Navigating Saskatoon's Subsidized Housing Landscape: A Spatial Insights Approach

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Research Focus

- Examine the socio-demographic characteristics of the neighbourhoods in which subsidized housing is located in **Saskatoon** and compare these characteristics to the presence of supportive amenities and services.

- Our goal is to determine whether infrastructure is in place to support tenants and to what degree, and to assess whether the availability of infrastructure is associated with differences in local-level socio-demographic characteristics.

Overview

The geospatial mapping approach is used to analyze the distribution of subsidized housing units

Availability of Subsidized Housing units

Proximity to Social Services and Amenities

Socio-demographic characteristics
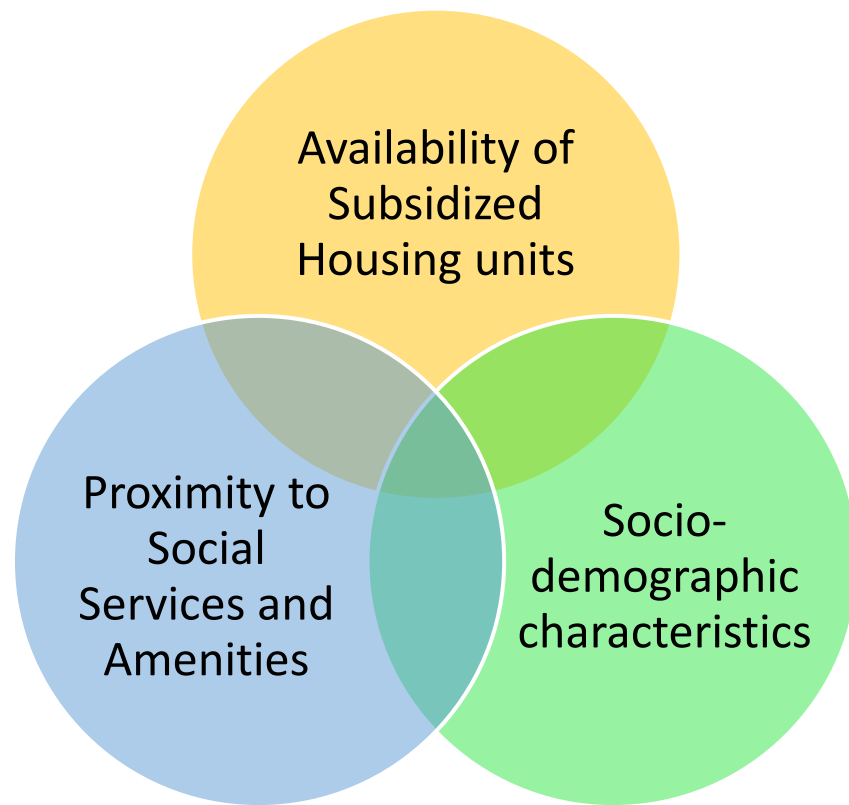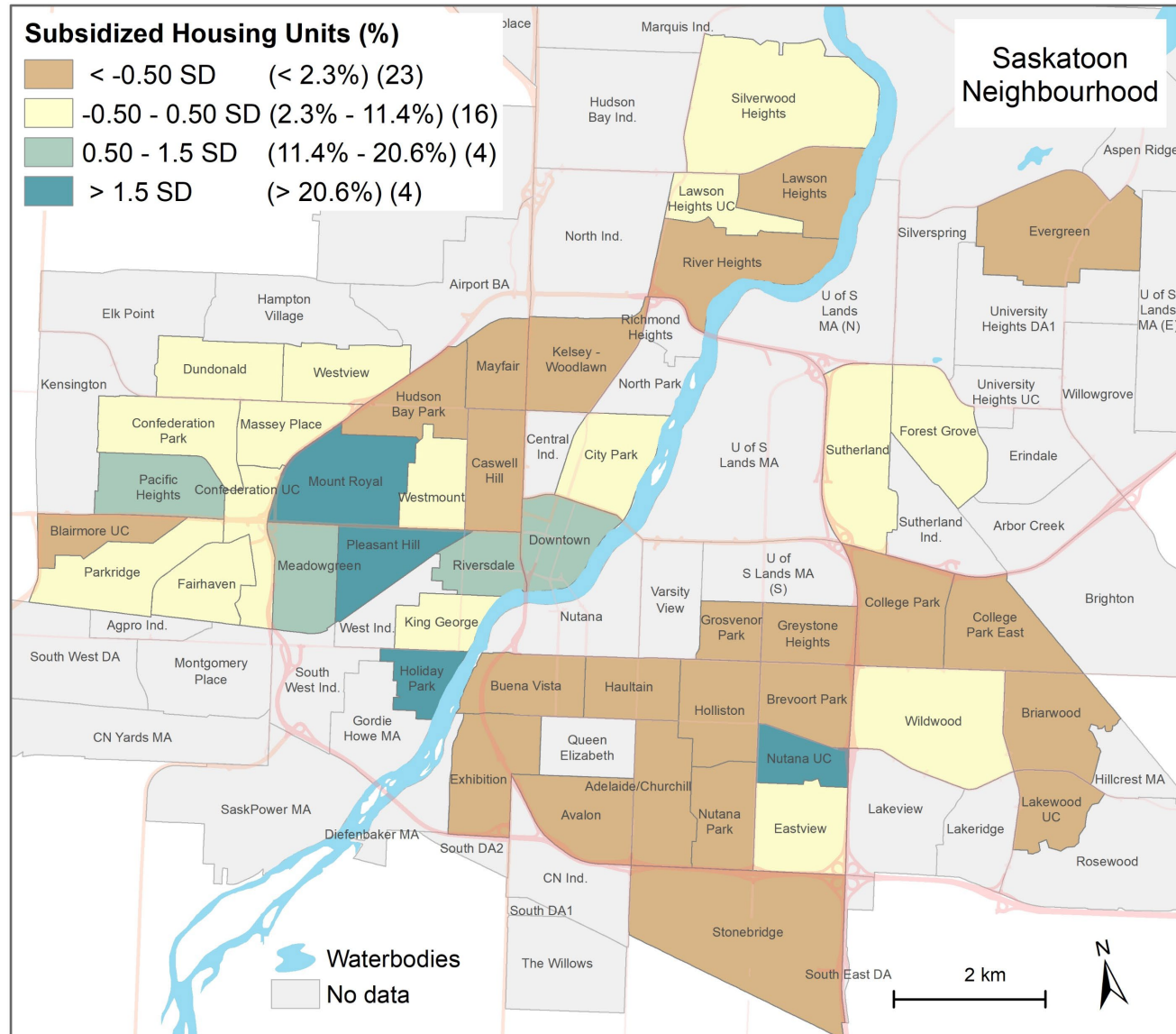
Subsidized Housing Data: Housing Locations
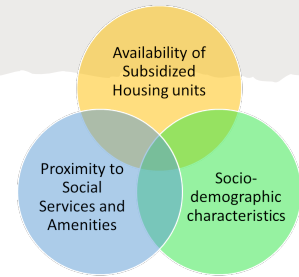
1. Descriptive address information for subsidized housing units (from Public and private (non-profit/co-op) housing corporations)

2. The descriptive address information (postal address or a six-digit postal code), and the number of housing units at each address were compiled

3. An integrated geocoding technique was applied to obtain geographic coordinates for all housing units

4. Neighborhood information was assigned to all housing units based on the location of units that fall within the neighborhood boundary

5. Percentage of subsidized rental housing units at a neighborhood level was determined using dwelling data from the 2021 Census data

6. Dividing the total number of housing units within each neighborhood by the total number of **dwellings occupied by usual residents**
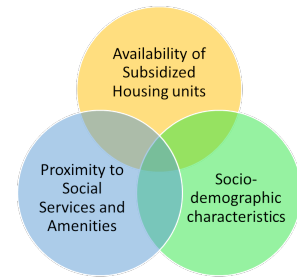
Saskatoon Neighbourhood Map

In total, 5,011 housing Units situated across 1,065 distinct locations

Categories (SD)	NH Count	Pop.	Units
< -0.50 SD	23	90,653	316
-0.50 - 0.50 SD	16	72,027	1,913
0.50 - 1.5 SD	4	13,186	914
> 2.5 SD	4	12,773	1,860
Total	47	188,639	5,003

Subsidized Housing Units (%)

- < -0.50 SD (< 2.3%) (23)
- -0.50 - 0.50 SD (2.3% - 11.4%) (16)
- 0.50 - 1.5 SD (11.4% - 20.6%) (4)
- > 1.5 SD (> 20.6%) (4)

Saskatoon Neighbourhood

Waterbodies

No data

2 km

N

Socio-demographic Characteristics

- A set of 14 variables from the 2021 census were shortlisted

- To aggregate these variables at the neighbourhood level, DA centroids were assigned to each neighborhood based on the location of the DA centroid that falls within the neighborhood boundary

- In some cases, a DA boundary is larger than the boundary of neighbourhood, or a DA fall in more than one neighborhood, which has the likelihood of affecting the estimations of variables of each neighbourhood

- To minimize and resolve this issue, dissemination block (DB) centroids were used to determine the percent of the DA population and dwellings that are associated with each neighborhood

- The socio-demographic variables for each neighborhood level were calculated

- All the shortlisted socio-demographic variables at the neighborhood level were estimated in percentage.

# Socio-demographic Variables: 2021 Census Data
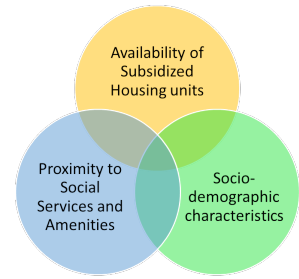
1. Population over 65 years

2. Household size (one-person households)

3. Total one-parent families headed by women

4. Prevalence of low income based on the Low-income cut-offs, after-tax

5. Indigenous identity within the total population

6. Occupied private dwellings requiring major repairs

7. Household income with 30% or more spent on shelter costs

8. Tenant households in subsidized housing

9. Visible minority population

10. Mobility status 1 year ago (movers)

11. Mobility status 5 years ago (movers)

12. Population aged 25 to 64 years with no certificate, diploma, or degree

13. Population aged 25 to 64 years with high school diploma or equivalency certificate

14. Unemployed population aged 15 years and over.

Proximity to Amenities and Social Services
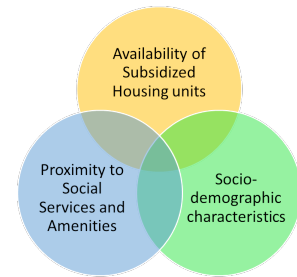
- After careful consideration of research objectives and availability of locational information, a set of 15 distinct amenities and social services were identified

- For each amenity/service, a comprehensive list of all facilities with their locational information was gathered from diverse sources

- In cases where geographic coordinates were missing, an integrated geocoding technique was used to convert descriptive address information into a set of geographic coordinates

- Proximity measures were based on the distance between the location of each housing unit and the nearest amenity/ service site

- As a result of this step, the nearest distance (in meters) for each amenity/service was assigned to each housing unit

- Furthermore, a mean distance was computed based on the number of housing units within each neighborhood, determining the overall proximity of each neighbourhood to each amenity/service

Proximity to Amenities and Social Services
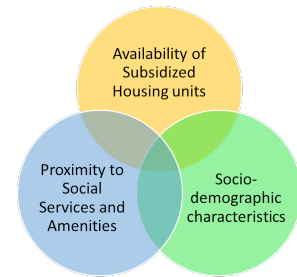
1. Transportation (**Transportation stops**) – Saskatoon City (10/2/2023)

2. Education/skills development (**Primary, junior/high school**) - DMTI Spatial

3. Education/skills development (**Adult education**) - https://www.spsd.sk.ca/Schools/upgrading/ (11/5/2023)

4. Community/ recreation (**Community centres point and arenas point**) - DMTI Spatial

5. Health care 1 (**Pharmacies and drug stores**) - https://www.saskpharm.ca/; open Canada

6. Health care 2 (**Hospitals, outpatient clinics and community health centres**) - DMTI Spatial

7. Parks (**Parks, sports field, tourist attractions point, trails line**) - DMTI Spatial

8. Information/ communication (**Libraries**) - https://saskatoonlibrary.ca/about/locations/ (2/5/2023); DMTI Spatial

9. Food 1 (**Grocery stores/retail point**) - https://libguides.usask.ca/SMC (29/6/2023)

10. Food 2 (**Emergency food/food programs**) - https://libguides.usask.ca/SMC (24/7/2023)

11. Individual/ family services (**Child and youth services**) - DMTI Spatial

12. Individual/ family services (**Services for the elderly and people with disabilities**) - DMTI Spatial

13. Individual/ family services (**Other individual and family services**) - DMTI Spatial

14. Childcare (**Child daycare services**) - https://www.saskatchewan.ca/ (8/5/2023)

15. Wealth generation (**Credit unions and banks**) - https://bankchart.ca/catalogue/branches/ (5/5/2023); DMTI Spatial

Grouping Data into 3 Categories for Cross-tabulation Analysis

Housing Locations

- Percentage of subsidized housing units at the neighborhood level was classified into three categories based on a standard deviation classification
- +/- 0.5 standard deviations from the mean value used as a cut-off point
- The three categories along with the cut-off value are

  Low < 2.37%

  Medium ≥ 2.37% and ≤11.4%;

  High > 11.4% with a max of 41.05%
- Excluded any neighborhood with fewer than 4 units

Socio-demographic variables

- The shortlisted socio-demographic variables were categorized into three groups: low, medium, and high using percentiles (Q1, Q2, and Q3) with the cut-off values determined by the 25th and 75th percentiles, and coded as 1, 2, and 3, respectively.
- A combined score for each neighborhood was computed by summing the coded values associated with all 14 census variables
- Criteria: 'low' if the score was less than 23.34, 'medium' for scores between 23.34 and 32.67 and 'high' for scores exceeding 32.67

Amenity proximity measures

- Neighbourhood level mean shortest distance for each amenity were categorized into 3 categories
- A cut-off point of +/- 0.5 standard deviations from the mean values
- Neighborhoods with a shorter mean distance were labeled as 'low,' those around the mean distance as 'medium,' and those with larger mean distance as 'high,' coded as 1, 2, and 3, respectively
- A combined score for each neighborhood was computed by summing the coded values associated with all 15 amenities.
- Criteria: 'low' if the score was less than 25, 'medium' for scores between 25 and 34, and 'high' for scores exceeding 34

Bivariate Map 1

Cross-tabulation between:

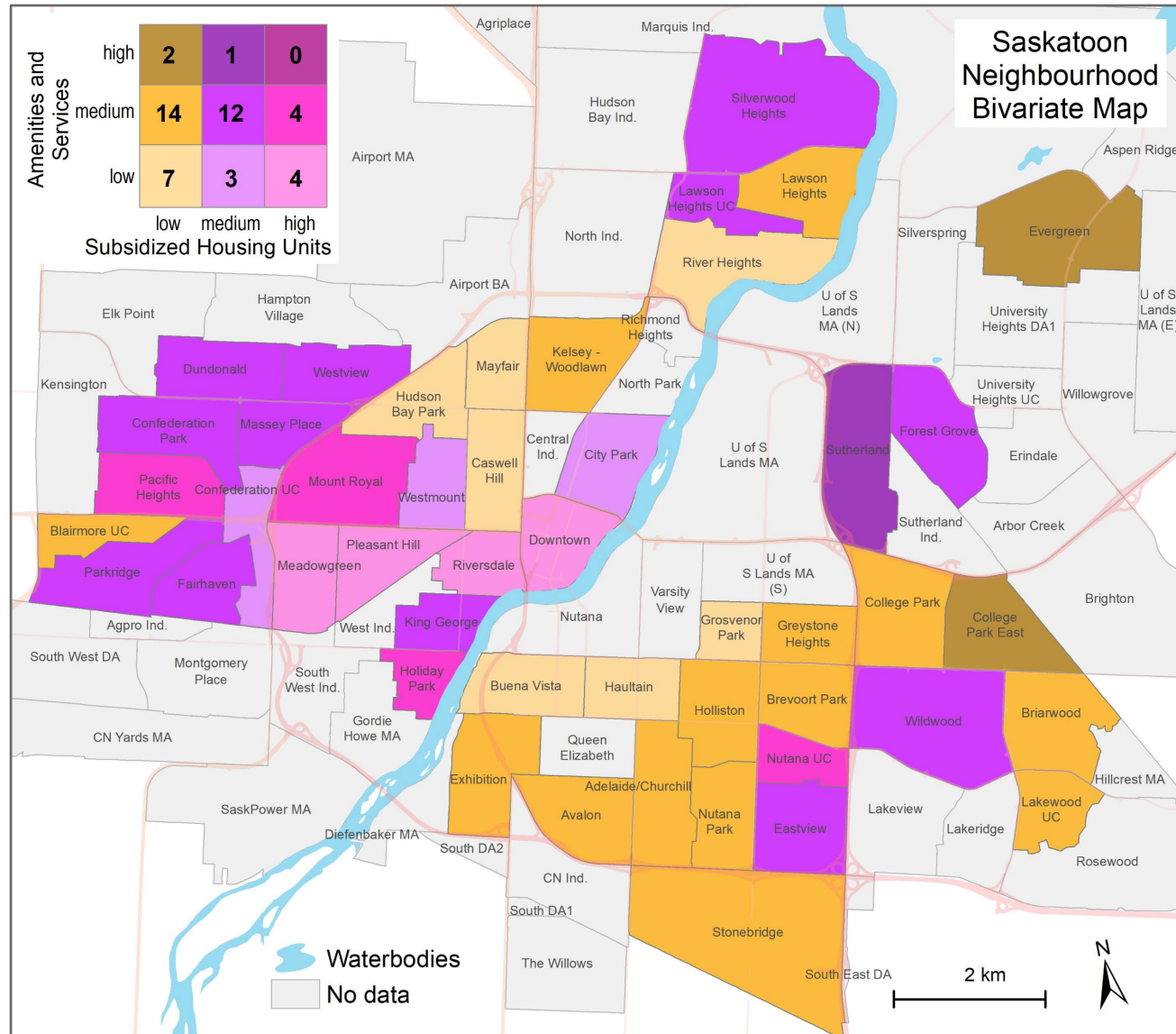1) Percent of subsidized housing units (3 categories) and

2) Socio-demographic characteristics (3 categories)
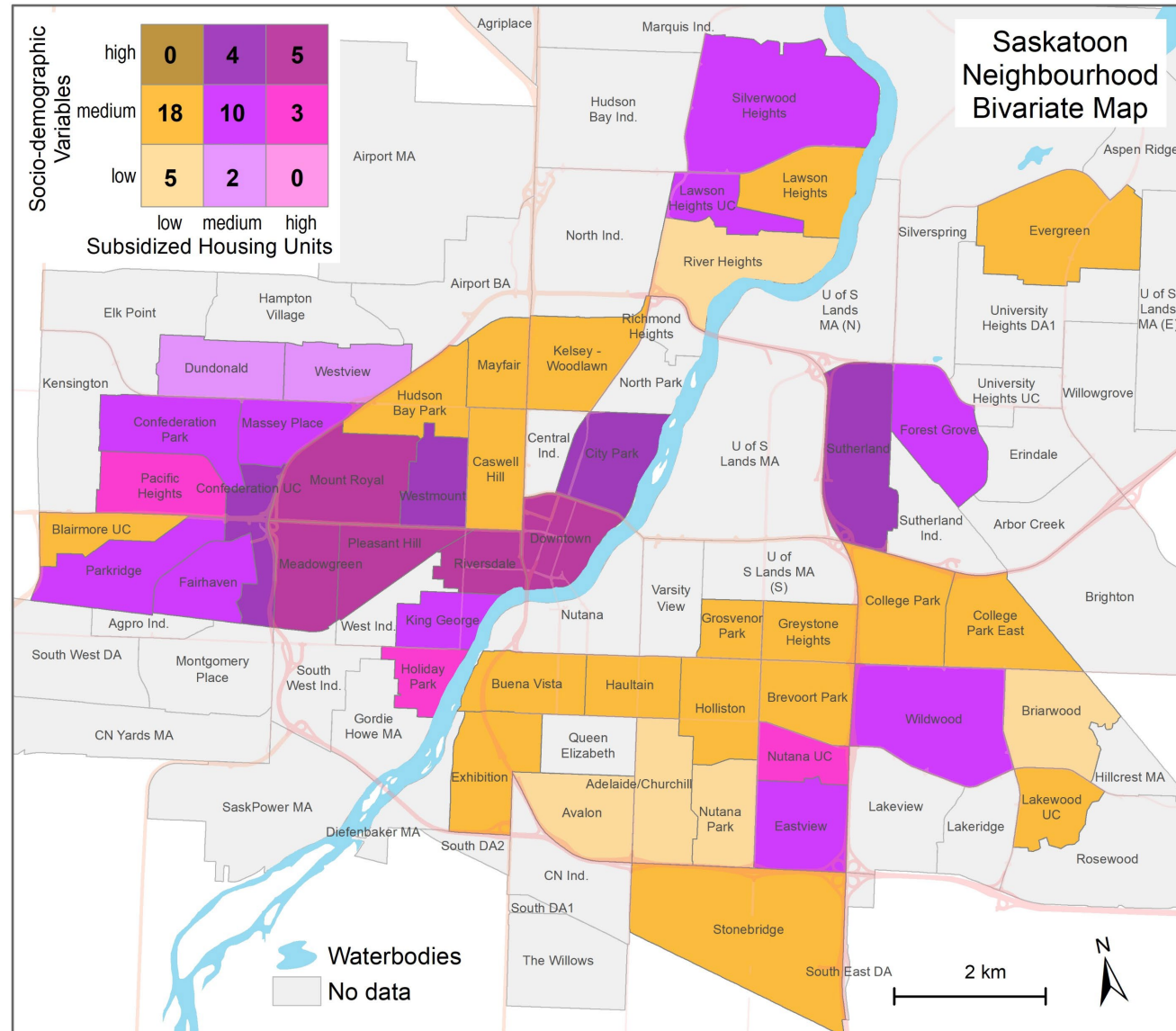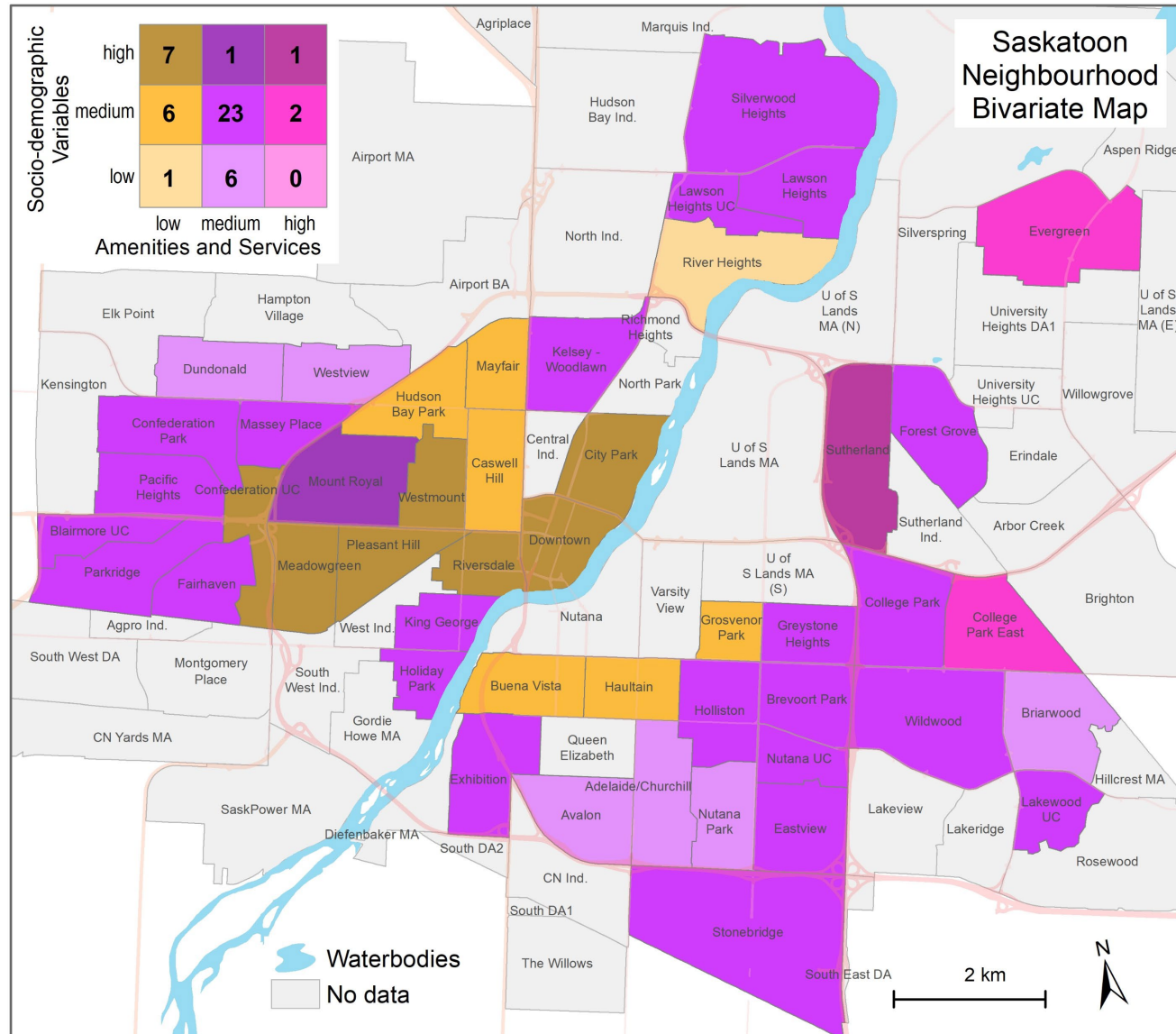
Bivariate Map 2

Cross-tabulation between

1) Percent of subsidized housing units (3 categories) and

2) Social amenities and services (3 categories)

Bivariate Map 3

Cross-tabulation between:

1) Amenities and social services (3 categories) and

2) Socio-demographic characteristics (3 categories)

Key Points

- Our research sheds light on several critical aspects of subsidized housing in our community

- Concentration in specific neighborhoods: higher percentage of subsidized housing units are concentrated in low socio-demographic areas – which reinforces the need for support to ensure the well-being of residents

- Distance from amenities and services: some subsidized housing is located far from basic amenities and services - which can present significant challenges for residents

- For example, Mount Royal, Pacific Heights, Holiday Park, Sutherland, and Nutana

Thank you for your attention & time

Tayyab Shah and Catherine Leviten-Reid

Extra slides

Amenity proximity measures

- Identifying the nearest amenity from the location of the rental house and calculating Euclidean distance

	FID_Pharm	DIST_Pharm	FID_BusSP	DIST_BusSP	FID_Edu	DIST_Edu	X_Edu	Y_Edu
ery Par	38	447	6389	24	52	482	-725552	1426797
ery Par	81	570	7631	42	31	365	-726353	1426252
ery Par	81	570	7631	42	31	365	-726353	1426252
ery Par	81	678	7631	130	31	474	-726353	1426252
ery Par	81	434	7359	49	31	241	-726353	1426252
ery Par	81	434	7359	49	31	241	-726353	1426252
ery Par	81	723	7359	326	31	494	-726353	1426252
ery Par	81	684	7359	323	31	446	-726353	1426252
ery Par	38	201	7448	148	55	221	-726323	1427296
ery Par	81	546	6551	93	31	305	-726353	1426252
ery Par	81	44	7282	10	31	284	-726353	1426252
ery Par	81	47	7282	18	31	283	-726353	1426252
ery Par	38	94	7135	53	55	255	-726323	1427296

Amenity proximity measures

- Aggregating amenity distance at neighbourhood and Ward levels

Neighbourhood	Unit Count	Average of Distance from nearest Bus Stop	Average of Distance from nearest School	Average of Distance from nearest Pharmacy
Adelaide/Churchill	7	275	498	703
Briarwood	9	243	1207	739
Avalon	29	236	369	377
King George	23	218	324	1,056
Kelsey - Woodlawn	6	215	657	767
Nutana Park	7	209	437	659
Holliston	11	163	342	213
Mount Royal	691	161	255	441
Blairmore Urban Centre	20	160	545	330
Pleasant Hill	326	158	289	266
Eastview	59	158	384	760
North Park	1	156	227	335
College Park East	11	156	477	975
Confederation Park	139	145	448	856
Hudson Bay Park	7	145	268	463
Exhibition	7	143	639	1,254
Pacific Heights	175	142	367	908

Project Introduction

- Research focuses on subsidized housing in three Canadian communities:

- Saskatoon (population of 266,141, located in the mid-west),

- Ottawa (population of 1,017,449, located in central Canada) and

- Cape Breton Regional Municipality (population of 93,694, located in Atlantic Canada).

2021 Census of Population