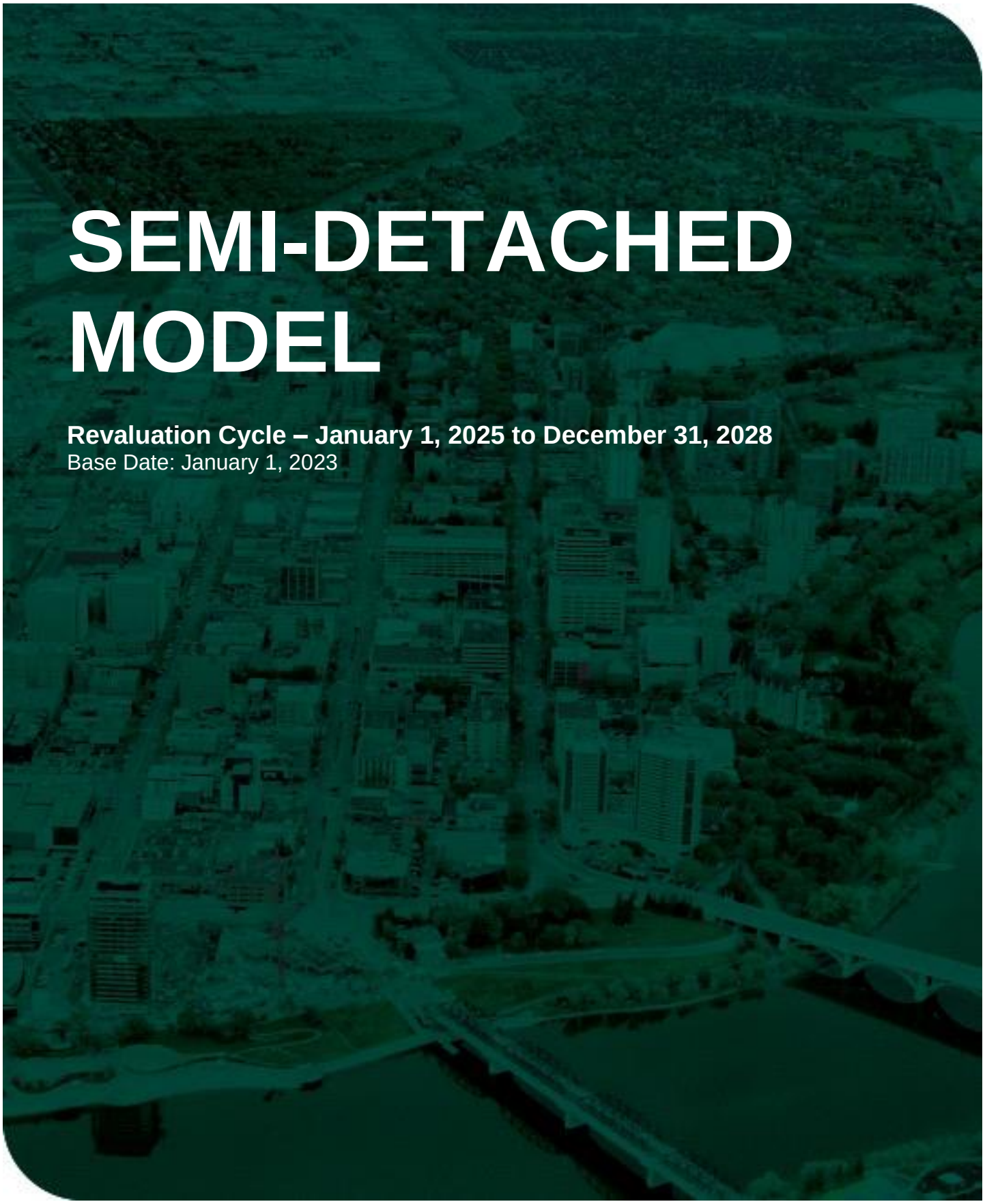

SEMI-DETACHED MODEL

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

City of Saskatoon

SEMI-DETACHED MODEL

Revaluation Cycle – January 1, 2025 to December 31, 2028

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 semi detached 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, semi detached must be grouped.

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 Semi-Detached 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.

The multiple regression model for the semi-detached group is citywide.

Semi-Detached Summary

There are 941 sales used to establish Assessed Values for semi-detached. A detailed summary of key characteristics for the city overall is listed below:

	Semi-Detached
ASSESSMENT AND SALE STATISTICS	
Community Median Assessment For Properties Sold In Market Analysis Period	$381,977
Community Median Assessment Per Sq Ft For Properties Sold In Market Analysis Period	$284
Community Overall Median Adjusted Sale Price	$379,007
Community Overall Median Adjusted Sale Price Per Sq Ft	$284
Number of Sales Used In Market Analysis	941
DESCRIPTIVE STATISTICS (INVENTORY)	
Median Living Area (Sq Ft) of Residences	1,368
Median Parcel Area (Sq Ft) of Lots	3,496
Median Year of Construction of Residences	1992
Properties With Basement Finish	54%
One Storey Properties	21%
Two Storey Properties	50%
All Other Structure Properties	30%
Number of Inventory (Oct, 2024)	3,763

Development of Semi-Detached Model

Introduction

The development of the multiple regression analysis (MRA) model is the major valuation tool in developing assessment values for residential semi-detached 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 semi-detached are factored on a monthly basis. For example, from the resulting monthly time adjustment factors for a semi-detached two titles table below, a January 2019 $350,000 sale price (adjusted for non-realty) would result in a fully adjusted sale price of $432,145 ($350,000 x 1.2347) that would be used in multiple regression analysis.

Semi-Detached One Title

Sale Month	Time Adjustment Factors	Sale Month	Time Adjustment Factors
Jan-19	1.1307	Jan-21	1.0599
Feb-19	1.1275	Feb-21	1.0572
Mar-19	1.1244	Mar-21	1.0545
Apr-19	1.1213	Apr-21	1.0517
May-19	1.1182	May-21	1.0490
Jun-19	1.1152	Jun-21	1.0463
Jul-19	1.1121	Jul-21	1.0436
Aug-19	1.1091	Aug-21	1.0410
Sep-19	1.1061	Sep-21	1.0383
Oct-19	1.1031	Oct-21	1.0356
Nov-19	1.1001	Nov-21	1.0330
Dec-19	1.0971	Dec-21	1.0304
Jan-20	1.0942	Jan-22	1.0278
Feb-20	1.0912	Feb-22	1.0252
Mar-20	1.0883	Mar-22	1.0226
Apr-20	1.0854	Apr-22	1.0201
May-20	1.0825	May-22	1.0175
Jun-20	1.0796	Jun-22	1.0150
Jul-20	1.0768	Jul-22	1.0124
Aug-20	1.0739	Aug-22	1.0099
Sep-20	1.0711	Sep-22	1.0074
Oct-20	1.0683	Oct-22	1.0049
Nov-20	1.0655	Nov-22	1.0025
Dec-20	1.0627	Dec-22	1.0000

Semi-Detached Two Titles

Sale Month	Time Adjustment Factors	Sale Month	Time Adjustment Factors
Jan-19	1.2347	Jan-21	1.1769
Feb-19	1.2322	Feb-21	1.1707
Mar-19	1.2297	Mar-21	1.1550
Apr-19	1.2272	Apr-21	1.1404
May-19	1.2247	May-21	1.1267
Jun-19	1.2222	Jun-21	1.1139
Jul-19	1.2197	Jul-21	1.1019
Aug-19	1.2173	Aug-21	1.0908
Sep-19	1.2148	Sep-21	1.0805
Oct-19	1.2124	Oct-21	1.0709
Nov-19	1.2100	Nov-21	1.0620
Dec-19	1.2075	Dec-21	1.0538
Jan-20	1.2051	Jan-22	1.0462
Feb-20	1.2027	Feb-22	1.0393
Mar-20	1.2003	Mar-22	1.0329
Apr-20	1.1979	Apr-22	1.0272
May-20	1.1956	May-22	1.0219
Jun-20	1.1932	Jun-22	1.0173
Jul-20	1.1909	Jul-22	1.0131
Aug-20	1.1885	Aug-22	1.0095
Sep-20	1.1862	Sep-22	1.0064
Oct-20	1.1838	Oct-22	1.0038
Nov-20	1.1815	Nov-22	1.0016
Dec-20	1.1792	Dec-22	1.0000

Multiple Regression Analysis (MRA)

In semi-detached, 941 valid, fully adjusted sales occurring between January 1st, 2019 and December 31st, 2022 were used in the 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 semi-detached valuation model below.

Semi-Detached – Multiple Regression Analysis Model

Description	Variable	Coefficient ($)
Constant		217,204.81
Adjustment Based on Effective Age	Age	-6,160.32
Location with Lot Size	Market Area 1	9.93
	Market Area 2	9.97
	Market Area 3	11.91
	Market Area 4	12.81
	Market Area 5	30.90
	Market Area 6	0.00
	Market Area 7	
	Market Area 8	
Size by Quality per ft^2	Size - Low Quality	83.68
	Size - Low/Fair Quality	
	Size - Fair Quality	87.03
	Size - Average Quality	155.65
	Size - Good Quality	174.89
	Size - Very Good Quality	215.19
	Size - Excellent Quality	269.34
Size by Condition per ft^2	Condition - Poor	-78.00
	Condition - Below Average	-69.72
	Condition - Average	0.00
	Condition - Above Average	21.20
	Condition - Good	26.47
	Condition - Very good	
	Condition - Superior	68.52
	Condition - Excellent	75.37
Improvement Style	Split Level House	23,312.67
Garage area per ft^2	Attached Garage	87.65
	Built in Garage	
	Detached Garage	58.73
Basement area per ft^2	Basement Structure	16.09
Finished basement area per ft^2	Walkout Basement No River No Lake No Green Space No Park	27.11
	Walkout Basement With Backing Green Space	39.74
	Walkout Basement With Backing Park	

Description	Variable	Coefficient ($)
	Walkout Basement With Backing Lake	76.74
	Walkout Basement With Backing River	
	Finished Basement - Regular	33.84
	Finished Basement - Basement Suite	38.67
Large Lot Size per ft^2	Lot Size Greater Than 8,400 Ft^2	-8.35
Pool Area per ft^2	Indoor Swimming Pool	-139.39
Site Influences	Arterial Road	-15,757.53
	Backing Arterial	
	Backing Highway	
	Backing Railway	
	Major Collector	-8,773.80
View Influences	Backing Green Space, No Walkout	60,636.87
	Backing Park, No Walkout	
	Backing Lake, No Walkout	222,655.41
	Backing River, No Walkout	
	Fronting River	
Mobile	Mobile Homes	-93,398.07
Semi-Detached	Semi-Detached One Title	35,851.40

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 Semi-Detached

The result of the ASR study for the semi-detached is displayed in the table below.

Number of Sales	941
Median Assessment to Sale Price Ratio (ASR)	1.01
Coefficient of Dispersion (COD)	7.5%
Price-Related Differential (PRD)	1.01

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.