Tyler Technologies, Inc.

Mass Appraisal Report

For

The City of Burlington

Valuation Date: April 1, 2021

clt appraisal services
a tyler appraisal & tax solution

Contents

Purpose of the Report

City of Burlington's last Citywide reassessment took effect April 1, 2005. The assessments reflected 100% of fair market value of the 2005 market value.

Tyler Technologies was retained to perform the reassessment of City of Burlington, which encompassed roughly 10,836 parcels consisting of exempt, residential, condominium, commercial/industrial, and public utilities properties. The total area of the corporate City is 10.6 square miles.

Parcel Counts

Single Family Residential(R1, V1)	5,235
Two Family (R2)	1,046
Three Family (R3)	370
Four Family (R4)	241
Residential Condominiums (RC)	2,155
Mobile Homes (MH, ML)	127
Apartments with 5+ Units (RA)	397
Commercial/Industrial(C, CC, CR, CRC)	536
Industrial (I)	19
Utility & Farm (UE, OU, F)	11
Tax Exempt (E, TE, EU, EL)	333
Miscellaneous lots & land(FL, EL, IL, RL, WL)	366
Total	**10,836**

This mass appraisal report is provided to the City of Burlington by Tyler Technologies, Inc. as a summary of the work performed during the City of Burlington reappraisal project. This report is intended to complement, but not replace, supporting materials previously provided to the City of Burlington Assessor's Office in the form of interim reports, quality audit reports, as well as procedural and training manuals throughout the project

City History

Burlington is the most-populous city in Vermont and the seat of Chittenden County. It is 45 miles (72 km) south of the Canada–United States border and 94 miles (151 km) south of Montreal. The population was 42,417 as of the 2010 census. It ranks as the least populous city to also be the most populous city in its state.

A regional college town, Burlington is home to the University of Vermont (UVM) and Champlain College, a small private college. Vermont's largest hospital, the UVM Medical Center, is within the city limits. The City of Burlington also has Vermont's largest airport, the Burlington International Airport, in neighboring South Burlington. In 2015, Burlington became the first city in the U.S. to run entirely on renewable energy.

Two theories have been put forward regarding the origin of Burlington's name. The first is that it was named after Richard Boyle, 3rd Earl of Burlington, and the second is that the name honors the politically prominent and wealthy Burling family of New York. While no Burlington family members are listed as

grantees of the town, the family held large tracts of land in nearby towns, some of which were granted on the same day as Burlington.

One of the New Hampshire grants, the land that was developed as Burlington was awarded by New Hampshire colonial governor Benning Wentworth on June 7, 1763, to Samuel Willis and 63 others. In the summer of 1775, settlers began clearing land and built two or three log huts, but the outbreak of the American Revolutionary War delayed permanent settlement until after its conclusion. The town was organized in 1785.

The War of 1812 was unpopular in Vermont and New England, which had numerous trading ties with Canada. Neither Vermont nor other New England states provided militia units or financial support. Vermont voters supported the Federalist Party, which opposed the war. At one point during the war, the U.S. had 5,000 troops stationed in Burlington, outnumbering residents and putting a strain on resources. About 500 soldiers died of disease, which was always a problem due to poor sanitation in army camps. Some soldiers were quartered in the main building at the University of Vermont, where a memorial plaque commemorates them.

In a skirmish on August 2, 1813, British forces from Canada shelled Burlington. This is described as either a bold stroke by the British with an ineffectual response from the Americans, or a weak sally by the British, which was rightly ignored by the Americans. The cannonade lasted about 10 minutes and caused no casualties. The American troops involved were commanded by Naval Lieutenant Thomas Macdonough, later hero of the Battle of Lake Champlain.

The town's position on Lake Champlain helped it develop into a port of entry and center for trade, particularly after completion of the Champlain Canal in 1823, the Erie Canal in 1825, and the Chambly Canal in 1843. Wharves allowed steamboats to connect freight and passengers with the Rutland & Burlington Railroad and Vermont Central Railroad. Burlington became a bustling lumbering and manufacturing center and was incorporated as a city in 1865. Its Victorian era prosperity left behind much fine architecture, including buildings by Ammi B. Young, H.H. Richardson, and McKim, Mead & White.

In 1870, the waterfront was extended by construction of the Pine Street Barge Canal. This became polluted over the years and was a focus for cleanup in 2009 under the U.S. Environmental Protection Agency's Superfund program. When elected Mayor, Bernie Sanders set in place an extensive waterfront beautification plan which included adding public parks, a nine-mile bike path, and a community boathouse.

Company Qualifications

Tyler Technologies, Inc., Appraisal and Tax Solutions Division (CLT) assembled a team of mass appraisal professionals to complete the appraisal process, as well as a team of systems professionals to work with the City of Burlington’s existing Patriot computer assisted mass appraisal (CAMA) system. This team utilized its unparalleled experience, communication skills, personnel resources, and technology to perform the task of appraising approximately 10,836 parcels in an approximate twenty-four-month time frame.

Tyler’s appraisal division is the oldest and largest mass appraisal firm in the country and has been serving the needs of local government since 1938. Tyler’s CLT division pioneered the use of computers in the mass appraisal field in the 1950's. Having completed more than 2,500 reappraisal projects nationwide (46 states), Tyler has valued approximately 55 million parcels.

Identify the Client

On February 6, 2019, City of Burlington entered into a contract with Tyler Technologies for professional appraisal services relating to the reassessment of property within its borders and for the delivery of parcel data into Patriot Properties AP5 CAMA system.

Intended Use

The "Assessment Law & Procedure" advises us regarding a reassessment as follows:

"In general, a Citywide reassessment would involve the following action: a determination of market value including a review of recent transfers of real estate within the neighboring area, a visual inspection of the exterior appearance of the property in question, and a correlation of any other unique factors that may affect the valuation of the real estate. The assessor would correlate these factors and, through the use of his or her expertise and training, arrive at an estimate of what the fair market value of the property would be."

Bert M. Goodman & Randy L. Varner, "Assessment Law & Procedure 14th Edition

Therefore, a reassessment is a systematic analysis of all assessments. This analysis is intended to assure that assessments are at the stated uniform percentage of value as of the valuation date of the assessment roll upon which the assessments appear, as confirmed by statistical testing following mass appraisal standards.

The reassessment was undertaken to establish an equitable and uniform system of assessing property for taxation and has been conducted in compliance with Uniform Standards of Professional Appraisal Practice (USPAP) Standard 6: Mass Appraisal, Development and Reporting.

The services and recommendations of value performed for this appraisal assignment are intended for the exclusive use of City of Burlington in establishing assessments for ad valorem tax purposes. Any use other than that stated above is not authorized nor intended. Most specifically excluded is an opinion of value for federally related real estate transactions or other mortgage lending purposes.

Effective Date of the Value

The effective date of appraisal was April 1, 2021. The resulting valuation estimates were based on the physical characteristics of the real estate as of the effective date of the appraisal. This included the characteristics of the land such as size, as well as the improvements to the land – homes, outbuildings, and other structures. All residential real estate in the city were appraised at fair market value as of April 1, 2021. Sales activity from 2018 to 2021 formed the foundation of market evidence and valuation substantiation.

Definition of Value

The goal of the reassessment was to estimate market value for all real property in the City of Burlington. The International Association of Assessing Officers (IAAO) defines market value (IAAO's Standard on Ratio Studies", Assessment Journal, Sept. /Oct. 1999, pg. 60) as follows. Market value is defined as "the most probable price a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the

price is not affected by undue stimulus." Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

1. Buyer and seller are typically motivated.
2. Both parties are well informed or well advised and acting in what they consider their own best interests.
3. A reasonable time is allowed for exposure in the open market.
4. Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and
5. Price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.

The valuation methods appropriate to the class of property were computed on a property-by-property basis. The market adjusted cost approach was utilized for the developed residential properties.

The property valuation analyst conducted several studies to gain an understanding of the market dynamics at work in the City. The process began with collecting and verifying sales price and date for each property sale within a three-year period. Sales that were not "arms-length" or were non-representative were noted and set aside.

For estimating probable selling price was to consider how much it would cost to provide a replacement building of similar condition, quality, and utility. Local construction costs were analyzed along with land sales to develop what is called the "replacement cost" method. This method is based on the premise that if land value is added to what it would cost to replace the building new, less an allowance for physical, functional, and economic depreciations, a rational estimate of market value can be obtained.

The third method used for estimating market value is called the "income approach." With this method the income and expense stream of a property is examined from an investor's point of view. The goal is to achieve a market value estimate by approximating what an informed investor would pay for the income stream associated with a particular piece of real estate. Again, a mathematical model of this was designed and calibrated to market activity in the City of Burlington.

Limiting Conditions

- The properties were assumed to be free of all liens and encumbrances. Each property has also been appraised as though under responsible ownership and competent management.
- Surveys of the assessed properties have not been provided. We have relied upon tax maps and other materials while estimating physical dimensions and the acreage associated with assessed properties.
- We assume the utilization of the land and any improvements is located within the boundaries of the property described. It is assumed that there are no adverse easements or encroachments for any parcel that have not already been addressed in the mass appraisal.
- In the preparation of the mass appraisal, inspections have been made for all parcels of property included in this report, per contract. Many of the properties did not have an interior Inspection performed; therefore, it is assumed that the condition of the interior is similar to its exterior

condition, unless the Assessor has received additional information from qualified sources giving more specific detail about the interior condition.

- Property inspection dates will have ranged in time from both before and after the appraisal data. It is assumed that there has been no material change in condition from the latest property inspection, unless otherwise noted on individual property records retained in the assessor's office.
- We assume that there are no hidden or unapparent conditions associated with the properties, subsoil, or structures, which would render the properties (land and/or improvements) more or less valuable.
- It is assumed that the properties and/or the landowners are in full compliance with all applicable federal, state, and local environmental regulations and laws.
- It is assumed that all applicable zoning and use regulations have been complied with.
- It is assumed that all required licenses, certificates of occupancy, consents, or other instruments of legislative or administrative authority from any private, local, state, or national government entity have been obtained for any use on which the value opinions contained within this report are based.
- We have not been provided with a hazardous conditions report, nor are we qualified to detect hazardous materials. Therefore, evidence of hazardous materials, which may or may not be present on a property, was not observed. As a result, the final opinion of value is predicated upon the assumption that there is no such material on any of the properties that might result in a loss or change in value.
- Information, estimates, and opinions furnished to the appraisers and incorporated into the analysis and final report were obtained from sources assumed to be reliable, and a reasonable effort has been made to verify such information. However, no warranty is given for the reliability of this information.
- The Americans with Disabilities Act (ADA) became effective January 26, 1992. We have not made compliance surveys nor conducted a specific analysis on any property to determine is it conforms to the various detailed requirements identified in the ADA. It is possible that such a survey might identify nonconformity with one or more ADA requirements, which could lead to a negative impact on the value of the property(s). Because such a survey has not been requested and is beyond the scope of this appraisal assignment, we did not take into consideration adherence or non-adherence to ADA in the valuation of the properties addressed in this report.
- That all the terms and conditions of the contract between Tyler Technology Inc. and the City of Burlington were fulfilled.
- Tyler was not responsible for the Commercial property appeal hearings. Commercial property valuation appeals were the responsibility of the SOA Inc.

Extraordinary Assumptions and/or Hypothetical Conditions

No extraordinary assumptions or hypothetical conditions apply.

Property Rights Appraised

Appraisals are based on fee simple ownership, even when other rights, such as leased fee, exist.

USPAP and Mass Appraisal:

Real Property Assessment and Reassessment work is governed by Standard 5 [Development] and 6 [Reporting] of the Uniform Standards of Professional Practice. This document provides the framework which governs the appraisal methodology, assumptions and limiting conditions of the Burlington reassessment.

Standard 5 is directed toward the substantive aspects of developing credible analyses, opinions, and conclusions in the mass appraisal of properties. The reporting and jurisdictional exceptions applicable to public mass appraisals prepared for ad valorem taxation do not apply to mass appraisals prepared for other purposes.

A mass appraisal includes:

1. Identifying properties to be appraised.
2. Defining market area of consistent behavior that applies to properties.
3. Identifying characteristics (supply and demand) that affect the creation of value in that market area.
4. Developing a model structure that reflects the relationship among the characteristics affecting value in the market area.
5. Calibrating the model structure to determine the contribution of the individual characteristics affecting value.
6. Applying the conclusions reflected in the model to the characteristics of the property(ies) being appraised, and
7. Reviewing the mass appraisal results.

Standard 6 addresses the content and level of information required in a report that communicates the results of a mass appraisal. Standard 6 does not dictate the form, format, or style of the mass appraisal reports. The form, format, and style of a report are functions of the needs of intended users and appraisers. The substantive content of a report determines its compliance. *See appendix for complete Standards 5 and 6.*

The standards of USPAP were adhered to in the valuation of all Residential properties during Burlington's reassessment project.

Scope of Work

Per the specifications of the Request for Proposal, all properties within the City boundaries were to be inspected by the company using a "blended" approach. This approach consisted of sending data mailers to all residential and condominium property owners and Appraisal Desktop Verification (ADV) software. Commercial and industrial properties were inspected via a site visit.

The ADV review consisted of a 3-screen approach to view and compare aerial imagery, street level images, and the City's tax assessment data. Sketch verification was conducted by converting the sketches from the City's existing assessment records. The sketch was rotated and anchored over the structure's shape on the ortho photo. This layered image was compared, at the desktop, to the street level images and data. If any of the property improvements appeared to have changed in any way from the current assessment record, the property was flagged for a site visit. Of the properties reviewed for sketch related issues **287** were slated for a site-visit and **151** were determined to be desktop changes.

Due to COVID-related restrictions, on-site inspections scheduled as a result of ADV and/or data mailer changes were authorized by the city and that Tyler should no longer conduct physical inspection for health and safety reasons of employees, Tyler and property owners.

In addition to property data, economic data such as sales and income and expense information was gathered, analyzed and used to formulate valuation models that reflect the current market in the City of Burlington. Once these models were developed and tested against the known sales, they were applied to the population of properties and reviewed for reasonableness and consistency of model application.

Tyler was not responsible for the Commercial property appeal hearings. Commercial property valuation appeals were the responsibility of the SOA Inc. The number of appeals only includes residential properties.

Data Collection – Property Data

Per City requirements, data for residential properties was verified via a data mailer. The data mailer requested that the property owner confirm the data currently on record or make the necessary corrections to the data and return the data mailer. A total of **7,119** data mailers were sent to property owners. The **815** returned data mailers resulted in **484** changes to the data elements the CAMA system had on file.

Data Mailer Statistics

Data Mailer Results	Total
Mailed	7,119
Returned by Property Owner	815
Returns as a Percent	11.4%

Data collection procedures for commercial and industrial properties were based on physical site visits. This approach consisted of verifying sketch/structure measurements and conducting an interior inspection. Exempt properties were also collected similarly based upon the type of improvement.

In addition to collecting story height, exterior wall construction, additions, and other observable property characteristics, the following are examples of types of data that may have been noted for commercial properties: DBA (e.g., Dunkin Donuts), wall height, construction type and use (purpose of the building).

Data entry audits included omissions of required data elements, correct identification and mathematical closure of sketch components, and correlation of reasonableness of related features, such as the presence or absence of a basement or upper floors, if indicated elsewhere on the record.

Finally, all property data collection was subjected to a visual quality control review performed by the review appraiser as part of the final review process. This review had the primary purpose of verifying quality grade, condition ratings, and neighborhood assignments. *See appendix for sample data mailer.*

Data Collection - Economic Data

The sales data was used in the analysis of the local market and in the construction of valuation models for residential and condominium properties.

Sales Data Collection

Sales were updated as they occurred by the city. Changes included splits and merges, ownership changes and mailing address changes.

Some sales are not indicative of fair market value and need to be coded as such. For example, sales may be between relatives or former relatives, related companies, or partners in business, represent a sale of a partial interest in the property, or include significant personal property or a business.

In addition, sales of foreclosed properties are not considered arms-length transactions and were not included in the sales listing for state certification.

Upon receipt of sales data from the City, the appraiser continued the review of the data through a process known as sales validation. Sales were reviewed for validity through field review, property owner or seller interviews, Multi-List Service (MLS), and the production and review of reports identifying sales that appeared to be extremes in their areas. Local knowledge provided by the City Assessor was particularly helpful in this activity.

The process was designed to build a database of sales with proper validation codes for use in analysis at any point in time in the project.

Construction Costs

In order to apply the cost approach to value, the appraiser must estimate the replacement cost new (RCN) of improvements to the land before considering accrued depreciation and the addition of the land value. The CAMA system contains base cost tables for houses, outbuildings such as sheds and garages, and for amenities such as fireplaces and bathrooms. These base tables were calibrated to the City of Burlington market through sales analysis.

Properties Appraised

A “parcel” was defined as a separate, tax map-designated, assessed lot, parcel, piece, or portion of real property. Parcels are segregated by land class (**R**esidential, **I**ndustrial, **C**ommercial, **E**xempt, **A**gricultural) and by detailed Land Use Codes (LUC).

The LUC breakdown is as follows:

Code	Description
C	COMMERCIAL
CC	COMMERCIAL CONDOMINIUM

CL	COMMERCIAL LAND
CR	COMMERCIAL W/RES APTS
E	EXEMPT (LAND & BLDG)
EL	EXEMPT LAND
EU	EXEMPT UTILITY
F	FARM
FL	FARMLAND
GL	GOVERNMENT LAND
I	INDUSTRIAL
IC	INDUSTRIAL CONDO
IL	INDUSTRIAL LAND
MH	MOBILE HOME W/O LAND
ML	MOBILE HOME W/LAND
R1	SINGLE FAMILY
R2	TWO FAMILY
R3	THREE FAMILY
R4	FOUR FAMILY
RA	5 PLUS APT (COMMERCIAL)
RAC	RESIDENTIAL APT CONDO
RC	RESIDENTIAL CONDO
RL	RESIDENTIAL LAND
TE	TAXABLE, PARTLY EXEMPT
TEL	TAX-PERT EXEMPT LAND
UE	UTILITY: ELECTRIC
UO	UTILITY: OTHER
S1	SEASONAL DWELLING
WL	WOODLAND
X	UNKNOWN OWNER (R O W USE)

Grade As Applied to Residential Improved Properties

GRADE	GRDFACT
A - AVERAGE	1.00
A- - AVERAGEMINUS	0.93
A+ - AVERAGE PLUS	1.07
DIL - VERY POOR	0.50
E - EXCELLENT	1.86
E- - EXCLNT MINUS	1.73
E+ - EXCLT PLUS	1.99
F - FAIR	0.77
F- - FAIR MINUS	0.75
F+ - FAIR PLUS	0.87
G - GOOD	1.23
G- - GOOD MINUS	1.15
G+ - GOOD PLUS	1.38
P - POOR	0.65
P- - POOR MINUS	0.61
P+ - POOR PLUS	0.70
VG - - VRYGOODMINUS	1.41
VG - VERY GOOD	1.51
VG+ - VRYGOODPLUS	1.62
VGD - VERY GOOD	1.40
VP - VERY POOR	0.53
VP- - VRY POOR MIN	0.49
VP+ - VRY POOR PLU	0.57
X - CUSTOM	2.28
X- - CUSTOM MINUS	2.13
X+ - CUSTOM PLUS	2.45

Average Grade *is considered Standard quality construction. Buildings in this classification are typical of today's construction and materials and methods. This class will meet current building code standards. A developer typically builds this class of building on a mass production basis. Most buildings in this class will be plumbed for at least one full bathroom, and a full functioning kitchen.*

Because building standards and manufacturing processes have improved in the past decade, modular construction, if known, may now be considered standard construction (or better), but older modular construction may warrant an A- or F+ if exhibiting obvious traits that would make it unattractive to a potential buyer.

Fair Grade *is considered below average in quality. Buildings in this classification will generally be found to have adequate electricity, heat, and plumbing, but the fixtures are commonly of below average quality. This class is considered to have the essential conveniences. Dwellings in this class are typically between 600 and 1,500 square feet in total size, though, again, there may be exceptions to this guideline.*

Poor Grade *is the lowest class of construction providing minimal shelter. Most homes in this classification are not habitable year-round and are considered "camps" or "cabins". They lack basic insulation and may lack minimal plumbing fixtures and central heat. They are generally considered only for seasonal occupancy and will not have been constructed, in most instances by a modem builder, nor will they meet current building codes for year-round occupancy.*
Camps and cottages may have start at a lower base price and have their owner quality grading unique to this type of building.

Good Grade *buildings exhibit materials and fixtures of good quality and workmanship. They are generally framed with rafters and joists exceeding current code and standards. The plumbing and heating are of better quality and most often, these homes are built with at least two full, three-fixture, bathrooms. This class of building is common today in "better" developments, built by higher end developers. These units will typically show some emphasis on both interior and exterior refinements. This class of residence reflects custom housing from developer's plans. Generally, this class of residence will exceed 1,500 square feet of living area but will not exceed 4,000 square feet.*

G *construction grades should also be considered the* ***base*** *in most homes, still inhabited and attractive on the market, built prior to the civil war (1865).*

Very Good Grade *buildings exhibit use of superior materials and workmanship. They have special architectural highlights and are typically custom designed. They generally are built with at least three full three to five fixture bathrooms and generally exceed 3,000 square feet in size.*

Custom built, architecturally pleasing, "historic" homes may not meet the size guidelines above, but should be considered when grading a handsome, "antique" dwelling that has been maintained and is desirable to the market. They should be larger in size and have two or more baths and multiple, usually working, fireplaces to be considered in this class. The cost to reproduce the residence (or replace it with a like, modern residence) would require extraordinary and superior workmen and materials.

Above and below are the Grades and Conditions that were applied for each Residential Improved property. These depict the average dwelling in City of Burlington, as expected, is a C Grade, Average Condition, condition based on a dwelling 50+ years old.

See appendix for the depreciation tables

A = AVERAGE to indicate that the dwelling shows only minor signs of deterioration caused by normal "wear and tear". The dwelling exhibits an ordinary standard of maintenance and upkeep in relation to its age.

F = FAIR to indicate that the dwelling is in structurally sound condition but has greater than normal deterioration relative to its age. Dwellings in "fair" physical condition may be characterized as having a noticeable degree of deferred maintenance.

P = POOR to indicate that the dwelling shows signs of observable structural deterioration (like sagging roof, foundation cracks, uneven floors, etc.) usually caused by significant and chronic deferred maintenance

VERY POOR to indicate that the structure is barely livable and close to condemnation.

DELAPITATED to indicate that the dwelling is structurally unsound, not suitable for habitation possibly condemned. It is unfortunately possible that some dwellings may be occupied, but still suitable for coding as unsound.

Example of dwelling calculation:
Each type of house is given a base price per square foot. The per sq. ft. base price is adjusted by a factor based on the difference from the standard size and construction adjustment. These factors are from Marshall and Swift Building Cost manual.

Base Rate $57.95 * 1.21 * .968 = Adjusted base rate $67.88
Other adjustments are made by multipliers if they are graded above the multiplier of 1.
Example: quality with an average code would be multiplied by 1.23 ABR $67.88
* 1.23 = $83.49

NBC Influence multiplier brings the price per square foot up to a market range unique to the neighborhood.
$63.12 * 2.1 = $135.56

The per foot calculations are multiplied by the size of the dwelling.
$135.56 * 2,100 square feet= $278,379

Highest and Best Use Analysis

Definition: The highest and best use is considered to be that reasonable and probable use that supports the highest present value, as defined, as of the effective date of valuation. Alternatively, it would be that use, from among reasonably probable and legal alternative uses, found to be physically possible, appropriately supported, financially feasible, and which results in highest land value

The definition immediately above applies specifically to the highest and best use of land. It is to be recognized that in, cases where a site has existing improvements on it, the highest and best use may very well be determined to be different from the existing use. The existing use will continue, however, unless and until land value in its highest and best use exceeds the total value of the property in its existing use.

Implied within these definitions are the recognition that the determination of highest and best use from the appraiser's judgment and analytical skill, i.e., that the use is determined from analysis represents an opinion, and not a fact to be found.

Land Valuation

In making appraisals for property tax assessment purposes, it is necessary to establish separate values for land and for the improvements to the land. In actuality, the two are not separated and the final estimate of the property as a single unit must be given prime consideration. However, in arriving at that final estimate of value, aside from contractual and legal requirements, certain other advantages exist in making a separate estimate of value for the land.

- An estimate of land value is required in the application of the cost approach.
- An estimate of land value is required to be deducted from the total property selling price in order to derive indications of depreciation or loss in value through market data analysis. The equation is as follows:

Depreciation= (Replacement Cost New+ Land Value) - (Selling Price)

Since land may or may not be used to its highest potential, the value of land may be completely independent of the existing improvements on the land. In a situation of economic mis-improvements, the value of the land may be a good indicator of the value of the entire parcel.

LAND CALCULATION EXAMPLE:

The land valuations are determined in two ways. From vacant land sales, and a land extraction method.

The formula begins with a base price per-square foot for each neighborhood (assessment district).

The average lot size is determined and becomes the bases for value.

Say: base lot size is 5,600 and a base $34.32/square foot = $192,192 value Subject

parcel lot size is 1,954 sq. ft.

If the price per sq.ft. is $34.32 for the neighborhood and there is an 80% curve, then $34.32 * .80 = $27.46. This leaves a difference of $6.86.

Subject parcel actual size 1,954 less neighborhood base size 5,600 = 3,656 3,546 * $6.68 = (-25,026)

Base value= base size (5,600) X base price ($34.32) = $192,192 Base value+ (-25,026) = $167,166 (estimated land value)

Land Factors can be applied. A land factor may influence the property value positively or negatively.

Say: the topography has a steep bank which negatively influencing the utility of the property. The property is less desirable than a standard property. An appraiser can apply a -10% ($-16,717). = $150,449 land value.

Neighborhood Delineation

Delineation of valuation neighborhoods for residential and commercial properties is a key driver in the valuation of land and can be defined as a study of forces or influences from outside which could be considered to influence value.

A neighborhood is a geographic area exhibiting a high degree of homogeneity in economic amenities, land use, economic trends, and property characteristics such as quality, age, and condition. Neighborhoods are not characterized as good, average, poor, etc. They stand on their own merits of uniform composition.

Significant characteristics in defining neighborhoods included:

- Physical boundaries
  a. Natural - as rivers, streams, woods, etc.
  b. Manmade - as roads, railroads, corporation lines, school district lines, etc.
- Housing characteristics: Type, quality, age, and condition.
- Type of occupancy: As percentage of owner occupied, tenant occupied, vacant dwelling, etc.
- Predominant land use and anticipated changes.
- Typical land size and land valuation.

Neighborhood delineation included the following procedures:

1. A map delineating the previously established neighborhoods was reviewed using City-supplied map and neighborhood codes. It was the city's intention to reduce the total number of residential and condominium neighborhoods. The city advised Tyler on the proposed combination of the neighborhoods. An analysis of sales with these new neighborhood groupings was conducted in an effort to confirm the proposed neighborhood combinations.
2. Properties were updated using the new neighborhood assignments where applicable.

The residential neighborhoods became the basis for creation of values. Land prices were developed at the neighborhood level for application in the cost approach. The summary result of this process was the delineation of **46** residential neighborhoods resulting in **18** valuation neighborhoods and **144** residential condominium neighborhoods resulting in **18** valuation neighborhoods. The neighborhoods are listed below. Neighborhoods with missing rates are condominium neighborhoods, condominiums carry no separate land value.

Residential & Condominium Neighborhood Chart and Land Rates

Neighborhood	Description	Bldg Fact	SFYI Factor	Std Size	Curve %	Max Fact	Min Fact	Area	Factor	From Area	To Area	Price
DT-6	DOWNTOWN AREA	1.944	1.00	5,600	80	3.00	0.2	1.00	1.00	0	10,000	$32.75
DWT-H	DWT HIGH END	2.05	1.20									
DWT-L	DWT BASE COMPLEX	1.53	1.20									
DWT-M	DWNT MID RANGE	1.64	1.20									
DWT-MH	DWT MED.HIGH	1.89	1.20									
DWT-MLC	DWT MID LEVEL	1.8696	1.20									
DWT-SC	DWT SMALL COMPLX	1.735	1.20									
DWT-WVH	DWT WATR VIEW HIGH	1.641	1.20									
DWT-WVM	DWT WATR VIEW MID	2.5085	1.00									
LVT-9	LAKEVIEW TR. WEST SIDE	2.52858	1.00	6,000	80	3.00	0.2	1.00	1.00	0	11,865	$27.65
MH	MOBILE HOMES	1	1.00									
NHS-6	North Hill Section	2.6	1.00	5,600	80	3.00	0.2	1.00	1.00	0	47,500	$31.35
NNE-1	new north end 1	2.091	1.00	10,000	80	3.00	0.2	1.00	1.00	0	30,000	$9.00
NNE-3	new north end 4	2.1	1.00	8,800	80	3.00	0.2	1.00	1.00	0	51,000	$12.00
NNE-5	new north end 5	1.92	1.00	12,400	80	3.00	0.2	1.00	1.00	0	115,000	$13.00
NNE-6	new north end 6	1.593	1.00	15,300	80	3.00	0.2	1.00	1.00	0	180,000	$14.50
NNE-L	NNE BASE COMPLEX	1.562	1.20									
NNE-M	NNE MID RANGE	1.702	1.20									
NNE-MLV	NNE MIDRANG/LAKEV	1	1.20									
NNE-SC	NNE SMALL COMPLEX	1.6815	1.20									
NNE-WV	NNE WATERVIEW	1.98	1.20									
ONE-3	OLD NORTH END 3	2.156	1.00	4,455	80	3.00	0.2	1.00	1.00	0	85,000	$24.50
SE-4	SOUTH END 4	2.331	1.00	6,100	80	3.00	0.2	1.00	1.00	0	20,000	$21.00
SE-5	SOUTH END 5	2.33	1.00	7,000	80	3.00	0.2	1.00	1.00	0	50,000	$22.50
SE-6	SOUTH END 6	2.47	1.00	13,000	80	3.00	0.2	1.00	1.00	0	80,000	$13.70
SE-8	SOUTH END 8	2.53878	1.00	19,500	80	3.00	0.2	1.00	1.00	0	70,000	$12.15
SE-H	SE HIGH END CONDO	2.1033	1.20									
SE-L	SE BASE COMPLEX	1.991	1.20									
SE-M	SE MIDRANGE COMPX	2.1131	1.20									
SE-SC	SE SMALL COMPLEX	1.67	1.20									
SE-WF	SE WATERFRONT	2.835	1.20									
SHS-8	SOUTH HILL 8	2.4456	1.00									
STR-FRM	Starr Farm Beach	1.63	1.00	24,000	80	3.00	0.2	1.00	0.00	0	170,000	$39.80
UVM-5	UVM HILL 5	2.158	1.00	8,850	80	3.00	0.2	1.00	1.00	0	32,000	$17.70
UVM-6	UVM HILL 6	2.56882	1.00	8,900	80	3.00	0.2	1.00	1.00	0	1,250,000	$20.40
WF-10	WATERFRONT	1.96	1.00	24,000	80	3.00	0.2	1.00	1.00	0	170,000	$39.80

Model Specification and Calibration

The primary methods for specifying the land models were the sales comparison approach and the land residual, or abstraction approach.

- Sales comparison – A frequently used method in estimating the value of land is the comparable sales method, in which land values are derived from analyzing the selling prices of similar sites.

  The next step requires analysis of lot sales. The size of any buildable parcel of land was determined by the zoning requirement. Analysis of lot sales were used to determine the proper lot value for each neighborhood, when such sales were available.

Once the lot value is determined, analysis of sales of larger tracts follows. While the purpose of a reassessment is to estimate fair market value, maintaining equity between like properties is of equal importance. Both sold and unsold properties were formatted using the same procedure.

This is the most recognized approach and should be used if ample sales are available. The step in this approach is to gather the pertinent parcel data for sold properties and stratify the, at minimum, by neighborhood in order to develop appropriate rates for the area.

- Abstraction (or land residual) - Although it is preferable to use sales of unimproved lots for comparison, it is not always possible to do so. Older neighborhoods are not likely to yield enough vacant land sales.
- In such cases, in order to arrive at an estimate of land values using the comparable sales approach, it is necessary to consider improved property sales and to estimate the portion of the selling price applicable to structures, known as the land residual technique.

The land residual technique estimates the replacement cost of the buildings as of the date of the sale, the accrued depreciation, and deducts that amount from the replacement cost. This will result in the estimated selling price of the buildings, which can be deducted from the total selling price of the property to derive the portion of the selling price which can be allocated to the land. The equation is as follows:

(Selling Price of Property) - (Estimated Depreciated Value of Building) = Indication of Land Value

Land residual analysis was performed throughout the valuation phase as a check against the sales comparison approach. In this study, the sale price was adjusted to reflect the level of value of 95%.

Model Validation

Once the land models have been preliminarily established, they are continually tested against new sales data. These tests are typically in the form of ratio studies. The study results can be found in the "Analysis of Results" section.

Cost Approach

Neighborhoods where valid sales could be relied on to provide adequate market data to apply the Market Approach to Value, Market Value was set for all single family, residential properties.

The Vermont State Tax Department mandated Burlington to conduct a full reappraisal of all properties. The purpose of a reappraisal is to reestablish fairness of the tax burden. Tax burden fairness is based on the fair market valuation of each property.

All taxable real properties have been reappraised at their estimated fair market value as of 4/1/2021. The results of this reappraisal will be independently reviewed and tested by the Vermont State Tax Department.

METHODOLOGY:

Residential properties (1, 2, 3 family unit and condominiums) have been appraised by the Cost Approach to value. The Cost Approach is calibrated to the recent sold properties in

Burlington. The Cost Approach should result in a fair value for which your property would sell if placed on the market around April 2021.

The Cost Approach to value is a widely used method throughout the United States for municipal tax valuation (mass appraisal). Most all properties in Vermont are valued by the Cost Approach to value. The Cost Approach to value is made up of a Land Value and an Improvement (house and outbuildings) value. Land + Improvement = Value

Building value consist of replacement cost new less depreciation (RCN - D). Values have been calibrated to local sales.

Below are the residential and condominium cost tables.

See appendix for the City of Burlington's CAMA system Patriot AP5 algorithium for calculation of value.

RESIDENTIAL/CONDOMINIUM BUILDING COST TABLE

Building Type	Description	Full Description	Base Price	Alternate Type
BG	BUNGELOW	BUNGELOW + CRAFTSMAN	$61.00	APT3 - APT 2015
CC	CAPE COD	ONE STORY WITH ATTIC	$61.75	APT3 - APT 2015
CD	CONDO DETACH	DETACHED SINGLE UNIT CONDO STRUCTURE	$91.00	
CL	COLONIAL	TWO STORY WITH ATTIC	$63.65	APT3 - APT 2015
CO	COTTAGE	3 SEASON CAMP	$30.00	APT3 - APT 2015
CS10	SMALL CONDO	SMALL CONDO: PRICE ADJUSTED BY +10% 600SF TO 800S	$100.00	AP2 - APT 2005
CS15	SMALL CONDO	SMALL CONDO:PRICE ADJUSTED BY +15%: 600 TO 800 SF	$105.00	AP2 - APT 2005
CS20	SMALL CONDO	SMALL CONDO PRICE ADJUSTED BY +20% 600-800SF	$109.00	AP2 - APT 2005
CS25	SMALL CONDO	SMALL CONDO PRICE ASJUSTED BY +25% 600-800 SF	$114.00	AP2 - APT 2005
CS30	SMALL CONDO	SMALL CONDO: PRICE ADJUSTED BY +30% 450 TO 600 SF	$118.00	
CS35	CONDO SMALL	CONDO SMALL PRICE ADJUSTED BY +35% 600-800 SF	$123.00	AP2 - APT 2005
CS50	SMALL CONDO	SMALL CONDO: PRICE ADJUSTED BY +50%:450 SF OR LESS	$137.00	
CS60	SMALL CONDO	SMALL CONDO: PRICE ADJUSTED BY +60%: 450 SF OR LES	$146.00	
CT	CONTEMPORARY	POST-MODERN	$65.00	APT3 - APT 2015
CTP	CONTEM CONDO	COMTEMPORARY STYLE CONDO	$75.00	
CUS	CUSTOM	ARCHETECTUALLY BUILT UNIQUE FOR SITE	$65.00	APT3 - APT 2015
DK	DECKER	MULTI-STRY 2+FAMILY BOX STYLE FLAT ROOF	$60.00	APT3 - APT 2015
DP	DUPLEX	2 APT UNITS SIDE BY SIDE	$65.00	APT3 - APT 2015
DW	DOUBLE WIDE	DOUBLE WIDE MODULAR UNIT	$53.31	APT - APT 2014
FD	FEDERAL	FEDERAL STYLE	$61.00	APT3 - APT 2015
FL	FLAT CONDO	FLAT CONDO	$95.64	APT - APT 2014
FLFE	FLAT 1ST END	FLAT CONDO FIRST FLOOR END UNIT	$86.45	
FLFI	FLAT 1ST INT	FLAT CONDO FIRST FLOOR INTERIOR UNIT	$91.00	
FLL	FLAT W LOFT	CONDO FLAT WITH LOFT	$95.64	APT - APT 2014
FLUE	FLAT UP END	FLAT CONDO UPPER FLOOR END UNIT	$91.00	
FLUI	FLAT UP INT	FLAT CONDO UPPER FLOOR INTERIOR UNIT	$91.00	
FS	FOUR SQUARE	FOUR SQUARE STYLE	$74.70	APT3 - APT 2015
MH	MOBILE HOME	MOBILE HOME UNLANDED 14WIDE	$38.48	APT - APT 2014
ML	MBLE H W/LND	MOBILE HOME WITH LAND	$24.00	APT - APT 2014
OS	OLD STYLE	OLDER HOUSE WITHOUT A ARCHITECTUAL TYPE	$64.05	APT3 - APT 2015
OT	OTHER CONDOS	OTHER RESIDENTIAL CONDOMINIUMS	$43.50	APT - APT 2014
OTC	OTHER CONDO	OLDER HOUSES CONVERTED TO CONDOS OR DETACHED UNITS	$91.00	
PENT	PENTHS CONDO	PENTHOUSE CONDO	$120.00	
QHU	RENTAL SUBSD	RENTAL SUBSIDIZED HOUSING QHU	$70.00	QHU - QUALF HSE UN
RC	RANCH	1 STORY HOUSE	$57.95	APT3 - APT 2015
RG	RESGARAGEAPT	GARAGE WITH RESIDENCE APT	$46.00	APT3 - APT 2015
RR	RAISED RANCH	LOWER LEVEL PARTLY BELOW GRADE	$61.00	APT3 - APT 2015
SB	SALTBOX	2ND LEVEL HAS FULL DORMER ON ONE SIDE	$65.00	APT3 - APT 2015
SL	SPLTLVL RNCH	1 STORY AT DIFFERENT LEVELS AND FINISHED BSMT	$61.00	APT3 - APT 2015
TD	TUDOR	1	$68.00	APT3 - APT 2015
TE	TOWN HOUSE	1	$55.00	APT3 - APT 2015
TH	TOWNHS CONDO	TOWNHOUSE CONDO	$84.00	
THE	TOWNHS END	TOWNHOUSE CONDO END UNIT	$84.00	APT3 - APT 2015
THI	TOWNHS INT	TOWNHOUSE CONDO INTERIOR UNIT	$84.00	
TP	TRIPLEX	3UNIT APT SIDE BY SIDE	$61.00	APT3 - APT 2015
VT	VICTORIAN	VICTORIAN OR QUEEN ANN STYLE	$86.10	APT3 - APT 2015

Model Validation

The model is validated through a series of tests, including a ratio study stratified by various data elements including, living area, year built, neighborhood, style and date of sale. In addition, consistent application of the model to unsold properties should also be considered. This is done via an unsold test which measures the percent change from the previous valuation for sold and unsold properties

Analysis of Results

Several statistics have been computed on the two strata and are presented in this section. They have been computed according to the definitions and formulae described in the IAAO standard for sales ratios studies. In performing the analysis, the following factors are relevant:

- The sales statistics are for the certification period as required by the Contract for sales beginning March 30, 2018, through March 30, 2021. The sales were verified to ensure that they represent open market transactions.

There was no systematic trimming of outliers, but outliers were removed when sales could not be verified as an arm's length transaction. The IAAO standards do allow this; ''trimming" it is the dropping of sales with extreme ratios on either end of the spectrum of ratios or sales that cannot be verified as valid sales. In general, if a sale was verified as being an arm’s length transaction it was included in the study.

Sales analyses for both residential and commercial parcels are supplied in another report.

Representation: Before drawing a conclusion regarding adherence to standards, we need to examine the question of representation for residential in particular. That is, do the sales utilized in the ratio studies (March 30, 2018, to March 30, 2021) represent the population of all properties? To do this we have examined several factors including size, year built, and quality grade.

Regressivity: Another question that arises is the treatment of high value vs. low value properties. The **Price Related Differential (PRD)** statistic is intended to examine that question. If the PRD is above 1.03, this indicates that higher valued properties are being undervalued compared to the lower priced properties. The results of the study compare favorably to the standard.

The **Coefficient of Dispersion (COD)** is the average deviation of a group of numbers from the median expressed as a percentage of the median, in ratio studies, the average percentage deviation from the median ratio. The **IAAO** standard calls for 1O percent or less for homogenous properties and 20 percent or Iess for rural residential/commercial properties.

Supplemental reports have been supplied for City review which detail the above studies.

We conclude that the reassessment meets the IAAO standard for ratio studies.

Type of Property (Residential)	Median ASR	Coefficient of Dispersion (COD)	Price Related Differential (PRD)	Price Related Bias (PRB)
IAAO Standards	.90 – 1.10	15.0 or less	0.98 – 1.03	-.05 - +.05
Burlington	.968	9.07	1.01	-0.003

Ratio Summary Statistics Section LUC

Land Use Code	Count	Median	Mean	Mean	IQR	SD	COD	COV	PRD	PRB
R1 - Single Fam	560	0.987	1.001	0.983	0.125	0.162	8.610	16.174	1.018	-0.034
R2 - 2 Family	103	1.004	1.021	1.009	0.147	0.132	9.192	12.938	1.012	-0.050
R3 - 3 Family	37	0.932	0.980	0.965	0.100	0.143	9.712	14.546	1.016	-0.065
RC - Res Condo	354	0.942	0.919	0.905	0.118	0.119	8.707	12.938	1.016	-0.025
Combined	1054	0.968	0.975	0.962	0.114	0.145	9.073	14.881	1.013	-0.003

Ratio Summary Statistics Section Neighborhood

NBHD	Count	Median	Mean	Mean	IQR	SD	COD	COV	PRD	PRB
DT6	1	0.930	0.930	0.930	0.000		0.000		1.000	0.000
DWTH	9	0.748	0.759	0.746	0.209	0.160	14.134	21.110	1.017	0.043
DWTL	81	0.928	0.907	0.891	0.170	0.109	8.912	11.987	1.018	-0.254
DWTM	5	0.961	0.953	0.950	0.023	0.019	0.964	1.946	1.003	-0.035
DWTMH	5	0.992	0.997	0.985	0.166	0.085	6.703	8.575	1.013	-0.200
DWTMLC	7	0.952	0.978	0.953	0.213	0.245	15.622	25.046	1.027	0.015
DWTSC	32	0.969	0.986	0.974	0.059	0.139	5.531	14.090	1.013	-0.013
DWTWVH	23	0.906	0.890	0.885	0.109	0.078	6.622	8.713	1.005	0.003
DWTWVM	17	0.955	0.925	0.917	0.097	0.106	7.302	11.498	1.009	-0.013
LVT9	2	0.791	0.791	0.835	0.372	0.263	23.540	33.291	0.948	0.456
NHS6	45	0.989	0.991	0.975	0.126	0.101	7.905	10.217	1.016	-0.138
NNE1	1	0.984	0.984	0.984	0.000		0.000		1.000	0.000
NNE3	265	0.999	1.007	1.000	0.121	0.110	7.710	10.884	1.007	-0.051
NNE5	32	0.998	1.068	1.030	0.118	0.323	12.668	30.283	1.037	-0.443
NNE6	23	1.015	1.084	1.032	0.087	0.441	14.415	40.650	1.050	-0.354
NNEL	29	0.963	0.924	0.912	0.099	0.110	8.124	11.869	1.013	-0.331
NNEM	25	0.919	0.892	0.881	0.176	0.114	9.207	12.831	1.012	-0.230
NNEMLV	7	0.949	0.935	0.923	0.092	0.069	5.311	7.387	1.013	-0.231
NNESC	13	0.947	0.939	0.935	0.077	0.051	4.277	5.402	1.004	-0.043
NNEWV	27	0.948	0.936	0.923	0.097	0.106	8.049	11.290	1.013	-0.261
ONE3	140	0.975	0.996	0.982	0.140	0.153	10.482	15.346	1.014	-0.055
SE5	101	0.974	0.984	0.972	0.110	0.119	7.903	12.112	1.013	-0.136
SE6	11	0.971	0.974	0.965	0.093	0.061	4.654	6.263	1.009	-0.199
SE8	5	0.931	0.960	0.960	0.104	0.065	4.487	6.806	1.001	0.032
SEH	17	0.945	0.947	0.922	0.148	0.130	9.622	13.708	1.027	-0.342
SEL	30	0.937	0.895	0.880	0.264	0.132	11.230	14.761	1.017	-0.201
SEM	21	0.939	0.914	0.904	0.121	0.099	7.889	10.849	1.010	-0.164
SESC	2	0.977	0.977	0.970	0.036	0.025	1.843	2.606	1.008	-0.030
SEWF	4	0.906	0.891	0.884	0.163	0.087	7.833	9.793	1.008	-1.001
SHS8	35	1.028	1.023	1.008	0.118	0.109	8.050	10.675	1.015	-0.084

UVM5	17	0.965	0.972	0.970	0.067	0.061	4.506	6.239	1.002	-0.026
UVM6	10	0.983	0.972	0.968	0.093	0.049	4.354	5.000	1.004	-0.076
WF10	12	0.995	0.957	0.925	0.183	0.160	11.530	16.729	1.035	-0.074
Combined	1054	0.968	0.975	0.962	0.114	0.142	9.073	14.539	1.013	-0.003

Ratio Summary Statistics Section Building Type

Building Type	Count	Median	Mean	Mean	IQR	SD	COD	COV	PRD	PRB
BUNGELOW	5	0.994	1.004	0.976	0.174	0.118	6.993	11.706	1.029	-0.135
CAPE	117	0.980	0.991	0.976	0.119	0.109	7.596	10.984	1.015	-0.064
COLONIAL	115	1.001	1.028	0.999	0.120	0.271	10.556	26.374	1.030	-0.058
CONDO	1	0.933	0.933	0.933	0.000		0.000		1.000	0.000
CONTEMPORARY	18	1.019	1.025	0.960	0.157	0.189	12.757	18.412	1.067	-0.156
CUSTOM	1	0.970	0.970	0.970	0.000		0.000		1.000	0.000
DECKER	4	0.924	0.903	0.902	0.229	0.123	8.951	13.653	1.001	0.254
DUPLEX	10	1.060	1.032	0.993	0.257	0.170	12.687	16.495	1.040	-0.390
FLAT	135	0.948	0.916	0.898	0.139	0.121	9.005	13.210	1.020	-0.026
FOUR	13	1.024	1.013	0.999	0.164	0.104	8.211	10.307	1.015	-0.205
MULTI	3	1.374	1.205	1.165	0.507	0.293	12.309	24.312	1.034	-1.980
OLD	202	0.977	0.993	0.980	0.145	0.136	9.634	13.694	1.013	-0.055
OTHER	16	0.929	0.943	0.912	0.170	0.243	14.630	25.798	1.034	-0.158
RAISED	25	0.993	0.989	0.982	0.124	0.083	6.706	8.434	1.007	-0.251
RANCH	169	0.995	1.003	0.994	0.100	0.105	6.732	10.456	1.009	-0.049
SALTBOX	2	1.041	1.041	1.029	0.160	0.113	7.694	10.881	1.012	-0.473
SMALL	9	0.972	0.962	0.957	0.065	0.036	2.885	3.705	1.004	-0.013
SPLTLVL	4	1.006	1.002	0.999	0.077	0.042	2.568	4.217	1.004	-0.121
TOWNHS	191	0.933	0.918	0.908	0.115	0.105	8.291	11.457	1.011	-0.019
TRIPLEX	2	1.098	1.098	1.086	0.270	0.191	12.275	17.360	1.011	-2.765
TUDOR	2	0.964	0.964	0.968	0.087	0.062	4.520	6.392	0.996	0.261
VICTORIAN	9	0.936	0.928	0.934	0.072	0.068	4.809	7.374	0.994	0.053
Combined	1053	0.968	0.975	0.962	0.114	0.144	9.080	14.775	1.013	-0.003

Ratio Summary Statistics Section Quality

Quality	Count	Median	Mean	Mean	IQR	SD	COD	COV	PRD	PRB
A	356	0.961	0.959	0.950	0.112	0.162	9.704	16.898	1.010	0.014
A-	220	0.995	1.002	0.995	0.102	0.111	7.027	11.117	1.008	-0.023
A+	121	0.981	0.987	0.979	0.137	0.117	9.039	11.868	1.008	-0.016
E	1	0.970	0.970	0.970	0.000		0.000		1.000	0.000
E-	3	0.855	0.848	0.796	0.225	0.112	8.760	13.268	1.065	-0.138
E+	2	0.942	0.942	0.943	0.002	0.001	0.109	0.155	1.000	0.009
F	11	0.960	1.035	1.044	0.078	0.172	10.679	16.604	0.992	0.122
F-	3	1.041	0.997	0.981	0.481	0.243	15.394	24.417	1.017	-0.033
F+	86	0.979	0.989	0.975	0.144	0.130	9.236	13.161	1.014	-0.068
G	135	0.953	0.947	0.946	0.103	0.127	8.886	13.366	1.000	0.037
G-	66	0.966	0.973	0.967	0.092	0.090	6.907	9.227	1.007	-0.024
G+	20	0.999	0.976	0.984	0.164	0.110	8.486	11.274	0.992	0.076
VG	7	0.963	1.197	0.969	0.314	0.842	42.185	70.370	1.235	-0.754
VG -	6	0.956	0.963	0.969	0.143	0.085	6.713	8.798	0.994	0.170
VG+	15	0.906	0.886	0.878	0.109	0.092	7.442	10.380	1.009	-0.027
X-	1	0.977	0.977	0.977	0.000		0.000		1.000	0.000
Combined	1053	0.968	0.975	0.962	0.114	0.147	9.080	15.134	1.013	-0.003

Ratio Summary Statistics Section Condition

Condition	Count	Median	Mean	Mean	IQR	SD	COD	COV	PRD	PRB
AG	123	0.953	0.959	0.956	0.110	0.118	8.566	12.254	1.004	0.009
AV	437	0.971	0.975	0.965	0.116	0.155	9.656	15.930	1.011	0.004
EX	25	0.950	0.948	0.938	0.088	0.106	7.417	11.171	1.011	-0.005
FA	38	1.011	1.029	1.002	0.089	0.148	8.103	14.355	1.027	-0.129
FR	49	1.004	1.017	1.013	0.103	0.142	9.366	13.986	1.004	0.050
GD	271	0.963	0.973	0.964	0.110	0.165	8.670	16.998	1.009	0.021
GV	50	0.948	0.966	0.954	0.101	0.114	7.167	11.812	1.012	-0.028
PR	3	0.975	0.950	0.958	0.132	0.070	4.521	7.323	0.992	0.155
VG	56	0.958	0.961	0.936	0.098	0.152	8.410	15.860	1.027	-0.038
VP	1	0.864	0.864	0.864	0.000		0.000		1.000	0.000
Combined	1053	0.968	0.975	0.962	0.114	0.150	9.080	15.356	1.013	-0.003

Hearings

- The number of appeals only includes residential properties.
- Commercial property valuation appeals were the responsibility of the SOA Inc

Hearing Results	Total
Number of residential & condominium hearings	1,563
Number of data changes as a result of a hearing	900
Changes in value as a Percent	57.5%

Sold vs Unsold Test

	SUM TOT ASSESSED VALUE	SUM TOT PRE VALUE	Median % Change ratio	
SOLD	567,657,730	365,020,395	1.544	0.008
UNSOLD	3,203,095,302	2,058,218,335	1.537	

Homestead vs Non-Homestead Test.

	SUM TOTAL ASSESSED VALUE	SUM TOTAL PREVIOUS VALUE	Median % Change ratio	
HOMESTEAD	3,652,165,423	2,344,273,781	1.540	0.096
NON HOMESTEAD	118,587,609	78,964,949	1.444	

Public Disclosure

Beginning in April of 2021, "Notice of Tentative Value" letters were sent to each tax-paying property owner. The notice provided tentative valuation for all taxable properties. Informal parcel reviews were held beginning April 24, 2021, through May 21, 2021. A total of 2,003 parcels were reviewed during informal reviews, representing 18.4% of the total taxable parcels.

Conclusion

This Mass Appraisal Report is being provided to the City of Burlington, Vermont by Tyler Technologies, Inc., CLT Appraisal Services, as a summary of the work performed during the City of Burlington, Vermont 2021 reassessment project. This report is intended to complement, but not replace, the supporting materials that have been provided to the City of Burlington, Vermont Assessor throughout the project in the form of status reports, training manuals and procedures.

This summary report will serve to define and summarize the standards followed to document the process associated with the data collection, review, and analysis and reporting necessary to render a credible opinion of value(s) in accordance with law and Standards 5 and 6 of the Uniform Standards of Professional Appraisal Practice.

Where appropriate, references have been made to supporting material available through the City of Burlington, Vermont City Assessor.

As outlined in this report, the mass appraisal of approximately 10,381 parcels of property must be accomplished through the careful and methodical collection and analysis of data.

The International Association of Assessing Officers (IAAO) has developed stringent guidelines and standards to which appraisers for the City of Burlington, Vermont reassessment project have strictly adhered. As a result, the assessed values determined through this mass appraisal project are the most equitable possible and are a solid foundation for maintaining a fair and equitable assessment roll for the City of Burlington, Vermont. I certify that, to the best of my knowledge and belief:

The statements of fact contained in this report are true and correct.

The reported analyses, opinions, and conclusions are limited only by the reported assumptions and Limiting conditions, and are my personal, impartial, and unbiased professionally analyses, opinions, and conclusions.

I have no (or the specified) present or prospective interest in the property(s) that is the subject of this report, and I have no (or the specified) personal interest with respect to the parties involved.

I have no bias with respect to any property that is the subject of this report or to the parties involved with this assignment.

Any services regarding the subject performed by the appraiser within the three-year period immediately preceding acceptance of the assignment, as an appraiser or in any other capacity is identified in the body of the report.

My engagement in this assignment was not contingent upon developing or reporting predetermined results.

My compensation for completing this assignment is not contingent upon the reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.

My analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice. (USPAP)

I have not made a personal inspection of the properties that are the subject of this report.

Blane A. Bowlin

Tyler Technologies, Inc.

Appraisal Project Manager

Definitions

Ad valorem tax - in reference to property, a tax based upon the value of the property. The mathematical calculation involved in determining an individual's tax liability is a function of three key components: the taxable amount (assessed value less exemptions= taxable amount), the funding requirement of each taxing jurisdiction in which the property is located, and most importantly, the proportional taxable value of the property in relation to the taxable value of all properties (residential, agricultural, commercial, industrial, utilities, etc.) within each taxing jurisdiction.

Adjustments - Modifications in the reported value of a variable, such as sale price. For example, adjustments can be used to estimate market value in the sales comparison approach by modifications for differences between comparable and subject properties. Note: Adjustments are applied to the characteristics of the comparable properties in a particular sequence that depends on the method of adjustment selected.

Amenities - in reference to property, the intangible benefits arising out of ownership; amenity value refers to the enhancement of value attributable to such amenities.

Appraisal - an estimate, usually in written form, of the value of a specifically described property as of a specified date; may be used synonymously with valuation or appraised value.

Appraisal schedules - any standardized schedules and tables used in conjunction with a reassessment program, such as replacement cost pricing schedules, depreciation tables, land depth

Appraiser - one who estimates value, more specifically, one who possesses the expertise to execute or direct the execution of an appraisal.

Assessing - the act of valuing a property for the purpose of establishing a tax base.

Assessment - the value of taxable property to which the tax rate is to be applied in order to compute the amount of taxes, may be used synonymously with assessed value, taxable value, and tax base.

Assessor - the administrator charged with the assessment of property for ad valorem taxes; his precise duties differ from state to state depending upon state statutes.

Base price - a value or unit rate established for a certain specified model and subject to adjustments to account for variations between that model and the subject property under appraisement.

Calibration - The process of estimating the coefficients in a mass appraisal model.

Coefficient - (1) In a mathematical expression, a number or letter preceding and multiplying another quantity. For example, in the expression, 5X, 5 is the coefficient of X, and in the expression as Y, a is the coefficient of Y. (2) A dimensionless statistic, useful as a measure of

change or relationship; for example, co relation coefficient. See also coefficient of dispersion and coefficient of variation.

Coefficient of dispersion - the average deviation of a group of numbers from the median expressed as a percentage of the median.

Cost approach - one of the three traditional approaches to determination of the value of a property; arrived at by estimating the value of the land, the replacement or reproduction cost new of the improvement, and the amount of accrued depreciation to the improvement. The estimated land value is then added to the estimated depreciated value of the improvements to arrive at the estimated property value. Also referred to as the "cost-to-market approach" to indicate that the value estimates are derived from market data abstraction and analysis.

Effective valuation date - in reference to a reassessment program, the date as of which the value estimate is applicable.

Equalization program - a mass appraisal (or reappraisal) of all property within a given taxing jurisdiction with the goal of equalizing values in order to assure that each taxpayer is bearing only his fair share of the tax load; may be used synonymously with a reassessment program.

Equity - in reference to property taxes, a condition in which the tax load is distributed fairly or equitably; opposite of inequity which refers to a condition characterized by an unfair or inequitable distribution of the tax burden. Inequity is a natural product of changing economic condition which can only be effectively cured by periodic equalization programs. In reference to value, it is that value of the property remaining after deducting all liens and charges against it.

Iteration – One repetition or repeated cycle in a process of estimating values, as close as possible to actual values by repeated approximations. The results of each approximation are used in the next one.

Market approach - one of the three traditional approaches to determination of the value of a property; arrived at b compiling data on recently sold properties which are comparable to the subject property and adjusting their selling prices to account for variations in time, location, and property characteristics between the comps and the subject property.

Market value - the price an informed and intelligent buyer, fully aware of the existence of competing properties, and not compelled to act, would be justified in paying for a particular property.

Mass appraisal - appraisal of property on a mass scale - such as an entire community, generally for ad valorem tax purposes, using standardized appraisal techniques and procedures to accomplish uniform equitable valuations with a minimum of detail, within a limited time period, and at a limited cost...as opposed to a fee appraisal which is generally used to refer to a rather extensive, detailed appraisal of a single property or singularly used properties for a specified purpose.

Model - For purposes of appraisal, a representation (in words or an equation) that explains the relationship between value or estimated sale price and variables representing factors of supply and demand.

Model calibration - The development of adjustments, or coefficients based on market analysis, that identifies specific factors with an actual effect on market value.

Model specification - The formal development of a model in a statement or equation, based on data analysis and appraisal theory.

Multiple regression analysis - A particular statistical technique, similar to correlation, used to analyze data in order to predict the value of one variable (the dependent variable), such as market value, from the known values of other variables (called "independent variables"), such as lot size, number of rooms, and so on. If only one independent variable is used, the procedure is called simple regression analysis and differs from correlation analysis only in that correlation measures the strength of relationship, whereas regression predicts the value of one variable from the value of the other.

Neighborhood - a geographical area exhibiting a high degree of homogeneity in residential amenities, land use, economic and social trends, and housing characteristics.

Outliers - Observations that have unusual values, that is, they differ markedly from a measure of central tendency. Some outliers occur naturally; others are due to data errors.

Parcel - piece of land held in one ownership.

Property class - a division of like properties generally defined by statutes and generally based upon their present use. The basis for establishing assessment ratios in a classified property assessment system.

Property record card - a document specially designed to record, and process specified property data; may serve as a source document, a processing form, and/or a permanent property record.

Real estate - the physical land and appurtenances affixed thereto; often used synonymously with real property.

Real property - all the interests, benefits, and rights enjoyed by the ownership of the real estate.

Reconciliation – The final step in the valuation process wherein consideration is given to the relative strengths and weaknesses of the three approaches to value, the nature of the property appraised, and the quantity and quality of available data in formation of an overall opinion of value (either a single point estimate or a range of value). Also termed correlation in some texts,

Regression coefficient – the **coefficient** calculated by the regression algorithm for the data supplied that, when multiplied by the value of the variable with which it is associate, will predict (for simple regression) or help to predict (for multiple regression) the value of the dependent variable. For example, in the equation, Value = $10,000 + $5,000 + number of rooms, is a regression coefficient.

Regression line – The line on a graph that represents the relationship defined by the regression coefficient. For example, the line from the relationship given in the definition of regression coefficient would cross the Y- axis at the value $10,000 and would go up $5,000 for each movement of 1 to the right. This example Illustrates one of the subtleties required in understanding regression analysis: in fact, there is no line, because the independent variable is not a continuous variable, but it is easier to talk about the relationship by pretending that the variable is continuous and represent the relationship by a line rather than the more nearly correct series of vertical bars on a bar chart.

Residual - The difference between an observed value and a predicted value for a dependent variable.

Sales file -file of sales data.

Sales ratio study - a statistical analysis of the distribution of assessment or appraisal-to-sale ratios of a sample of recent sales, made for the purpose of drawing inferences regarding the entire population) of parcels from which the sample was abstracted.

Slope - The change in the dependent variable associated with a change of one in the independent variable of interest. The slope is given by the coefficient of the independent variable.

Standard deviation – the statistic calculates from a set of numbers by subtracting the mean from each value and squaring the remainders, adding together all the squares, dividing by the size of the sample less one, and taking the square root of the result. When the data are normally distributed, one can calculate the percentage of observations within any number of standard deviation of the mean from normal probability tables.

Subjective data - subjective data are items for which the proper value is a matter of judgment and more difficult to verify. Examples include construction class, condition, effective year built, neighborhood desirability and view.

Uniformity - as applied to assessing, a condition wherein all properties are assessed at the same ratio to market value, or other standard of value depending upon the assessing practices followed.

Use value - the actual value of a commodity to a specific owner, as opposed to its value in exchange or market value.

Variance - a measure of dispersion equal to the standard deviation squared.

Appendix

TABLE OF CONTENTS

STANDARD 5: MASS APPRAISAL, DEVELOPMENT

In developing a mass appraisal, an appraiser must be aware of, understand, and correctly employ those recognized methods and techniques necessary to produce and communicate credible mass appraisals.

FAQ See also FAQ 117-241

Comment: STANDARD 5 applies to all mass appraisals of real or personal property regardless of the purpose or use of such appraisals.[53] STANDARD 5 is directed toward the substantive aspects of developing credible analyses, opinions, and conclusions in the mass appraisal of properties. The reporting and jurisdictional exceptions applicable to public mass appraisals prepared for ad valorem taxation do not apply to mass appraisals prepared for other purposes.

A mass appraisal includes:

1) identifying properties to be appraised;
2) defining market area of consistent behavior that applies to properties;
3) identifying characteristics (supply and demand) that affect the creation of value in that market area;
4) developing a model structure that reflects the relationship among the characteristics affecting value in the market area;
5) calibrating the model structure to determine the contribution of the individual characteristics affecting value;
6) applying the conclusions reflected in the model to the characteristics of the property(ies) being appraised; and
7) reviewing the mass appraisal results.

The JURISDICTIONAL EXCEPTION RULE may apply to several sections of STANDARD 5 because ad valorem tax administration is subject to various state, county, and municipal laws.

STANDARDS RULE 5-1

In developing a mass appraisal, an appraiser must:

(a) be aware of, understand, and correctly employ those recognized methods and techniques necessary to produce a credible mass appraisal;

Comment: Mass appraisal provides for a systematic approach and uniform application of appraisal methods and techniques to obtain estimates of value that allow for statistical review and analysis of results.

This requirement recognizes that the principle of change continues to affect the manner in which appraisers perform mass appraisals. Changes and developments in the real property and personal property fields have a substantial impact on the appraisal profession.

To keep abreast of these changes and developments, the appraisal profession is constantly reviewing and revising appraisal methods and techniques and devising new methods and techniques to meet new circumstances. For this reason it is not sufficient for appraisers to simply maintain the skills and the knowledge they possess when they become appraisers. Each appraiser must continuously improve his or her skills to remain proficient in mass appraisal.

(b) not commit a substantial error of omission or commission that significantly affects a mass appraisal; and

Comment: An appraiser must use sufficient care to avoid errors that would significantly affect his or her opinions and conclusions. Diligence is required to identify and analyze the factors, conditions, data, and other information that would have a significant effect on the credibility of the assignment results.

53 See Advisory Opinion 32, *Ad Valorem Property Tax Appraisal and Mass Appraisal Assignments*.

(c) not render a mass appraisal in a careless or negligent manner.

Comment: Perfection is impossible to attain, and competence does not require perfection. However, an appraiser must not render appraisal services in a careless or negligent manner. This Standards Rule requires an appraiser to use due diligence and due care.

STANDARDS RULE 5-2

In developing a mass appraisal, an appraiser must:

(a) identify the client and other intended users;[54]

Comment: It is the appraiser's responsibility to identify the client and other intended users. In ad valorem mass appraisal, the assessor, or party responsible for certification of the assessment or tax roll is required to apply the relevant law or statute and identify the client, and other intended users (if any).

(b) identify the intended use of the appraisal;[55]

Comment: An appraiser must not allow the intended use of an assignment or a client's objectives to cause the assignment results to be biased.

(c) identify the type and definition of value, and, if the value opinion to be developed is market value, ascertain whether the value is to be the most probable price:

(i) in terms of cash; or

(ii) in terms of financial arrangements equivalent to cash; or

(iii) in such other terms as may be precisely defined; and

(iv) if the opinion of value is based on non-market financing or financing with unusual conditions or incentives, the terms of such financing must be clearly identified and the appraiser's opinion of their contributions to or negative influence on value must be developed by analysis of relevant market data;

(d) identify the effective date of the appraisal;[56]

(e) identify the characteristics of the properties that are relevant to the type and definition of value and intended use,[57] including:

(i) the group with which a property is identified according to similar market influence;

(ii) the appropriate market area and time frame relative to the property being valued; and

(iii) their location and physical, legal, and economic characteristics;

Comment: The properties must be identified in general terms, and each individual property in the universe must be identified, with the information on its identity stored or referenced in its property record.

When appraising proposed improvements, an appraiser must examine and have available for future examination, plans, specifications, or other documentation sufficient to identify the extent and character of the proposed improvements.[58]

Ordinarily, proposed improvements are not appraised for ad valorem tax purposes. Appraisers, however, are sometimes asked to provide opinions of value of proposed improvements so that developers can estimate future property tax burdens. Sometimes units in condominiums and planned unit developments are sold with an interest in un-built community property, the pro rata value of which, if any, must be considered in the analysis of sales data.

54 See Advisory Opinion 36, *Identification and Disclosure of Client, Intended Use, and Intended Users.*
55 See Advisory Opinion 36, *Identification and Disclosure of Client, Intended Use, and Intended Users.*
56 See Advisory Opinion 34, *Retrospective and Prospective Value Opinions.*
57 See Advisory Opinion 23, *Identifying the Relevant Characteristics of the Subject Property of a Real Property Appraisal Assignment*, if applicable.
58 See Advisory Opinion 17, *Appraisals of Real Property with Proposed Improvements*, if applicable.

(f) identify the characteristics of the market that are relevant to the purpose and intended use of the mass appraisal including:

(i) location of the market area;

(ii) physical, legal, and economic attributes;

(iii) time frame of market activity; and

(iv) property interests reflected in the market;

(g) in appraising real property or personal property:

(i) identify the appropriate market area and time frame relative to the property being valued;

(ii) when the subject is real property, identify and consider any personal property, trade fixtures, or intangibles that are not real property but are included in the appraisal;

(iii) when the subject is personal property, identify and consider any real property or intangibles that are not personal property but are included in the appraisal;

(iv) identify known easements, restrictions, encumbrances, leases, reservations, covenants, contracts, declarations, special assessments, ordinances, or other items of similar nature; and

(v) identify and analyze whether an appraised fractional interest, physical segment or partial holding contributes pro rata to the value of the whole;

Comment: The above requirements do not obligate the appraiser to value the whole when the subject of the appraisal is a fractional interest, physical segment, or a partial holding. However, if the value of the whole is not identified, the appraisal must clearly reflect that the value of the property being appraised cannot be used to develop the value opinion of the whole by mathematical extension.

(h) analyze the relevant economic conditions at the time of the valuation, including market acceptability of the property and supply, demand, scarcity, or rarity;

(i) identify any extraordinary assumptions and any hypothetical conditions necessary in the assignment; and

Comment: An extraordinary assumption may be used in an assignment only if:

- it is required to properly develop credible opinions and conclusions;
- the appraiser has a reasonable basis for the extraordinary assumption;
- use of the extraordinary assumption results in a credible analysis; and
- the appraiser complies with the disclosure requirements set forth in USPAP for extraordinary assumptions.

A hypothetical condition may be used in an assignment only if:

- use of the hypothetical condition is clearly required for legal purposes, for purposes of reasonable analysis, or for purposes of comparison;
- use of the hypothetical condition results in a credible analysis; and
- the appraiser complies with the disclosure requirements set forth in USPAP for hypothetical conditions.

(j) determine the scope of work necessary to produce credible assignment results in accordance with the SCOPE OF WORK RULE.[59]

59 See Advisory Opinion 28, *Scope of Work Decision, Performance, and Disclosure*, and Advisory Opinion 29, *An Acceptable Scope of Work*.

STANDARDS RULE 5-3
When necessary for credible assignment results, an appraiser must:

(a) in appraising real property, identify and analyze the effect on use and value of the following factors: existing land use regulations, reasonably probable modifications of such regulations, economic supply and demand, the physical adaptability of the real estate, neighborhood trends, and highest and best use of the real estate; and

Comment: This requirement sets forth a list of factors that affect use and value. In considering neighborhood trends, an appraiser must avoid stereotyped or biased assumptions relating to race, age, color, gender, or national origin or an assumption that race, ethnic, or religious homogeneity is necessary to maximize value in a neighborhood. Further, an appraiser must avoid making an unsupported assumption or premise about neighborhood decline, effective age, and remaining life. In considering highest and best use, an appraiser must develop the concept to the extent required for a proper solution to the appraisal problem.

(b) in appraising personal property, identify and analyze the effects on use and value of industry trends, value-in-use, and trade level of personal property. Where applicable, analyze the current use and alternative uses to encompass what is profitable, legal, and physically possible, as relevant to the type and definition of value and intended use of the appraisal. Personal property has several measurable marketplaces; therefore, the appraiser must define and analyze the appropriate market consistent with the type and definition of value.

Comment: The appraiser must recognize that there are distinct levels of trade and each may generate its own data. For example, a property may have a different value at a wholesale level of trade, a retail level of trade, or under various auction conditions. Therefore, the appraiser must analyze the subject property within the correct market context.

STANDARDS RULE 5-4
In developing a mass appraisal, an appraiser must:

(a) identify the appropriate procedures and market information required to perform the appraisal, including all physical, functional, and external market factors as they may affect the appraisal;

Comment: Such efforts customarily include the development of standardized data collection forms, procedures, and training materials that are used uniformly on the universe of properties under consideration.

(b) employ recognized techniques for specifying property valuation models; and

Comment: The formal development of a model in a statement or equation is called model specification. Mass appraisers must develop mathematical models that, with reasonable accuracy, represent the relationship between property value and supply and demand factors, as represented by quantitative and qualitative property characteristics. The models may be specified using the cost, sales comparison, or income approaches to value. The specification format may be tabular, mathematical, linear, nonlinear, or any other structure suitable for representing the observable property characteristics. Appropriate approaches must be used in appraising a class of properties. The concept of recognized techniques applies to both real and personal property valuation models.

(c) employ recognized techniques for calibrating mass appraisal models.

Comment: Calibration refers to the process of analyzing sets of property and market data to determine the specific parameters of a model. The table entries in a cost manual are examples of calibrated parameters, as well as the coefficients in a linear or nonlinear model. Models must be calibrated using recognized techniques, including, but not limited to, multiple linear regression, nonlinear regression, and adaptive estimation.

STANDARDS RULE 5-5

In developing a mass appraisal, when necessary for credible assignment results, an appraiser must:

(a) collect, verify, and analyze such data as are necessary and appropriate to develop:

(i) the cost new of the improvements;

(ii) depreciation;

(iii) value of the land by sales of comparable properties;

(iv) value of the property by sales of comparable properties;

(v) value by capitalization of income or potential earnings (i.e., rentals, expenses, interest rates, capitalization rates, and vacancy data);

Comment: This Standards Rule requires appraisers engaged in mass appraisal to take reasonable steps to ensure that the quantity and quality of the factual data that are collected are sufficient to produce credible appraisals. For example, in real property, where applicable and feasible, systems for routinely collecting and maintaining ownership, geographic, sales, income and expense, cost, and property characteristics data must be established. Geographic data must be contained in as complete a set of cadastral maps as possible, compiled according to current standards of detail and accuracy. Sales data must be collected, confirmed, screened, adjusted, and filed according to current standards of practice. The sales file must contain, for each sale, property characteristics data that are contemporaneous with the date of sale. Property characteristics data must be appropriate and relevant to the mass appraisal models being used. The property characteristics data file must contain data contemporaneous with the date of appraisal including historical data on sales, where appropriate and available. The data collection program must incorporate a quality control program, including checks and audits of the data to ensure current and consistent records.

(b) base estimates of capitalization rates and projections of future rental rates and/or potential earnings capacity, expenses, interest rates, and vacancy rates on reasonable and appropriate evidence;[60]

Comment: This requirement calls for an appraiser, in developing income and expense statements and cash flow projections, to weigh historical information and trends, current market factors affecting such trends, and reasonably anticipated events, such as competition from developments either planned or under construction.

(c) identify and, as applicable, analyze terms and conditions of any available leases; and

(d) identify the need for and extent of any physical inspection.[61]

STANDARDS RULE 5-6

When necessary for credible assignment results in applying a calibrated mass appraisal model an appraiser must:

(a) value improved parcels by recognized methods or techniques based on the cost approach, the sales comparison approach, and income approach;

(b) value sites by recognized methods or techniques; such techniques include but are not limited to the sales comparison approach, allocation method, abstraction method, capitalization of ground rent, and land residual technique;

(c) when developing the value of a leased fee estate or a leasehold estate, analyze the effect on value, if any, of the terms and conditions of the lease;

60 See Advisory Opinion 33, *Discounted Cash Flow Analysis.*
61 See Advisory Opinion 2, *Inspection of Subject Property.*

Comment: In ad valorem taxation the appraiser may be required by rules or law to appraise the property as if in fee simple, as though unencumbered by existing leases. In such cases, market rent would be used in the appraisal, ignoring the effect of the individual, actual contract rents.

(d) analyze the effect on value, if any, of the assemblage of the various parcels, divided interests, or component parts of a property; the value of the whole must not be developed by adding together the individual values of the various parcels, divided interests, or component parts; and

Comment: When the value of the whole has been established and the appraiser seeks to value a part, the value of any such part must be tested by reference to appropriate market data and supported by an appropriate analysis of such data.

(e) when analyzing anticipated public or private improvements, located on or off the site, analyze the effect on value, if any, of such anticipated improvements to the extent they are reflected in market actions.

STANDARDS RULE 5-7
In reconciling a mass appraisal an appraiser must:

(a) reconcile the quality and quantity of data available and analyzed within the approaches used and the applicability and relevance of the approaches, methods and techniques used; and

(b) employ recognized mass appraisal testing procedures and techniques to ensure that standards of accuracy are maintained.

Comment: It is implicit in mass appraisal that, even when properly specified and calibrated mass appraisal models are used, some individual value conclusions will not meet standards of reasonableness, consistency, and accuracy. However, appraisers engaged in mass appraisal have a professional responsibility to ensure that, on an overall basis, models produce value conclusions that meet attainable standards of accuracy. This responsibility requires appraisers to evaluate the performance of models, using techniques that may include but are not limited to, goodness-of-fit statistics, and model performance statistics such as appraisal-to-sale ratio studies, evaluation of hold-out samples, or analysis of residuals.

TABLE OF CONTENTS

STANDARD 6: MASS APPRAISAL, REPORTING

In reporting the results of a mass appraisal, an appraiser must communicate each analysis, opinion, and conclusion in a manner that is not misleading.

FAQ See also FAQ 242-304

Comment: STANDARD 6 addresses the content and level of information required in a report that communicates the results of a mass appraisal.

STANDARD 6 does not dictate the form, format, or style of mass appraisal reports. The form, format, and style of a report are functions of the needs of intended users and appraisers. The substantive content of a report determines its compliance.

STANDARDS RULE 6-1

Each written report of a mass appraisal must:

(a) clearly and accurately set forth the appraisal in a manner that will not be misleading;

(b) contain sufficient information to enable the intended users of the appraisal to understand the report properly; and

Comment: Documentation for a mass appraisal for ad valorem taxation may be in the form of (1) property records, (2) sales ratios and other statistical studies, (3) appraisal manuals and documentation, (4) market studies, (5) model building documentation, (6) regulations, (7) statutes, and (8) other acceptable forms.

(c) clearly and accurately disclose all assumptions, extraordinary assumptions, hypothetical conditions, and limiting conditions used in the assignment.

Comment: The report must clearly and conspicuously:

- state all extraordinary assumptions and hypothetical conditions; and
- state that their use might have affected the assignment results.

STANDARDS RULE 6-2

Each written report of a mass appraisal must:

(a) state the identity of the client, unless the client has specifically requested otherwise; state the identity of any intended users by name or type;[62]

Comment: An appraiser must use care when identifying the client to avoid violations of the Confidentiality section of the ETHICS RULE. If a client requests that the client's identity be withheld from the report, the appraiser may comply with this request. In these instances, the appraiser must document the identity of the client in the workfile and must state in the report that the identity of the client has been withheld at the client's request.

(b) state the intended use of the appraisal;[63]

(c) disclose any assumptions or limiting conditions that result in deviation from recognized methods and techniques or that affect analyses, opinions, and conclusions;

(d) state the effective date of the appraisal and the date of the report;

Comment: In ad valorem taxation the effective date of the appraisal may be prescribed by law. If no effective date is prescribed by law, the effective date of the appraisal, if not stated, is presumed to be contemporaneous with the data and appraisal conclusions.

62 See Advisory Opinion 36, *Identification and Disclosure of Client, Intended Use, and Intended Users.*
63 See Advisory Opinion 36, *Identification and Disclosure of Client, Intended Use, and Intended Users.*

The effective date of the appraisal establishes the context for the value opinion, while the date of the report indicates whether the perspective of the appraiser on the market and property as of the effective date of the appraisal was prospective, current, or retrospective.[64]

(e) state the type and definition of value and cite the source of the definition;

Comment: Stating the type and definition of value also requires any comments needed to clearly indicate to intended users how the definition is being applied.[65]

When reporting an opinion of market value, state whether the opinion of value is:

- In terms of cash or of financing terms equivalent to cash; or
- Based on non-market financing with unusual conditions or incentives.

When an opinion of market value is not in terms of cash or based on financing terms equivalent to cash, summarize the terms of such financing and explain their contributions to or negative influence on value.

(f) state the properties appraised including the property rights;

Comment: The report documents the sources for location, describing and listing the property. When applicable, include references to legal descriptions, addresses, parcel identifiers, photos, and building sketches. In mass appraisal this information is often included in property records. When the property rights to be appraised are specified in a statute or court ruling, the law must be referenced.

(g) summarize the scope of work used to develop the appraisal;[66] exclusion of the sales comparison approach, cost approach, or income approach must be explained;

Comment: Because intended users' reliance on an appraisal may be affected by the scope of work, the report must enable them to be properly informed and not misled. Sufficient information includes disclosure of research and analyses performed and might also include disclosure of research and analyses not performed.

When any portion of the work involves significant mass appraisal assistance, the appraiser must describe the extent of that assistance. The signing appraiser must also state the name(s) of those providing the significant mass appraisal assistance in the certification, in accordance with Standards Rule 6-3.[67]

(h) summarize and support the model specification(s) considered, data requirements, and the model(s) chosen;

Comment: The appraiser must provide sufficient information to enable the client and intended users to have confidence that the process and procedures used conform to accepted methods and result in credible value conclusions. In the case of mass appraisal for ad valorem taxation, stability and accuracy are important to the credibility of value opinions. The report must include a summary of the rationale for each model, the calibration techniques to be used, and the performance measures to be used.

(i) summarize the procedure for collecting, validating, and reporting data;

Comment: The report must summarize the sources of data and the data collection and validation processes. Reference to detailed data collection manuals or electronic records must be made, as appropriate, including where they may be found for inspection.

(j) summarize calibration methods considered and chosen, including the mathematical form of the final model(s); summarize how value conclusions were reviewed; and, if necessary, state the availability and location of individual value conclusions;

64 See Advisory Opinion 34, *Retrospective and Prospective Value Opinions.*
65 See Advisory Opinion 34, *Retrospective and Prospective Value Opinions.*
66 See Advisory Opinion 28, *Scope of Work Decision, Performance, and Disclosure* and Advisory Opinion 29, *An Acceptable Scope of Work.*
67 See Advisory Opinion 31, *Assignments Involving More than One Appraiser.*

(k) when an opinion of highest and best use, or the appropriate market or market level was developed, summarize how that opinion was determined;

Comment: The mass appraisal report must reference case law, statute, or public policy that describes highest and best use requirements. When actual use is the requirement, the report must discuss how use-value opinions were developed. The appraiser's reasoning in support of the highest and best use opinion must be provided in the depth and detail required by its significance to the appraisal.

(l) identify the appraisal performance tests used and the performance measures attained;

(m) summarize the reconciliation performed, in accordance with Standards Rule 5-7; and

(n) include a signed certification in accordance with Standards Rule 6-3.

STANDARDS RULE 6-3

Each written mass appraisal report must contain a signed certification that is similar in content to the following form:

I certify that, to the best of my knowledge and belief:

- **the statements of fact contained in this report are true and correct.**
- **the reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, impartial, and unbiased professional analyses, opinions, and conclusions.**
- **I have no (or the specified) present or prospective interest in the property that is the subject of this report, and I have no (or the specified) personal interest with respect to the parties involved.**
- **I have performed no (or the specified) services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of this assignment.**
- **I have no bias with respect to any property that is the subject of this report or to the parties involved with this assignment.**
- **my engagement in this assignment was not contingent upon developing or reporting predetermined results.**
- **my compensation for completing this assignment is not contingent upon the reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.**
- **my analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the *Uniform Standards of Professional Appraisal Practice*.**
- **I have (or have not) made a personal inspection of the properties that are the subject of this report. (If more than one person signs the report, this certification must clearly specify which individuals did and which individuals did not make a personal inspection of the appraised property.)[68]**
- **no one provided significant mass appraisal assistance to the person signing this certification. (If there are exceptions, the name of each individual providing significant mass appraisal assistance must be stated.)**

Comment: The above certification is not intended to disturb an elected or appointed assessor's work plans or oaths of office. A signed certification is an integral part of the appraisal report. An appraiser, who signs any part of the mass appraisal report, including a letter of transmittal, must also sign this certification.

In an assignment that includes only assignment results developed by the real property appraiser(s), any appraiser(s) who signs a certification accepts full responsibility for all elements of the certification, for the assignment results, and for the contents of the appraisal report. In an assignment that includes personal property assignment results not developed by the real property appraiser(s), any real property appraiser(s) who signs a certification accepts full responsibility for the real property elements of the certification, for the real property assignment results, and for the real property contents of the appraisal report.

68 See Advisory Opinion 2, *Inspection of Subject Property.*

In an assignment that includes only assignment results developed by the personal property appraiser(s), any appraiser(s) who signs a certification accepts full responsibility for all elements of the certification, for the assignment results, and for the contents of the appraisal report. In an assignment that includes real property assignment results not developed by the personal property appraiser(s), any personal property appraiser(s) who signs a certification accepts full responsibility for the personal property elements of the certification, for the personal property assignment results, and for the personal property contents of the appraisal report.

When a signing appraiser(s) has relied on work done by appraisers and others who do not sign the certification, the signing appraiser is responsible for the decision to rely on their work. The signing appraiser(s) is required to have a reasonable basis for believing that those individuals performing the work are competent. The signing appraiser(s) also must have no reason to doubt that the work of those individuals is credible.

The names of individuals providing significant mass appraisal assistance who do not sign a certification must be stated in the certification. It is not required that the description of their assistance be contained in the certification, but disclosure of their assistance is required in accordance with Standards Rule 6-2(g).[69]

69 See Advisory Opinion 31, *Assignments Involving More than One Appraiser.*

CITY OF BURLINGTON
Office of the Assessor
149 Church Street, Room 17
Burlington, VT 05401

residentialassessor@burlingtonvt.gov

John Vickery
Assessor

GOLDING, SETH B
12 WEED RD
ESSEX JUNCTION, VT 05452

Dear Homeowner,

The City of Burlington is conducting a city-wide reassessment of all real property for the fiscal year 2021/2022. Tyler Technologies is the firm that has been hired to perform this project.

This letter is to inform you that a data collector with Tyler Technologies may be visiting you to inspect your property. You will be contacted before any inspection is conducted.

Please see the attached data mailer which contains the data we currently have on record for your property. If you find incorrect data please make the necessary corrections to the incorrect data only, there is no need to complete the entire form. You can submit the corrected data to the Assessor's Office using one of the following options:

1. Use this link: https://www.burlingtonvt.gov/assessor/residential to access a blank fillable form on our website that you may use to enter corrected property data.
2. Make corrections on the enclosed data mailer form and scan the corrected form to the following email address: residentialassessor@burlingtonvt.gov
3. Make corrections on the enclosed data mailer form and return the form by mail to the address at the top of this letter, or alternatively you may hand deliver to our office.

The City is requesting your cooperation in collecting this necessary data to help ensure that everyone pays only their fair share of property taxes.

Each Tyler employee has undergone a background check prior to the start of this project and is required to wear bright yellow vests and display their city identification upon initial greeting at your door. If you have any questions that pertain to the data collector's identity or the process itself, you may contact Tyler Technologies, at 802-540-0316

We look forward to your cooperation in this regard leading to a successful reassessment of all real property in the City of Burlington.

John Vickery
City Assessor

CITY OF BURLINGTON

Office of the Assessor

149 Church Street, Room 17
Burlington, VT 05401

residentialassessor@burlingtonvt.gov

GOLDING, SETH B
12 WEED RD
ESSEX JUNCTION, VT 05452

LUC: R2

Parcel ID: 005-3-001-000
Property Address: 80 CHASE ST

Sales Information

Sale Date: 4/15/2016 Sale Price: 300000

Detached Structures

Type: SHED/FR Size: 264

Building Information

	CITY DATA	OWNER CORRECTIONS		CITY DATA	OWNER CORRECTIONS
Number of Living Units	2		Fireplaces	0	
Style	OLD STYLE		Total Rooms	11	
Year Built	1899		Bedrooms	5	
Story Height	2		Full Baths (3 fixture)	2	
Attic Area	0		Half Baths (2 fixture)	0	
Fin Attic Area/Type***	0	/	Basement Area	1152	
Heating System	HOT AIR		Fin Bsmt Area% /Type***	0	/
Heating Fuel	GAS		Total Living Area	2526	
Central Air Conditioning %	0				

Please refer to the EXPLANATION page included with this form for finished basement type and finished attic type and enter the corresponding number next to the finished basement and or finished attic area number

If you are returning this mailer with corrections or additional information, please write your name, date, and daytime phone number and email address as we may need to contact you for clarifications or an inspection.

Name: _____

Daytime Phone Number: _____ **Email Address:** _____

Please check if you wish to request an inspection of your property ☐

Comments:

_____

_____

_____

_____

Calculation Table : Depreciation Creation

Table:	R	Description:	RESIDENTIAL
Max Age:	50	Create Table:	Auto
Min Dep for AV:	0	Max Dep for AV:	40
Min Dep for EX:	0	Max Dep for DL:	95
Average Created:	Linear	%Per Year for L,S,Q:	0.60

Factors from AV for:	EX	VG	GV	GD	AG	AV	FA	FR	PR	VP	DL
	0.10	0.39	0.42	0.73	0.91	1.00	1.15	1.50	1.55	2.32	2.84

AGE	EX	VG	GV	GD	AG	AV	FA	FR	PR	VP	DL
1	0	0	0	0	1	1	1	1	1	1	2
2	0	0	1	1	1	1	1	2	2	3	3
3	0	1	1	1	2	2	2	3	3	4	5
4	0	1	1	2	2	2	3	4	4	6	7
5	0	1	1	2	3	3	3	5	5	7	9
6	0	1	1	3	3	4	4	5	6	8	10
7	0	2	2	3	4	4	5	6	7	10	12
8	0	2	2	4	4	5	6	7	7	11	14
9	1	2	2	4	5	5	6	8	8	13	15
10	1	2	2	4	5	6	7	9	9	14	17
11	1	3	3	5	6	7	8	10	10	15	19
12	1	3	3	5	7	7	8	11	11	17	20
13	1	3	3	6	7	8	9	12	12	18	22
14	1	3	3	6	8	8	10	13	13	19	24
15	1	4	4	7	8	9	10	14	14	21	26
16	1	4	4	7	9	10	11	14	15	22	27
17	1	4	4	7	9	10	12	15	16	24	29
18	1	4	4	8	10	11	12	16	17	25	31
19	1	4	5	8	10	11	13	17	18	26	32
20	1	5	5	9	11	12	14	18	19	28	34
21	1	5	5	9	11	13	14	19	20	29	36
22	1	5	5	10	12	13	15	20	20	31	37
23	1	5	6	10	13	14	16	21	21	32	39
24	1	6	6	11	13	14	17	22	22	33	41
25	2	6	6	11	14	15	17	23	23	35	43
26	2	6	6	11	14	16	18	23	24	36	44
27	2	6	7	12	15	16	19	24	25	38	46
28	2	7	7	12	15	17	19	25	26	39	48
29	2	7	7	13	16	17	20	26	27	40	49
30	2	7	7	13	16	18	21	27	28	42	51
31	2	7	8	14	17	19	21	28	29	43	53
32	2	7	8	14	17	19	22	29	30	45	55
33	2	8	8	15	18	20	23	30	31	46	56
34	2	8	8	15	19	20	23	31	32	47	58
35	2	8	9	15	19	21	24	32	33	49	60
36	2	8	9	16	20	22	25	32	33	50	61
37	2	9	9	16	20	22	26	33	34	52	63
38	2	9	9	17	21	23	26	34	35	53	65
39	2	9	10	17	21	23	27	35	36	54	66
40	2	9	10	18	22	24	28	36	37	56	68
41	2	10	10	18	22	25	28	37	38	57	70
42	3	10	10	18	23	25	29	38	39	58	72
43	3	10	11	19	23	26	30	39	40	60	73
44	3	10	11	19	24	26	30	40	41	61	75
45	3	11	12	20	25	27	31	41	42	63	77
46	3	11	12	20	25	28	32	41	43	64	78
47	3	11	13	21	26	28	32	42	44	65	80
48	3	11	13	21	26	29	33	42	45	67	82
49	3	11	14	22	27	29	34	43	46	68	84
50	3	12	14	22	27	30	35	43	47	70	85

Calculation Table : Depreciation Creation

Table:	X	Description:	CONDO
Max Age:	40	Create Table:	Manual
Min Dep for AV:	0	Max Dep for AV:	40
Min Dep for EX:	0	Max Dep for DL:	90
Average Created:	Linear	%Per Year for L,S,Q:	0.75

Factors from AV for:	EX	VG	GV	GD	AG	AV	FA	FR	PR	VP	DL
	0.25	0.45		0.80		1.00		1.25	1.80	2.50	3.50

AGE	EX	VG	GV	GD	AG	AV	FA	FR	PR	VP	DL
1	0	0		1		1		1	1	2	3
2	0	1		1		2		2	3	4	5
3	1	1		2		2		3	4	6	8
4	1	1		2		3		4	5	8	11
5	1	2		3		4		5	7	10	13
6	1	2		4		5		6	8	11	16
7	1	2		4		5		7	9	13	18
8	2	3		5		6		8	11	15	21
9	2	3		5		7		9	12	17	24
10	2	3		6		8		9	14	19	26
11	2	4		7		8		10	15	21	29
12	2	4		7		9		11	16	23	32
13	3	4		8		10		12	18	25	34
14	3	5		8		11		13	19	26	37
15	3	5		9		11		14	20	28	39
16	3	5		10		12		15	22	30	42
17	3	6		10		13		16	23	32	45
18	3	6		11		14		17	24	34	47
19	4	6		11		14		18	26	36	50
20	4	7		12		15		19	27	38	53
21	4	7		13		16		20	28	40	55
22	4	7		13		17		21	30	41	58
23	4	8		14		17		22	31	43	60
24	5	8		14		18		23	32	45	63
25	5	9		15		19		24	34	47	66
26	5	9		16		20		24	35	49	68
27	5	9		16		20		25	36	51	71
28	5	10		17		21		26	38	53	74
29	5	10		17		22		27	39	55	76
30	6	10		18		23		28	41	56	79
31	6	10		19		23		29	42	58	81
32	6	11		19		24		30	43	60	84
33	6	11		20		25		31	45	62	87
34	6	12		20		26		32	46	64	89
35	7	12		21		26		33	47	66	90
36	7	12		22		27		34	49	68	90
37	7	13		22		28		35	50	70	90
38	7	13		23		29		36	51	71	90
39	7	13		23		29		37	53	73	90
40	8	14		24		30		38	54	75	90

Calculation Table : Depreciation Creation

Table:	M	Description:	MULTI-FAMILY
Max Age:	50	Create Table:	Manual
Min Dep for AV:	0	Max Dep for AV:	30
Min Dep for EX:	0	Max Dep for DL:	85
Average Created:	Linear	%Per Year for L,S,Q:	0.60

Factors from AV for:	EX	VG	GV	GD	AG	AV	FA	FR	PR	VP	DL
	0.50	0.67		0.83		1.00		1.33	1.67	2.33	2.83

AGE	EX	VG	GV	GD	AG	AV	FA	FR	PR	VP	DL
1	0	0		1		1		1	1	1	2
2	1	1		1		1		2	2	3	3
3	1	1		1		2		2	3	4	5
4	1	2		2		2		3	4	6	7
5	2	2		2		3		4	5	7	8
6	2	2		3		4		5	6	8	10
7	2	3		3		4		6	7	10	12
8	2	3		4		5		6	8	11	14
9	3	4		4		5		7	9	13	15
10	3	4		5		6		8	10	14	17
11	3	4		5		7		9	11	15	19
12	4	5		6		7		10	12	17	20
13	4	5		6		8		10	13	18	22
14	4	6		7		8		11	14	20	24
15	5	6		7		9		12	15	21	25
16	5	6		8		10		13	16	22	27
17	5	7		8		10		14	17	24	29
18	5	7		9		11		14	18	25	31
19	6	8		9		11		15	19	27	32
20	6	8		10		12		16	20	28	34
21	6	8		10		13		17	21	29	36
22	7	9		11		13		18	22	31	37
23	7	9		11		14		18	23	32	39
24	7	10		12		14		19	24	34	41
25	8	10		12		15		20	25	35	42
26	8	10		13		16		21	26	36	44
27	8	11		13		16		22	27	38	46
28	8	11		14		17		22	28	39	48
29	9	12		14		17		23	29	41	49
30	9	12		15		18		24	30	42	51
31	9	12		15		19		25	31	43	53
32	10	13		16		19		26	32	45	54
33	10	13		16		20		26	33	46	56
34	10	14		17		20		27	34	48	58
35	11	14		17		21		28	35	49	59
36	11	14		18		22		29	36	50	61
37	11	15		18		22		30	37	52	63
38	11	15		19		23		30	38	53	65
39	12	16		19		23		31	39	55	66
40	12	16		20		24		32	40	56	68
41	12	16		20		25		33	41	57	70
42	13	17		21		25		34	42	59	71
43	13	17		21		26		34	43	60	73
44	13	18		22		26		35	44	62	75
45	14	18		22		27		36	45	63	76
46	14	18		23		28		37	46	64	78
47	14	19		23		28		38	47	66	80
48	14	19		24		29		38	48	67	82
49	15	20		24		29		39	49	69	83
50	15	20		25		30		40	50	70	85

BURLINGTON, VT

Calculation Table : Depreciation Creation

Table:	MH	Description:	MOBILE HOME
Max Age:	50	Create Table:	Manual
Min Dep for AV:	1	Max Dep for AV:	70
Min Dep for EX:	0	Max Dep for DL:	90
Average Created:	Linear	%Per Year for L,S,Q:	1.95

Factors from AV for:	EX	VG	GV	GD	AG	AV	FA	FR	PR	VP	DL
	0.25	0.45		0.85		1.00		1.15	1.50	2.20	3.00

AGE	EX	VG	GV	GD	AG	AV	FA	FR	PR	VP	DL
1	0	1		2		3		5	7	10	30
2	1	2		3		6		7	10	15	40
3	1	3		5		8		9	13	20	45
4	2	4		7		9		11	15	25	50
5	2	4		8		11		13	18	30	55
6	3	5		10		15		16	21	35	60
7	3	6		12		18		18	24	40	65
8	4	7		13		21		20	27	45	70
9	4	8		15		25		22	29	50	80
10	5	9		17		28		24	32	53	90
11	5	10		18		32		26	35	57	90
12	6	11		20		35		29	38	60	90
13	6	11		22		38		31	41	63	90
14	7	12		23		42		33	43	67	90
15	7	13		25		45		35	46	70	90
16	8	14		27		45		37	49	73	90
17	8	15		28		46		39	52	77	90
18	9	16		30		46		42	55	80	90
19	9	17		31		46		44	58	83	90
20	10	18		33		47		46	60	87	90
21	10	18		35		47		48	63	90	90
22	11	19		36		47		50	66	90	90
23	11	20		38		47		52	69	90	90
24	12	21		40		48		55	72	90	90
25	12	22		41		48		57	74	90	90
26	13	23		43		50		59	77	90	90
27	13	24		45		52		61	80	90	90
28	14	25		46		55		63	82	90	90
29	14	25		48		57		65	85	90	90
30	15	26		50		60		68	88	90	90
31	15	27		51		63		70	90	90	90
32	16	28		53		65		72	90	90	90
33	16	29		55		68		74	90	90	90
34	17	30		56		70		76	90	90	90
35	17	31		58		73		78	90	90	90
36	18	33		59		75		81	90	90	90
37	18	34		60		75		81	90	90	90
38	18	36		60		75		81	90	90	90
39	18	37		61		75		81	90	90	90
40	18	39		62		75		81	90	90	90
41	18	40		63		75		81	90	90	90
42	18	42		64		75		81	90	90	90
43	18	43		64		75		81	90	90	90
44	18	44		66		75		81	90	90	90
45	18	45		66		75		81	90	90	90
46	18	46		67		75		81	90	90	90
47	18	47		68		75		81	90	90	90
48	18	48		68		75		81	90	90	90
49	18	49		69		75		81	90	90	90
50	18	50		70		75		81	90	90	90

$$TotalValue = (\sum_{1}^{LandLines}((\sum_{1}^{3}((\frac{StandardSize}{ActualSize} \times \frac{CurvePercent}{100} + (1 - \frac{CurvePercent}{100})) \times PricePerUnit \times UnitsInInterval)$$
$$+LandBaseValue) \times NeighborhoodFactor \times LandUseCodeFactor \times NeighborhoodModifier \times LandTypeFactor$$
$$\times((1 + \frac{InfluenceCode1}{100}) \times (1 + \frac{InfluenceCode2}{100}) \times (1 + \frac{InfluenceCode3}{100})) + LandLumpSum)$$
$$+((\sum_{1}^{TotalNumberOfSubAreas}((BuildingRate \times (StoryHeightFactor \times FoundationTypeFactor \times FrameTypeFactor$$
$$\times(PrimeExteriorWallTypeFactor \times (1 - SecondaryExteriorWallTypePercent) + SecondaryWallTypeFactor$$
$$\times SecondaryWallTypePercent) \times RoofStructureFactor \times RoofMaterialFactor \times ViewCodeFactor$$
$$\times(PrimeInteriorWallTypeFactor \times (1 - SecondaryInteriorWallTypePercent) + SecondaryInteriorWallTypeFactor$$
$$\times SecondaryInteriorWallTypePercent) \times ParitionIndexFactor \times (PrimeFloorTypeFactor \times (1$$
$$-SecondaryFloorTypePercent) + SecondaryFloorTypeFactor \times SecondaryFloorTypePercent) \times BasementFloorTypeFactor$$
$$\times ElectricTypeFactor \times InsulationTypeFactor \times PlumbingTypeFactor \times HeatingFuelTypeFactor$$
$$\times(PrimeHeatingSystemTypeFactor \times (1 - SecondaryHeatingSystemTypePercent) + SecondaryHeatingSystemTypeFactor$$
$$\times SecondaryHeatingSystemTypePercent) \times (1 - (\frac{PercentCommonWall}{100} \times \frac{PercentOff}{100})) \times (1 + (AverageHeightPerFloor$$
$$-HeightPerFloor) \times PercentUnit)) \times (\frac{StandardSize}{ActualSize} \times \frac{CurvePercent}{100} + (1 - \frac{CurvePercent}{100})) \times SubAreaPriceFactor$$
$$\times AlternateTypeFactor) \times (SubAreaSquareFootage \times AdjustedSketchedAreaFactor \times PercentAlternateType))$$
$$+((FirstFullBathValue + ((MainFullBathUnits - 1) \times FullBathValue)) \times FullBathRating + (AdditionalFullBathUnits$$
$$\times AdditionalFullBathValue) \times AdditionalFullBathRating + (FullBathLumpSum \times TotalFullBathUnits))$$
$$+((FirstThreeQuarterBathValue + ((MainThreeQuarterBathUnits - 1) \times ThreeQuarterBathValue))$$
$$\times ThreeQuarterBathRating + (AdditionalThreeQuarterBathUnits \times AdditionalThreeQuarterBathValue)$$
$$\times AdditionalThreeQuarterBathRating + (ThreeQuarterBathLumpSum * TotalThreeQuarterBathUnits))$$
$$+((FirstHalfBathValue + ((MainHalfBathUnits - 1) \times HalfBathValue)) \times HalfBathRating$$
$$+(AdditionalHalfBathUnits \times AdditionalHalfBathValue) \times AdditionalHalfBathRating + (HalfBathLumpSum$$
$$\times TotalHalfBathUnits)) + ((FirstOtherFixtureValue + ((OtherFixtureUnits - 1) \times OtherFixtureValue))$$
$$\times OtherFixtureRating + (OtherFixtureLumpSum \times OtherFixtureUnits)) + ((FirstKitchenValue + ((MainKitchenUnits$$
$$-1) \times KitchenValue)) \times KitchenRating + (AdditionalKitchenUnits \times AdditionalKitchenValue) \times AdditionalKitchenRating$$
$$+(KitchenLumpSum * TotalKitchenUnits)) + ((FirstFireplaceValue + ((FireplaceUnits - 1) \times FireplaceValue))$$
$$\times FireplaceRating + (FireplaceLumpSum \times TotalFireplaceUnits)) + ((FirstWoodStoveFluesValue$$
$$+((WoodStoveFluesUnits - 1) \times WoodStoveFluesValue)) \times WoodStoveFluesRating + (WoodStoveFluesLumpSum$$
$$\times TotalWoodStoveFluesUnits)) + (FirstBasementGarageValue + ((BasementGarageUnits - 1) \times BasementGarageValue))$$
$$+(FirstHeatSystemValue + ((HeatSystemUnits - 1) \times HeatSystemValue)) - ((100 - HeatPercent) \times BaseHeatedValue$$
$$+(HeatedUnitPrice \times FinishedArea \times (100 - HeatPercent))) + (ACPercent \times BaseACValue + (ACUnitPrice$$
$$\times FinishedArea \times ACPercent)) + (SolarHotWaterFlag \times BaseSolarHotWaterValue + (SolarHotWaterUnitPrice$$
$$\times FinishedArea \times SolarHotWaterFlag)) + (SprinklerPercent \times BaseSprinklerValue + (SprinklerUnitPrice \times FinishedArea$$
$$\times SprinklerPercent)) + (CentralVacumFlag \times BaseCentralVacumValue + (CentralVacumUnitPrice \times FinishedArea$$
$$\times CentralVacumFlag))) \times GradeFactor \times NeighborhoodInfluence) \times (1 - \frac{Condition \times Functional \times Economic \times Special}{100})$$
$$+\sum_{1}^{NumberOfSpecialFeatures}((Quantity \times Units) \times (UnitPrice \times (\frac{StandardSize}{ActualSize} \times \frac{CurvePercent}{100} + (1 - \frac{CurvePercent}{100}))$$
$$\times Quality \times LandUseCodeFactor \times NeighborhoodFactor \times NeighborhoodModifier) \times ((1 - Depreciation) \times PercentComplete))$$
$$+\sum_{1}^{NumberOfOutbuildings}((Quantity \times Units) \times (UnitPrice \times (\frac{StandardSize}{ActualSize} \times \frac{CurvePercent}{100} + (1 - \frac{CurvePercent}{100})) \times Quality$$
$$\times LandUseCodeFactor \times NeighborhoodFactor \times NeighborhoodModifier) \times ((1 - Depreciation) \times PercentComplete)))$$
$$\times JurisdictionalFactor$$

$$TotalValue = (\sum_{1}^{LandLines}((\sum_{1}^{3}((\frac{StandardSize}{ActualSize} \times \frac{CurvePercent}{100} + (1 - \frac{CurvePercent}{100})) \times PricePerUnit \times UnitsInInterval)$$
$$+LandBaseValue) \times NeighborhoodFactor \times LandUseCodeFactor \times NeighborhoodModifier \times LandTypeFactor$$
$$\times((1 + \frac{InfluenceCode1}{100}) \times (1 + \frac{InfluenceCode2}{100}) \times (1 + \frac{InfluenceCode3}{100})) + LandLumpSum)$$
$$+((\sum_{1}^{TotalNumberOfSubAreas}((BuildingRate \times (StoryHeightFactor \times FoundationTypeFactor \times FrameTypeFactor$$
$$\times(PrimeExteriorWallTypeFactor \times (1 - SecondaryExteriorWallTypePercent) + SecondaryWallTypeFactor$$
$$\times SecondaryWallTypePercent) \times RoofStructureFactor \times RoofMaterialFactor \times ViewCodeFactor$$
$$\times(PrimeInteriorWallTypeFactor \times (1 - SecondaryInteriorWallTypePercent) + SecondaryInteriorWallTypeFactor$$
$$\times SecondaryInteriorWallTypePercent) \times ParitionIndexFactor \times (PrimeFloorTypeFactor \times (1$$
$$-SecondaryFloorTypePercent) + SecondaryFloorTypeFactor \times SecondaryFloorTypePercent) \times BasementFloorTypeFactor$$
$$\times ElectricTypeFactor \times InsulationTypeFactor \times PlumbingTypeFactor \times HeatingFuelTypeFactor$$
$$\times(PrimeHeatingSystemTypeFactor \times (1 - SecondaryHeatingSystemTypePercent) + SecondaryHeatingSystemTypeFactor$$
$$\times SecondaryHeatingSystemTypePercent) \times (1 - (\frac{PercentCommonWall}{100} \times \frac{PercentOff}{100})) \times (1 + (AverageHeightPerFloor$$
$$-HeightPerFloor) \times PercentUnit)) \times (\frac{StandardSize}{ActualSize} \times \frac{CurvePercent}{100} + (1 - \frac{CurvePercent}{100})) \times SubAreaPriceFactor$$
$$\times AlternateTypeFactor) \times (SubAreaSquareFootage \times AdjustedSketchedAreaFactor \times PercentAlternateType))$$
$$+((FirstFullBathValue + ((MainFullBathUnits - 1) \times FullBathValue)) \times FullBathRating + (AdditionalFullBathUnits$$
$$\times AdditionalFullBathValue) \times AdditionalFullBathRating + (FullBathLumpSum \times TotalFullBathUnits))$$
$$+((FirstThreeQuarterBathValue + ((MainThreeQuarterBathUnits - 1) \times ThreeQuarterBathValue))$$
$$\times ThreeQuarterBathRating + (AdditionalThreeQuarterBathUnits \times AdditionalThreeQuarterBathValue)$$
$$\times AdditionalThreeQuarterBathRating + (ThreeQuarterBathLumpSum * TotalThreeQuarterBathUnits))$$
$$+((FirstHalfBathValue + ((MainHalfBathUnits - 1) \times HalfBathValue)) \times HalfBathRating$$
$$+(AdditionalHalfBathUnits \times AdditionalHalfBathValue) \times AdditionalHalfBathRating + (HalfBathLumpSum$$
$$\times TotalHalfBathUnits)) + ((FirstOtherFixtureValue + ((OtherFixtureUnits - 1) \times OtherFixtureValue))$$
$$\times OtherFixtureRating + (OtherFixtureLumpSum \times OtherFixtureUnits)) + ((FirstKitchenValue + ((MainKitchenUnits$$
$$-1) \times KitchenValue)) \times KitchenRating + (AdditionalKitchenUnits \times AdditionalKitchenValue) \times AdditionalKitchenRating$$
$$+(KitchenLumpSum * TotalKitchenUnits)) + ((FirstFireplaceValue + ((FireplaceUnits - 1) \times FireplaceValue))$$
$$\times FireplaceRating + (FireplaceLumpSum \times TotalFireplaceUnits)) + ((FirstWoodStoveFluesValue$$
$$+((WoodStoveFluesUnits - 1) \times WoodStoveFluesValue)) \times WoodStoveFluesRating + (WoodStoveFluesLumpSum$$
$$\times TotalWoodStoveFluesUnits)) + (FirstBasementGarageValue + ((BasementGarageUnits - 1) \times BasementGarageValue))$$
$$+(FirstHeatSystemValue + ((HeatSystemUnits - 1) \times HeatSystemValue)) - ((100 - HeatPercent) \times BaseHeatedValue$$
$$+(HeatedUnitPrice \times FinishedArea \times (100 - HeatPercent))) + (ACPercent \times BaseACValue + (ACUnitPrice$$
$$\times FinishedArea \times ACPercent)) + (SolarHotWaterFlag \times BaseSolarHotWaterValue + (SolarHotWaterUnitPrice$$
$$\times FinishedArea \times SolarHotWaterFlag)) + (SprinklerPercent \times BaseSprinklerValue + (SprinklerUnitPrice \times FinishedArea$$
$$\times SprinklerPercent)) + (CentralVacumFlag \times BaseCentralVacumValue + (CentralVacumUnitPrice \times FinishedArea$$
$$\times CentralVacumFlag))) \times GradeFactor \times NeighborhoodInfluence) \times (1 - \frac{Condition \times Functional \times Economic \times Special}{100})$$
$$+ \sum_{1}^{NumberOfSpecialFeatures}((Quantity \times Units) \times (UnitPrice \times (\frac{StandardSize}{ActualSize} \times \frac{CurvePercent}{100} + (1 - \frac{CurvePercent}{100}))$$
$$\times Quality \times LandUseCodeFactor \times NeighborhoodFactor \times NeighborhoodModifier) \times ((1 - Depreciation) \times PercentComplete))$$
$$+ \sum_{1}^{NumberOfOutbuildings}((Quantity \times Units) \times (UnitPrice \times (\frac{StandardSize}{ActualSize} \times \frac{CurvePercent}{100} + (1 - \frac{CurvePercent}{100})) \times Quality$$
$$\times LandUseCodeFactor \times NeighborhoodFactor \times NeighborhoodModifier) \times ((1 - Depreciation) \times PercentComplete)))$$
$$\times JurisdictionalFactor$$