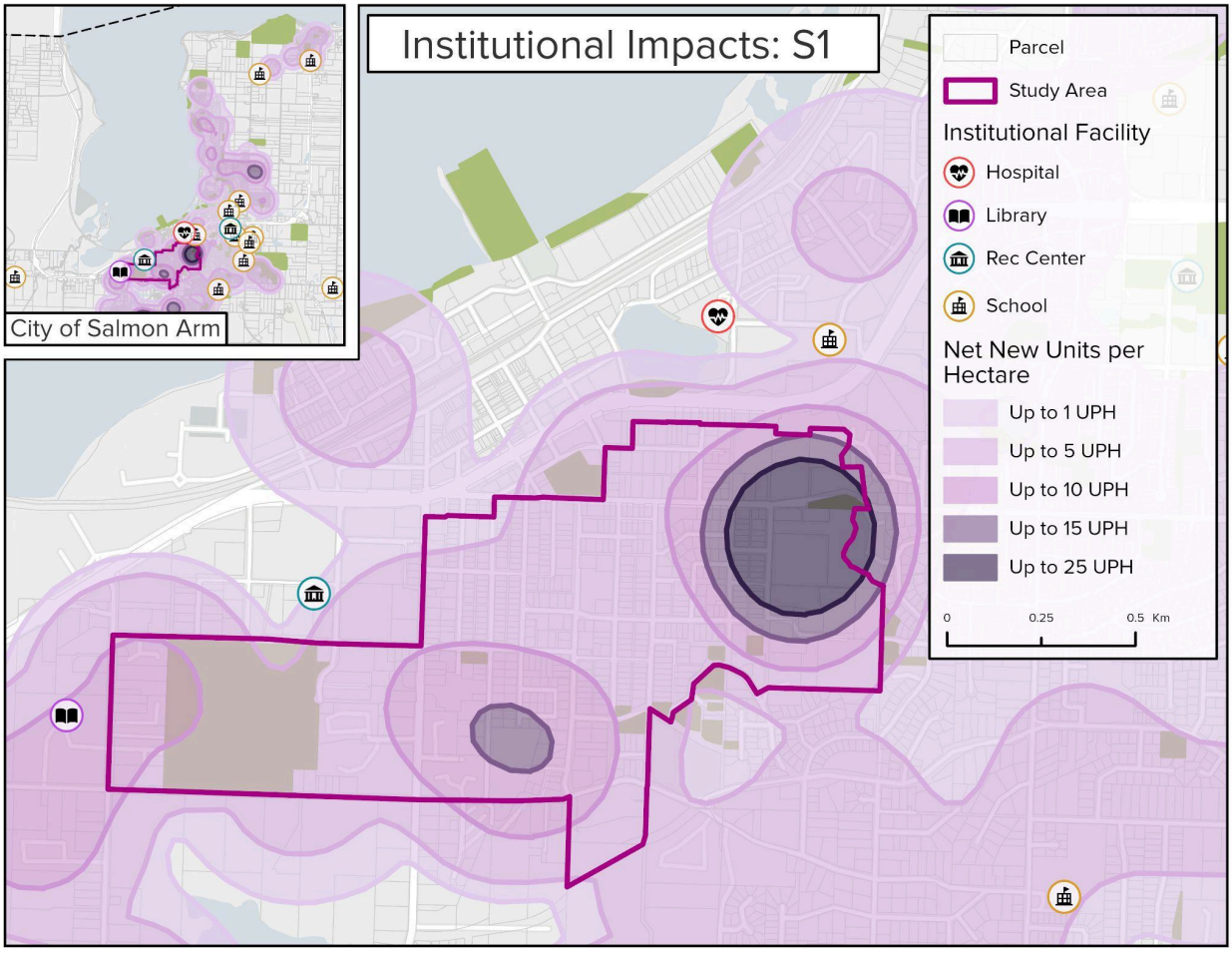

Figure 20. The study area showing Institutional facilities overlaid with Scenario 1 growth forecasting results

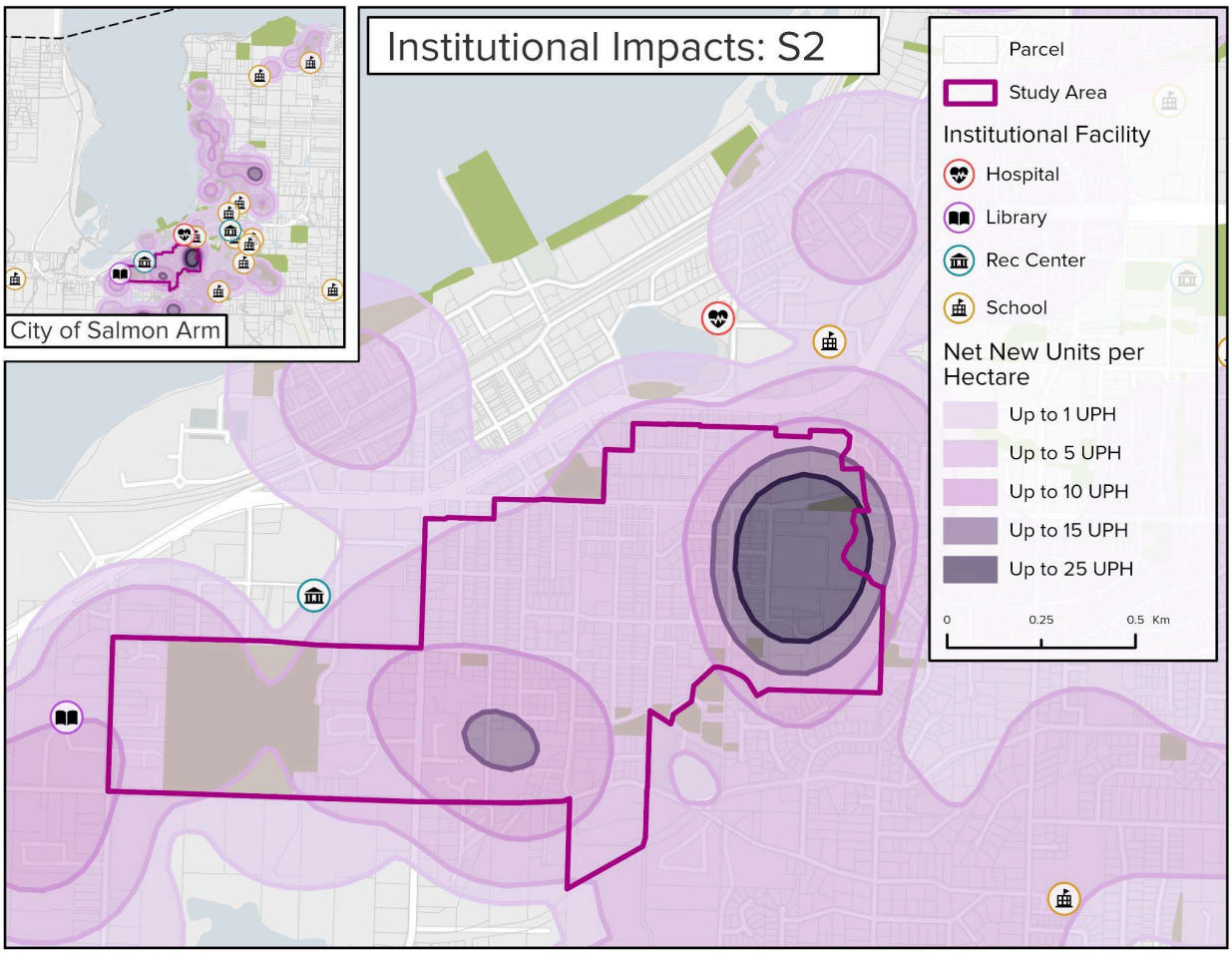

Figure 21. The study area showing Institutional facilities overlaid with Scenario 2 growth forecasting results.

There are currently no identified standards for the number of people per facility. With that in mind, it is still worth noting that if services are currently operating at a sustainable capacity, this will quickly become unsustainable with the addition of population in the study area (numbers of facilities per 10,000 people are shown below in Figure 22). In addition to the above, through engagement with City staff, some concerns were raised about the actual capacity of services being rendered today.

Another concern around access to institutional amenities is walking, biking, or other sustainable transportation. In particular, the growth node identified in the eastern portion of the study area at Okanagan Ave E and 11 St SE does not currently have a direct pedestrian connection Downtown. Despite a short distance “as the crow flies”, the actual commute is significantly longer. For example, J.L. Jackson Secondary School is only approximately 500m from the aforementioned node, but the realistic commute is over 20 minutes on foot, and longer by transit. This is due to the lack of a safe and convenient crossing across the Trans Canada Highway.

There are some limitations in this assessment due to the scope of the project that would be remedied with an in-depth institutional facilities assessment. For example, the assessment of hospitals would be greatly enhanced with a measure of hospital beds and staff, however this is outside the scope of this project. Similarly, the breadth of services offered at both libraries and community centers will significantly impact

the suitability of services being offered for a growing population. The study contained in this project would be greatly supported by a future study on service levels for institutional facilities.

Figure 22. Change in service levels per 10,000 people for public institutions for all future scenarios.

Recreation Impacts

The City of Salmon Arm as a whole and the study area more specifically have good access to parks. As seen in Figure 23, the study area has high access as compared to immediately surrounding areas. The majority of the population in all scenarios resides within a 2 to 5 minute walk to a park (Fig 24, Table 11). In all scenarios, the majority of new population is within the 2 to 5 minute radius, with an extremely small number 5 to 10 minutes away, and populations over 10 minutes away (Table 11).

This desktop study would be positively supplemented by a further study of the amenities and services at each park, and the type of recreation they support. For example, based on this study, it is not currently known what the access to parks with playgrounds is, as compared to grass fields. This is of particular importance moving forward as demographics shift in the study area towards more families.

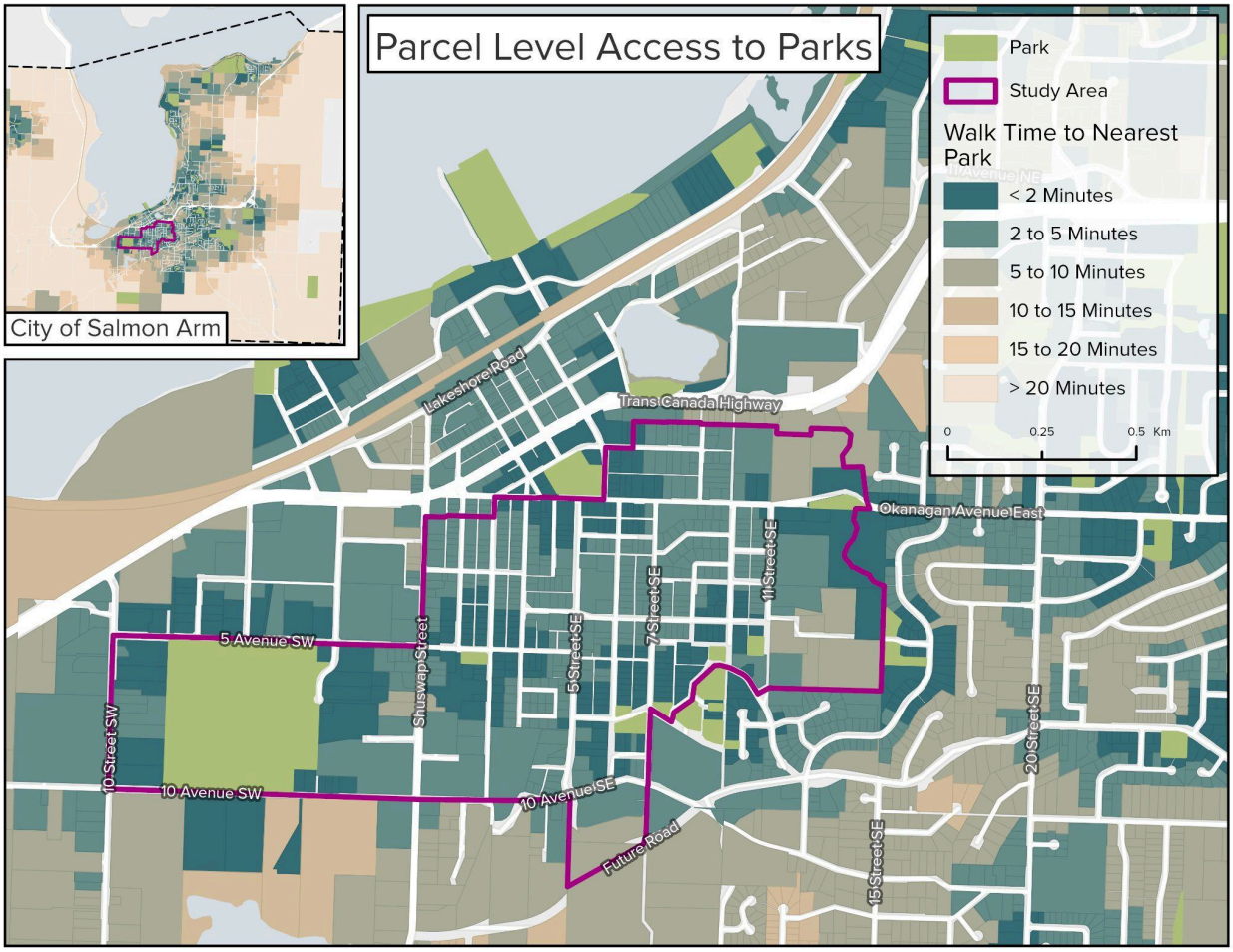

Figure 23. The study area showing walking time access to parks from parcel centerpoints

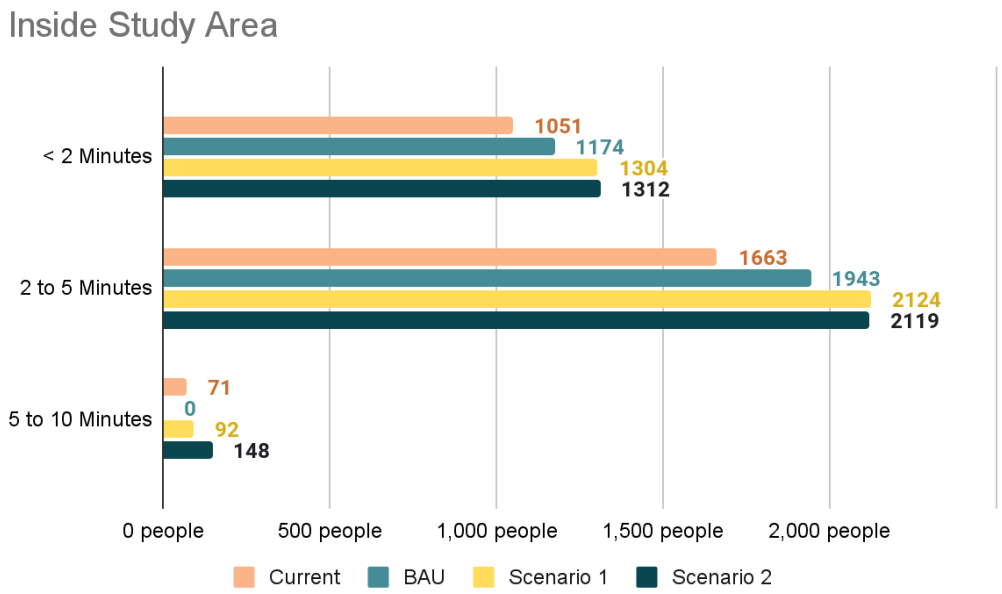

Figure 24. Number of people within the study area divided by walking distance to their nearest park. This is shown for current conditions as well as the three scenarios modelled.

Table 11. Change in population by walking time to the nearest park, comparing modelled future scenarios to current conditions.

	BAU	Scenario 1	Scenario 2
< 2 Minutes	▲ 123	▲ 253	▲ 261
2 to 5 Minutes	▲ 280	▲ 461	▲ 456
5 to 10 Minutes	▼ -71	▲ 21	▲ 77
10 to 15 Minutes	0	0	0
15 to 20 Minutes	0	0	0
> 20 Minutes	0	0	0

Conclusions / Implications

Conclusions / Implications

Both anticipated land use scenarios suggest significant multi-family intensification in the study area. This would be facilitated by a high density land use designation, and will require zoning that allows for successful implementation of necessary densities. Currently, the bulk of the area is zoned R-10 which fundamentally enables single family detached development which is allowed by-right in this zone. Our suggestion is to rezone the area to R-5 (or some variant thereof) which would align with the OCP high density designation.

If implemented, the new zoning should facilitate taller buildings - currently the fourth story in the R-5 Zone is conditional, which may limit potential development outcomes. Additionally, the City could consider amending the minimum parcel size in this new zone to 6,250 sq. ft. with a minimum frontage of 50 feet and reduced side setbacks. This would allow for small apartment buildings or fourplexes. Such changes are becoming common in similar communities in the region (e.g. Kelowna). Additionally, parking minimums in the new zone should be reduced to one (1) stall per unit, which reflects the efficient location of the area and could reduce overall cost of construction for multi-family dwellings in the area. Salmon Arm may additionally consider minimum bike parking requirements which would facilitate lower vehicular use and allow for more sustainable development. Finally, to facilitate small scale commercial development in the area, Salmon Arm should consider allowing local serving retail as a conditional secondary use in this new zone.

Given the potential for positive outcomes from growth in the study area, the City should focus forthcoming engagement and planning efforts related to the OCP to prioritise the study area as a main locale for growth in the community. This can be facilitated in part by tightening the areas designated as medium density areas in the remainder of the community, as well as potentially redesignating the area north of the Hospital down to medium density which could focus development interest into the study area.

After the OCP, the City should consider a marketing strategy for the study area which emphasises the strong potential of the location both municipality and regionally. Specific elements could include a focus on:

- Relatively reduced land costs for development;
- Reduced infrastructure burden (as determined by this study);
- Strong potential for mixed use development;
- Natural beauty of the area; and
- The high degree of location efficiency inherent in the area.

Based on our analysis, there is sufficient market demand for commercial and retail uses in the Downtown area of Salmon Arm. We also note the potential for small scale retail expansion in the study area. This expansion could be accommodated centrally in the study area in the environs of 5 Street S.E. towards 4 Avenue S.E. Regardless, provision of commercial/retail lands in the study should be limited to no more than 225,000 sq. ft. (or 20,650 sq. m.) which assumes a commercial floor space ratio of 0.45 (the double barreled two block stretch of road along 3rd Street SE is 25,000 sq. m. for instance). Furthermore, to enable strong local retail viability, the City should consider conditionally limiting service commercial to second floor uses, thus prioritising ground floor planes for true retailing activities.

Though our modelling indicates that the relative increase in school aged children in the study area will not be significant, the absence of an elementary school in the area suggests a strong opportunity for a potential capital investment. Indeed, subsequent analysis suggests that an elementary school in the study area by 2046 would be proximal for 785 potential students, thus reducing pressures on Hillcrest elementary in particular. Further engagement with SD 83 on this matter would be beneficial in this regard.

While access is generally excellent in the study area, additional sidewalk improvements and connections should be explored in conjunction with the Active Transportation Network Plan. This should include, at a minimum, exploration of additional protected crossings across the Trans Canada Highway at Ross St., 10 Street N.E. or 14 Street N.E. Access along roads to amenities are excellent in the study area, however the comfort and suitability of this access for pedestrians is less optimal.

While our study anticipates generally low increases in transit demand for the area, potential transit service increases could spur additional transit usage and therefore catalyse shifts to more sustainable modes of travel. Further investigation into the generative effects of more frequent service would be beneficial in this regard.

Our study finds that existing park and open spaces are adequate to meet current needs, and likely future needs as well. If desired, a further in depth study could be undertaken, wherein park amenities are studied more thoroughly and access to various types of parks, trails, and recreation spaces are assessed. Combined with surveys or studies on community recreation needs may expose gaps in access that were missed in the scope of this study.

No significant water and sanitary sewer infrastructure upgrades are required in the short term to accommodate planned growth under the scenarios. With respect to fire protection, the City should confirm for each higher-density development that the existing water infrastructure can meet the fire flow requirements of each specific development. Some water upgrades may be triggered by developments with high fire flow requirements subject to their location.

The identified infrastructure upgrades can be included in future capital planning and execution programs.

Our modelling suggests a net increase of between 735-794 residents inside the Study Area between the two scenarios respectively. This is a conservative estimate based on our understanding of the potential for development inside the Study Area vis-a-vis all other areas in the community. This volume of growth will be accommodated over 20-25 years and will occur opportunistically on potential development sites that are suitable for multifamily intensification. Therefore, as forecasted, we anticipated the pace of change to be fairly measured. However, should the City engage in some of the complementary activities detailed above that could potentially accelerate growth and change in the study area **and** if economic conditions ameliorate in the medium term, then the area may intensify both more quickly and more completely than our modelling suggests. Should this be the case, then the City should consider complementary activities that would mitigate the pace of change. This could include development of protections for renter households, potentially limiting development on existing older rental apartments, adopting a pace of change policy for the study area, and prioritising public realm improvements throughout the study area.

Methodology

Methodology

Through this project, our team created a detailed parcel-based model which forecasts growth for the City of Salmon Arm as whole. By initially running a Business as Usual growth scenario City-wide we were then able to work with City of Salmon Arm staff to develop alternate future scenarios for the specified area of interest, i.e the study area. As a result we had the ability to assess how these alternate land use scenarios would impact the evaluation of selected Complete Community indicators. In order to more accurately model the future distribution and allocation of new units, all potential growth areas were included in the analysis. Therefore, despite the scenarios only varying inside the Study Area, the model was run on the City as a whole with areas outside the study area maintaining Business as Usual conditions throughout.

Scenario Development Methodology

The methodological intent behind this report was to develop alternate development scenarios by which to test the previously developed complete community metrics and assess the viability of closing the complete communities gap for the study area. To achieve this, it was necessary to ideate potential future conditions through a two-day residential development charrette completed in conjunction with City of Salmon Arm staff and members of the local development community.

The two-day residential development charrette included a tour of the study area, the review of baseline conditions in the area, a group analysis of strengths, weaknesses, opportunities, and threats, and finished with the creation of new alternate growth scenarios. Scenarios were created with corresponding land use, densities, park spaces, transit options, residential form and massing, and result in a population forecast impacting commercial and institutional land uses. The scenario development process was also iterative: the scenarios that were developed at the charrette changed from the beginning of the day to the end, and changed again in the following weeks after further reflection and primary analysis by the team. The final resulting scenarios, outlined in the results sections above, were the output of a strong and engaged design process.

Growth Allocation and Forecasting Methodology

When developing a growth forecasting land use model, a range of variables must be considered. For clarity, these variables can be grouped into high-level categories based on the questions they help answer:

1. What is the current base state condition? By attributing up to date residential information to the parcel scale, we can get a granular view of the **baseline conditions** for the City.
2. How much should be built and by when? This question is addressed through **housing targets**.
3. What archetypes should be built and at what density? Residential **land use and density assumptions**, as outlined in the Official Community Plan (OCP) and scenario development results, provide guidance.
4. Where should growth not occur or be restricted? A comprehensive list of **constraints** and their applications addresses this issue.
5. Where should growth be allocated and prioritized? This question is answered by LGeo's parcel-level **redevelopment score**.

A more detailed explanation of the methods required for each of these is provided in the subsections below. Baseline conditions, housing targets and constraints stayed static throughout the scenarios within the study area while land use/density assumptions and the redevelopment score changed depending on the scenario being run.

Per the guiding questions above, our team collated information on these conditions and applied them to the parcel fabric. Subsequently, this data was used for forecasting land use change within the model on a

scenario by scenario basis. Execution of the model resulted in the creation of several new attributes associated with each parcel. These fields are filled with useful information each time the model is run (for instance did land use change occur? What is the new number of units? When did the change occur?), and can be used for mapping scenarios and understanding the results at the parcel level. The growth forecasting maps presented in the results section above show the new dwelling archetypes and new unit outcomes from the model for the year 2046. Even though a development outcome is technically available at the parcel scale, as individual locations of potential growth should be considered as conceptual, therefore, Kernel Density maps (i.e. heat maps) were developed to indicate broad locations of potential growth without indicating individual parcels.

Attributing Baseline Conditions Spatially

The current state model largely depends on data from the Building Information Report (BIR) obtained from the BC Assessment Authority. The BIR is a dataset that compiles the tax records of every assessed building within a jurisdiction. LGeo's analysis adds a spatial component to the BIR by associating it to the City of Salmon Arm's parcel fabric. In instances where multiple building information records exist for a single parcel, and vice versa, the data is flattened using LGeo's protocols. The BIR is known to be a challenging data source to work with, so high-level quality assurance and quality assessment were performed and incorrect values were fixed.

An analysis of the BIR data was executed to understand the current conditions in the community. This work is impactful for planning purposes as it indicates the overall supply and diversity of housing in the area and indicates potential opportunities for infill developments. Within this report, we present certain findings from the current state model that facilitate the understanding of the supply and diversity of housing for the City of Salmon Arm at present. Additionally, this information aids in the interpretation of the scenario results and how they impact the future supply and diversity of housing.

Formulating Housing Targets

Housing targets were constructed using BC Stats household forecasts which provided an estimate of both 2023 and 2046 households in the community. The difference between these two values was considered to be a basis for dwelling growth in the region operating on the assumption that one household equates, more or less, to a new dwelling.

Secondly, our team determined a logical breakdown of new dwelling demands through a retrospective analysis of Salmon Arm building permits, Census Data and BC Assessment records. This trends-based assessment suggested the continued primacy of single detached dwellings demand with reduced demands for ground-oriented multifamily units and apartments (60 new SFD units, 17 new TH units and 28 new Apt units annually to 2046).

Additionally, our team discerned the delivery of secondary suites by establishing the rate by which existing SFDs are retrofitted with new suites (0.3% per year) and the rate by which new SFDs are constructed with new suites (56% penetration rate).

Finally our team established a ceiling for new SSMUH type units which were modelled by the province as an additional 3.5% of net new dwelling annually (for 125 units in total).

It should be noted that these housing targets are based on Provincial modelling and have not been validated against a localised component cohort model or economic development model. Some assumptions with regards to demands for townhouse units and apartments may shift as the conditions for multi-family dwellings continue to deteriorate, though speculation there is beyond the current scope of this study.

Developing Land Use and Density Assumptions

Refer to the first section of the report (Growth Scenarios) above for a detailed explanation of the land use and density assumptions for Business as Usual as well as the subsequent developed scenarios. A brief summary can be found below:

Table 12. Scenario 0 - Business as Usual residential land use and density assumptions table; used as an input for growth scenario modelling. Note these assumptions apply to all areas outside the Study Area for both alternate scenarios.

Land Use	Allowable Density (UPH)	Allowed Residential Archetype
Residential High Density	100; 40	Apartment; Ground Oriented
Residential Medium Density	40	Ground Oriented
Residential Low Density	22	Single Family Dwelling, Suite, SSMUH

Table 13. Scenario 1 residential land use and density assumptions table; used as an input for growth scenario modelling

Conceptual Land Use	Allowable Density (UPH)	Allowed Residential Archetype
A	150	Apartment
A1	200	Mixed Use (Apartment)
B	70	Ground Oriented

Table 14. Scenario 2 - residential land use and density assumptions table; used as an input for growth scenario modelling

Conceptual Land Use	Allowable Density (UPH)	Allowed Residential Archetype
B	70	Ground Oriented
D	150, 70	Apartment, Ground Oriented

Establishing Constraints

Several constraints to development were identified through an interactive process with City staff after presenting baseline results. This is an important component of the growth forecasting model as it answers fundamental questions such as where we should not be seeing any growth (complete constraints), and what topographic features tend to reduce the buildable area of a parcel (partial constraints). The resulting variables are as follows:

<u>Complete Constraints:</u>

- Non-residential parcels (as per the OCP)
- Recreational areas
- City-owned buildings
- Schools
- Heritage Sites
- Agricultural Land Reserves
- Parcels outside the Urban Containment Boundary

Partial Constraints

- Steep slopes (>30%)
- Riparian Areas

Generating the Redevelopment Score

To allocate the dwelling increases indicated in the housing targets, areas of new growth were prioritised for conceptual (re)development based on their potential to accommodate growth under the OCP or Scenario assumptions. Essentially, a ranking system is created based on how likely a parcel is to redevelop in comparison to other parcels in the City. This redevelopment score is used in the 2046 growth model to determine the order of development and consists of four core components listed below.

1. **Improvement to Land Score** (low value building on expensive land - more likely to develop)
    a. Derived with BIR baseline data
2. **Effective Year Score** (older buildings - more likely to develop)
    a. Derived with BIR baseline data
3. **Density Gap Score** (large gap between allowed density and current density - more likely to develop)
    a. Derived by comparing BIR baseline data to allowed density per OCP or scenario assumptions
4. **Low Density Score** (small building on large parcel - more likely to develop)
    a. Derived by comparing BIR baseline data to spatial buildable area (parcel area minus constrained area)

Each of these score components is normalized from 0 to 1 and then summed. Additional considerations applied to the redevelopment score include penalties and bonuses that decrease or increase the likelihood of development, respectively. Even though this creates a slight increase in the level of subjectivity of the model, we believe it to be an important factor in tailoring the redevelopment score to the specific knowledge and needs of the community being assessed. The City of Salmon Arm chose to apply a slight penalty to parcels near or adjacent to a cul-de-sac, in order to prioritize growth in well connected areas. This will reduce the likelihood of dwelling increases on non-through roads. The bonuses for redevelopment include parcels with 15% or less site coverage, as well as those within the study area. This serves as a proxy for situations where two sites become available for development—one inside the study area and one outside. In such cases, the site within the study area may have a higher likelihood of approval due to the High-Density Residential policy (Policy 8.3.9 of the OCP).

Indicator Methodology

Housing

The housing indicator is a measure of the number of new units developed in each growth scenario. The methods for this metric include simply summing the number of net new units inside and outside the study area, grouped by unit type.

Transportation

The second Complete Communities lens is transportation. This was measured using access to public transportation. Looking at this metric provides insight into public transportation routes, and the ease with

which a resident can access bus stops. The project team estimated the potential increases in transit users and transit use as a result of densification in the study area.

To assess this metric, population was summed for parcels within 300 metres of bus stops, and compared for current and future scenarios. The 300 metre buffer was a second iteration of this metric. Originally, 800 metres and 500 metres were used, but ultimately 300 was chosen for a couple of reasons. First, the study area contains some steep terrain that makes a longer walk less desirable. Second, a 300 metre walking distance is significantly more accessible to seniors and those with children as compared to 800 metres.

Daily needs

The third Complete Communities lens is daily needs. Access to daily needs measures the ease by which a resident can access a diverse list of amenities. A composite score encapsulating **residents' access to daily needs** was selected as the metric for this component. To develop the composite score six criteria were selected which reflect a broad range of daily activities for many residents of the City of Salmon Arm. These include:

1. Bus stops - all BC transit bus stops of any frequency.
2. Daycares - all provincially regulated daycares in the region
3. Schools - all public and private schools in the region.
4. Grocery stores - any store that sells a variety of groceries inclusive of green produce, dairy and staples
5. Parks - local, regional or provincial parks in the region
6. Employment Areas - inclusive of parcels zoned as commercial, industrial or selected institutional codes.

Each of the criteria above were analysed using a technique called network analysis which considers network-based distances from origins to destinations. More succinctly, the project determined the road-length distance from all residential locations in the City of Salmon Arm to each of the destinations described in the list above. The composite score was calculated by summing the normalised distances for each of the above six criteria. This composite score was separated into quintiles, with the top quintile being classified as High Access and the lowest quintile classified Low Access. Access was also evaluated by the proportion of dwelling units that have all six criteria within 1500m (an approximation of a 20 minute walk) and 3300m (and approximation of a 5 minute drive at 40km/hr) of each residence. In both cases access to bus stops was 300m, which was considered a reasonable distance for elderly and people with young children. **Evaluating access in these two ways allows us to understand access to daily needs relative to other locations across the City of Salmon Arm, as well as absolutely from each parcel.**

These metrics are impactful to measure for community completeness as it describes the relative ease by which residents can access the required goods and services provided by public agencies and private businesses. Greater ease of access is highly correlated with reduced vehicular travel, increased quality of life and higher levels of community engagement. Conversely low access suggests high degrees of social isolation and auto-dependency which are correlated with reduced quality of life and potentially negative health outcomes.

Water Infrastructure [WSE]

Please refer to appendix A for detailed methodology,

3D Massing

Using ESRI's ArcGIS Pro software, building shapes were extruded vertically. To create 3D massing for each scenario, basic 3D shapes were created by assigning the associated building height to the parcel, based

on the resulting future archetype's maximum allowable storeys (see table 15.). Each storey assumed a height of 10 feet. New build parcel polygons were then scaled down by 55% to better reflect a plausible building size considering lot line setbacks. Existing buildings were extruded using existing building footprints.

Table 15. Maximum allowable number of storeys by building type.

Future Archetype	Maximum allowable number of storeys
SFD	2 Storeys
Single Family Dwelling - with Suite	2 Storeys
SSMUH[2]	2 Storeys
Ground Oriented	4 Storeys
Apartment /Multi-unit	6 Storeys

Population and employment impacts

Please refer to the Demographic impacts section in the main report for detailed methods.

Retail market and commercial viability impacts

A detailed demand modelling exercise was undertaken to project the future demand for retail floor area, by category, across the plan area as a whole and for each of the sub-areas (existing and proposed) within the plan area. This section provides a discussion on the mechanics of this modelling exercise.

Overall Approach

This model attempts to capture reasonable current and future spending behaviours based on best available data and the theory that consumers spend dollars on goods and services based on access. Additionally, consumers typically access more than one store per retailing class. Each store competes for dollars based on (1) how close they are to a customer;(2) how big they are; and (3) how well they provide a consumer experience. Our modelling directly addresses the former two points and considers the latter deterministically (i.e. if a business is still running a storefront operation in 2023-24 they are providing a good experience). Amounts of dollars available to spend are driven by demographics and location. Finally, to account for population change, it is assumed that, as an area densifies, more consumers with similar spending habits will access the same number of stores which results in incremental demand.

[2] SSMUH: Small Scale Multi-Unit Housing

Data Sources & Throughputs

The following data sources were considered for the modeling aspects of this project. It should be noted that in most cases information was processed with an eye towards completeness and accuracy, however, given constraints of budget and time this goal was not achievable in some cases[3].

- Population forecasts for Salmon Arm under the three buildout scenarios
- High-level policy direction with regards to anticipated land uses in the Salmon Arm plan area
- All business licence information that the city had available was prepared
- **Distance thresholds -** we established specific distance thresholds to account for different consumer behaviours. The tourism distance threshold was set at 3 km, reflecting the typical range for visitors. For daytime accessibility, we aligned the threshold with the evening distance at 12 km, recognizing that most residents travel by car within the city. This approach ensures a realistic representation of consumer access patterns and supports our overall spending behaviour model.
- **Typical retail performance metrics** by category, per historical data from ICSC and information obtained by LGeo from other sources - this is the typical required performance of major retail categories in terms of sales per square foot per annum ($/sq.ft./ annum). This data, in conjunction with calculated $/sq.ft. information for retail nodes (discussed below) was used to convert projected spending into supportable floor area, and to determine the extent of incremental floor area supportable by sub-area. To ensure relevance to the Salmon Arm context, we adjusted the historical ICSC data, using Salmon Arm Downtown as a benchmark. This adjustment was necessary as the original data was more reflective of spending behaviours observed in major market areas thus enhancing the accuracy of our projections for the local market.
- **Spending information by retailing category** from Environics (2023). Derived from aggregated credit card statements[4], this spending data was used as a key input into the gravity model to indicate how much households in the study area and outside the study area spent on goods and services related to retail. It should be noted that the production of this data was opaque to the project team and as such the accuracy and precision of the information could not be verified for this project

Institutional

The methods for this portion of analysis simply look at the location of existing amenities, overlaid with the net new unit density. This is also measured as the number of people per institutional facility, however this is only for illustrative purposes as a well rounded assessment of institutional facilities requires more study into the actual quantity of services provided.

Recreation

The recreation impact assessment used the same network analysis methodology as Daily Needs above. In this measure, road length distance was measured from each parcel to the nearest park, and converted into standard walking time. Walking times were turned into three classes: less than two minutes, 2 to 5 minutes, and 5 to 10 minutes. The population within each class was then summed.

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[3] That is to say we have reasonable confidence in the data, however, given the very broad extent of data, especially highly granular retailing and spending information it was simply not feasible to assure every data point during project execution. The team however, did utilize spot checks as necessary which suggested the data were of sufficient quality

[4]Note while cash and/or debit transactions may not be captured by Evironics their spending data are additionally grounded through consumer surveys, which increases confidence in the product. We note that household spending may be accordingly skewed towards credit using consumers (i.e. working age population) and may misrepresent spending habits from cash-oriented buyers such as seniors and other populations. In the absence of any alternate data source, we are obligated to accept this uncertainty.

Appendix A