SINGLE FAMILY MARKET AREA 5 MODEL

Revaluation Cycle – January 1, 2025 to December 31, 2028
Base Date: January 1, 2023

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Effective Date of Valuation – January 1, 2023

Date of Report – January 1, 2025

Scope of Data and Analysis

Valuation Approach

The appraisal method employed for residential properties is the sales comparison approach using the multiple regression analysis technique. Multiple regression analysis (MRA) is an accepted statistical technique used in the mass appraisal of property. MRA determines the statistical relationship between property characteristics and sale prices and is used in determining an estimate of value.

Regression analysis helps one understand how the typical value of the dependent variable changes when any one of the independent variables is varied, while the other independent variables are held fixed. A dependent variable is something that depends on other factors.

For assessment valuation purposes, the dependent variable is the predicted adjusted sale prices whereas, independent variables are factors that cause a change in the dependent variable; for example, property characteristics such as age, size and quality. Multiple regression is a statistical technique widely used for prediction and forecasting. In this case, it is used for predicting the sale price of houses. Before MRA begins, single family houses must be grouped.

Section 163(f.3) of *The Cities Act* defines mass appraisal as "...the process of preparing a group of properties..." Assessment Branch research and consultation with two local major property appraisal companies has stratified (grouped) single family residences into eight market areas considering neighbourhood age, type of construction, area layout, amenities. A market area readies the sales data for extraction and cleaning.

With market areas defined, quality control identifies valid sales for extraction and data cleaning. Once complete, sale prices are adjusted for non-realty components and time to the base date. The sales dataset is now ready to be analyzed using the multiple regression technique to identify and estimate the relationship between an adjusted sale price and property characteristics (variables). A detailed explanation follows in the 'Development of the Market Area Model' section.

The development of a multiple regression model is determined by utilizing statistical software that simultaneously identifies and analyzes property characteristics of sold properties. Multiple regression determines the coefficient values representing statistically significant property characteristics to establish the multiple regression model. The application of the regression model to the subject property characteristics represents its assessed value. It is important to note that although there may be discussion on the relative value of an individual variable (property characteristic) within the multiple regression model, any changes to the value of one variable will shift or, affect, the value of the other variables.

The MRA technique predicts property values on sales price and will always compensate for any deviation of established variables and/or its corresponding value. Another important note is that the coefficient value in the MRA model does not represent the replacement cost or reproduction cost of the variable.

For single family residences, there are individual MRA models for each of the eight market

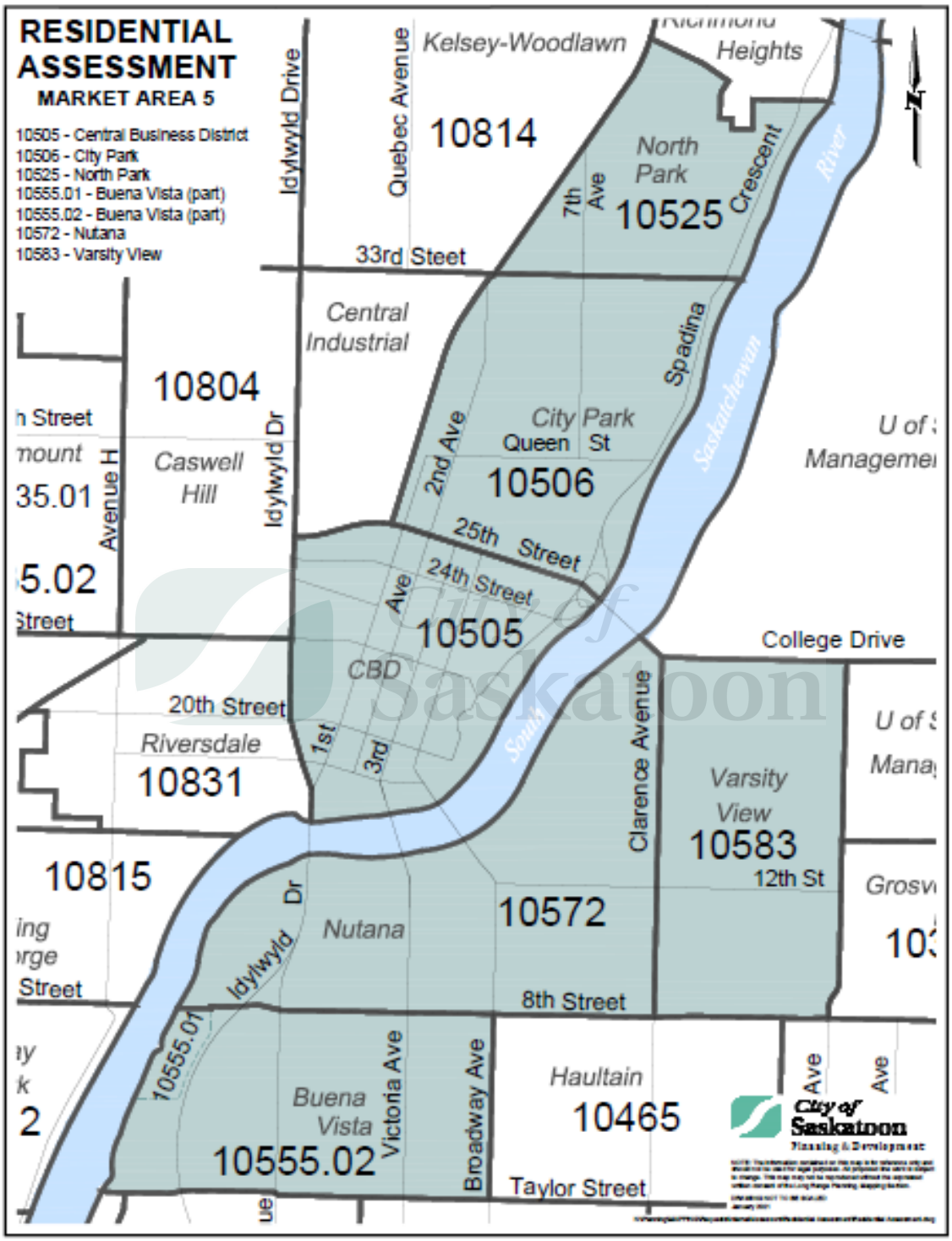
areas.

Market Area 5 Geographic Neighbourhoods

Market Area 5 consists of seven geographic neighbourhoods:

1. Buena Vista West
2. Buena Vista East
3. Central Business District
4. City Park
5. North Park
6. Nutana
7. Varsity View

Market Area 5 Map



City of Saskatoon

Market Area 5 Summary

There are 974 sales that were used to establish Assessed Values in Market Area 5. A detailed summary of key characteristics for Market Area 5 is listed below:

	City Wide	Market Area 5
ASSESSMENT AND SALE STATISTICS		
Community Median Assessment For Properties Sold In Market Analysis Period	$425,775	$409,646
Community Median Assessment Per Sq Ft For Properties Sold In Market Analysis Period	$329	$352
Community Overall Median Adjusted Sale Price	$426,009	$405,717
Community Overall Median Adjusted Sale Price Per Sq Ft	$329	$350
Number of Sales Used In Market Analysis	12,346	974
DESCRIPTIVE STATISTICS (INVENTORY)		
Median Living Area (Sq Ft) of Residences	1,192	1,181
Median Parcel Area (Sq Ft) of Lots	5,987	4,921
Median Year of Construction of Residences	1978	1946
Properties With Basement Finish	76%	72%
Properties With a Garage -- Attached	38%	11%
Properties With a Garage -- Built-in	8%	3%
Properties With a Garage -- Detached	42%	71%
One Storey Properties	49%	52%
Two Storey Properties	21%	37%
All Other Structure Properties	30%	11%
Number of Inventory (Oct, 2024)	63,544	4,954

The table above represents the market area that consists of seven geographic neighbourhoods. Adjustments are derived by the multiple regression analysis for the relative value differences between geographic neighbourhoods within this market area.

Development of Market Area 5 Multiple Regression Model

Introduction

The development of the multiple regression analysis (MRA) model is the major valuation tool in developing assessment values for residential single family properties. However, MRA is only one of following six steps within the valuation process.

- Data Extraction
- Data Cleaning
- Non-realty Analysis
- Time Trend Analysis
- Multiple Regression Analysis (MRA)
- Ratio Study

Data Extraction

The primary source of sales information is from Information Services Corporation (ISC). This information is stored in a digital format from which the Assessment Branch extracts sales data for analysis. All relevant variables are captured in this data set that is ready for cleaning.

Data Cleaning

Since it is practically impossible to check every sale, there is a quality control process that helps identify extreme sales. Extreme sales are often referred to as outliers or sales that seem out of context with the majority of the property group and/or neighbourhood. Outliers are identified by querying and assembling sold properties based on some key attributes, such as size, age, and quality. This quality review process helps to identify missing data, re-sales, low-price properties, high price properties and questionable data characteristics. Extreme (outlier) sales are investigated and changes made as required as part of the Assessment Branch quality control process.

Non-realty Analysis

Once the sales dataset has passed the quality control phase, an analysis of non-realty items is undertaken. Assessed values reflect real estate only and should not include the non-realty component of the sale, often referred to as ‘chattels’. A chattel is a moveable item of property which is neither land nor permanently attached to land or a building and therefore is not considered real estate. The value of chattels is sourced and quantified from sales verification forms that ask property purchasers whether chattels such as appliances, draperies and/or furniture are included in the sale price and, if so, their approximate value. Based on a sample of this information, an adjustment for non-realty components of the sales is determined. For the 2023 base date, the adjustment for chattels is 1.2%. Applying the non-realty adjustment to sold properties reduces individual sale prices by 1.2%.

Time Trend Analysis

Sales that have been adjusted for a non-realty component are analyzed for time influences. The real estate market is not always flat. In other words, in a rising market, a purchaser would expect to pay more for a house in 2020 than if it was purchased in 2019. A time trend analysis measures the influence of time on sales price. This is particularly relevant for the current revaluation cycle as the valuation process uses four years of sales, occurring between 2019 and 2022. These sales are examined for time influence and adjusted to reflect the assessment base date of January 1, 2023.

The sales assessment ratio (SAR) technique is used to measure time trends. The result of the time trend analysis shows that the sales prices compared to the current assessed value in Market Area 5 are factored on a monthly basis. For example, from the resulting monthly time adjustment factors for Market Area 5 table below, a January 2019 $350,000 sale price (adjusted for non-realty) would result in a fully adjusted sale price of $374,955 ($350,000 x 1.0713) that would be used in multiple regression analysis.

Sale Month	Time Adjustment Factors	Sale Month	Time Adjustment Factors
Jan-19	1.0713	Jan-21	1.0413
Feb-19	1.0661	Feb-21	1.0363
Mar-19	1.0614	Mar-21	1.0266
Apr-19	1.0570	Apr-21	1.0178
May-19	1.0530	May-21	1.0098
Jun-19	1.0493	Jun-21	1.0027
Jul-19	1.0460	Jul-21	0.9964
Aug-19	1.0430	Aug-21	0.9909
Sep-19	1.0404	Sep-21	0.9862
Oct-19	1.0380	Oct-21	0.9822
Nov-19	1.0360	Nov-21	0.9789
Dec-19	1.0344	Dec-21	0.9764
Jan-20	1.0330	Jan-22	0.9745
Feb-20	1.0320	Feb-22	0.9734
Mar-20	1.0313	Mar-22	0.9729
Apr-20	1.0308	Apr-22	0.9731
May-20	1.0308	May-22	0.9740
Jun-20	1.0310	Jun-22	0.9755
Jul-20	1.0315	Jul-22	0.9778
Aug-20	1.0323	Aug-22	0.9808
Sep-20	1.0335	Sep-22	0.9845
Oct-20	1.0350	Oct-22	0.9889
Nov-20	1.0368	Nov-22	0.9940
Dec-20	1.0389	Dec-22	1.0000

Multiple Regression Analysis (MRA)

In Market Area Five, 974 valid, fully adjusted sales occurring between 2019 and 2022 are used in multiple regression analysis (MRA). MRA estimates relationships between multiple variables simultaneously. For assessment purposes, it is the relationship between adjusted sale prices and property characteristics as determined by multiple regression algorithms. These model variables proved to significantly affect sales price and are represented in the single family residence valuation model for Market Area 5 below.

Market Area 5 – Multiple Regression Analysis Model

Description	Variable	Coefficient ($)
Constant		298,540.87
Adjustment Based on Effective Age	Age	-6,433.65
Location per ft^2 of lot size	10505_CBD	11.78
	10506_City Park	
	10525_North Park	0.00
	10555.01_Buena Vista Part	10.03
	10555.02_Buena Vista Part	
	10572_Nutana	27.51
	10583_Varsity View	14.65
Size by Quality per ft^2	Size - Low Quality	53.89
	Size - Low/Fair Quality	
	Size - Fair Quality	59.28
	Size - Average Quality	96.47
	Size - Good Quality	167.07
	Size - Very Good Quality	239.83
	Size - Excellent Quality	323.53
Size by Condition per ft^2	Condition - Poor	-51.81
	Condition - Below Average	-21.90
	Condition - Very good	41.44
	Condition - Superior	92.92
	Condition - Excellent	
Garage area per ft^2	Attached Garage	179.95
	Built in Garage	
	Detached Garage	71.97
Improvement Style	Two Storey	59,162.68
	Three Storey	91,674.56
	Bi-Level	-67,463.89

Description	Variable	Coefficient ($)
Basement area per ft^2	Basement Structure	52.77
Finished basement area per ft^2	Walkout Basement No River No Lake No Green Space No park	50.98
	Walkout Basement With Bk Green Space	130.34
	Walkout Basement With Bk Park	
	Walkout Basement With Bk Lake	155.89
	Walkout Basement With Bk River	
	Finished Basement	44.29
Large House per ft^2	House Size Greater Than 3,100 Ft^2	-22.31
Pool Area per ft^2	Indoor Swimming Pool	-191.59
	Outdoor Swimming Pool	319.45
Site Influences	Front / Adjacent To Arterial	-42,998.81
	Backing Arterial	
	Backing Highway	
	Near Railway	
View Influences	Backing Lake, No Walkout	203,071.38
	Backing River, No Walkout	
	View of River	
Mobile	Mobile Homes	-128,372.57
Zoning	R2A	-72,500.36
Geo Area	Aird	69,577.20
	Botomley	
	Colony	
	Elliott	
	Sask Cres E	259,874.98
	Sask Cres W	
	Osler	69,577.20
	Temperance	

The appraisal level of the final multiple regression model is tested using a ratio study.

Ratio Study

The median assessment to sales ratio (ASR) study is used in measuring the level of mass appraisals. The median is the middle value of the ratios when arrayed in order of magnitude. It divides the ratios into two equal groups, and is therefore only minutely affected by extreme ratios. The closer this value is to 1, the better.

ASR Results for Market Area 5

The result of the ASR study for the single family properties in Market Area 5 is displayed in the table below.

Number of Sales	974
Median Assessment to Sale Price Ratio (ASR)	1.01
Coefficient of Dispersion (COD)	11.9%
Price-Related Differential (PRD)	1.02

The median ASR is 1.00 which is within the I.A.A.O. range of acceptable A.S.R.s between 0.90 and 1.10.