VILLAGES RETAIL OPPORTUNITY PROJECTIONS

CITY OF VANCOUVER

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URBAN SYSTEMS

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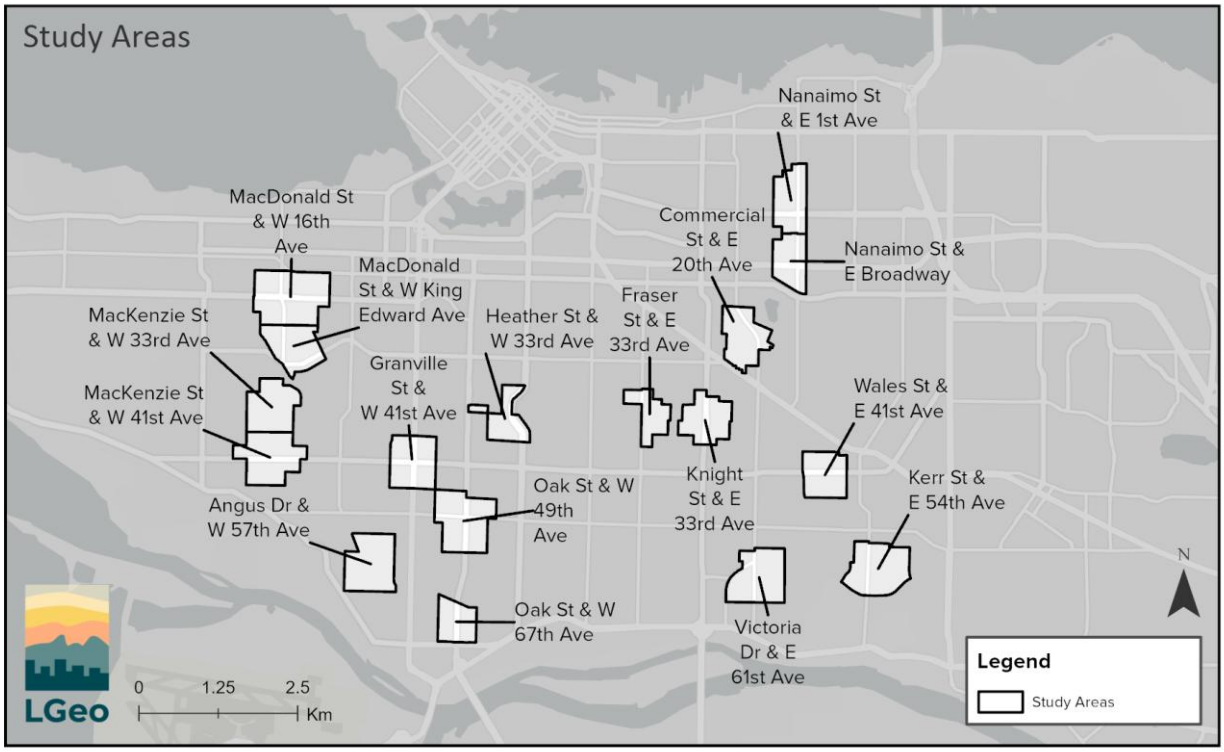
1.0 INTRODUCTION

1.1 OVERVIEW

Urban Systems (USL) in association with Licker Geospatial Consulting Co (LGeo), have developed a comprehensive modelling approach to forecast future retail and service commercial opportunity across the City of Vancouver's Villages planning areas.

This report presents a discussion of the technical methodology and assumptions, ranges of retail demand (floor area) based on expected 2050 population within each Village catchment area, and general recommendations of physical locations within Villages for placement of future retail floor space. This work builds upon the findings and initial recommendations presented in the *Retail Conditions and Grocery Stores Overview – Vancouver Village Planning Areas* report (alternately referred to throughout this document as the "Phase 1 report"). That report was the result of a collaborative effort between Urban Systems and Commercial Marketing Inc. (CMI). This report also draws upon the results of a parallel scope of work undertaken by LGeo and Urban Systems, in which population forecasts for each Village planning area were prepared based on modelling of parcel-level land assemblies and development financial viability. This forecast was used in addition to a Village-level forecast prepared by the City of Vancouver, and the two forecasts underpin the retail demand projections in this report.

Figure 1 - Vancouver Villages Study Area



1.2 ASSUMPTIONS AND LIMITING CONDITIONS

Modeling for this project was prepared to approximate estimated future market conditions across seventeen (17) proposed Village areas in the City of Vancouver.

While the project team made significant efforts to prepare a realistic market forecast, it is worth noting that retail is highly category-specific and influenced by many external factors. These include broader macro-economic conditions, transnational market forces, local labour conditions and emerging logistical technologies, all of which present forecasting challenges.

To mitigate against what would be a speculative activity, the project team has taken a relatively conservative approach which assumes that current market conditions and consumer behaviours will persist into the future. Therefore, the key assumptions as they relate to this project are as follows:

- Demand for retail at the Village scale will be primarily focused on those categories in which people shop day-to-day, or week-to-week, rather than more periodically. These include categories such as grocery / specialty foods, pharmacy, liquor, and other convenience-type retail. While other retail types will likely emerge (and in some cases, are already present) in Villages, it is these core 'convenience-type' categories that will be the drivers of commercial success in most Village settings.
- Within convenience-type categories, if the retail opportunity is present, consumers will shop locally first and regionally second, for day-to-day or week-to-week household purchases.
- Trends in online retailing will hold static as consumers will continue to appreciate the experiential nature of local retailing.
- Family income and consumer spending power will remain the primary market driver for consumer demand. Further, current patterns of spending power will remain static into the future.
- Current retail categories (e.g., full-service restaurant, grocery store etc.), specifically centered around convenience-type goods, will persist into the future. Further, no new consumer goods categories are expected to emerge in the medium or long term.
- Demand for convenience goods will not be affected by societal change or changing consumer preferences.
- Inflationary pressures on retail will be matched by higher real incomes. We are not forecasting a decline in consumer spending power.
- The economics of maintaining a business will be similar to that of starting a new business. Future incoming businesses are not expected to outperform existing businesses on a captured dollar per square foot basis;
- Testing for future market potential assumes static competition from existing high streets and established retail areas. Further, with the exception of large master planned sites such as Oakridge Mall, Oakridge Transit Centre, the Jericho Lands and the Heather Lands, future emerging competitive areas within transit-oriented areas were not included in the modeling.

2.0 RETAIL DEMAND MODEL – APPROACH

Below is a summary description of the methodology used in forecasting the future extent of retail and service commercial opportunity in each of the 17 Village planning areas. A more detailed discussion on approach and methodology can be found in **Appendix A.**

1. **Data development**: detailed data on population, both from the City of Vancouver and created through a separate parallel work scope undertaken by LGEO and USL, were key data inputs. Other pertinent input data included: competitive retail storefront data (from City of Vancouver and CMI); future larger-scale master-planned site retail floor area and mix estimates; traffic analysis zones; accessibility modelling information; retail performance metrics; trip diary data; spending information by retail category from Environics; and retail market capture by distance, using custom data from Moneris.

2. **Establishing and categorizing working database of retailers**: the competitive retail environment was mapped out, using multiple data sources, including Vancouver Storefronts inventory and supplementary field work from CMI prepared in 2024. Additional future convenience retail competition was also assumed to exist at Oakridge, and other large-scale sites like Jericho, the Oakridge Transit Centre (OTC) and the Heather Lands.

3. **Establishing forecasting approach:** Inventory data was broken out into two broad categories for the purposes of Village-scale retail forecasting: (1) 'core' convenience-type categories, for which the retail gravity model can provide a reasonably accurate picture of future opportunity based on assumed spending capture and assumed retail performance (sales per square foot); and (2) all other retail / service categories, for which there will be opportunity to varying degrees in Village settings, but for which the retail gravity model cannot accurately predict the extent of opportunity. To account for these other 'non-core' types of businesses, a gross-up factor on projected core retail demand is applied. This gross-up factor is based on observed floor space ratios in existing retail high streets in Vancouver. Details around which sub-categories are included in the gravity modelling, and which are subject to a gross-up factor, can be found Appendix A.

4. **Developing population and household forecasts:** growth projections, both inside and outside of Village planning areas, are a critical input to the demand model. The modelling relied on both population and household forecast data provided by the City of Vancouver, as well as information developed by the consulting team.

5. **Developing spending projections for households:** This step involved creation of a localized retail spending model for each household. The base inputs for this were Environics household spending data by spending category, which were then assigned to various retail classifications. Discount factors for spending, by category, were also applied to account for the proportions of spending in given retail categories that are likely to be 'redirected' away from physical (bricks-and-mortar) locations to e-commerce platforms.

6. **Developing gravity-based demand model, responsive to measured travel behaviours, population and competitive retail locations:** using population and spending data by category, this step involved building a logical model that reasonably approximates actual retail spending behaviour in the study area. To develop this model, daily shopping habits were simulated through a parcel-centric travel-based approach, which distributes spending to businesses based on three key assumptions:

a) Larger stores draw more consumers (bigger store = more 'gravity').

b) Consumers typically purchase convenience-type items close to where they live or work; however, scale of retailers generally is a stronger predictor of spending.

c) Consumers generally distribute their available dollars to more than one business in a given category.

Further details on gravity model development can be found in Appendix A.

7. **Using Gravity Model to determine supportable spending and floor area**: once spending data was generated, the supportable increase in floor area in a given Village planning area was determined as follows:

   - Changes to spending for core retail categories (grocery, pharmacy etc.), based on expected changes in population and households was projected.
   - Changes to the retail landscape from some anticipated larger projects (e.g. Oakridge, Jericho, Heather Lands) are included to reduce some Village-level demand.
   - Net new demand in core categories is then grossed-up to account for services and other retail categories that cannot be well modeled using the gravity-based approach.
   - A frictional vacancy buffer is also added to the grossed-up demand projection.
   - A check is then completed to see if demand can be realistically accommodated with current or proposed retail programming. For this project, excess demand that cannot be physically accommodated is assumed to flow into existing mature retail areas.

3.0 VILLAGE RETAIL DEMAND PROJECTION RESULTS

3.1 OVERVIEW

Results of demand modelling for each of the 17 Village study areas are presented in the subsections below, grouped into West Side and East Side Villages. All inventory and demand projection figures have been rounded to the nearest 1,000 square feet.

By 2050, the net retail opportunity across all 17 Villages is projected to allow for an **increase in retail floor area of up to 140% compared to 2025.** This expansion reflects the allocation of net new sales potential generated by expected population growth in highly localized areas around each Village; this is deliberately calculated to avoid reducing sales at existing businesses in established retail areas (meaning no sales cannibalization). Further, projections of population growth and retail demand more broadly suggest that, by 2050 there will be, on average, ~**80% growth in retail spending available for capture across established commercial nodes and local shopping areas** from the 2025 baseline, assuming each of the Villages achieves its maximum projected potential.

The projected retail floor area growth figures for each Village, as presented below, represent the likely upper supportable thresholds based on the modeling approach used.

3.2 WEST SIDE VILLAGES

3.2.1 MACDONALD & WEST 16TH

The Phase 1 report suggests that retail should ideally be concentrated on the 2700 block along the north and south sides of West 16th Avenue, filling in storefronts west of the existing Choices market, and along the block east of the Macdonald Medical Centre to Trafalgar street.

Demand modelling suggests that this Village could support the net addition of between 37,000 and 47,000 square feet of retail and service commercial space by 2050, bringing retail floor area to between 106,000 and 115,000 square feet if built.

Table 1 - Projected Retail Demand – Macdonald & W. 16th Avenue

Total Inventory – All Categories (incl. vacant):	**68,000 sq.ft.**
Projected Net Additional Demand, 2050:	37,000 to 47,000 sq.ft.

Parcel-level financial modelling prepared by Licker Geospatial and Urban Systems through a parallel scope of work indicated that the parcels most likely to redevelop in this Village in the near term are not located within the core recommended retail block between MacDonald and Trafalgar Streets. Rather, they are located on both the north and south sides of West 16th Avenue, from Trafalgar Street east to Balsam Street, and further east to Vine Street. While retail in these more easterly locations would serve the purpose of building out projected future demand in the Village, it would do so in a disjointed manner, potentially causing challenges with retail leasing and maintaining healthy tenancies towards the eastern edge of the Village. As such, we would not recommend extension of retail frontage east of Larch Street.

The 'first order' retail area should, in our opinion, be maintained within the one block between Macdonald and Trafalgar, north and south sides of the street (pro forma results aside). These areas could (if /when they become financially feasible) accommodate about half of the projected floor space demand. Additional demand could be captured in the block of W. 16th Avenue between Trafalgar and Larch Streets.

Also note that there are financially feasible redevelopment locations along West 12th Avenue between Balsam and Vine. While this is not an ideal location for retail, there may be a limited opportunity for convenience-type retail here that could draw customers not only from the local neighbourhood, but from Kitsilano Secondary School and those coming to the Kitsilano Community Centre and Connaught Park.

3.2.2 MACDONALD & WEST KING EDWARD

The Phase 1 report suggests that it may be challenging to locate financially feasible areas for retail footprint expansion in this Village. This initial supposition was confirmed through the parcel-level financial modelling work and more detailed review of parcel configurations. While further expansion of retail frontage along Macdonald Street may be the most desirable from the perspective of creating a cohesive and well-defined retail village (e.g., pushing retail north to 23rd, or even 22nd Avenues), doing so would be challenging to achieve given the need for significant parcel assemblies, plus the likely need to acquire further parcels to create rear-of-building access for commercial tenants.

Retail demand modelling suggests there is opportunity, from an incremental market demand standpoint, for significant expansion of this Village; upper end projections suggest demand for up to 61,000 net additional square feet of retail space by 2050.

Table 2 - Projected Retail Demand – Macdonald & West King Edward Avenue

Total Inventory – All Categories (incl. vacant):	**26,000 sq.ft.**
Projected Net Additional Demand, 2050:	53,000 to 61,000 sq.ft.

Realistically, not all of the projected retail demand in this Village can be captured through provision of new floor space. This is owing to:

- Challenges with achieving more retail frontage along Macdonald Street to the north of the existing retail frontage edge at W. 24th Avenue.
- Parcel configurations and slope not conducive to retail along Macdonald Street south of the existing edge at the alleyway between Oliver Crescent and Alamein Avenue.
- West King Edward Avenue's width, boulevard, and slope, together creating conditions not conducive to new retail frontage along West King Edward. Retail along West King Edward would also not be desirable from the standpoint of creating a cohesive retail node with clear edges, as there is already such a village with Macdonald Street frontage.

Adding to the challenges, parcel level pro forma analysis indicates that there are few parcels which are financially viable for mixed-use redevelopment.

With the above challenges in mind, we believe there could be an opportunity to promote some future off-arterial retail in this Village, although this should be carefully considered through further discussions with knowledgeable commercial brokers regarding creating space that will be leasable. Note that this is likely more of a long-term vision versus something that will occur in the short, or even medium term, given the high cost of parcel assembly and the likely limitations on achievable future unit pricing (either residential, or commercial). If the City wishes to explore off-arterial possibilities in this Village, commercial frontage along Alamein Avenue towards Trafalgar Street might be considered, although again, this should be reviewed further with an eye to future leasing. Alamein is relatively flat and has good foot traffic to / from Trafalgar Elementary School. It also intersects with the heart of the existing retail in this Village.

3.2.3 MACKENZIE & WEST 33RD

The Phase 1 report identified retail expansion along Mackenzie Street as challenging due to shallow lots and the need to create rear-of-building access for parking and loading. Retail demand modelling identifies substantial opportunity for new retail in this Village, ranging from 68,000 to 78,000 net additional square feet of demand by 2050. This is due to both the projected future population growth in and around the Village, and the relative dearth of nearby competition.

Table 3 - Projected Retail Demand – Mackenzie & W. 33rd Avenue

Total Inventory – All Categories (incl. vacant):	**26,000 sq.ft.**
Projected Net Additional Demand, 2050:	68,000 to 78,000 sq.ft.

The most logical areas for retail expansion in this Village are along West 33rd Avenue, with clear edges to the east at Macdonald Street and to the west at Carnarvon Street. Expansion north-south along Mackenzie Street was considered and discussed with City staff, however the combined factors of short blocks and lack of rear lane access would make such expansion much more challenging than expansion along West 33rd Avenue. Parcels fronting West 33rd benefit from deep lots and lane access on both the north and south sides.

Parcel-based financial modelling indicated that it will be very challenging to locate any new retail floor area in this Village in the foreseeable future, owing to the relatively high prevailing land values of sites as detached dwellings, or presumably as single lot plex developments (e.g., 4-plex), with insufficiently high achievable market pricing to offset costs of assembly and mixed-use construction. Designation for future commercial along 33rd between Carnarvon and Macdonald will create the possibility for retail to emerge over the longer-term.

3.2.4 MACKENZIE & WEST 41ST

The Phase 1 report suggested limited opportunity for substantial retail expansion in this Village, given both challenges with finding logical locations for leasable retail frontage, and the proximity of the Village to both Kerrisdale and the southern edge of Dunbar BIA. It would run counter to the interests of promoting strong long-term health and vitality of retail in Kerrisdale and Dunbar, as well as Mackenzie & 33rd, if retail gravity were significantly drawn to the 41st and Mackenzie area. It is in the best interest all three of these aforementioned areas if retail expansion expectations in this Village are tempered.

Demand modelling suggests that there is ample demand for future retail growth, with projections identifying demand for between 69,000 and 78,000 net new square feet of floor area. If demand were focused on the single block fronting West 41st Avenue between Carnarvon and Mackenzie Streets, this frontage (north and south sides of 41st) could likely accommodate approximately 56,000 square feet of demand.

Table 4 - Projected Retail Demand, Mackenzie & W. 41st Avenue

Total Inventory – All Categories (incl. vacant):	**9,000 sq.ft.**
Projected Net Additional Demand, 2050:	69,000 to 78,000 sq.ft.

In our view, notwithstanding the results of the gravity modelling, this is not a strong location for retail in general. It will be challenging to make this an active, vibrant retail node, and it is more likely that future retail frontage would be leased to service commercial / office-type users, such as notaries, legal firms, clinics, and educational / childcare services. These and other service providers are of course important businesses that need locations, and there is benefit – both to residents and businesses – to providing new space where they can locate, and be accessed easily. It is, however, unlikely that a grocery-anchored Village 'hub' will emerge at this location, and any substantial retail node here would detract from retail opportunity in Dunbar and Kerrisdale.

3.2.5 GRANVILLE & WEST 41ST

The Phase 1 report suggests there is opportunity to expand the retail nodes located at the southwest and northwest corners of Granville & 41st, given parcels with redevelopment / intensification potential. It also suggests that this will be a challenging area to push retail off the major arterials, given the likely cost of land assembly.

Retail demand modelling indicates that there is ample demand for future floor area expansion in this Village, with a range of 157,000 to 163,000 square feet of net new floor area. Additionally, the parallel work scope indicates that there are many financially viable development parcels along both Granville and West 41st (i.e., the north-south and east-west 'spines' of the Village), offering opportunity to accommodate more than the projected need for new retail floor space.

Table 5 - Projected Retail Demand, Granville & W. 41st Avenue

Total Inventory – All Categories (incl. vacant):	**33,000 sq.ft.**
Projected Net Additional Demand, 2050:	157,000 to 163,000 sq.ft.

Retail expansion in this Village could proceed through some combination of:

- East-west expansion along West 41st Avenue
- North-south expansion along Granville Street
- Off-arterial expansion in select areas.

Expansion along W. 41st Avenue appears to have strong near-term potential, given the results of the pro forma modelling showing viable development along the north side of 41st both east and west of Granville. Expansion in these directions would likely result in retail emerging on only one side of the street, however, given challenges with parcel configuration and lane access for any new retail frontage on the south side.

Expansion along Granville Street appears to be the most logical progression for this Village, pushing south to West 43rd on the east and west sides of the street. These parcels benefit from both depth and rear lane access. Retail may also be pushed north along Granville, to W. 39th Avenue. There is already an in-stream mixed-use project on Granville between W. 39th and W. 40th Avenues, and so retail emerging just south of that, and across Granville Street, would be logical in building out this node.

If the City wishes to explore off-arterial retail expansion, pushing retail along W. 40th Avenue east of Granville towards Cartier Street is likely the best opportunity in the area. Retail here would likely not emerge for some time, however, given the prevailing values of those properties creating a barrier to land assembly. The leasability of such space may also be a challenge, and further discussion with knowledgeable commercial brokers would be warranted.

Following discussions with City staff and internal review, we recommend:

- Truncating southern extent of retail frontage at W. 43rd Avenue, and the northern extent at W. 39th Avenue (noting in-stream mixed-use project along Granville between 39th and 40th).
- Allowing, but not requiring, retail expansion east along 41st to Hudson Street
- Considering off-arterial retail expansion along W. 40th Avenue, between Granville and Claire Street, with consideration toward leasing of commercial space.

3.2.6 OAK & WEST 49TH

The Phase 1 report suggests that this Village serves a hybrid market of local residents (current and future), and pass-by traffic. There are notable soft sites for future intensification at the northeast, southeast, and southwest corners of the Oak & West 49th Avenue intersection.

Demand modelling suggests significant retail demand to 2050 owing to expected population growth, with forecasted demand ranging from 113,000 to 115,000 net additional square feet.

Table 6 - Projected Retail Demand, Oak & W. 49th Avenue

Total Inventory – All Categories (incl. vacant):	**20,000 sq.ft.**
Projected Net Additional Demand, 2050:	113,000 to 115,000 sq.ft.

Consideration was given to retail expansion either north-south along Oak Street, or east-west along West 49th Avenue. There are numerous active redevelopments fronting Oak Street that are residential-only, which creates challenges for retail expansion in a cohesive manner. These challenges are not as present along West 49th Avenue, particularly in the two blocks running west from Oak Street to Hudson Street. Parcels along those two blocks also show some near-term potential for financially viable mixed-use development. Given this, the recommendation is to focus retail expansion along West 49th Avenue.

3.2.7 ANGUS & WEST 57TH

The Phase 1 report suggested that retail expansion in this Village should be concentrated on the block between East Boulevard and Angus Drive. It also noted that there are opportunities to leverage the Arbutus Greenway, and potentially work with existing operators and landlords to facilitate expansion of the currently under-sized grocery anchor (Choices Market).

Demand modelling suggests that there is opportunity for up to 70,000 net new square feet of combined retail and service commercial floor space across all retail categories in this Village. Consideration was given to expanding retail to the west side of W. 57th Avenue across East and West Boulevard, but this was ultimately deemed undesirable, as it would work against creating a well-defined retail precinct with clear edges. Further, the combined width of West Boulevard, East Boulevard and the Arbutus Greenway, plus the east-west grade change, would all work against the creation of a single cohesive retail area.

Table 7 - Projected Retail Demand, Angus & W. 57th Avenue

Total Inventory – All Categories (incl. vacant):	**20,000 sq.ft.**
Projected Net Additional Demand, 2050:	69,000 to 70,000 sq.ft.

To accommodate projected future demand, future retail frontages in this Village should focus on West 57th Avenue, between East Boulevard and Adera Street. Retail expansion here would serve to build out a well-defined, strongly anchored linear precinct. For reference, the linear distance from East Boulevard to Adera Street is approximately equal to the length of 3 standard east-west blocks along West 4th or West Broadway, or 2 blocks along West 10th Avenue in Point Grey Village. This 2-3 block distance is often considered to be an appropriate scale for an anchored neighbourhood high street.

3.2.8 OAK & WEST 67TH

The Phase 1 report suggests that this Village has some immediate grocery retail opportunity, at a scale that would complement the nearby Safeway store in Marpole, and the T&T supermarket at Marine Gateway. It also notes that there is likely some opportunity to extend off-arterial neighbourhood-focused retail, likely along West 67th Avenue on the west side of Oak Street.

Demand modelling for this Village indicates that there is demand for between 52,000 and 57,000 square feet of net new floor space. It is anticipated that over 60% of this demand (35,000 square feet) will be met by currently in-stream mixed-use projects located along Oak Street between West 64th and West 67th Avenues (west and east sides of the street). The balance of projected demand, plus any demand in the future beyond the forecast horizon, would ideally be located with frontage along Oak Street north of 67th.

There could be opportunities for limited off-arterial commercial between Oak and Selkirk, but any off-arterial commercial space needs to be carefully considered given potentially problematic conditions for future leasing.

Table 8 - Projected Retail Demand, Oak & West 67th Avenue

Total Inventory – All Categories (incl. vacant):	**27,000 sq.ft.**
Projected Net Additional Demand, 2050:	52,000 to 57,000 sq.ft.

3.2.9 HEATHER & WEST 33RD

The Phase 1 report suggests that future retail opportunity in this Village should be focused on consolidating retail in a single location, and ensuring that retail profile is provided on to West 33rd Avenue. That report also notes that there is likely significant opportunity for new retail in this area already, given the Village's distance from major retail nodes at King Edward Plaza and Oakridge.

Subsequent retail demand modelling indicates that there is ample opportunity for new retail in this Village, a function of both the current level of under-service, and the substantial projected population growth (primarily at the Heather Lands master planned redevelopment). Projected demand ranges significantly, from 45,000 to 123,000 square feet; this range is driven by a sizeable difference in population projections.

Table 9 - Projected Retail Demand, Heather & W. 33rd Avenue

Total Inventory – All Categories (incl. vacant):	**<1,000 sq.ft.**
Projected Net Additional Demand, 2050:	45,000 to 123,000 sq.ft.

At least half of the projected demand in the top-end scenario is expected to be accommodated within the future Heather Lands redevelopment (estimated 62,000 square feet). The balance should be directed to West 33rd Avenue (where there is already a mixed-use project in stream), and potentially capturing more floor area within the Heather Lands.

3.3 EAST SIDE VILLAGES

3.3.1 FRASER & EAST 33RD

The Phase 1 report suggests that there is excellent near-term opportunity for expansion of this Village, specifically to fill out the 2-block node on the west side of Fraser Street between East 29th and 31st Avenues, leveraging the presence of the No Frills grocery store. It was also noted that there is limited desirability for further southward retail expansion along Fraser Street, given Mountain View Cemetery's frontage along Fraser Street between E. 31st and E. 41st Avenues.

Retail demand modelling suggests that there is opportunity to approximately double the retail footprint of this Village, adding between 24,000 and 27,000 net additional square feet. The main focus of this expansion should be:

- The frontage along east side of Fraser Street between E 29th and E 31st Avenues
- The frontage along the west side of Fraser Street, between E. 30th and E. 31st Avenues.

Between the above-noted areas recommended for expansion, plus unbuilt C1/C2 parcels across from the cemetery along Fraser Street, there is an excess of capacity to accommodate all of the projected demand (est. 60,000 sq.ft. of capacity).

Through discussions with City staff, there was an expressed desire to see retail frontage along West 33rd Avenue running east toward Grays Park. We do not recommend retail along this portion of E. 33rd however, given that this would result in over-designation of retail capacity, and may draw away from building out the retail node around the existing grocery anchor. The City may consider locating retail along E. 33rd Avenue in the future, however this should only be considered after the existing retail area in this Village is more fully built out, and within the context of updated retail demand modelling in the future.

Table 10 - Projected Retail Demand, Fraser & E. 33rd Avenue

Total Inventory – All Categories (incl. vacant):	**31,000 sq.ft.**
Projected Net Additional Demand, 2050:	24,000 to 27,000 sq.ft.

3.3.2 KNIGHT & EAST 33RD

The Phase 1 report suggests that the focus of future retail in this Village should first be on the 1300 block of E. 33rd Avenue (north and south sides), running west from Knight Street. It also notes that future expansion could be considered along Knight Street, depending on the extent of retail opportunity identified for the Village.

Demand modelling indicates substantial future demand in this Village, with expansion potential of 74,000 to 76,000 square feet. Following review of parcels and discussions with City staff, the recommendation for retail expansion in this Village is to keep it focused on E. 33rd Avenue, primarily the stretch from Knight Street west to Ross Street. If fully built out on both sides of East 33rd Avenue, this would create a retail street of approximately equal length to a 2-block stretch in Point Grey Village, or 3-blocks along West 4th or West Broadway.

Table 11 - Projected Retail Demand, Knight & E. 33rd Avenue

Total Inventory – All Categories (incl. vacant):	**7,000 sq.ft.**
Projected Net Additional Demand, 2050:	74,000 to 76,000 sq.ft.

3.3.3 COMMERCIAL ST. & EAST 20TH

The Phase 1 report indicates that this Village is already quite well-served (both by retail within, and immediately outside the Village boundaries), and that there are likely opportunities to allow for expansion of offerings. The focus of retail should, ideally, remain along Commercial Street between E. 22nd Avenue and Victoria Diversion, although there are not many available sites with obvious redevelopment potential. It was noted that there may be opportunity here for an additional smaller-scale specialty grocery store.

Demand modelling suggests that there is opportunity to add approximately 96,000 square feet of net additional retail space in this Village by 2050. There is, however, limited area to accommodate growth. While ideally there would be retail expansion along the length of Commercial Street, reaching as far south as E. 22nd Avenue across from Lord Selkirk Elementary School, most of these parcels have been redeveloped in the past 15-20 years as stacked townhouses or apartments. This likely limits the possibility of substantial parcel redevelopment along Commercial Street, between E. 20th and E 22nd Avenues, for the next 20-30 years.

In the near-term, there are opportunities for retail expansion along the Victoria Diversion, along Findlay Street (primarily on the site of the Croatian Cultural Centre), and fronting along Victoria Drive across from Trout Lake Park. The latter has both unbuilt commercially zoned parcels, and older housing stock that is likely viable for mixed-use redevelopment in the near-term.

Table 12 - Projected Retail Demand, Commercial & E. 20th Avenue

Total Inventory – All Categories (incl. vacant):	**128,000 sq.ft.**
Projected Net Additional Demand, 2050:	96,000 sq.ft.

3.3.4 VICTORIA & EAST 61ST

The Phase 1 report suggests that there is likely retail grocery expansion potential in this Village, building upon the existing small grocery / convenience offerings, and given the distance from other larger grocery stores.

Retail demand modelling suggests that there is opportunity in this Village to approximately double its retail footprint by 2050. Within this Village, there are two distinct 'sub-areas' where new retail space may logically be located:

- Sub-area 1: along Victoria Drive, north of Argyle Drive / E. 54th Avenue. The parcels in this sub-area are located within the current bounds of the Victoria Drive BIA.
- Sub-area 2: parcels along Victoria Drive, from Nassau Drive in the north, to Prestwick Drive / Brigadoon Avenue in the south. Expansion of retail along this stretch would eventually create a contiguous retail Village of approximately 900 linear feet. This would build upon recent mixed-use redevelopment that has occurred on the west side of Victoria Drive north of Nassau Drive.

Table 13 - Retail Demand Projections, Victoria & E. 61st Avenue

Total Inventory – All Categories (incl. vacant):	**66,000 sq.ft.**
Projected Net Additional Demand, 2050:	63,000 to 66,000 sq.ft.

3.3.5 WALES & EAST 41ST

The Phase 1 report suggests that future retail expansion in this Village would likely radiate east and west from the recent mixed-use developments on the south side of E. 41st Avenue, at Rhodes Street, further speculating that the most likely expansion direction is to the west.

Modelling conducted by USL and LGEO subsequent to the Phase 1 report confirmed that parcels fronting E. 41st Avenue, between Calendon and Wales Streets, are likely viable for mixed-use redevelopment in the near term. However, a portion of the block along the south side of E. 41st Avenue is already being redeveloped with no ground floor retail, which would hamper the emergence of contiguous double-sided retail along E. 41st Avenue.

Retail demand projections suggest that there is notable potential for new retail in this Village, owing to relative lack of nearby competition. Projections call for 59,000 to 62,000 net additional square feet of floor area to 2050.

Notwithstanding likely viable mixed-use development sites west of Wales Street, the following recommendations for retail expansion in this Village emerged following consultation with City staff, and internal team deliberations amongst the members of the consultant team:

- Extending retail frontage east along E. 41st Avenue as far east as Killarney Street, taking advantage of the unbuilt commercially zoned parcel at Rhodes & 41st, and then extending east to parcels fronting Earles Park. Retail could also be located on the north side of 41st between Rhodes and Earles. While the shallow lot depths on some of the Earles Park-fronting parcels may prove a challenge for some redevelopments, there is likely to be viability for mixed-use here. Further, not all retail uses require deep units.
- Further expanding retail off arterial, along Earles Street fronting Earles Park, with a northern terminus at the 40th Avenue alignment.

There was also discussion between the consulting team and staff about retail running along Rhodes Street. Given the demand projections, it is unlikely that there would be sufficient demand to accommodate an additional block of retail along Rhodes between 40th and 41st. Further, it may dilute the retail gravity of the Village to have two parallel north-south commercial streets on Rhodes, and Earles. As such, we do not recommend retail frontage along Rhodes Street north of E. 41st Avenue.

Table 14 - Retail Demand Projections, Wales & E. 41st Avenue

Total Inventory – All Categories (incl. vacant):	**9,000 sq.ft.**
Projected Net Additional Demand, 2050:	59,000 to 62,000 sq.ft.

3.3.6 KERR & EAST 54TH

The Phase 1 report suggests that future opportunity for retail expansion in this Village should remain focused on Champlain Square and its future infill, reconfiguration and re-merchandising. Unlike many of the other Villages, the extent and mix of retail in this Village is already serving the local community quite well. It was further noted that any future redevelopment / intensification of Champlain Square should ensure that there is no net loss of retail floor space, particularly in the retail grocery category.

Demand modelling indicates that there will be opportunity to significantly expand the floorplate of retail in this Village, with projections calling for between 53,000 and 64,000 net additional square feet by 2050. In addition to whatever opportunities emerge to capture some of this net new space within the footprint of Champlain Square (which should remain the primary focus for additional retail floor area), the City may consider future retail expansion along E. 54th Avenue to Rupert Street, and north on Kerr Street to E. 53rd Avenue, Parcel-based pro forma modelling suggests there is near-term redevelopment opportunities along E. 54th. Avenue.

Table 15 - Retail Demand Projections, Kerr & E. 54th Avenue

Total Inventory – All Categories (incl. vacant):	**87,000 sq.ft.**
Projected Net Additional Demand, 2050:	53,000 to 64,000 sq.ft.

3.3.7 NANAIMO & EAST 1ST

The Phase 1 report notes that there are strong retailers in this area, however the precinct suffers from a lack of clear edges. It also indicates that there is active interest in this area from small-scale retail grocery operators, who see an opportunity to complement what is already here and what has been emerging in recent years.

The retail demand modelling indicates zero demand for net additional floor area in this Village. The area appears to be overbuilt today, with 70,000 square feet of existing inventory against modelled baseline demand for less than 60,000 square feet. The main drivers of the zero-net-new demand gravity modelling result are: (1) negligible projected population growth in the immediate areas, and (2) the existing sizeable retail gravity of both Commercial Drive and 1st Avenue, and the 1st Avenue Marketplace (at Renfrew Street).

There are numerous unbuilt commercially zoned parcels along Nanaimo Street offering opportunities for retail floor area expansion. These include parcels between William and Charles Street on the east side of Nanaimo, between Kitchener and Grant on the east and west sides of Nanaimo, and parcels both north and immediately south of Graveley Street along Nanaimo. The estimated capacity of these combined unbuilt commercial parcels is approximately 32,000 square feet.

Given what exists today in terms of built floor space, and the locations of unbuilt commercially zoned parcels, it would make sense to create zoning that would allow for commercial frontage to be filled in over time between Graveley and Kitchener on the west side of Nanaimo Street. We note, however, that we would not expect this gap to be filled in over the forecast period.

Table 16 - Retail Demand Projections, Nanaimo & E. 1st Avenue

Total Inventory – All Categories (incl. vacant):	**70,000 sq.ft.**
Projected Net Additional Demand, 2050:	nil

3.3.8 NANAIMO & EAST BROADWAY

The Phase 1 report suggests that future retail growth should focus on contiguous retail expansion from corner locations at Nanaimo & Broadway. It further notes at least three near or medium-term redevelopment opportunities: the TD location at the southwest corner of Nanaimo & Broadway, the empty lot at the northeast corner of Nanaimo & Broadway, and the older strip centre at the northwest corner.

Demand modelling indicates modest demand for growth in this Village, with potential for just under 30,000 square feet of net new floor area by 2050. Parcels fronting Nanaimo Street with commercial zoning could accommodate more than twice this projected demand. This likely limits the opportunity for additional retail floor area beyond. Ideally, retail gravity would be directed to the southern extent of this Village, along Nanaimo between West Broadway towards Grandview Highway.

Table 17 - Retail Demand Projections, Nanaimo & E. Broadway

Total Inventory – All Categories (incl. vacant):	**49,000 sq.ft.**
Projected Net Additional Demand, 2050:	27,000 to 28,000 sq.ft.

APPENDIX A

RETAIL DEMAND METHODOLOGY

DATA

The following data sources were considered for the modeling aspects of this project. 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.[1]

DATA FROM CITY OF VANCOUVER

- Projected population and unit summaries for potential larger-scale (re)development sites
- Population and employment forecasts for the Rupert Renfrew plan area, Jericho Lands development, as well as the City as a whole using City-wide growth scenarios which assumes an overall population of 1m people by 2050.
- High-level policy direction with regards to anticipated land uses in Village areas
- All storefronts inventory information that the City had available, including information separately collected and added to the inventory for the *Retail Conditions and Grocery Store Overview* report, finalized in May 2025.
- Current and historical BC Assessment building information as well as land valuations and tax data - The City provided to LGeo parcel-related data that was used to understand relative developability of certain parcels in the Study Area which guided efforts for land use recommendations
- Traffic analysis zones and forecast population and employment by traffic zone for areas external to the study area.

DATA FROM CONSULTING TEAM

- **Accessibility modelin**g information for all parcels both within and proximal to the Study Area (LGeo-2022). This information was generated using a walking network developed for previous access work completed for the City. Care was taken to ensure that parcel accessibility was correctly captured in the data (as this is a critical driver of the market capture modeling).
- **Population / dwelling demand forecasts** In addition to the City-supplied data, the LGeo team used custom information generated in a previous study (Vanplan & CEAP) that delineates certain parcels that may benefit from increased density and a change in typology from low density residential to more mixed uses. This data was used to inform assumptions with regards to parcel turnover in the commercial nodes.
- **Typical retail performance metrics** by category, per historical data from ICSC and information obtained by Urban Systems 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

[1] That is to say we have reasonable confidence in the data, however, given the very broad extent of data especially highly granular retail inventory 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.

(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.

DATA FROM THIRD PARTIES

- **Trip diary data** from Translink / Metro Vancouver Regional District. The team reviewed travel behavior data from the most recent Translink trip diary (2017) which delineated average trip distances and modes to shopping activities (that is to say how far a resident of Vancouver will travel for shopping generally). These data inputs were used to construct the fundamental calculator in the gravity model which assigns spending dollars to retailers based on distances reflected in the trip diary survey.
- **Spending information by retailing category** from Environics (2024). Derived from aggregated credit card statements[2], 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.
- **Retail market capture by distance**: Using Moneris 2024 sales data (~30% of market coverage), capture rates were estimated by measuring customer spending relative to distance from retailers to the home FSA of the cardholder. Results show spending saturation (~90–100%) within 5 km across categories. While the data was limited to only Moneris transactions, similar distance decay patterns are assumed for the broader market.

METHODS

Presented below are the sequence of methods and assumptions used in this project to generate the retail demand modeling results. Where possible, and recognizing that this is an overview of the work as opposed to a deep dive into the modeling engine assumptions, necessary details have been included, including figures, tables, and equations as appropriate. Greater detail can be provided through supplementary write-ups, if / where desired by the City of Vancouver.

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 retail 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, they are providing a good experience). Amounts of dollars available to spend are driven by demographics and location.

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[2] 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.

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.

ESTABLISH A DATABASE OF EXITING RETAILERS

For this step, our team classified and confirmed retailers / service commercial businesses from multiple data sources, including from Vancouver's Storefronts Inventory, field work undertaken by Commercial Marketing (CMI) in both Spring and Fall of 2024, and additional spot checks by USL / LGEO. The intent was to establish a reasonably current database of retailers in and around the Study Area (the 17 Villages).

For competitive retail areas in the City of Vancouver outside of the Villages where storefronts information was available but without corresponding floor areas, missing floor areas were inferred based on typical storefront size information per past CMI field work. Average floor area size by retail category is presented in **Table A**, for reference.

Table A Average Floor Area (sq. ft.) by Retail Category

Category	City-Wide	Study Area
Automotive Goods & Services	4,477	3,813
Clothing, Shoes, Accessories	1,923	1,565
Convenience Stores	1,801	1,664
Educational Services	1,609	1,609
Electronics and Appliances	1,663	1,573
Entertainment and Recreation	2,524	2,297
Financial Services	3,121	3,597
Florist	1,374	1,432
Full-Service Restaurant	2,160	1,976
Furniture and Home Furnishings	3,001	2,235
Hardware and Garden Stores	2,763	2,352
Health Services	2,045	1,838
Hobbies, Toys, Games, Books	2,194	1,881
Jewelry	1,814	1,814
Limited-Service Restaurant / Café	2,324	1,564
Liquor Store	2,992	3,719
Musical Instruments and Supplies	1,426	1,496
Cannabis	1,469	1,563
Office Supplies and Stationery Stores	1,706	1,468
Optical Goods Stores	1,048	1,056
Other	4,890	5,231
Personal Services	1,187	1,324

Pet and Pet Supplies Stores	2,509	2,437
Pharmacy / Drug Store	4,379	3,589
Professional Services	2,563	1,997
General Merchandise Store	3,575	3,087
Specialty Foods	2,404	1,698
Sporting Goods Stores	3,037	2,286
Supermarket / Grocer	8,996	9,852
Overall	2,302	2,426

To classify the retail inventory database into a list of businesses that could be used for gravity modeling, the team employed the following two efforts.

The Vancouver storefronts inventory information organized according to several different classification schemas including general business category, business type, business sub-type and CoV retail category. All the new inventory information that was gathered for this project was gathered based on 2 levels of classification adopted from CMI (general business category and specific business description) and NAICS category, so in order to facilitate future integration in the City's Storefronts database the CMI categories were mapped to the above data. However, for the purposes of preparing forecasts and reporting on incremental opportunity by merchandise category, a further classification schema was added which grouped all businesses into the categories presented in **Table A** above.

To benchmark current conditions, our team used commercial land values as a proxy for market quality (that is to say lower land values should equate with lower rents). Estimated benchmark values as shown in **Table B** were calibrated to the Kerr Street Village and the overall modification factors are shown in **Table C** below. Kerr Street Village was selected as a useful data point for model calibration given that the existing commercial property performs well, the neighbourhood population has not changed dramatically in recent years, and it is considered to be an area where retail demand and supply are well calibrated today.

Table B - Dollar per sq.ft. by Category

Rollup Category	Dollar per sqft
Automotive Goods & Services	Included as a gross up in a broader category
Cannabis	1,000
Clothing, Shoes, Accessories	Included as a gross up in a broader category
Convenience Stores	1,600
Electronics and Appliances	Included as a gross up in a broader category
Entertainment and Recreation	Included as a gross up in a broader category
Financial Services	Included as a gross up in a broader category
Full-Service Restaurant	925
Furniture and Home Furnishings	Included as a gross up in a broader category
General Merchandise Stores	700

Hardware and Garden Stores	Included as a gross up in a broader category
Hobbies, Toys, Games, Books	Included as a gross up in a broader category
Limited-Service Restaurant / Café	925
Liquor Store	1,400
Musical Instruments and Supplies	Included as a gross up in a broader category
Office Supplies and Stationery Stores	Included as a gross up in a broader category
Other	Included as a gross up in a broader category
Personal Services	Included as a gross up in a broader category
Pet and Pet Supplies Stores	Included as a gross up in a broader category
Pharmacy / Drug Store	1,350
Professional Services	Included as a gross up in a broader category
Specialty Foods	1,565
Sporting Goods Stores	Included as a gross up in a broader category
Supermarket / Grocer	1,625

Table C - Modification Factors by Neighbourhood

Neighborhood	Modification Factor
Victoria Dr and E 61st Ave	2.1
Kerr St and E 54th Ave	1.925053687
Wales St and E 41st Ave	1.82203679
Commercial St and E 20th Ave	1.671588125
Granville St and W 41st Ave	1.601925706
Oak St and W 49th Ave	1.518283983
Nanaimo St and E Broadway	1.463917577
Knight St and E 33rd Ave	1.400433954
Angus Dr and W 57th Ave	1.341027126
Nanaimo St and E 1st Ave	1.226605559
Fraser St and E 33rd Ave	1.134913971
MacKenzie St and W 41st Ave	1.084072194
Oak St and W 67th Ave	1.003594266
Heather St and W 33rd Ave	0.941003156
MacKenzie St and W 33rd Ave	0.914675138
MacDonald St and W King Edward Ave	0.836394229
MacDonald St and W 16th Ave	0.812568705

Table D - Retail Categories and Descriptions

Category	Description	Included in Final Gravity Model?	Notes
Automotive Goods & Services	Car-oriented storefronts and services inc. gas station	No	Challenging to model, included in a broader gross-up category instead
Cannabis	Cannabis and vape shops	Yes	Benchmark tied to current to government-run BC Cannabis store performance, this may be lower than private stores.
Clothing, Shoes, Accessories	Includes children's and adult clothing stores, shoe stores and accessories.	No	Consumer goods are challenging to separate into regional versus local products, included in a broader gross-up instead
Convenience Stores	Convenience stores receive a fraction of Environics 'food purchased at stores' spend category.	Yes	A significant component of convenience stores are tobacco products, demand for these products is assumed static into the future
Electronics and Appliances	Household electronics as well as home appliances such as stoves and dishwashers	No	Very challenging sector to model for local retailing, included in a broader gross up category instead
Entertainment and Recreation	Spending on recreation services such as fitness centres	No	Sector not applicable for local retail modeling
Financial Services	Banking and spending other activities related to credit intermediation	No	Included as a gross-up to factor on convenience goods
Full-Service Restaurant	Sit-down restaurant with servers, including licensed establishments	Yes	Benchmark for demand informed by 2024 Moneris data
Furniture and Home Furnishings	Furniture for indoor or outdoor use, Other household furnishings (curtains, mirrors and picture frames), Art, antiques and decorative wares	No	Very challenging sector to model for local retailing, included in a broader gross up category instead
General Merchandise	Dollar Stores, Thrift and antic stores, and Pawn shops	Yes	Benchmark for demand informed by 2024 Moneris data
Hardware and Garden Stores	Other household equipment, nurseries, hardware, garden supplies, maintenance and repairs of household furnishings and equipment	No	Challenging to differentiate destination hardware stores from local "mom and pop" shops, included in a broader gross up category instead
Hobbies, Toys, Games, Books	Children's toys and outdoor play equipment and accessories, books and pamphlets (excluding schoolbooks), Video game systems and accessories (excluding for computers)	No	Sector too small to model for local retail included in broader gross-up category

Limited-Service Restaurant / Café	Quick services restaurants or cafes (e.g., fast food + coffee shops)	Yes	Benchmark for demand informed by 2024 Moneris data
Liquor Store	Liquor Store	Yes	Benchmark tied to current to government-run BC Liquor store performance, this may be greater than private stores.
Musical Instruments and Supplies	Musical instruments, parts, and accessories	No	Sector too small to model for local retail included in broader gross-up category
Office Supplies and Stationery Stores	School supplies, stationary	No	Sector too small to model for local retail included in broader gross-up category
Other	Other household supplies, including general merchandisers like Dollar Stores	Yes	
Personal Services	Personal care services, Laundry and dry-cleaning services, Clothing rental, tailoring, alteration, and other services	No	Services are grossed up in proportion to convenience goods demands
Pet and Pet Supplies Stores	Purchase of pets and related pet goods, pet food	No	Sector too small to model for local retail included in broader gross-up category
Personal Care	Personal care products, prescription medicines	No	Services are grossed up in proportion to convenience goods demands
Professional Services	Corporations, law agency, realtors and accountants, tax and insurance agencies, construction, media agency, consulting and travel firms	No	Services are grossed up in proportion to convenience goods demands
Specialty Foods	Meat markets, fish and seafood markets, ethnic food stores	Yes	Benchmark for demand informed by 2024 Moneris data
Sporting Goods Stores	Sports and athletic equipment, supplies and parts for recreational equipment, outdoor play equipment and accessories	No	Regional nature of sporting goods stores, makes it unreliable for local retailing, included in broader gross-up category instead
Supermarket / Grocer	Supermarkets and other grocery (except convenience) stores, Fruit, and Vegetable Markets	Yes	Benchmark for demand informed by 2024 Moneris data

DEVELOP APPROPRIATE POPULATION AND HOUSEHOLD FORECASTS FOR MODEL AREA

For this step our team used City of Vancouver population and housing forecasts as well as more localized projections produced from parallel planning processes that allowed for fine-grained assignment of future households to all areas of the City. The informational basis for all household totals for both 2021 and 2050 was parcel-based population and household estimates which were

derived from BC Assessment data. These estimates were aggregated by 2021 Census Dissemination Block (DB) areas which are a reasonably resolved spatial data product that aligns with planning units used by may other agencies.

Household totals for 2021 were sourced directly from BC Assessment unit counts and aligned with Census data, as appropriate. Outside of Villages, the team used the outputs from a model constructed for the Vanplan City-wide planning effort, which distributes anticipated population growth based on the underlying characteristics of parcels with considerations for redevelopment potential and other related urban dynamics (such as infilling, secondary suiting, Vanplan policy for allowing house plexes etc.). Generally, for this project our team used proposed Vanplan growth zones to disaggregate population wherein areas permitting higher allowable FARs received more population than lower density areas.

For Village areas, our team used both City of Vancouver-supplied population estimates and a separately produced estimate that used a supply and demand-driven bottom-up approach. In the greater modeling area, which encompasses the City of Vancouver in its entirety, total population is expected to increase to approximately 1 million residents by 2050.

DEVELOPING SPENDING PROJECTIONS FOR HOUSEHOLDS IN THE MODEL

The aim of this step was to build an appropriate model of localised retail spending for each household in the model. The base input for the spending model was information from Environics 2024 household spending data, which is generated through aggregated credit card transactions and spending surveys. The spending data is produced as annual dollars spent for various categories including most retailing uses. However, there is no indication of where these dollars are spent or through what means (i.e., in person or online). Crucially though, through the use of GIS software[3], it is possible to localize household data to refined geographic units (in this case Census Dissemination blocks) which can be input into a gravity-based spending model that allocates anticipated household spend to businesses in the Village study areas.

Subsequent to localization, the Environics spending categories data were "assigned" to various retail classification based on Household Expenditure Data, Statistics Canada, 2023. (see **Table E** below which details how relevant Environics spending categories were assigned to various retail classifications).

Table E - Environics Spending Category Assignments

Project Classification	Environics Spending Category	Spending Assignment
Clothing, Shoes, Accessories $2,550 avg. spend per hh/yr	Children's Wear (Under 4 Years)	95%
	Gift: Clothing/Footwear/Acc for Non-HH Mbrs	95%
	Men/Boys: Clothing 4+	95%
	Women's/Girls Clothing 4+	95%
	Audio Equip	90%

[3] There is a feature in ESRI's ArcGIS Pro software suite that allows for the direct assignment of spending information to any geographic level. Information on this tool can be found here.

Electronics and Appliances $8,500 avg. spend per hh/yr	Blu-Ray Players	100%
	Cameras/Accessories	100%
	Computer Equip/Supp	100%
	DVD Players	100%
	HHs Appliances	90%
	Home Ent: Equip	100%
	Home Theatre Systems	100%
	Mobile Telephone Equip	100%
	Non-Portable Audio Equip	100%
	Phones Purchase	100%
	Photographic Goods/Svcs	100%
	Portable Audio Equip	100%
	Landline Telephone Equip	100%
	TV/VCR/Video/Other Components	100%
	Vid Games/Access	100%
Furniture and Home Furnishings $2,600 avg. spend per hh/yr	Art, Antiques and Decorative Ware	100%
	Indoor/Outdoor Furniture	70%
	Rugs/Mats/Under Padding	100%
	Oth HH Furnishings	100%
Hobbies, Toys, Games, Books $200 avg. spend per hh/yr	Arts/Craft Materials	95%
	Books Excl Sch Books	86%
	School Supplies	15%
	Collectors Items	95%
	Magazines/Periodicals	48%
Musical Instruments and Supplies $400 avg. spend per hh/yr	Musical Instru/Parts/Access	100%
	Maps/Sheet Music/Prints	100%
	Audio Equip	10%
Hardware and Garden Stores $2,600 avg. spend per hh/yr	House Cleaning Supp/Equip	25%
	Children's Toys and Outdoor Play Equipment	24%
	Nursery/Greenhouse Stock	86%
	Other Household Equipment	100%
	Soil Maint/Pesticides	95%

	HH Appliances	10%
	Indoor/Outdoor Furniture	30%
	Paper/Plastic/Foil	20%
	Other Household Supplies	40%
Sporting Goods Stores $4,000 avg. spend per hh/yr	Bicycles/Parts/Access	100%
	Camping/Equip (Excl Bbq)	100%
	Children's Toys and Outdoor Play Equipment	50%
	Rec Equip/Associated Svcs	100%
	Sports/Athletic Equip	100%
	Rec Equip: Supp/Parts	100%
Pet and Pet Supplies Stores $400 avg. spend per hh/yr	Pet Food	30%
	Purchase Pets/Pet Goods	100%
Cannabis $600 avg. spend per hh/yr	Tobacco Prods/Suppl	35%
	Alcohol: Store Brought	5%
Convenience Stores $2,300 avg. spend per hh/yr	Food Purch From Stores	4%
	Tobacco Prods/Suppl	56%
	Newspapers	5%
	Magazines/Periodicals	3%
	Books Excl Sch Books	1%
	Non-Presc Meds/Pharm Prod	5%
	Health Care Supplies	5%
	Other Meds/Pharma Prod	5%
Supermarket / Grocer $11,000 avg. spend per hh/yr	Food Purch From Stores	78%
	Paper/Plastic/Foil	74%
	Personal Care Prods	20%
	Pet Food	70%
	House Cleaning Supp/Equip	50%
	Nursery/Greenhouse Stock	13%
	Soil Maint/Pesticides	5%
	Other Household Supplies	37%
	Newspapers	62%
	Magazines/Periodicals	32%

	Books Excl Sch Books	9%
	Tobacco Prods/Suppl	9%
	Non-Presc Meds/Pharm Prod	12%
	Health Care Supplies	12%
	Other Meds/Pharma Prod	12%
Full-Service Restaurant $2,100 avg. spend per hh/yr[4]	Alcohol: On Lic Prem	100%
	Restaurant Breakfasts	50%
	Restaurant Dinners	60%
	Restaurant Lunches	40%
	Restaurant Snacks/Beverage	50%
Limited-Service Restaurant / Café $1,500 avg. spend per hh/yr	Restaurant Breakfasts	50%
	Restaurant Dinners	40%
	Restaurant Lunches	60%
	Restaurant Snacks/Beverage	50%
Liquor Store $4,200 avg. spend per hh/yr	Alcohol: Store Bought	95%
Pharmacy / Drug Store $4,500 avg. spend per hh/yr	Personal Care Prods	80%
	School Supplies	20%
	Food Purch From Stores	6%
	Newspapers	28%
	Magazines/Periodicals	15%
	Books Excl Sch Books	4%
	Tobacco Prods/Suppl	9%
	Presc Meds/Pharm Prod	100%
	Non-Presc Meds/Pharm Prod	83%
	Health Care Supplies	83%
	Other Meds/Pharma Prod	83%
Automotive Goods & Services $18,000 avg. spend per hh/year	Private Use Auto/Van/Truck	100%
	Tires/Parts: Vehicles	100%

[4] For the purposes on this study, we considered take out, and delivery services to be considered as in-person shopping as the spending is allocated to a store as opposed to a online-only retailer. We do note that service delivery areas are occasionally larger than our model study area which was limited to 5km. As such we may have missed some external spending/competition from these retailers.

	Maint/Repair: Vehicles	100%
	Gas/Fuels: Vehs/Tools	100%
	Oth Vehicle Operation Svcs	100%
	Accessory: Auto/Van/Truck	100%
Financial Services $1,100 avg. spend per hh/year	Financial Services	100%
General Merchandise Stores $550 avg. spend per hh/year	Women's/Girls Clothing 4+	5%
	Children's Wear (Under 4 Years)	5%
	Men/Boys: Clothing 4+	5%
	Gift: Clothing/Footwear/Acc for Non-HH Mbrs	5%
	School Supplies	3%
	Food Purch From Stores	2%
	Indoor/Outdoor Furniture	1%
	House Cleaning Supp/Equip	25%
	Paper/Plastic/Foil	6%
	Nursery/Greenhouse Stock	1%
	Soil Maint/Pesticides	~0%
	Oth Household Supplies	3%
	Newspapers	5%
	Magazines/Periodicals	3%
	Books Excl Sch Books	1%
	Children's Toys and Outdoor Play Equipment	1%
	Arts/Craft Materials	5%
	Collectors Items	5%
Office Supplies and Stationery Stores $14 avg. spend per hh/year	School Supplies	63%
Other $470 avg. spend per hh/year	Fabric/Yarn/Notions	100%
	Textbooks	100%
Personal Services $2,000 avg. spend per hh/year	Laundry/Dry-Cleaning Svcs	100%
	Laundry/Dry-Clean Self Serv	100%

	Clothing Rent/Tailor/Oth	100%
	Personal Care Svcs	100%
	Recreation Services	100%
Professional Services $500 avg. spend per hh/year	Maint/Repr Furnish/Equip	100%
	Legal Svcs: Not Dwelling	100%
Specialty Foods $1,100 avg. spend per hh/year	Food Purchase From Stores	15%

In addition to assigning spending categories to retail classifications, the team used projections based on retail trends discussed in the sections above to discount spending based on an assumed percentage of sales that were flowing to online retailers (i.e., e-commerce platforms) as opposed to bricks and mortar retail (**Table F** below). Typically, it was assumed that flight to online sales would continue for many durable goods categories (following recent trendlines), while groceries and prepared foods would still be purchased in person (to a greater degree) or through a delivery service (which, while technically online, still rely on distance as a constraint to delivery and are thus subject to the gravity model).

Table F - Brick and Mortar Retail Sales by Category

Class	Percent of Sales Brick and Mortar 2024	Percent of Sales Brick and Mortar 2050
Clothing, Shoes, Accessories	88%	60%
Electronics and Appliances	88%	81%
Furniture and Home Furnishings	88%	81%
Hobbies, Toys, Games, Books	88%	79%
Musical Instruments and Supplies	88%	81%
Hardware and Garden Stores	88%	81%
Sporting Goods Stores	88%	81%
Pet and Pet Supplies Stores	88%	81%
Cannabis		
Convenience Stores	99%	96%
Supermarket / Grocer	99%	96%
Full-Service Restaurant	100%	100%
Limited-Service Restaurant / Café	99%	96%
Liquor Store	90%	75%
Pharmacy / Drug Store	93%	83%
General Merchandise Store	88%	81%

Using the two sources of information above, it was then possible to quantify available spending for a given region of the model area and assign the spending down to the household scale.

DEVELOP A GRAVITY-BASED RETAIL DEMAND MODEL THAT IS RESPONSIVE TO MEASURED TRAVEL BEHAVIOURS, POPULATION AND COMPETITIVE RETAIL LOCATIONS

The next step in the modelling process was to construct a logical model that reasonably approximates actual retail spending behaviour in the Village Study Areas. The type of model that is commonly used for this type of exercise is referred to as a **gravity model**. This model, as constructed, formed the crux of our analytical basis, and provides key insight into the competitive position and potential market capture of many of the businesses identified in the elements above.

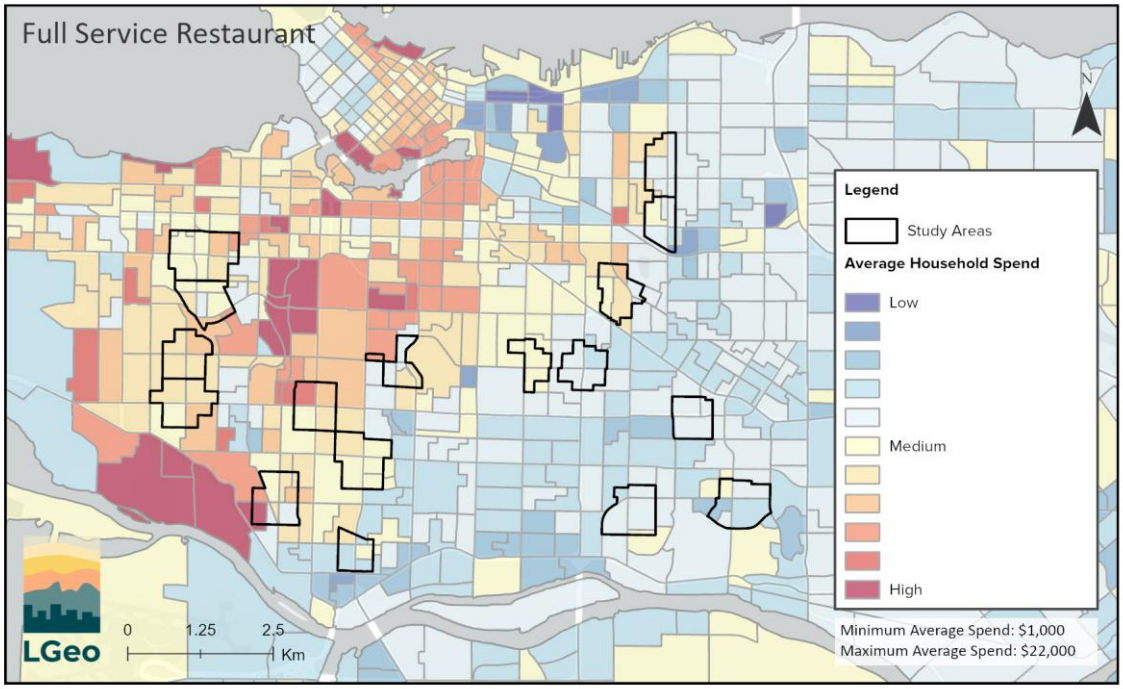
To develop this model, we simulated daily shopping habits through the creation of a household travel-based approach that distributes spending to businesses based on three key assumptions:

- Generally larger sized stores will draw more consumers (i.e., size = more gravity);
- Consumers generally purchase things close to where they live or work; however, scale of retailer generally is a stronger predictor of spending; and
- Consumers generally distribute their available dollars to more than one business in a given category

Building on these three assumptions, please consider the example images below which indicate these spatial relationships.

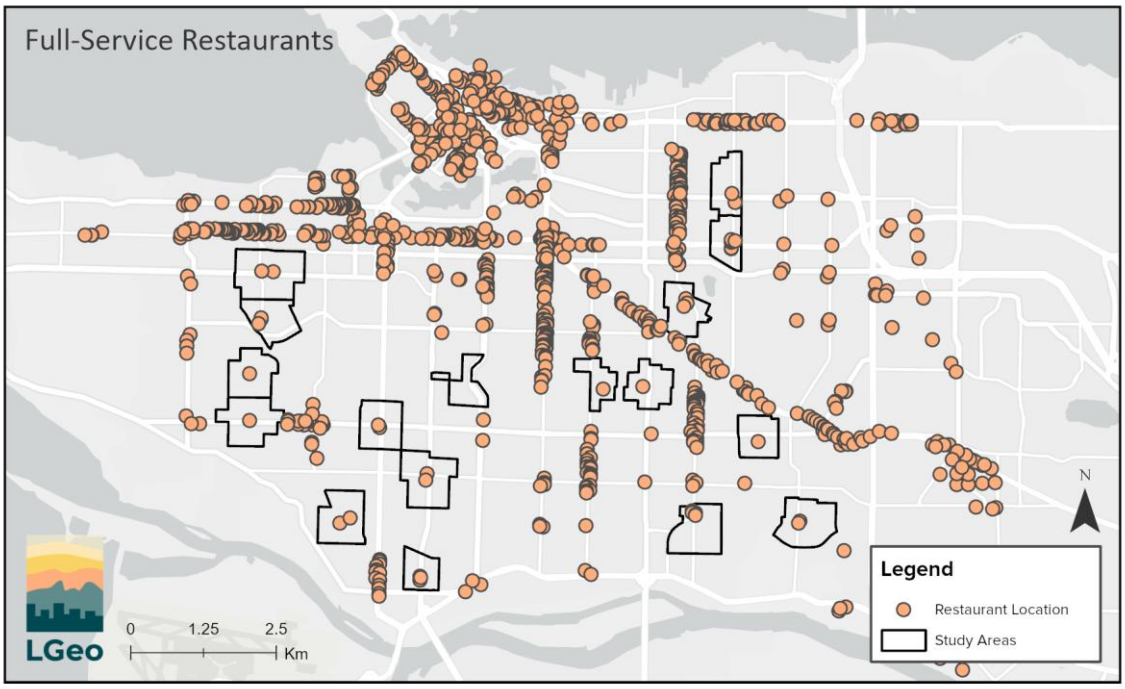
The first figure below (**Figure A**) indicates average household spending on full-service restaurants (which is a composite of spending on breakfast, lunch, and dinner). It should be easily noted that more affluent areas of the City also have higher levels of spending for full-service restaurants, whereas generally less affluent areas see lower spending.

Figure A - Average HHLD Spending - Full-Service Restaurants



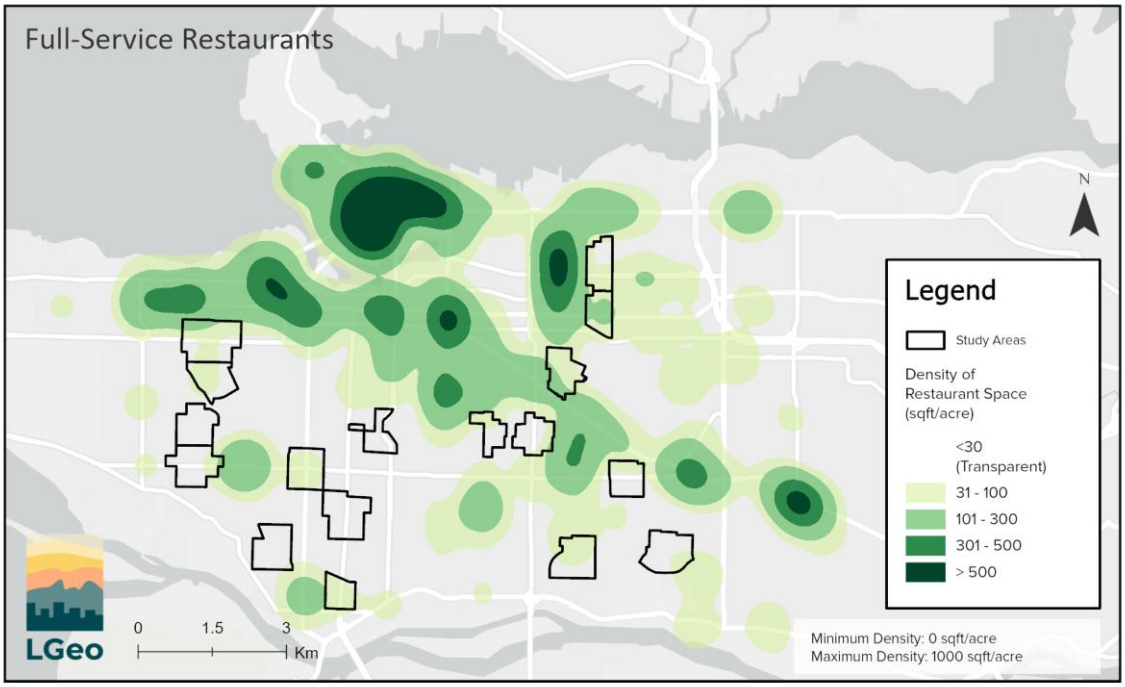
The second and third figures (**Figure B** and **C**) below shows the current geographic distribution and density of full-service restaurants in the model area. The core functionality of the gravity model is to pair anticipated household spending with available businesses operating on the assumption that most spending on full-service restaurants will occur locally[5], to determine which areas of the Study Area are well serviced now and which may show opportunity for new businesses or business expansion.

Figure B - Location of Full-Service Restaurants



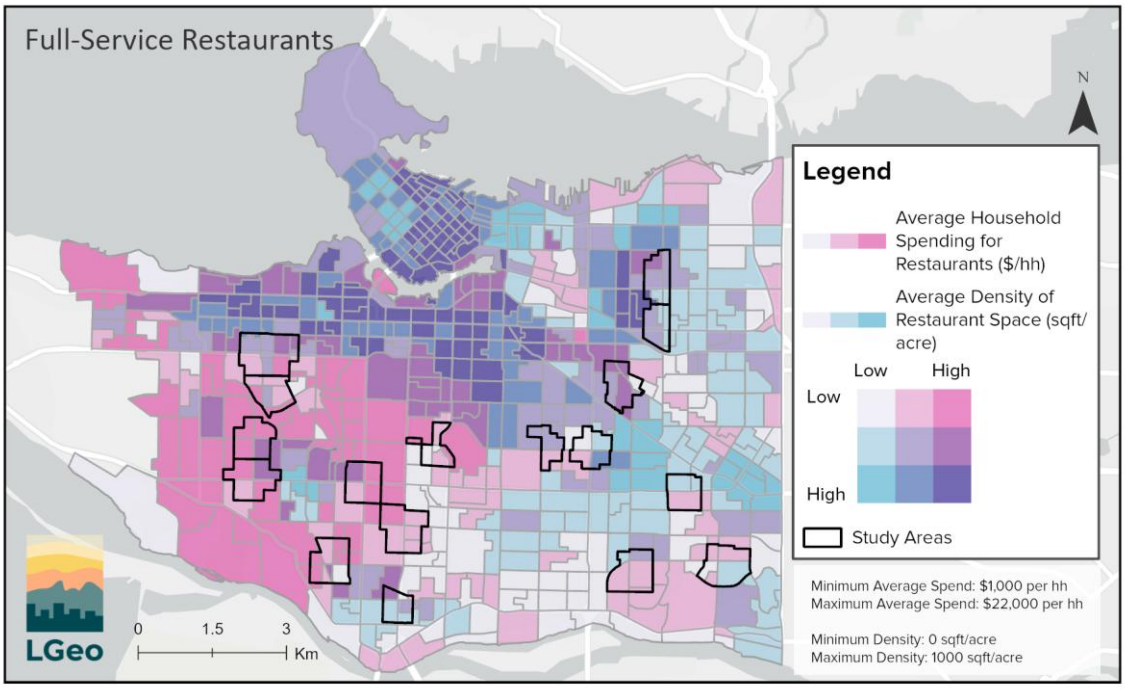
[5] Our modelling accounts for local nighttime spending (i.e. neighbourhood pizzeria) and daytime spending (i.e. work lunches). It cannot account for long distance destination nighttime spending (i.e. destination restaurant). Per previous methodological explanations we cannot discern nighttime destination-based behaviours as well as the former two categories from our available information. Further study into trip diary data or regional transportation information may shed light on this subject and allow for further refinements in the future.

Figure C - Density of Restaurants in Villages



With these two data points we can then determine the spatial relationships between spending density and business density (shown in figure Y subsequently). This spatial relationship is the fundamental basis of the retail spending model and is discussed subsequently.

Figure D - Bivariate combination of spending density and restaurant density



The retail demand model was constructed in a python programming environment for ease of use and replicability for future work. The code has been generalized into the following procedure:

A. Create an origin destination matrix (a point-to-point distance-based relationship along streets) between all retailers in a class (for instance speciality grocers) and all dissemination blocks with attributed household spending data. Typically, this matrix resulted in anything between 10,000 and several million relationship records (hereinafter referred to as origin-destination "OD pairs").

B. Each OD pair simulates the travel between a group of households and a retailer. Each household has an assumed annual spend determined for both 2024 and 2050 as discussed above.

C. Based on Moneris 2024 sales data, **retail spending capture rates reach ~90–100% within 5 km of a customer's home**. Accordingly, we excluded OD pairs beyond 5 km, since local-retail shopping trips rarely exceed this threshold.

D. For each dissemination block in the model, all OD trips were initially weighted within their respective capture distance thresholds using an operating philosophy that shorter trips were more likely to result in higher spending behaviours. For households with only one available retailer in a given category the resulting "modality weight" (i.e. initial distribution of spending) would be 100%. However, for households with two or more available retailers within the threshold distance, weighting was prioritised to the closest retailer and then further out as necessary (i.e. for a household with access to two retailers -A and B at 200m and 400m

distances, the weights would be 66% for A and 33% for B reflecting the fact that the first retailer is twice as close to the household as the second).

E. Secondly, retailers were weighted by their sizes as well using an operating philosophy that larger stores were more likely to result in greater spending behaviours. As above, for households with only one available retailer in a given category the resulting "scaling weight" (i.e. initial distribution of spending) would be 100%. However, for households with two or more available retailers, weighting was prioritised to the larger retailer in relation to the pool of square footage accessible and then to smaller retailers as necessary (i.e. for a household with access to two retailers -A and B at 1000 sq.ft. and 500 sq ft respectively, the weights would be 66% for A and 33% for B reflecting the fact that the first retailer is twice as large to as compared the second).

F. Using current state information, our team tested numerous model configurations in order to balance the model and best reflect benchmark data. What we noticed was that when the model was biased too heavily towards the modality, demand for local (storefront) retail became overstated. Conversely, when the model was biased toward the scaling weight, we noted that demand numbers did not justify any smaller-scale local retail. However, when these two weights were weighted roughly equally, we noted that most small-scale retail areas performed to expectations, with some areas being modestly overstated. Further adjustments toward larger footprints created the most balanced model outcome, which we used for the remainder of the project. Accordingly, we established a weighted average between the two criteria above, with the modality weight accounting for 40% of the spending and the scaling weight accounting for the remaining 60% of available spending.

G. This household spending total was then multiplied by the anticipated discounts to spending (as discussed above) as well as the total number of households in the dissemination block (for both 2024 and 2050).

H. Spending at all individual retailers is then totaled by using the weighting above based on each potential household-retailer pair (this is referred to as "captured spend"). Captured spend is then totaled by node and retail class (i.e. Village Study area) to create a snapshot of the theoretical volume of dollars flowing in a location based on the diversity of retail services currently being offered.

USING THE GRAVITY MODEL TO DETERMINE SUPPORTABLE SPEND AND FLOOR SPACE

Once captured spending is generated, it is possible to determine the potential supportable floor area increase for a businesses type in the Study Area. Generally, this was determined as follows:

A. The basic changes (increases or decreases) to potential spend by modeled retailing classes ("Core retailing") are determined by evaluating the captured spend in 2050 in relation to the "current" 2024 square footage in the area. This hypothetical outcome is referred to as the "base model".

B. Captured spend by category was then divided by **benchmark sales per floor area** (or the 'retail performance', measured in dollars-per-floor-area unit per annum) to determine the potential for new square footage in a given area, by category *for core retailing classes only*.

C. Separately, our team determined the general relationship between core (modellable) retail classes such as restaurants and challenging-to-model retail classes such as financial services.

by reviewing current inventory data for all BIA areas in the City. We found that the square footage of goods retailers is typically 25% of "Core" categories, and financial services, personal services and professionals' services were 5%, 14% and 13% respectively. We further grossed up these values with a 5% vacancy buffer. All potential increases in floor area were then added back into the gravity model as new or expanded businesses which determined the impact on captured spend for each retailing area. This hypothetical outcome is referred to as the "add model". As with the base model, additional new square footage was evaluated using study area averages as denominators against the captured spend.

D. The difference between the add model square footage and the 2024 square footage is the incremental supportable floor area.

Based on the above information we determined that the Villages study areas could accommodate about **140% more commercial floor area by 2050** without negatively impacting any of the captured sales of existing retailers within Villages. That is to say that, between 2024 and 2050, the total anticipated captured spend in the Study Area (across all retail and food & beverage sectors but excluding service commercial uses) is projected to be about $470 million more than it would have been in the absence of any retail floor area expansion within Villages (constant dollars). This is based on population and jobs growth and mitigated by increased flight to online sales.