2017 ASSESSMENT METHODOLOGY

INDUSTRIAL WAREHOUSES

A summary of the methods used by the City of Edmonton in determining the value of industrial warehouse properties in Edmonton for assessment purposes.

edmonton.ca/assessment

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Scope

This guide is an aid in explaining how properties are valued for assessment purposes. It sets out the valuation method and procedure to derive market values. The information presented in this guide is aimed at deriving values for a group of properties with similar property characteristics. In some circumstances, not every property's valuation parameters will be covered.

The guide is intended as a tool; it is not intended to replace the assessor's judgment in the valuation process.

This icon signifies when legislation is quoted.

Introduction

The Alberta assessment and taxation system is based on the laws outlined in the *Municipal Government Act,* RSA 2000, cM-26 [MGA], and all associated regulations, including, for example *Matters Relating to Assessment and Taxation Regulation*, Alta Reg 220/04 [MRAT].

The MGA requires the assessment of property be prepared using mass appraisal. Properties are valued based on a valuation date of July 1, 2016 and the property's condition of December 31, 2016. Many of these terms are defined in the legislation**.**

*s.284(1)(r) "**property**" means*
(i) a parcel of land
(ii) an improvement, or
(iii) a parcel of land and the improvements to it

MGA .284(1)(r)

*s.1(n) "**regulated property**" means*
(i) land in respect of which the valuation standard is agricultural use value,
(ii) a railway,
(iii) linear property, or
(iv) machinery and equipment

MRAT s.1(1)(n)

*s.6(1) the **valuation standard** for the land and improvements is market value unless subsection (2)… applies*

MRAT s.6(1)

*s.1(1)(n) "**market value**" means the amount that a property, as defined in section 284(1)(r), might be expected to realize if it is sold on the open market by a willing seller to a willing buyer*

MGA s.1(1)(n)

*s.2 An assessment of property based on **market value***
(a) must be prepared using mass appraisal,
(b) must be an estimate of the value of the fee simple estate in the property, and
(c) must reflect typical market conditions for properties similar to that property

MRAT s.2

s.289(2) Each assessment must reflect
*(a) the characteristics and physical condition of the property on **December 31** of the year prior to the year in which a tax is imposed*

MGA s.289(2)(a)

*s.3 Any assessment prepared in accordance with the Act must be an estimate of the value of a property on **July 1** of the assessment year*

MRAT s.3

*s.1(k) "**mass appraisal**" means the process of preparing assessments for a group of properties using standard methods and common data and allowing for statistical testing*

MRAT s.1(k)

While there are many forms of ownership, the legislation requires the City of Edmonton to assess the fee simple estate. The fee simple estate is unencumbered by any other interest or estate, and subject only to the limitations of government.

> ***fee simple*** *– in land ownership, complete interest in a property subject only to governmental powers*
> *Glossary for Property Appraisal and Assessment, p. 56*

In summary, a property assessment is:

- an estimate of the property's market value on July 1, 2016
- prepared using mass appraisal
- an estimate of the value of the fee simple estate in the property
- a reflection of the property's condition on December 31, 2016
- prepared assuming typical market conditions on the open market by a willing seller to a willing buyer

Mass Appraisal

Mass appraisal is the legislated methodology used by the City of Edmonton for valuing individual properties, and involves the following process:

- properties are stratified into groups of comparable property
- common property characteristics are identified for the properties in each group
- a uniform valuation model is created for each property group

> ***property characteristic****: A feature that helps to identify, tell apart, or describe recognizably, a distinguishing mark or trait*
> *www.thefreedictionary.com*

> *'.1(c) "**valuation model**" means the representation of the relationship between property characteristics and their value in the real estate marketplace using a mass appraisal process*
> *MRAT s.27.1(c)*

The following two quotations indicate how the International Association of Assessing Officers distinguishes between mass appraisal and single-property appraisal:

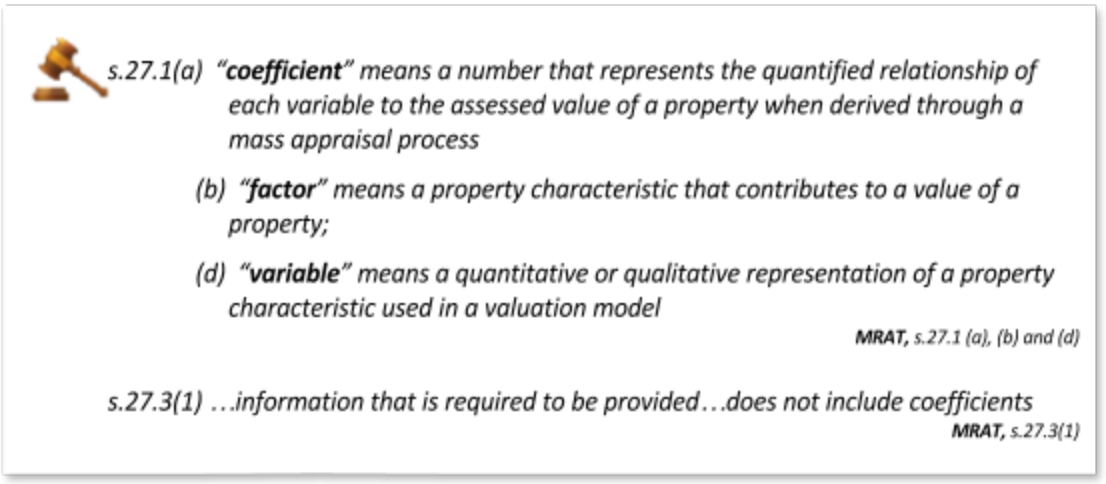
> … *"single-property appraisal is the valuation of a particular property as of a given date: mass appraisal is the valuation of many properties as of a given date, using standard procedures and statistical testing."*
>
> … *"Also, mass appraisal requires standardized procedures across many properties. Thus, valuation models developed for mass appraisal purposes must represent supply and demand patterns for groups of properties rather than a single property."*
>
> *Property Appraisal and Assessment Administration*, pg.88-89.

For both mass appraisal and single-property appraisal, the process consists of the following stages:

	Mass Appraisal	Single Appraisal
Definition and Purpose	Mass appraisal is used to determine the assessment base for property taxation in accordance with legislative requirements	The client specifies the nature of the value to be estimated, including rights to be valued, effective date of valuation, and any limiting conditions
Data Collection	Mass appraisal requires a continuing program to maintain a current database of property characteristics and market information.	The extent of data collection is specific to each assignment and depends on the nature of the client's requirements
Market Analysis	Mass appraisal is predicated on highest and best use	Market analysis includes the analysis of highest and best use
Valuation Model	Valuation procedures are predicated on groups of comparable properties	Subject property is the focus of the valuation. The analysis of comparable properties is generally six or less
Validation	The testing of acceptable analysis and objective criteria	The reliability of the value estimate is more subjective. Acceptability can be judged by the depth of research and analysis of comparable sales

Valuation Models

A valuation model creates an equation of variables, factors and coefficients that explains the relationship between estimated market value and property characteristics.



s.27.1(a) *"**coefficient**" means a number that represents the quantified relationship of each variable to the assessed value of a property when derived through a mass appraisal process*

(b) *"**factor**" means a property characteristic that contributes to a value of a property;*

(d) *"**variable**" means a quantitative or qualitative representation of a property characteristic used in a valuation model*

***MRAT,** s.27.1 (a), (b) and (d)*

s.27.3(1) *…information that is required to be provided…does not include coefficients*

***MRAT,** s.27.3(1)*

Valuation Model	● variables are created from property characteristics ● analysis of how variables affect market value ● factors and coefficients are determined ● the resulting valuation models are applied to property characteristics

Depending on the property type multiple regression analysis or other mass appraisal techniques are used to determine variables, factors and coefficients.

*"**Multiple Regression Analysis (MRA)**: a statistical technique used to analyze data to predict market value (dependent variable) from known values of property characteristics (independent variables)"*

***Property Appraisal and Assessment Administration**, p. 653*

An assessed value is calculated by applying the appropriate valuation model to individual properties within a group.

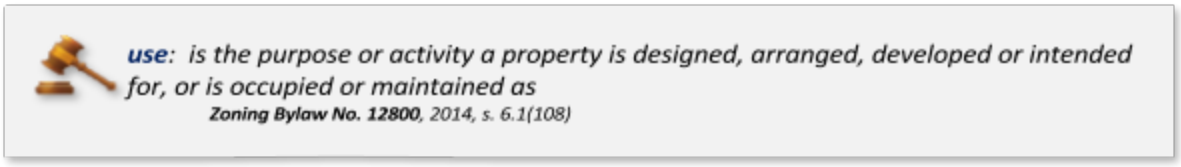
Approaches to Value

The most common approaches to determine market value are the direct comparison, income, and cost. Each emphasizes a particular kind of market evidence.

Direct Comparison Approach	Typical market value (or some other characteristic) is determined by referencing comparable sales and other market data and making appropriate adjustments. It is often used when sufficient sales or market data is available.
Income Approach	This approach considers the typical actions of renters, buyers and sellers when purchasing income-producing properties. This approach estimates the typical market value of a property by determining the present value of the projected income stream. Often used to value rental or leased property
Cost Approach	Typical market value is calculated by adding the depreciated replacement cost of the improvements to the estimated value of land. It is often used for properties under construction or when there is limited market data available

Property Groups

The use of a property determines the property groupings and the valuation model applied.



Industrial

There are a number of reasons why a given property is included in the industrial inventory. Zoning and highest and best use are key indicators in a property's classification. As well, based on the principles of urban economics, properties of similar use typically cluster together, and even when competing firms in the same sector cluster there may be advantages because the cluster attracts more suppliers and customers than a single firm could achieve alone.

Sub-Group

Some property groups have sub-groups based on property characteristics. This guide is for the Industrial Warehouse sub-group.

Industrial Warehouse

Industrial warehouses are defined as buildings used for storage, light manufacturing, and product distribution. They can be constructed of different materials such as wood, concrete, or

metal, and can be single or multiple tenant. **Special Purpose** properties are not included in the industrial inventory, as they are custom built improvements for particular uses that rarely trade.

Direct Comparison Approach

For this property group, the assessment is determined using the direct comparison approach. It is the most appropriate method of valuation for Industrial Warehouse properties in the City of Edmonton as it mirrors the actions of buyers and sellers in the market place. There is sufficient sale data to derive reliable market estimates.

The majority of Industrial Warehouse properties are owner occupied with only a portion of the inventory traded based on the property's ability to generate income.

Support for the Direct Comparison approach comes from several reputable sources, for example:

> *This approach is usually the preferred approach for estimating values for residential and other property types with adequate sales. (IAAO, 2013, sec. 4.3).*

> *The Direct Comparison approach provides the most credible indication of value for owner-occupied commercial and industrial properties, i.e., properties that are not purchased primarily for their income-producing characteristics. These types of properties are amenable to direct comparison because similar properties are commonly bought and sold in the same market. (Appraisal Institute of Canada [AIC], 2010, p. 13.4).*

Sales

The City of Edmonton validates all land title transactions (sales). The validation process includes site inspections, interviews with parties involved, a review of land title documents, corporate searches, third party information, and sale validation questionnaires.

The City of Edmonton used 321 sales occurring from January 1, 2011 to June 30, 2016 for 2017 valuation. Time adjustments are applied to sale prices to account for any market fluctuations based on the time trend occurring between the sale date and the legislated valuation date. Through the review of sales, the collective actions of buyers and sellers in the market place are analyzed to determine the contributory value of specific property characteristics that drive market value. Once these values have been determined through the mass appraisal process, they are applied to the inventory to derive the most probable selling price. Value estimates were calculated using multiple regression analysis, which replicates the forces of supply and demand in the market place.

See the appendix for a time adjustment chart.

Sale price reflects the condition of a property on the sale date and may not be equal to the assessment.

Zoning

The rules and regulations for land development within Edmonton are contained in the Zoning Bylaw, No. 12800.

s.6.1(111) ***zone:*** *is a specific group of listed use classes and development regulations which regulate the use and development of land within specific geographic areas of the City*

Zoning Bylaw No. 12800*, 2014, s. 6.1(111)*

An industrial zone summary is in the appendix.

The actual zoning may affect the property's classification; however, not all property conforms to the zoning use set out in the Zoning Bylaw. In these cases, an effective zoning is applied to reflect the current use of the property. The effective zoning may differ from the actual zoning when the current use differs from the Zoning Bylaw (e.g., a legal nonconforming use).

643(1) If a development permit has been issued on or before the day on which a land use bylaw or a land use amendment bylaw comes into force in a municipality and the bylaw would make the development in respect of which the permit was issued a nonconforming use or nonconforming building, the development permit continues in effect in spite of the coming into force of the bylaw

MGA*, s. 643(111)*

Variables

Below is the list of variables that affect the assessment value for 2017 [in the sequence of importance].

1 Main Floor Area	5 Condition
2 Industrial Group Location	6 Main Floor Finished Area
3 Site Coverage	7 Upper Floor Finished Area
4 Effective Age	

Main Floor Area is based on the exterior measurements of the building. Economies of scale dictate that larger buildings trade for a lower unit of comparison than smaller buildings.

Industrial Group Location: Industrial Warehouse Study Areas are geographic areas defined using location boundaries and property characteristics. See enclosed maps entitled Industrial Study Areas. In sequence of desirability, the study areas are as follows:

- Industrial Group 12 - Major Roadways South
- Industrial Group 18 - Core South
- Industrial Group 2 - Major Roads Northwest
- Industrial Group 20 - Partially Serviced
- Industrial Group 17 - Core Northwest
- Industrial Group 39 - Northeast
- Industrial Group 49 - Yellowhead Corridor East
- Industrial Group 28 - Queen Mary Park
- Industrial Group 22 - Un-serviced

Site Coverage **(total main floor area of the account ÷ lot size):** the relationship between main floor area of buildings not valued using the cost approach and entire size of the parcel. It is expressed as a percentage.

Typical site coverage is approximately 30%. Lower site coverage indicates that the given property has more land which increases the property's market desirability. Reasons for the increased desirability include potential future expansion of the improvements or subdivision of the parcel and improved storage capacity. By contrast, high site coverage properties have relatively less land which results in limited development potential and adversely affects functionality and access.

It is not uncommon for industrial accounts valued on the Direct Comparison approach to have an additional building on the property valued on the Cost approach. A building that the city has deemed a cost building is lower quality than the main building and would have a lower assessment per square foot than the main building. These are referred to as "Cost Buildings" and are valued using the Marshall & Swift Manual, which applies the depreciated replacement cost new.

Cost buildings can be temporary structures such as arch rib fabric buildings, re-locatable office trailers, unheated sheds and storage buildings. These structures can also lack heating, electricity or flooring.

Area of the Cost Buildings is excluded from the site coverage calculation.

Effective Age **(also known as Effective Year Built):** is represented by the overall utility and condition of the assessed property. Maintenance of a property can influence the effective age of the building. If a building has an addition or receives superior maintenance than other properties in the market place, then the effective age will be less than the actual or chronological age.

An absence of maintenance could render a property to have an effective age greater than the actual or chronological age. A property where the owner maintains a reasonable maintenance schedule will have the same effective and chronological age.

The effective age can be different due to appraiser judgement that will consider all factors affecting the age of a property. Effective age can change year over year or stay the same depending on major renewals or deterioration.

Condition includes poor, fair, average or good conditions that are outlined as follows:

Poor

- deterioration to a point where major repairs and/or replacements are required.
- typically Poor Condition indicates structural or foundation issues.

Fair

- discernable deterioration;
- deferred maintenance requiring rehabilitation and/or replacement resulting in reduced functional utility.

Average

- normal deterioration for the effective age of the improvements;
- minor repairs or rehabilitation of some components required.

Good

- slight evidence of deterioration in minor components;
- well maintained; attractive, desirable, and high utility.

Main Floor Finished Area is typically based on the exterior measurements and generally consists of finished flooring, ceiling, forced air HVAC systems, and windows. This finished space is valued at a premium in relation to warehouse space.

Upper Finished Area is typically based on the exterior measurements of an upper floor and generally consists of finished flooring, ceiling, forced air HVAC systems, and windows. It is important to note that the contributory value of the upper finished area is less than that of the main floor area.

Adjustments

Adjustments may be applied to properties with atypical influences on a site specific basis to recognize their effect on value. Adjustments include but are not limited to:

Rear building – when a multi-tenant property is configured in such a way that there is one or more buildings located behind the building facing the street resulting in reduced access to the rear building.

Lot shape – An adjustment may be made if the shape of a property hinders the use of the property.

Access – The ability to enter a property from an existing road or highway and to maneuver within the property.

Contamination – significant contamination is treated on a site specific basis, as per the City's Contamination Policy.

Easement –- is a non-possessory right to use and/or enter onto the real property of another without possessing it. It is "best typified in the right of way which one landowner, A, may enjoy over the land of another, B".

Reconciling Value Indications

There are two types of techniques for reconciliation: **quantitative** and **qualitative**.

Quantitative Adjustments

A quantitative adjustment can be measured or quantified by a mathematical expression.

> *Several techniques are available to quantify adjustments to the sale prices of comparable properties: data analysis techniques (including paired data analysis, grouped data analysis, and secondary data analysis, statistical analysis, graphic analysis…* (AIC, 2005, p. 18.8).

> *In the direct comparison approach, the best comparables are those sales that require the least **absolute** adjustment.* (AIC, 1995, p. 245).

Due to the legislative requirement to use mass appraisal, the City has used statistical analysis to determine annual assessments. This means that specific adjustments for different factors affecting value are not quantifiable. In the absence of quantitative adjustments, an alternative technique is qualitative analysis.

Qualitative Analysis

Qualitative analysis is easily applied by ranking comparables from best to worst and placing the subject within that ranking to determine an upper and lower limit.

> *When a sale property is considered to offer important market evidence but finding the means to make quantitative adjustments is lacking, the appraiser may turn to other major direct comparison techniques, **qualitative analysis.*** (AIC, 2005, p. 19.10).

> *Qualitative analysis recognizes … the difficulty in expressing adjustments with mathematical precision.* (AIC, 2005, p. 19.12).

> *…reliable results can usually be obtained by bracketing the subject between comparables that are superior and inferior to it.* (AIC, 2005, p. 19.13).

> *If one or two comparable properties require fewer total adjustments than the other comparables, an appraiser may attribute greater accuracy and give more weight to the value indications obtained from these comparables, particularly if the magnitude of the adjustments is approximately the same.* (AIC, 2005, p. 18.15).

General Practices

The most common unit of comparison for industrial properties is value per square foot of building area.

Averages: As no two industrial properties are identical, **averages can become misleading**; however, where differences are **minor** averages can be useful. Numerous sales must be considered and appropriately weighted to arrive at a reasonable estimate of value. According to mass appraisal theory,

> *Appraisers should rely on several sold properties as comparable sales. Three to five comparables are usually adequate, but a larger number improves confidence in the final estimate, increases the awareness of patterns of value, and stabilizes assessments over time*. (UBC, 2009, p. 7.2).

Onus: Proving the incorrectness of an assessment is the responsibility of the individual alleging it. This individual must provide sufficiently compelling evidence on which a change to the assessment can be based.

Post Facto Sales: A sale which occurs after the valuation date of July 1, 2016 may be considered for market trending only. Accordingly, the City of Edmonton does not use post facto sales for modeling.

Provincial Quality Standards

For Industrial Warehouse properties the City of Edmonton used the direct comparison approach to calculate the 2017 assessments. The assessment models, the process utilized, and the results are submitted annually to the Assessment Services Branch of the Department of Municipal Affairs for audit purposes. This audit is used to determine the accuracy of our predictions relative to the market place, and is a direct reflection on the accuracy of our models. The results indicated that our assessments meet Provincial Quality Standards as set out in *MRAT*.

Properties are assessed using an Industrial Warehouse model that adjusts for characteristics which impact market value, in order to arrive at a typical market value for properties in this class. Each year a new model is created using any new sales from the current year and sales used in the previous model. Each year the decision is made whether or not to include the oldest sales, based on the number of sales available, indicated time adjustments and valuation judgment.

The resulting assessments were tested both internally and at the Provincial level. The 2017 Industrial Warehouse model met Provincial Quality Standards as set out in *MRAT*.

> *Sales data files should reflect the physical characteristics of the property when sold.* ***For ratio studies, if significant physical changes have occurred to the property between the date of sale and the appraisal date, the sale should not be included.*** *The sale may still be valid for mass appraisal modeling by matching the sale price to characteristics that existed on the date of sale.* (IAAO, 2010, section 5.10).

A valid Assessment to Sale Ratio (ASR) includes the entire industrial inventory, not simply a handful of sample sales. Section 10 of *MRAT* requires that non-residential properties be valued by Mass Appraisal and have an overall median ASR of .95 to 1.05, and the City has met this legal requirement. Individual sales which fall outside of the median ASR range for the entire population are not incorrect if the value falls within an acceptable range indicated by a Coefficient of Dispersion (COD) of 0.20 or less. It is important to note once again that the 2017 Industrial Warehouse model has met these standards.

> *Part of a ratio study requires the matching of the assessment and the sale price, or other indicator of market value, for a property. Both the assessment and the sale price must reflect the same property in the same physical condition. If a property has changed in some physical way between the time of the assessment and the time of sale, the sale should be excluded from the ratio study unless appropriate adjustments can be made where the property assessed corresponds to the property sold*. (Government of Alberta, 2010, p. 52).

An audit, as considered under the legislation, looks at all the sales in each stratum of property and not at small subgroups of sales within that stratum. Small subsets of the market data are insufficient to make meaningful statements about ASR analysis. The board in *Gateway Real Estate Equities Inc, AEC Property Tax Solutions* v. *The City of Edmonton,* 2014 ECARB 00559 stated:

> *The board finds that applying some ASR values from one end of the spectrum to a property at a different point in the spectrum would cause fresh, undesirable inequities. The Board is satisfied that the entire strata of properties must be processed together to produce statistically reliable results and a small sub-set of values cannot be relied upon to provide a correct indication of the subject property's market value.*

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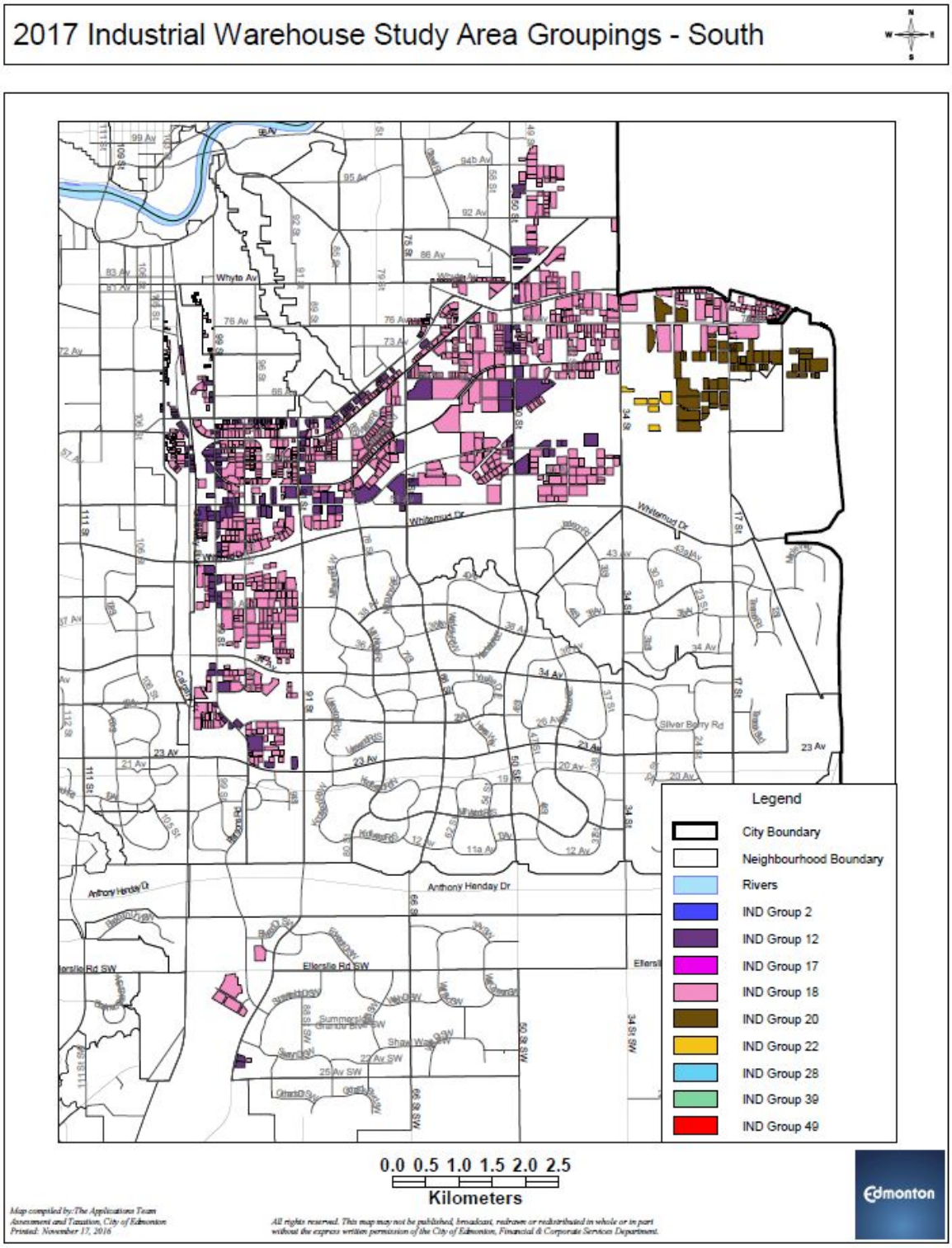
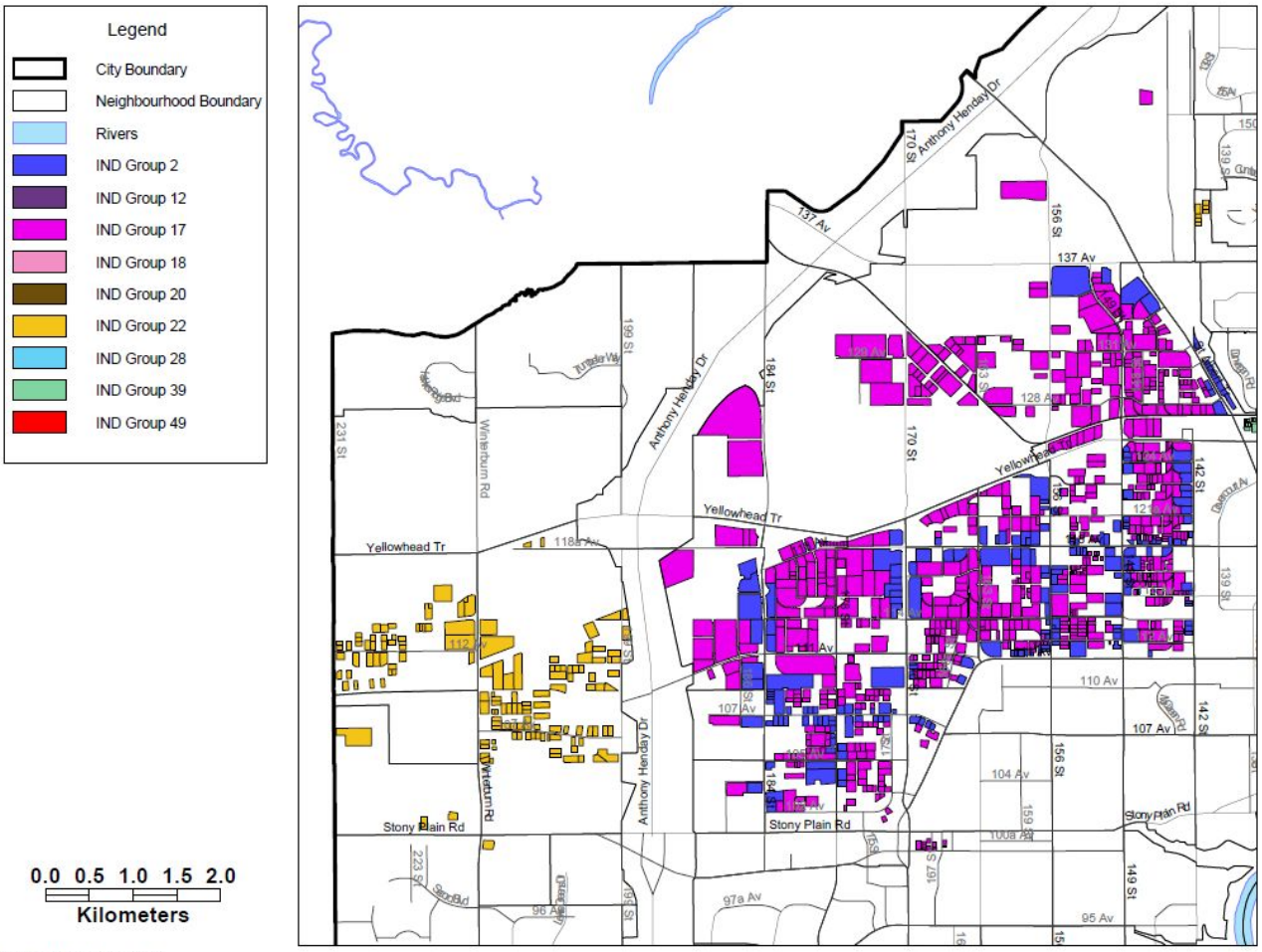
Appendix

Map



2017 Industrial Warehouse Study Area Groupings - Northwest



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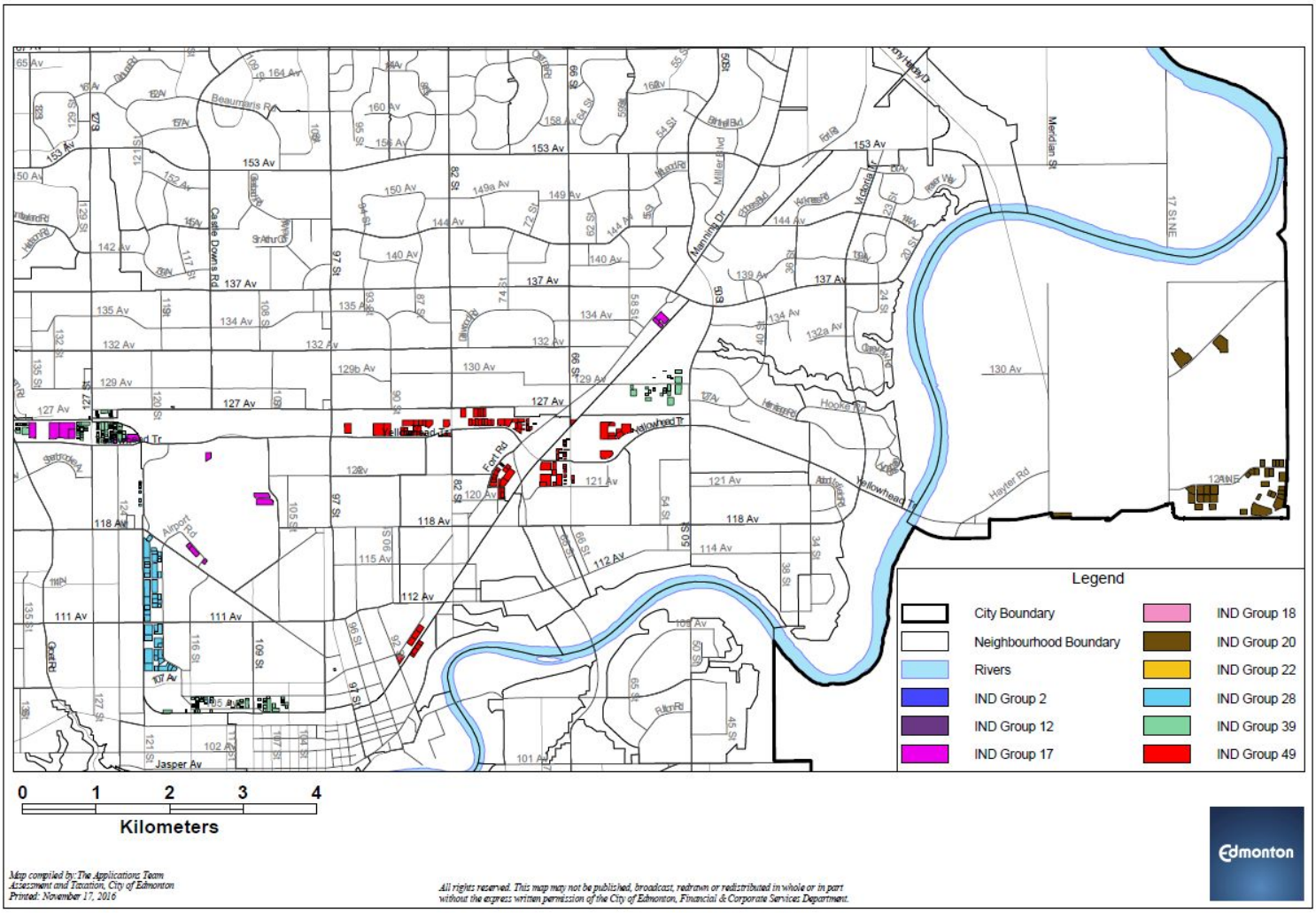
2017 Industrial Warehouse Study Area Groupings - Northeast



Time Adjustment Chart

2017 TIME ADJUSTMENTS FOR INDUSTRIAL IMPROVED MODEL

YEAR	MONTH	ADJUSTMENT		YEAR	MONTH	ADJUSTMENT
2011	Jan	1.3075		2013	Oct	1.0018
2011	Feb	1.2925		2013	Nov	.9974
2011	Mar	1.2777		2013	Dec	.9931
2011	Apr	1.2631		2014	Jan	.9887
2011	May	1.2486		2014	Feb	.9844
2011	Jun	1.2343		2014	Mar	.9801
2011	Jul	1.2202		2014	Apr	.9758
2011	Aug	1.2061		2014	May	.9715
2011	Sep	1.1923		2014	Jun	.9673
2011	Oct	1.1786		2014	Jul	.9630
2011	Nov	1.1651		2014	Aug	.9588
2011	Dec	1.1517		2014	Sep	.9546
2012	Jan	1.1385		2014	Oct	.9504
2012	Feb	1.1255		2014	Nov	.9463
2012	Mar	1.1126		2014	Dec	.9421
2012	Apr	1.0998		2015	Jan	.9380
2012	May	1.0872		2015	Feb	.9339
2012	Jun	1.0747		2015	Mar	.9298
2012	Jul	1.0700		2015	Apr	.9257
2012	Aug	1.0653		2015	May	.9308
2012	Sep	1.0607		2015	Jun	.9360
2012	Oct	1.0560		2015	Jul	.9412
2012	Nov	1.0514		2015	Aug	.9464
2012	Dec	1.0468		2015	Sep	.9516
2013	Jan	1.0422		2015	Oct	.9569
2013	Feb	1.0376		2015	Nov	.9621
2013	Mar	1.0331		2015	Dec	.9675
2013	Apr	1.0286		2016	Jan	.9728
2013	May	1.0241		2016	Feb	.9782
2013	Jun	1.0196		2016	Mar	.9836
2013	Jul	1.0151		2016	Apr	.9890
2013	Aug	1.0107		2016	May	.9945
2013	Sep	1.0062		2016	Jun	1.0000

Zone Summary

Industrial	
IB	**Industrial Business Zone (s.400)** is for industrial businesses that carry out their operations such that no nuisance is apparent outside an enclosed building
IL	**Light Industrial Zone (s.410)** provides for high quality, light industrial developments, that operate with no nuisance factor apparent outside an enclosed building, limited outdoor activities
IM	**Medium Industrial Zone (s.420)** provides for manufacturing, processing, assembly, distribution, services and repair uses that carry out a portion of their operations outdoors, any nuisance should not generally extend beyond the boundaries of the site
IH	**Heavy Industrial Zone (s.430)** provides for industrial uses that, due to their appearance, noise, odour, risk of toxic emissions, or fire and explosion hazards are incompatible with residential, commercial, and other land uses. Normally located on the interior of industrial or agricultural areas.
Agriculture and Reserve Zones	
AGI	**Industrial Reserve Zone (s.630)** is to allow for agricultural and rural land use activities that do not prejudice future use when the lands are required for industrial use
Direct Control Provisions (s.700)	
DC1	**Direct Development Control (s.710)** is to provide for detailed, sensitive control of the use, development, siting and design of buildings and disturbance of land where this is necessary to establish, preserve or enhance: a. areas of unique character or special environmental concern b. areas or sites of special historical, cultural, paleontological, archaeological, prehistorical, natural, scientific or aesthetic interest
DC2	**Site Specific Development Control (s.720)** is to provide for direct control over a specific proposed development where any other Zone would be inappropriate or inadequate.

For additional zone detail, please refer to the Zoning Bylaw.