



2024 **REVALUATION**

Appraisal Documentation & Statistics

USPAP Compliant



City of
HAMDEN, CT

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Introduction

Date of Report

January 30, 2025

Client and Intended Users

This report is prepared for Sajida Farooqui, Chief Assessor for the City of Hamden. Other intended users include any other city employee as designated by Ms. Farooqui. No one else may rely on this report for any purpose. This report is intended to complement, but not replace, the supporting materials that have been provided to the assessor in the form of interim reports, quality audit reports, appendices, and procedural and training manuals throughout the project.

Intended Use

Use of this appraisal and its conclusions is limited to the administration of property taxes according to the governing laws of this jurisdiction.

Effective Date of the Appraisal

Pivotal to all appraisals is the determination of the "date of value". The date of value is that point in time to which all valuation is focused. All valuation data before this date is collected, analyzed, and put into various formulae, tables, and models. For Hamden's reassessment project, the effective date of value is October 1, 2024. Changes in economic trends after the date of value have no bearing on the value estimate. Although data was collected and analyzed prior to October 1, 2024, all values were finalized after this date. As is the nature of most ad valorem mass appraisals, Hamden's effective date of appraisal is, therefore, retrospective.

Scope of Work

Property is assessed at the municipal local level in Connecticut. Statute 12-63 of the Connecticut General Statutes requires that all properties be reappraised at least once every five years. To fulfill this requirement, the City of Hamden updated all property values using an October 1, 2024 effective date of value. The Town contracted with Tyler Technologies to assist the Assessor in updating assessments for the 2024 Grand List.

A mass appraisal or reappraisal is a complete and systematic valuation review of all property. There are many different types of mass reappraisal assignments. Some assignments include physical data collection consisting solely of measuring the exterior of improvements, some include measuring and inspecting the interiors, some include a drive-by verification of data, yet others include a combination of methods. For this project, Tyler technologies were to assist the assessor's office with data collection of recently sold properties and building permits, valuation of all real property, and the informal hearing process.

All three approaches to value— cost, income, and sales comparison— were considered in arriving at value conclusions for Hamden real property.

The following steps were used to conduct the reassessment:

1. Before and after IAAO performance-based testing
2. Data collection of valid sales 10/1/2023 through 9/30/2024
3. Market conditions/time adjustment study
4. Land use code sales study by units of comparison to include SP/SF, SP/UNIT
5. Analyze the national commercial market including rents, vacancies and cap rates using industry resources such as Integra, HVS, CBRE, CoStar, Marcus Millichap, NAR, Colliers Commercial, Statista, LW Hospitality Advisors, Real Capital Analytics, Cushman and Wakefield, Lodging Analytics, The Boulder Group, and PWC
6. Analyze regional and county-wide sales data using CoStar
7. Analyze the regional commercial market including rents, vacancies and cap rates using CoStar
8. Analyze the local commercial market including rents, vacancies, and cap rates using actual income and expense data supplied by property owners for 2022
9. Land use code income and expense analysis to include PGI/SF, PGI/UNIT, vacancy rates, expense rates. NOI/SF, NOI/unit
10. Selection of land use code stratification models
11. Residential cost model development
12. Commercial income and cost model development
13. Residential field review
14. Commercial desk review
15. Commercial Field Review
16. Progress meetings with the assessor and staff
17. Review of final values with assessor
18. Conduct informal hearings with property owners
19. Perform reconciliation of hearing parcels based on information provided by property owners and representatives

20. Perform statistical testing based on State of Connecticut performance standards (these standards are based on IAAO standards referenced in step 1)
21. Documentation writing and editing

Tyler Technologies is certified by the State of Connecticut to perform reappraisal work for ad valorem purposes. In addition, each of the appraisers who worked on the project is qualified to perform the duties to which they were assigned.

Significant mass appraisal assistance was given by the following appraisal professionals:

- Salim Serdah— project management
- John Valente— commercial valuation
- Drew Manlove, AAS, RES— residential and commercial valuation, informal hearings
- Carl Marshall— commercial valuation
- James Steiner— residential valuation
- Michael Bekech— commercial valuation, field review, informal hearings
- John Vickery— informal hearings

Type and Definition of Value

There are many different types of value associated with the appraisal of real property. Some of these value types include leasehold value, condemnation value, investment value, liquidation value, and market value. Some of these, such as leasehold value, seek to appraise only a portion of the interest in a property. The intent of the Hamden project was to value all the rights in realty to produce what is commonly known as a fee simple appraisal.

Most appraisals, like the Hamden Project, are predicated on market value in a fee simple context. Fee simple is defined as:

"Absolute ownership unencumbered by any other interest or estate, subject only to the limitations imposed by the governmental powers of taxation, eminent domain, police power and escheat." Dictionary of Real Estate Appraisal 6th edition, The Appraisal Institute, 2015

Market value is defined as:

"The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, the buyer and seller, each acting prudently, knowledgeably, and for self-interest, and assuming neither is under undue duress."

Dictionary of Real Estate Appraisal 6th edition, The Appraisal Institute, 2015

It is this definition that provides guidelines and boundaries to help appraisers judge whether the data collected or the value produced meets the criteria of market value.

Property Rights Appraised

As discussed above, the intent of the Hamden project was to value all the property rights in realty to produce what is commonly known as a fee simple appraisal. However, there are occasions where the fee simple rights have been divided. In most cases when both rights in realty fully reflect market rates, the summation of each of the rights equals fee simple value. Leased fee interests may exist in some cases. These lease fee interests exist when the tenant has a below or above market rent. Appraisal of any property subject to a lease condition produces a leased fee appraisal. When a lease rent is equal to market rent, then leased fee interest equals fee simple interest. Great care was taken to identify whether a property had below or above market leases causing a leased fee value. All properties were appraised with market rent and expenses thus producing a fee simple rather than a leased fee appraisal or partial interest appraisal.

Highest and Best Use

The concept of highest and best use is pivotal to the accurate appraisal of all real property. In Hamden, residential and commercial valuation was not completed until the appropriate highest and best use was chosen.

Highest and best use is defined as:

"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." Institute of Real Estate Appraisers - Real Estate Appraisal 15th edition

This definition 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.

USPAP + Mass Appraisal

The mass appraisal of real property is governed by Standards 5 and 6 of the *Uniform Standards of Professional Practice* (USPAP). This document provides the framework which governs the appraisal methodology, assumptions, and limiting conditions of the City of Hamden reassessment.

USPAP Standard 5 governs mass appraisal development. To fulfill the standard, "an appraiser must be aware of, understand, and correctly employ those recognized methods and techniques necessary to produce and communicate a credible mass appraisal" (*USPAP Rule 5-1, 2024 Edition*). Standard 5 also requires that appraisers:

- have data of a sufficient quantity and quality to produce credible values
- collect, verify, and analyze data necessary to arrive at market value
- weigh and consider historical information and market trends
- consider the use of the cost, income, and sales comparison approaches to value
- employ recognized techniques for calibrating mass appraisal models

USPAP Standard 6 governs the reporting of a mass appraisal. To fulfill the standard "a mass appraisal must clearly and accurately set forth the appraisal in a manner that will not be misleading" (*USPAP Rule 6-1, 2024 Edition*). The appraisers on this project complied with Standard 6 through the writing of this documentation and the submission to the assessor of all project status reports, analyses, studies, draft review, and final review documents.

The standards of USPAP were adhered to in the valuation of all properties during the City of Hamden's reassessment project, and copies of these standards can be found in the appendix of this document.

Assumptions, Limiting Conditions, and Jurisdictional Exceptions

The following assumptions and limiting conditions apply to the City of Hamden 2024 mass appraisal:

- This report is intended to complement, but not replace, the supporting materials that have been provided to the Assessor in the form of interim reports, quality audit reports and appendices, and procedural and training manuals throughout the project.

- The properties were assumed to be free of any and 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 in the course of 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, interior inspections have been attempted of some, but not all, parcels of property included in this report. These properties include some recent sales and properties with outstanding building permits that are perceived to affect property value.
- All data entry including, but not limited to, property transfers, table maintenance, and property characteristics information entered by the City of Hamden is assumed to be accurate and complete.
- Property inspection dates will have ranged in time from both before and after the appraisal date. 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. Property inspection data collected by either the City of Hamden or Tyler Technologies is assumed to be accurate and complete.
- 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 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 of any property to determine if 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.
- Possession of this report does not carry with it the right of reproduction, and disclosure of this report is governed by the rules and regulations of the City of Hamden, Connecticut and is subject to jurisdictional exception and the laws of the State of Connecticut.
- That all the terms and conditions of the contract between Tyler Technologies and the City of Hamden were fulfilled.

Extraordinary Assumptions and/or Hypothetical Conditions

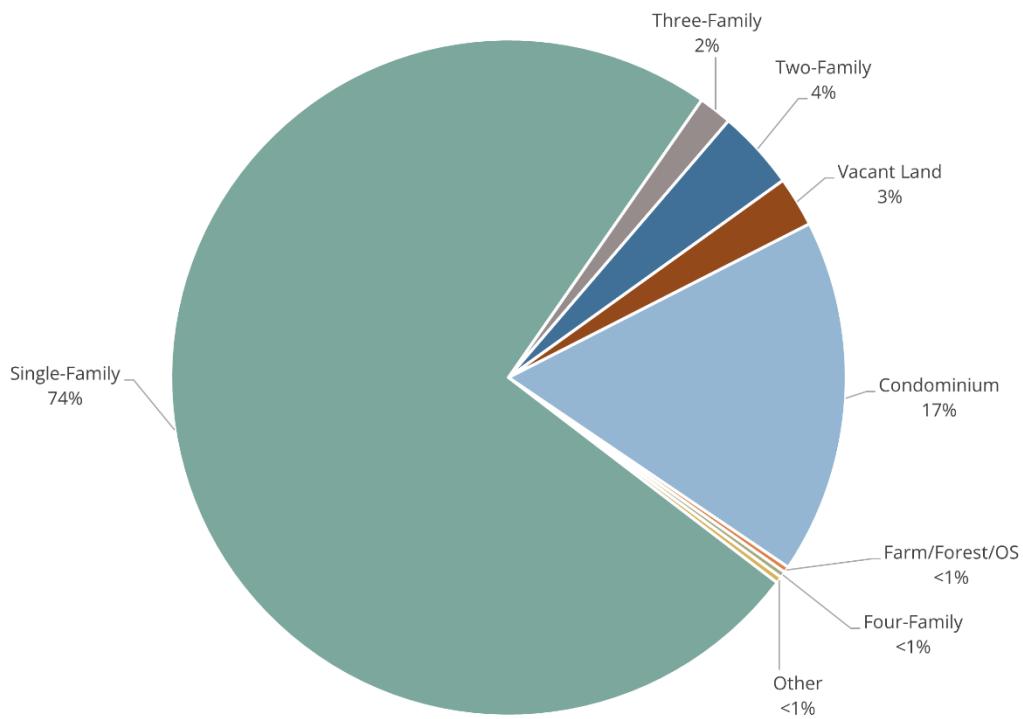
There were no extraordinary assumptions and/or hypothetical conditions used in the execution of this project.

Residential Market Analysis

Parcel Identification

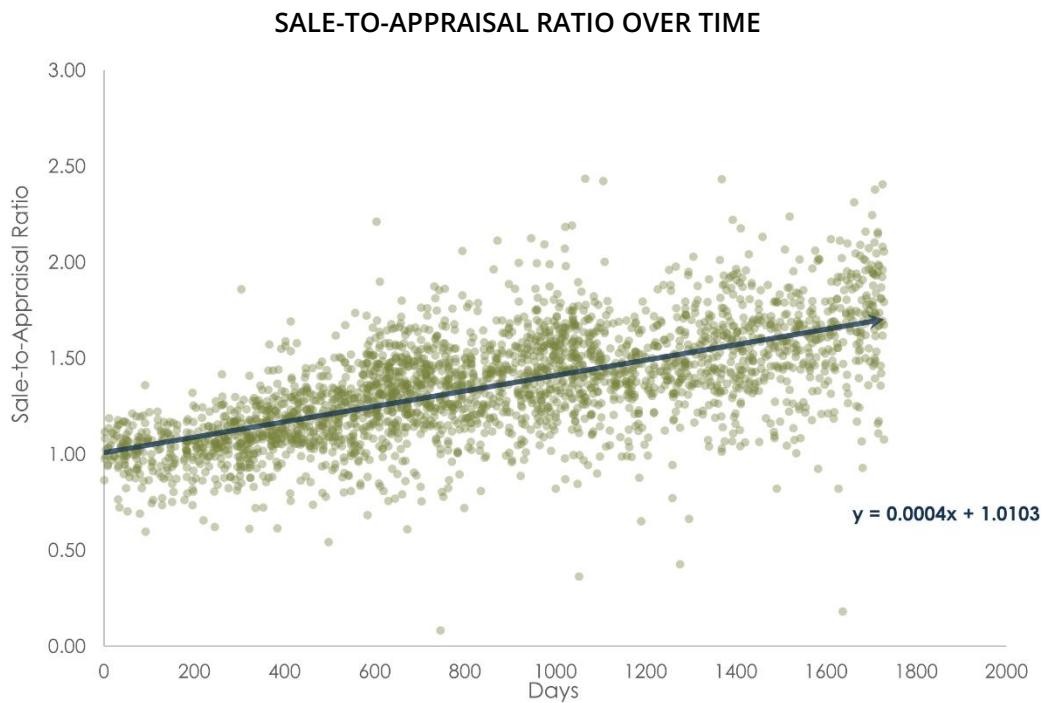
Hamden's 18,275 residential properties consist predominantly of single-family properties, with a smaller percentage of residential condominiums and two/three-family properties. The table and chart below show the parcel distribution among all residential property types.

Use Type	Parcel Count
Single-Family	13,584
Condominium	3,101
Two-Family	696
Three-Family	292
Four-Family	54
Vacant Land	438
Farm/Forest/OS	53
Other	57
Total	18,275



Market Trends

Data suggests that, since the last reappraisal, Hamden has experienced significant appreciation in residential property values. Trend analysis on sale-to-appraisal ratios from October 1, 2019 through June 24, 2024 (3,074 sales) produced the following scatter diagram:



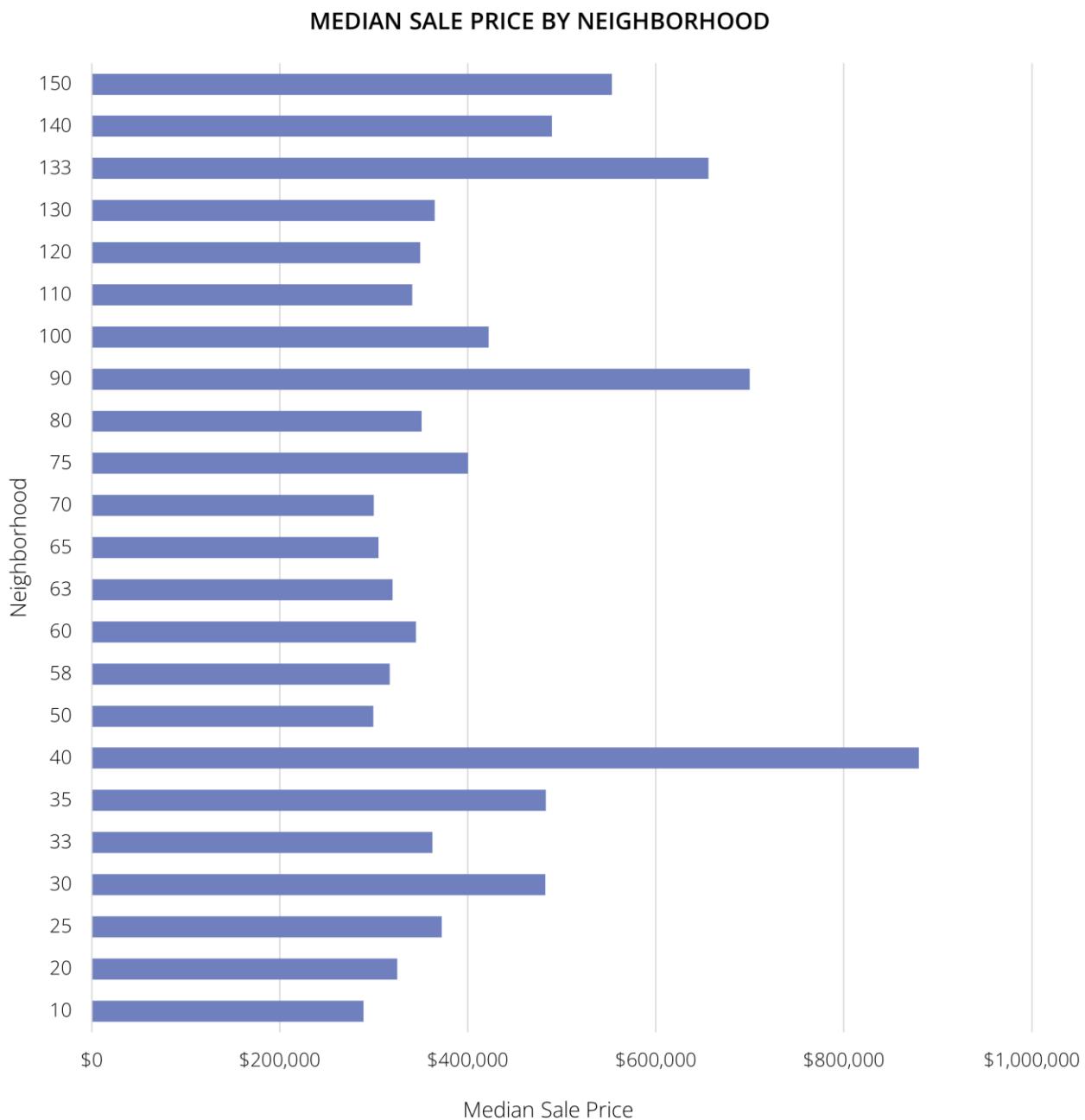
The equation $y=0.0004x+1.0103$ extracted from the trendline in the chart above indicates appreciation of 14% per year since October 2019.

The *Zillow Home Values Index* also indicates significant appreciation in the Hamden residential housing market over this same period, increasing from \$203,890 to \$332,718 (13% per year).



Source: Zillow

The chart below shows the median sale prices within each residential neighborhood from October 1, 2023 through September 30, 2024:



Commercial Market Analysis

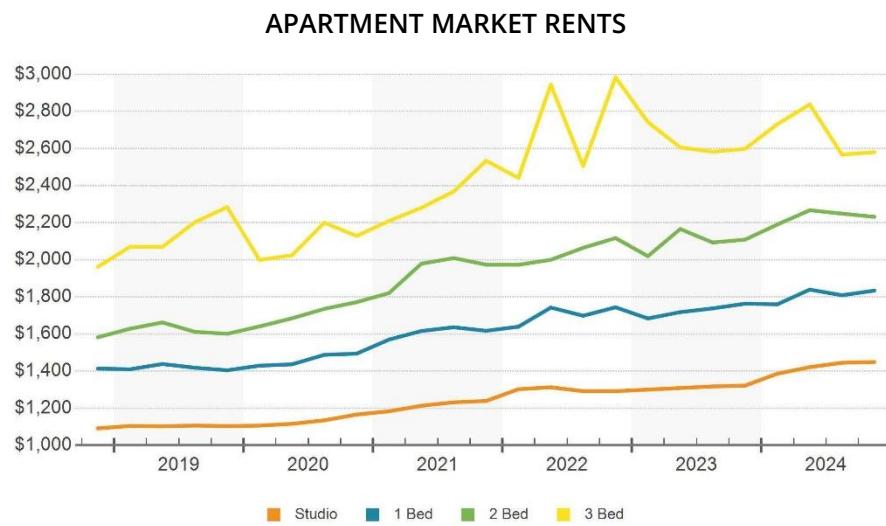
Parcel Identification

Hamden's 1,117 commercial, industrial, and apartment (CIA) properties have a greater variety of types, shapes, sizes, qualities, and values than the city's residential property. Commercial properties include a significant number of retail, restaurant, mixed-use, and commercial condos. The table below shows the parcel distribution among all CIA property types.

USE TYPE	PARCEL COUNT	USE TYPE	PARCEL COUNT	USE TYPE	PARCEL COUNT
ACC COMM LND	12	GOLF CRSE M94	4	POST OFF M94	2
ACCLND MFG	4	Group Home	1	POST OFF M96	2
APT 5 - 8	20	GROUP HOMES	1	POT DEVEL M00	16
APT CO-OP	9	HEALTH SPA	1	PRI SCHOOL	1
APT Over 8	35	HOA Cmn Space M00	3	PROF BLDG	9
ASST LIV M94	2	HOTELS	1	RAD/TV TR M00	1
AUTO REPR	41	IND BLDG	1	RAD/TV TR M96	4
AUTO V S&S	12	IND CONDO M06	79	R-D FACIL	1
BANK BLDG	9	IND LD DV	10	REST/CLUBS M94	39
BILLBOARD SITE	5	IND LD PO	1	RETAIL CNDO M06	2
Boarding Hs	2	IND LD UD	1	RIDING STB	1
CAR WASH	1	IND OFFICE	1	RTL OIL ST M00	1
CELL SITE M00	7	IND WHSES M96	60	RTL OIL ST M96	1
COM GRN HS	1	JUV DET CNTR	1	SAND&GRAVL M94	1
COMM WHSE M94	28	MANUFAC M00	1	SAND&GRAVL M96	1
COMM WHSE M96	16	MANUFAC M96	49	SELF STGE M96	7
CONDO APT BLDG	1	MEDICAL OFFICE	16	SHOPNGCTR M94	4
CONV FOOD	1	MIXED USE M01	5	SHOPNGCTR M96	2
DAY CARE	9	MIXED USE M94	147	SNF/ALF/ILF M94	6
DEVEL LAND M00	7	MIXED USE M96	8	STORE/SHOP M94	69
EDUC BLDG	3	MOTELS	3	STORE/SHOP M96	25
ELEC ROW	9	OFF CONDO M06	78	STUDENT HSNG	1
ELECSUBSTA M96	2	OFFICE BLD	1	SUBSIDIZED APT	9
FARM BLDGS M96	1	OFFICE BLD M94	86	TEL REL TW M96	1
FISH&GAME	1	OFFICE BLD M96	2	TEL X STA	7
FRATNL ORG	4	OTH IN REC	2	TRANSPORT	2
FUNERAL HM	3	OTH MTR SS	2	UNDEV LAND	22
GAS MART M94	14	OTHER CULT M94	2	VAC COM LD	1
GAS MART M96	2	OTHR OUTDR M94	1	Grand Total	1,117
GAS STA/REP M95	2	PARK LOT	48		

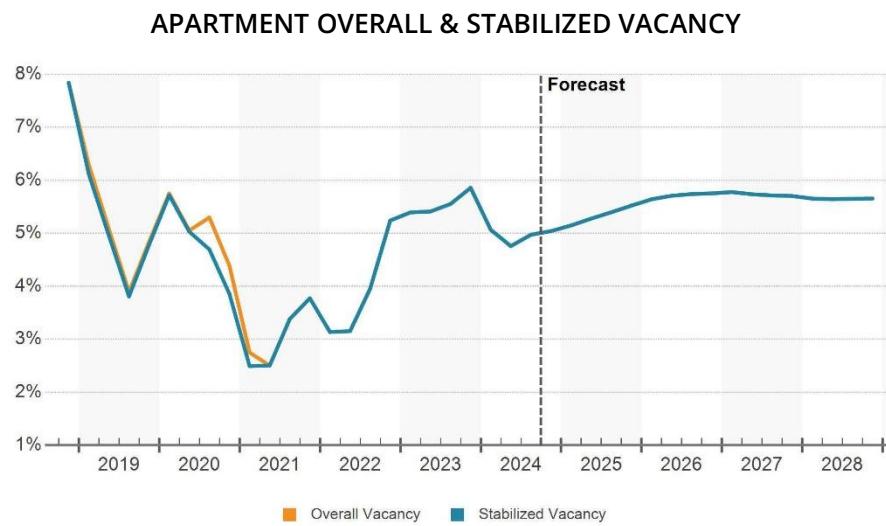
Market Trends: Apartments

For Hamden commercial, industrial, and apartment (CIA) properties, market data suggests that recent market changes vary by property type. Multi-family (apartment) properties have experienced the moderate appreciation in recent years, buoyed by increasing market rents, consistently low vacancy rates and diminished expectations for equity dividend rates. Below, CoStar submarket data show steady increases in market rent for apartments. For example, since 2019, monthly rent for one-bedroom apartments has increased from approximately \$1,400 to \$1,800.



Source: CoStar

The following chart shows vacancy rates consistently around 5% in the Hamden submarket.



Source: CoStar

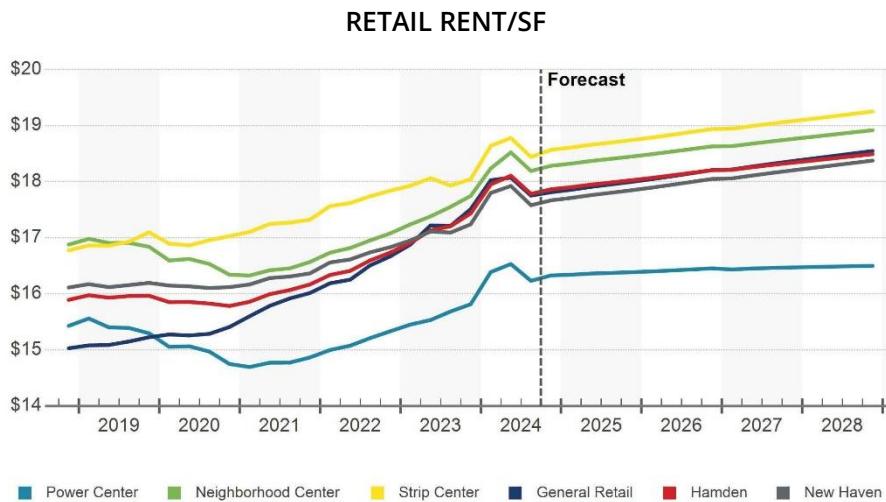
CoStar data suggests that apartment sale prices per unit have experienced a rise and fall since 2020, with a peak in early 2022. As of October 2024, prices per unit were approximately \$200,000, an increase of approximately 11% since October 2019.



Source: CoStar

Market Trends: Retail

Hamden retail properties have experienced value increases in recent years, with a forecasted peak occurring around the date of value for this project. Below, CoStar submarket data for Hamden show a steady increase in annual rent per square foot over the past five years.



Source: CoStar

The chart below shows the fluctuation in vacancy rates for different types of retail properties over the past five years. Most vacancy rates have remained below 10% during this time period.



Source: CoStar

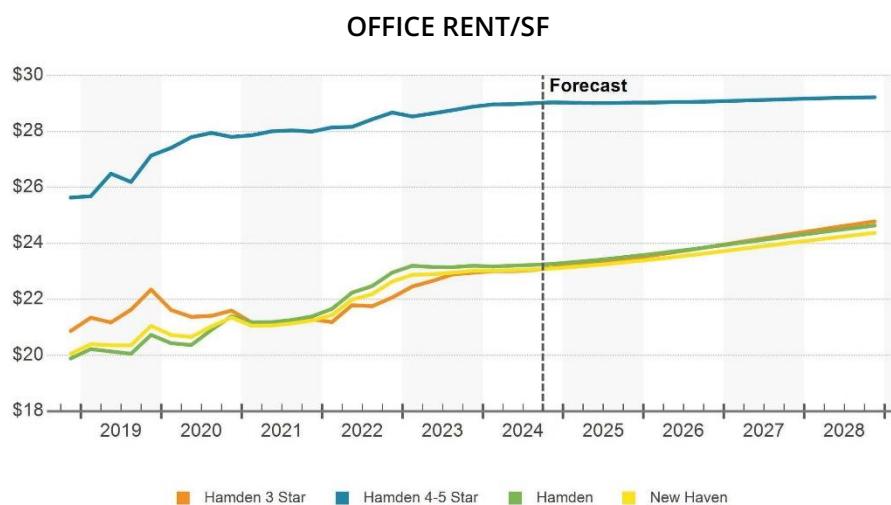
The factors described above have contributed to an increase in retail sale prices per square foot of approximately 8% since 2019. The chart below shows that submarket prices per square foot have increased from \$143 to \$155 during this period.



Source: CoStar

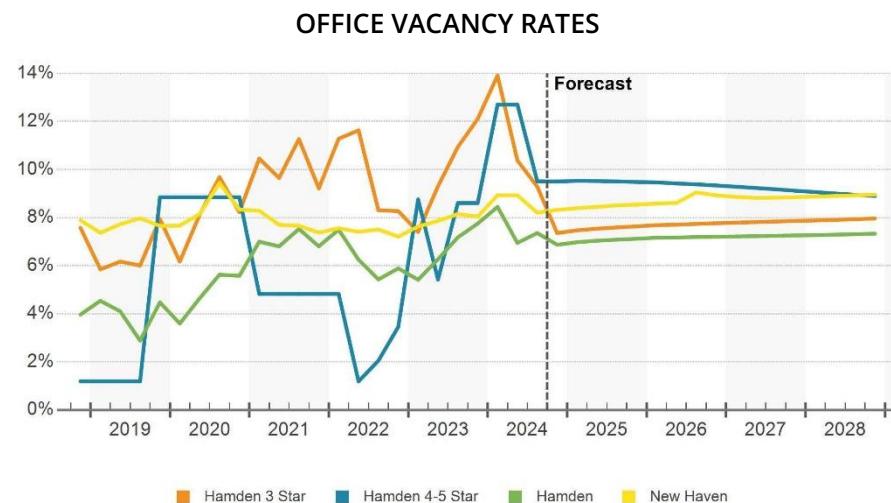
Market Trends: Offices

Market data shows that Hamden office properties have experienced recent volatility in vacancy rates and rents that is consistent with regional and national trends. These vacancy rates are difficult to forecast due to the unknown trajectory of work-from-home trends manifested or exacerbated by the COVID-19 pandemic. In the chart below, CoStar data for the Hamden submarket show rent fluctuations over the past five years.



Source: CoStar

The following chart shows recent fluctuations in Hamden office vacancy rates. Despite some volatility, overall vacancy has mostly remained below 10%.



Source: CoStar

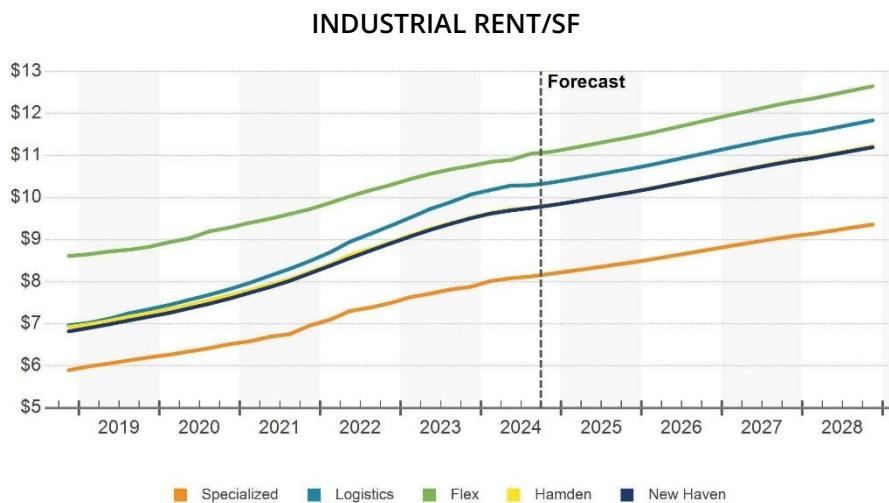
Overall, data show relatively stability in Hamden's office market with a change of only 3% since 2019. The chart below shows the fluctuation in prices per square foot for office properties in Hamden since 2019.



Source: CoStar

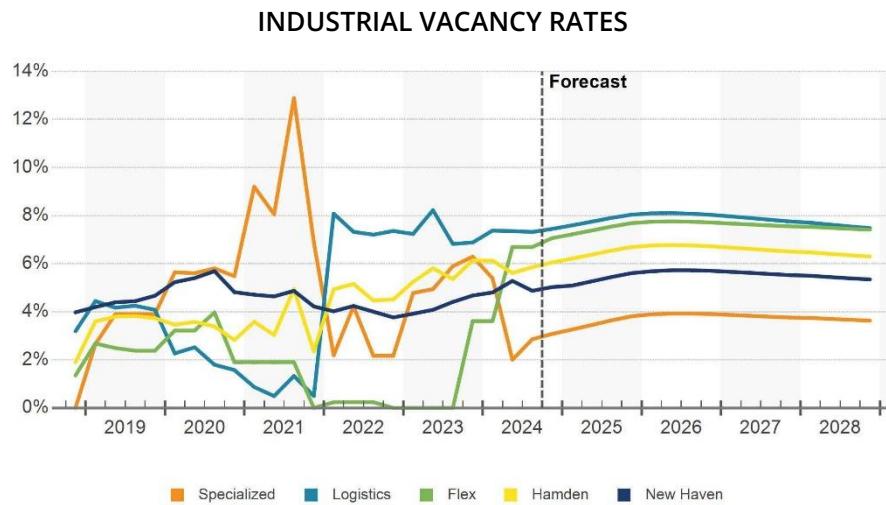
Market Trends: Industrial

Data indicate that Hamden's limited industrial market sector has seen steady appreciation in recent years due to strong demand and low risk factors. Shown below, CoStar data for the Hamden submarket show that rents increased between 30 to 40% since 2019.



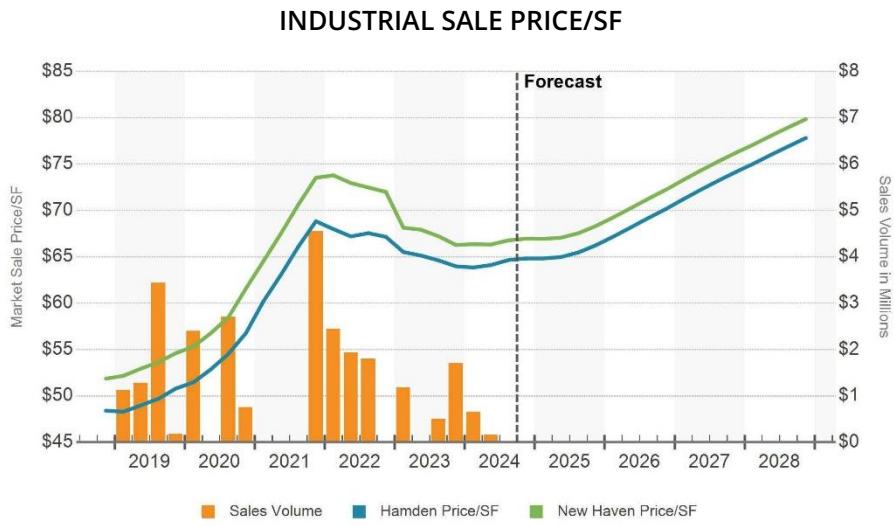
Source: CoStar

The chart below shows industrial vacancy rates for the Hamden industrial submarket.



Source: CoStar

Market data suggests that buyers have shown steady interest in the industrial submarket here. Sale prices per square foot have increased approximately 30% since 2019. The chart below shows sale prices per square foot over the past five years.



Source: CoStar

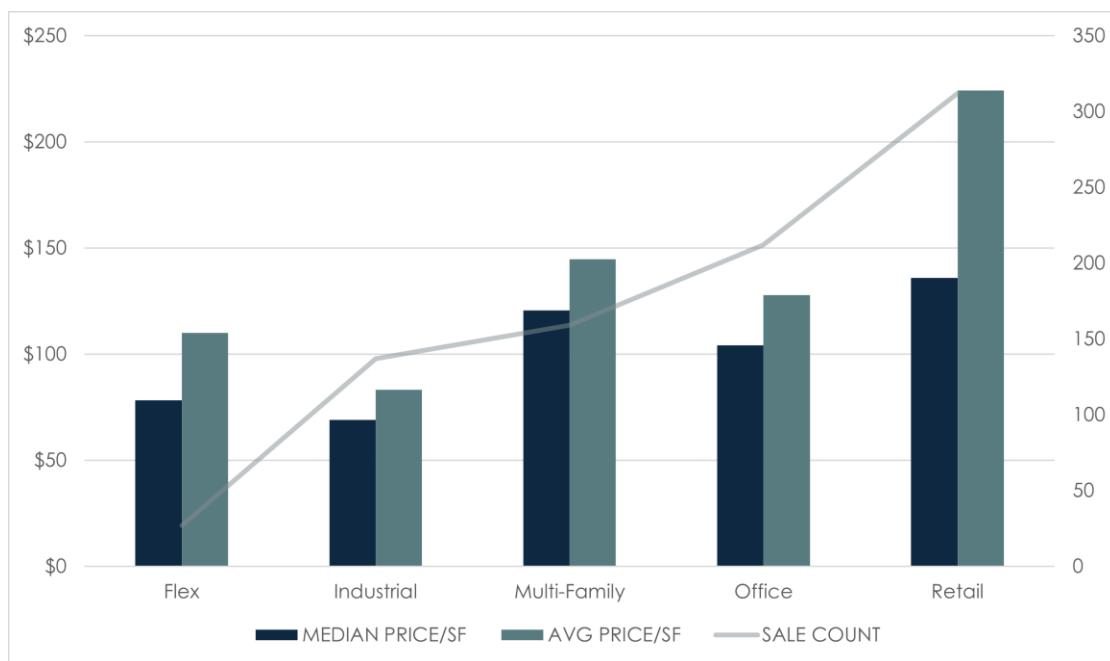
CoStar Sale Data

A search for commercial sale data on CoStar.com returned 847 improved sales in New Haven County occurring between October 2021 and May 2024. The table below shows statistics for property categories with five or more sales.

COSTAR SALE STATISTICS

(October 2021 – May 2024)

Property Type	Sale Count	Avg Price Per SF	Median Price Per SF
Flex	27	\$78	\$110
Industrial	137	\$69	\$83
Multi-Family	159	\$121	\$145
Office	212	\$104	\$128
Retail	312	\$136	\$224

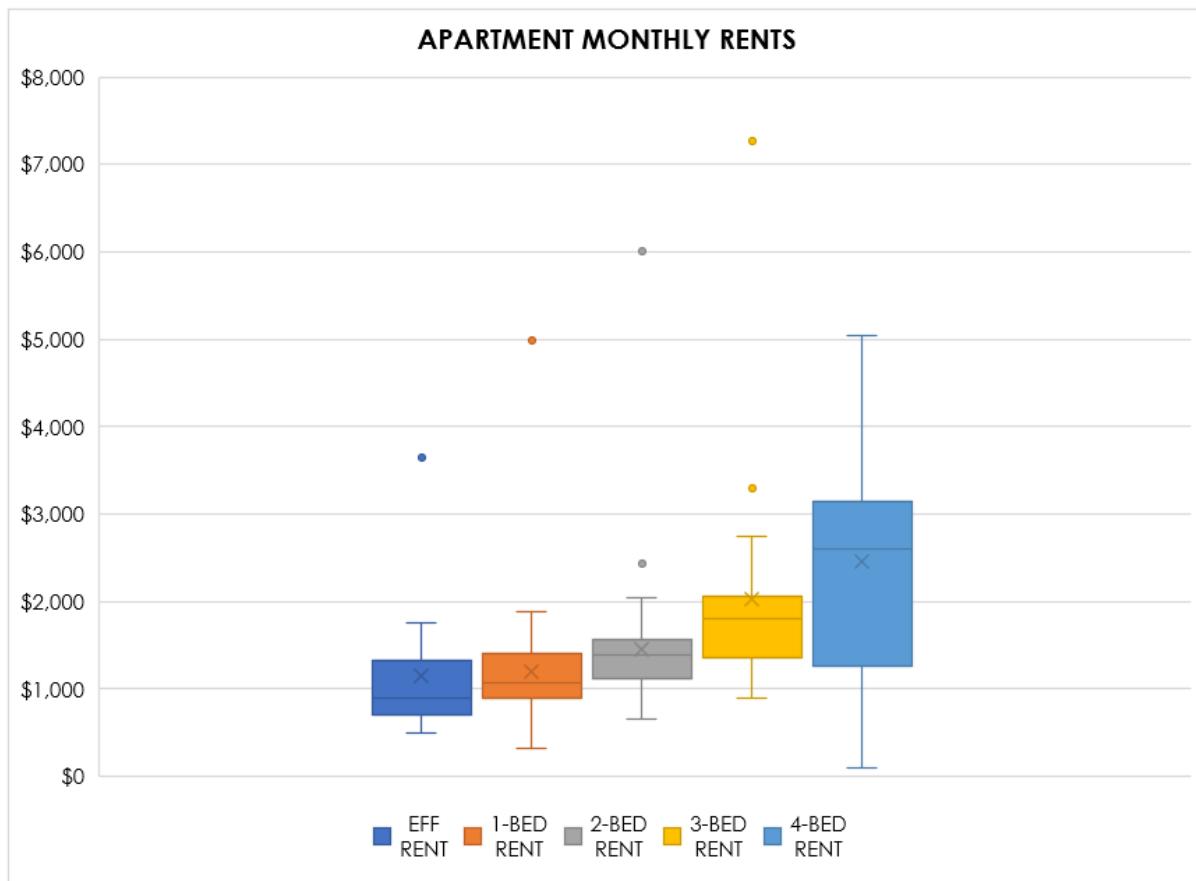


Gathering Local Income and Expense Data

Connecticut General Law allows the assessor to request income and expense information from the owners of income-producing real property. This includes owners of real property that is rented or leased, including commercial, retail, industrial, and residential property. The City of Hamden provided one year of submitted reports to the project appraisers for analysis. These reports were used by the appraisers to provide additional insight into local market trends and

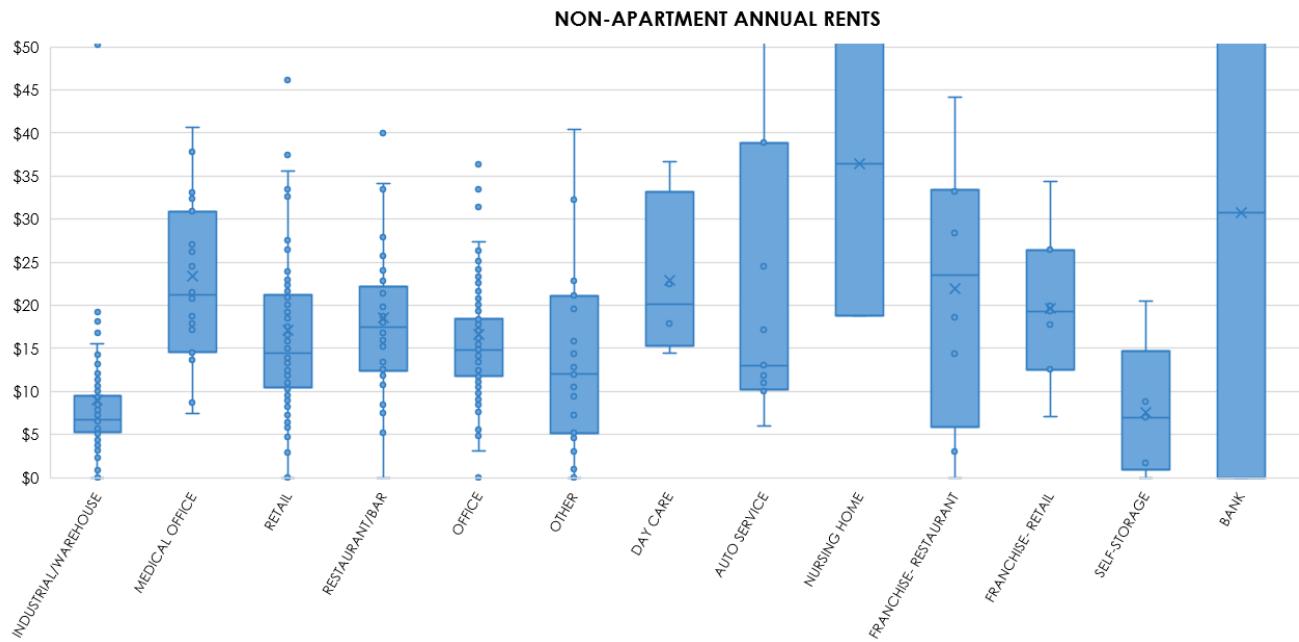
to contextualize the economic conditions of individual income-producing properties within the market.

The charts and tables below show the results of the analysis of Hamden's income and expense submissions. This data was culled directly from 2022 income and expense data submitted by property owners in Hamden. It should be noted that state law does not require property owners to submit to the assessor's request for income and expense information, therefore the response rate was relatively low at under 10%. The data samples are relatively small, and the observed trends cannot be treated as conclusively indicative of overall market conditions.



Type	Count	Monthly Rents Per Unit				Size	
		Low	Average	Median	High	Average	Median
EFFICIENCY	21	\$500	\$1,143	\$900	\$3,649	623	555
1-BEDROOM	61	\$325	\$1,201	\$1,075	\$4,985	734	700
2-BEDROOM	49	\$650	\$1,448	\$1,385	\$6,012	966	955
3-BEDROOM	22	\$900	\$2,033	\$1,800	\$7,264	1,282	1,100
4-BEDROOM	13	\$100	\$2,463	\$2,600	\$5,041	1,586	1,675

Source: Hamden Income & Expense Submissions



ANNUAL RENTS PER SQUARE FOOT

TYPE	COUNT	LOW	AVERAGE	MEDIAN	HIGH
AUTO SERVICE	11	\$6	\$1,654	\$13	\$18,000
BANK	2	\$0	\$31	\$31	\$62
DAY CARE	4	\$14	\$23	\$20	\$37
FRANCHISE- RESTAURANT	7	\$3	\$25	\$28	\$44
FRANCHISE- RETAIL	7	\$7	\$20	\$19	\$34
INDUSTRIAL/WAREHOUSE	76	\$2	\$8	\$7	\$19
MEDICAL OFFICE	21	\$9	\$26	\$25	\$71
NURSING HOME	2	\$19	\$36	\$36	\$54
OFFICE	96	\$3	\$17	\$15	\$67
OTHER	25	\$1	\$169	\$12	\$3,648
RESTAURANT/BAR	34	\$5	\$18	\$17	\$52
RETAIL	84	\$3	\$18	\$15	\$75
SELF-STORAGE	4	\$2	\$10	\$8	\$20

Source: Hamden Income & Expense Submissions

Preliminary Testing

Prior to the reassessment, the appraisers conducted a sales ratio study on one year of valid sales. The purpose of this testing is to measure the accuracy, uniformity, and equity of existing appraised values and therefore discern the extent to which the existing valuation models reflected market conditions and selling prices as of the date of valuation. Valuation models must be accurate, reliable, and valid:

- Accuracy in valuation modeling refers to the accurate prediction of value on known and unknown data. The model should accurately appraise properties whether or not income, cost, or sale data is available.
- Reliability in valuation modeling refers to the ability of the model to replicate work in predicting accurate values, even when physical data changes. If a new apartment unit is added to a building even though the building has not increased in size, the model should increase the value.
- Validity in valuation modeling refers to the model's ability to value property features the way the appraiser intended. In Hamden, the value of a retail store on Main Street should not change if a 200 square foot shed is added to the rear of the building for storage. The shed does not increase income and therefore should not increase value.

IAAO Performance Standards

Aside from meeting the criteria of USPAP, the best test of a model is its ability to meet or exceed standards promulgated by the International Association of Assessing Officers (IAAO) for appraisal level, appraisal uniformity, and vertical equity. These standards are summarized in the table below:

IAAO STANDARDS ON RATIO STUDIES

(Sections 9.2.2 – 9.2.7)

TYPE	MEDIAN ASR	COD	PRD	PRB
Single-Family & Condominiums	0.90 – 1.10	5% - 15%	0.98 – 1.03	-0.05 - 0.05
Income-Producing Properties	0.90 – 1.10	5% - 20%	0.98 – 1.03	-0.05 - 0.05
Vacant Land	0.90 – 1.10	5% - 20%	0.98 – 1.03	-0.05 - 0.05

Important Terminology

- **Appraisal-to-Sale Ratio (ASR)**— The ASR measures the relationship between the appraised value and selling price of individual properties. It is calculated by dividing the appraised value by the sale price. An ASR lower than 1.00 indicates that the appraised value is lower than the current market value suggested by the sale price and vice-versa. The calculated appraisal-to-sale ratios for each property in the sales sample are the basis for all other statistics described below.
- **Median**— The median is a statistical measure of central tendency. Measures of central tendency also include the mean and the mode. The median is defined as the middle value of an array, and its use in mass appraisal is typically preferred to other measures such as the mean, or average, as it is less influenced by statistical outliers. The median ASR is the primary measure of appraisal level, or appraisal accuracy, in mass appraisal.
- **Coefficient of Dispersion (COD)**— The COD is the primary measure of appraisal uniformity, or appraisal consistency, in mass appraisal. It is defined as the average absolute deviation from the median ASR expressed as a percentage of that median. Lower coefficients of dispersion indicate more consistent appraised values and, therefore, more reliable appraisal models.
- **Price-Related Differential (PRD)**— The PRD is a measure of vertical equity in mass appraisal. It is defined as the quotient of the mean ASR and the weighted mean ASR. Price-related differentials above 1.03 indicate that higher-priced properties are being undervalued compared to lower-priced properties (regressivity), and price-related differentials below 0.98 indicate that lower-priced properties are undervalued compared to more expensive properties in relation to market value (progressivity).
- **Price-Related Bias (PRB)**— The PRB is another measure of vertical equity in mass appraisal. It measures the percentage by which assessment ratios change when values are doubled or halved. For example, a PRB of -.06 would mean that assessment levels fall by 6% when values are doubled. Ratios that exceed the range of -.05 to +.05 indicate problems in the reliability of models or schedules. The PRB measurement is required by IAAO and not by the State of Connecticut.

Ratio Study Results

Preliminary testing results are shown below compared with IAAO standards. The entire sale sample used for testing is included in the appendix of this document. All statistical testing was conducted using NCSS Statistical Software Version 11.

PRELIMINARY RATIO STUDY

(672 valid sales)

PROPERTY TYPE	MEDIAN ASR	COD	PRD	PRB
Residential	0.58	14.12%	0.99	0.12
Commercial	0.68	30.28%	1.07	0.02
Vacant Land	0.87	11.70%	1.03	-0.47
Combined	0.58	15.08%	0.99	0.09
IAAO Standards	0.90 - 1.10	5% - 15%	0.98 - 1.03	-.05 - .05
Results	FAILS	FAILS	PASSES	FAILS

These results indicated that the existing assessments were significantly out of compliance with IAAO standards for assessment level (Median ASR), assessment uniformity (COD), and vertical equity (PRB).

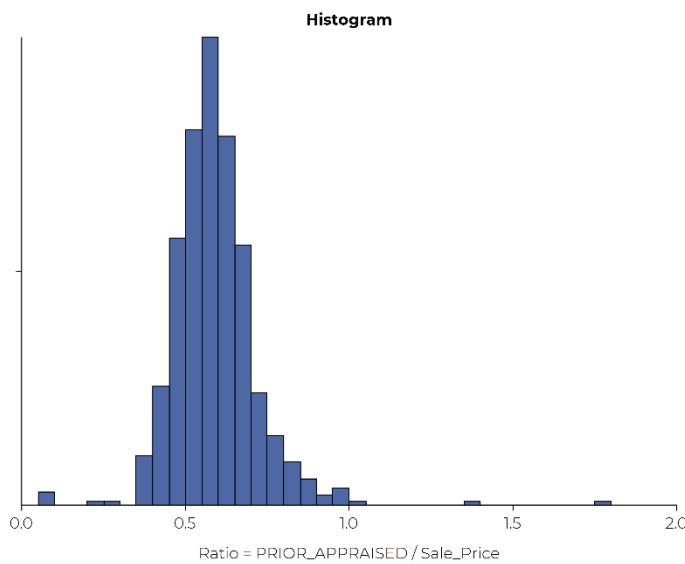
The analyzed sales ratio data above indicates that the existing valuation models fail the median ASR test. The ASR performance test indicates that improved residential and commercial properties are undervalued by approximately 64%, the target ASR having been established as 0.95 in consultation with the assessor.

The COD test indicates a lack of uniformity in the correlation of selling prices to the existing appraised values. The root causes of this lack of uniformity may be obscured without further isolation and stratification of variables.

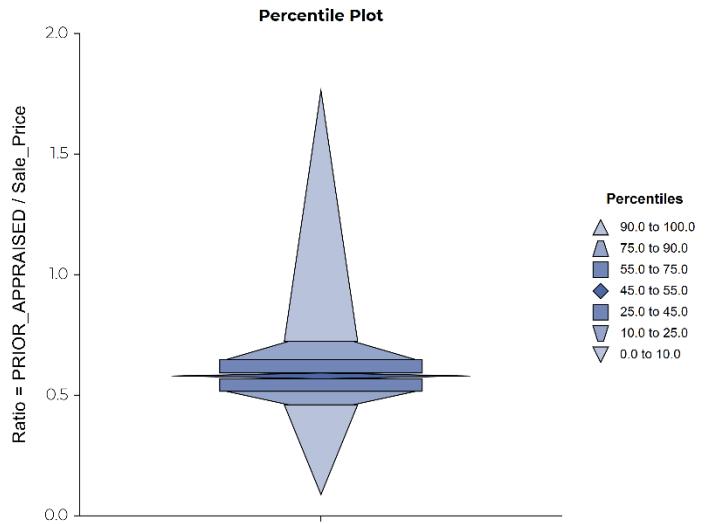
Vertical equity tests show passing results on the PRD test and failing results on the PRB test.

Notwithstanding the required five-year reappraisal cycle, preliminary testing demonstrates that it is essential that the jurisdiction reappraises all real property.

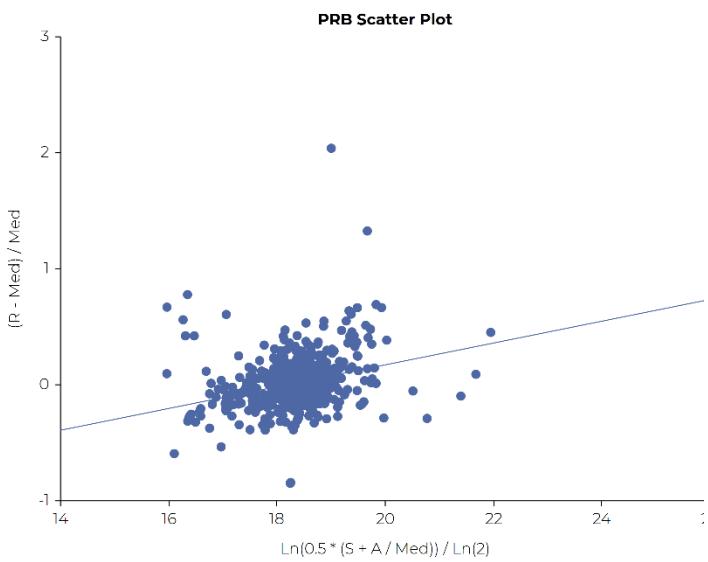
The diagrams and scatter plots below visualize the combined results of the preliminary testing:



The histogram above shows that there is a statistically normal distribution of ASRs around the median of 0.58. This indicates that properties are currently under-valued.



The percentile plot above is presented to illustrate the concentration of ASRs by percentile and recognize the presence of outliers.



The upward-sloping trendline on the above PRB scatter diagram indicates that, in the current valuation models, appraisal levels rise as values increase.



The trendline on the above scatter diagram shows a positive correlation between the variables ASR and Sale Price, underscoring the results found in the PRB test.

Cost Approach

The cost approach to value is based on the theory that the market value of an improved parcel can be estimated as the sum of the land value and the depreciated value of the improvements. The underlying valuation principle of substitution affirms that a prudent buyer will pay no more for a property than the cost to acquire a similar site and construct improvements of equivalent desirability.

The improvement costs developed in this reassessment are *replacement costs*: the current cost of producing an improvement with equivalent desirability or utility. Replacement cost, as opposed to *reproduction cost*, is developed to reflect the way in which older improvements are treated by real estate investors. Replacement cost includes the costs of all improvements on the parcel, including primary structures, attached features (balconies, canopies, etc.), outbuildings, and other site improvements.

$$\text{Market Value} = \text{Land Value} + (\text{Replacement Cost New} - \text{Depreciation})$$

For this project, the cost approach was developed for all residential and commercial properties. This approach was the primary source of value for residential properties including single-family homes, condominiums, and multi-family homes with less than five units. For commercial, industrial, and apartment (CIA) properties, the cost approach was used as the primary determinant of value for some properties and in support of the income approach for other properties. See the Income Approach section of this document for detail on determining approaches to value for commercial properties.

Neighborhood Delineation and Site Value

Establishing appraisal neighborhood boundaries is a key component in the estimation of land values and, therefore, in the development of the cost approach. A neighborhood is a location or 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 qualitatively as good, average, or poor. They stand on their own merits based on uniform composition and represent areas where similar properties compete economically.

Each community has neighborhoods which identify housing areas which are more or less desirable than others. Delineation of valuation neighborhoods for residential properties is a key driver in the valuation of land and the application of the cost approach. The process involves,

but is not limited to, analysis of sales, observation of market trends, parcel map viewing, reviewing zoning requirements, determining the frequency distribution of variables such as age, acreage, and living area, and discussions with real estate professionals who have local knowledge. For this project, appraisal neighborhoods were determined by the assessor with consultative advice from Tyler Technologies appraisers.

Many commercial properties will compete within the same immediate neighborhood. For example, since apartment rental rates are directly affected by location and apartment prices are driven by rental rates, apartments typically compete in the immediate neighborhood. Other properties, however, such as second floor office space, may cross neighborhood lines and compete throughout sections of Hamden. Some industrial and specialty properties may compete with similar properties across a larger geographic area. For example, the neighborhood for 100,000 square foot industrial properties in Hamden can be considered to encompass all of New Haven County. As property types and characteristics expand, so do neighborhood lines. The appraisal of Hamden's commercial properties considered the effect and/or need of widening the understanding of what is a subject's neighborhood. Therefore, rental rate data and sale data were taken by crossing Hamden's neighborhood lines and, where necessary, city lines.

Significant characteristics in defining neighborhoods include such items as:

- Physical boundaries (natural or man-made)
- Distance from amenities (transit, shopping, etc.)
- Building characteristics (style, quality, age, condition)
- Occupancy type (residential, industrial, apartment, retail, office)
- Zoning (Preexisting nonconformity, development rights)
- Typical land size and land valuation
- Sale prices

Once neighborhood boundaries are established using the methods of neighborhood delineation described above, the appraisers establish base land values for each neighborhood using base lot sizes, base square footage rates, and land curve percentages, which define the degree to which size adjustments are applied to sites larger or smaller than the base lot size.

The appraisers determined these factors by considering the physical and economic characteristics of each neighborhood, including lot sizes, building types and ages, rents, traffic patterns, and highway access. Additionally, the appraisers performed two different types of sales analyses as part of the land valuation process.

In jurisdictions or neighborhoods where there are sufficient vacant land sales, those sales are typically analyzed to support land models for each neighborhood. In the absence of sufficient recent vacant land sales, the appraisers rely upon the industry-recognized land residual technique. In this technique, the appraiser removes the contributory building value from sold improved properties to arrive at a residual land value. The analysis is an iterative process of model testing against sales.

The land residual technique takes the value of a sold property on the date of the appraisal and subtracts the depreciated value of the improvements. What remains is the implied land value, or land residual, for that sale.

All land valuation tables can be found in the assessor's CAMA system.

Replacement Cost

Building valuation is developed by first estimating the replacement cost new of all primary structures, attached features, and outbuildings. The replacement cost new for each improved parcel is calculated from cost tables installed in the CAMA system. These cost tables are developed by studying historical construction costs in Hamden and reviewing the standards and estimates of the Marshall & Swift Valuation Service, a highly respected cost service that provides detailed cost replacement rates for buildings, extra features, and outbuildings. The tables are then adjusted to ensure that the resulting cost approach value estimates are reflective of actual market activity. This is known as a *built-up cost technique* or *market-adjusted cost approach*. This technique uses the cost approach to arrive at value tempered by market sale data. In this way, the sales comparison approach does more than support the cost approach—it essentially drives the final rates and adjustments.

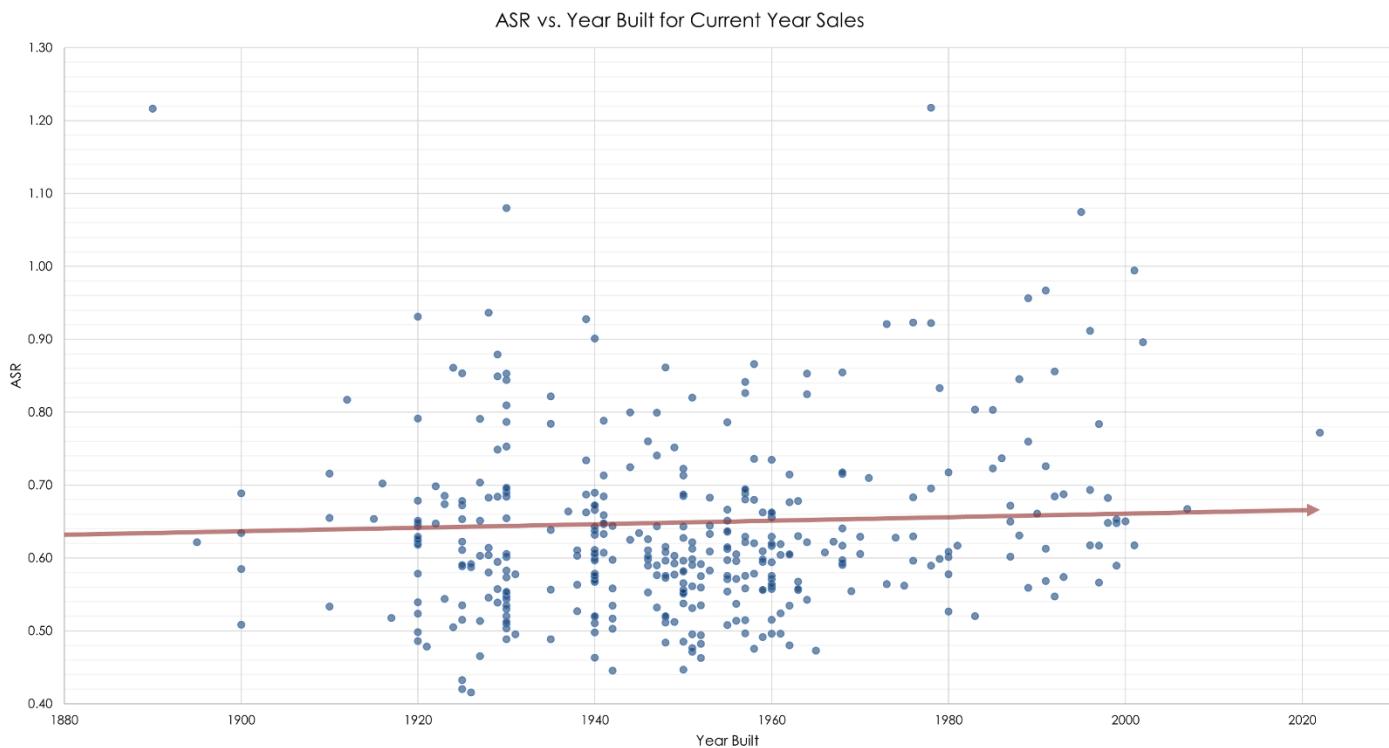
Since various construction types are necessary for different uses, several costs were developed for basic structures such as office buildings and service stations. Interior finish, heating, plumbing, air conditioning, and lighting requirements varied for different uses, requiring cost ranges.

Building costs are also adjusted using adjustment factors for quality of construction (Grade). Quality of construction is one of the most significant adjustments to be made in the cost approach, as buildings of similar size and use can vary markedly in cost due to the quality of materials and workmanship. It is important to note, however, that construction costs do not vary by neighborhood. Construction costs are uniform throughout Hamden.

Depreciation

After estimating the replacement cost new for the subject property improvements, depreciation is then subtracted from these costs, dependent upon the *effective age* of the improvement. The effective age of an improvement is determined using two factors: actual year built and physical condition. Depreciation and effective age tables are calibrated using analysis of market data including a sales ratio study stratified by building age. The efficacy of depreciation tables can also be observed by creating a scatter diagram comparing appraisal-to-sale ratio and building age. All depreciation and effective age tables can be found in the assessor's CAMA system.

The horizontal trendline in the diagram below shows a neutral correlation between assessment-to-sale ratio and building age. It can be inferred from this neutral correlation that the depreciation and effective age tables are well calibrated.



Sales Comparison Approach

The sales comparison approach to value is a method of estimating market value by comparing similar properties that have sold or are listed for sale and adjusting prices based on marketplace conditions and property characteristics relevant to the value. Elements of comparison in the sales comparison approach include the following:

- Location
- Allowable uses/zoning
- Physical features
- Real property rights
- Financing terms
- Market conditions
- Economic characteristics
- Conditions of sale
- Post-sale expenditure
- Non-realty components

Most mass appraisal projects do not utilize a direct sales comparison approach as this method is impractical for valuing an entire universe of properties. Rather, mass appraisal projects use sale data to inform other approaches to value and to test valuation models for accuracy and reliability. For example, as discussed above in the Cost Approach section, a market-adjusted cost approach was utilized for this project. This technique uses market sale activity to inform adjustments made to cost tables, ensuring that estimates of market value produced by the cost approach are reflective of current market conditions.

Although not employed in the production of values for an entire universe of properties, a more traditional sales comparison approach to value is often useful in the value defense phase of a revaluation. The assessor, appraiser, or representative may develop an estimate of market value using the sales comparison approach for a single property to aid in the defense of their appraised value, which may have been originally produced using the cost or income approach.

Income Approach

The income approach is a method of valuing the present worth of anticipated monetary benefits for an income-producing property. When an investor buys a commercial property based on income, they often use the following criteria to establish an acceptable purchase price:

- What will be my rate of return for the investment of my equity (this is also known as equity dividend rate or “cash on cash rate”)?
- How much will the property appreciate over time?
- What financing is available, and how will financing terms affect the value?
- What is the anticipated Net Operating Income (NOI)?

Typically, investors only buy properties when the equity dividend rate is equal to or better than substitute investments. If an investor can only receive a 4% return on their down payment, but they can receive a 16% return on a REIT, they may opt to go with the REIT investment.

In a reassessment project, a property's Net Operating Income (NOI) is the Potential Gross Income (PGI) less all valid expenses, including vacancy, but excluding taxes, amortization, or depreciation. Investors, as with appreciation, predict how rents will rise to offset increased expenses or increase profit beyond expenses.

Due to the eclectic mix and boutique nature of many commercial properties in Hamden, the project appraisers relied less heavily upon the income approach as the primary determinant of value. Through market research, the observation of sales activity, and conversations with local real estate professionals, it was determined that this approach does not always reflect the actions and motivations of local buyers and sellers, as many properties in Hamden are purchased for owner use as opposed to investor purchases. Overall, the income approach was relied upon as the primary determinant of value for approximately 30% of commercial properties in Hamden. The cost approach was used as primary determinant of value for 70% of commercial properties and to support the income approach when developed.

Units of comparison are variables or characteristics that investors use in making decisions to purchase commercial properties. Units of comparison enable appraisers to distill value to a specific rate, such as rent per square foot, so that comparison may be made with properties that are somewhat dissimilar.

Hamden commercial properties can be analyzed with the following units of comparison:

- Income or Sale Price/Square Foot
- Income or Sale Price/Gallons of Gas Pumped
- Income or Sale Price/Apartment Unit
- Income or Sale Price/Restaurant Seats
- Income or Sale Price/Restaurant Gross Receipts
- Income or Sale Price/Parking Space
- Income or Sale Price/Retail Gross Receipts per Square Foot
- Sale Price/Rentable Square Foot
- Cost/Square Foot
- Sale Price/Approved Unit
- Income or Sale Price/Nursing Bed

Using the incorrect unit of comparison can lead to spurious results. The correct unit of comparison is that unit or variable which the commercial investor uses to make purchase decisions. These units of comparison can vary by city, neighborhood, or even within property types.

For instance, most of the stand-alone fast-food facilities should be valued based upon gross receipts because that is how investors would decide to purchase these properties. This decision is further evidenced by the fact that fast-food leases are based upon a base rent plus a percentage of gross receipts.

Using different units of comparison is not intended to produce higher values, just more valid and reliable values. Furthermore, using the sales of gasoline or the sales of food to determine value is not, if correctly employed, a valuation of business value. Care was taken in Hamden to speak to owners and investors of various property types to discern what they mean when discussing "gross receipts", "base lease", "net lease", "gross lease", etc.

Income Models

The table below shows the income models used for several different property types within Hamden. It should be noted that rents are expressed in dollars per square foot per year with some exception, including apartments, which are expressed in dollars per month per unit. Income model rents are adjusted individually by the project appraisers based on property type, condition, grade, size, and other factors.

HAMDEN INCOME MODELS

Model	Rent	Vac %	Exp %
ANCHOR	\$12	5%	5%
APT 1BR	\$14,500	5%	35%
APT 1BR RC	\$11,000	5%	40%
APT 1BR SUB	\$14,500	5%	50%
APT 2BR	\$16,600	5%	35%
APT 2BR RC	\$12,400	5%	40%
APT 2BR SUB	\$16,600	5%	50%
APT 3BR	\$19,300	5%	35%
APT 3BR RC	\$13,800	5%	40%
APT 3BR SUB	\$19,300	5%	50%
APT 4BR	\$27,600	5%	35%
APT EFF	\$11,700	5%	35%
APT EFF RC	\$8,300	5%	40%
APT EFF SUB	\$11,700	5%	50%
ASSISTD LV	\$105,000	15%	80%
AUTO DLR N	\$12	5%	10%
BAR/LOUNGE	\$18	7%	30%
BRNCH BANK	\$28	3%	3%
CLUB/FUNCT	\$10	5%	5%
CONV/GAS	\$70,000	5%	5%
DAY CARE	\$20	15%	5%
FAST FOOD	\$34	3%	3%
FRANCHISE AUTO	\$20	5%	5%
IND/WHS CONDO	\$6.50	5%	5%
IND/WHS N	\$6	5%	5%
IND/WHS O	\$7	5%	20%
INDP LIV	\$30,000	5%	93%
JOB SHOP	\$5.50	5%	5%
LUX 1BR	\$21,400	5%	30%
LUX 2BR	\$26,200	5%	30%
LUX 3BR	\$33,100	5%	30%
LUX EFF	\$16,600	5%	30%
MOTEL	\$40,150	50%	65%
MOTEL B	\$20,440	50%	65%
NURSNG HM	\$105,000	15%	95%
OFF CLS A	\$25	8%	35%
OFF MED	\$28	5%	35%
OFFICE	\$12	8%	35%
PHARMACY	\$28	3%	3%

Model	Rent	Vac %	Exp %
POST OFFICE	\$19	5%	5%
REP GARAGE	\$12	5%	15%
RES+DEV	\$7.50	5%	5%
RESTAURNT	\$18	7%	30%
RET STRIP	\$18	7%	30%
RETAIL	\$16	7%	30%
SELF-STGE	\$12	10%	35%
SUPRMKT	\$12	5%	5%
SVC STA	\$32	5%	5%

Capitalization Rate Development

In the direct capitalization of income, the net operating income is divided by a capitalization rate to arrive at the estimate of market value. In this project, the appraisers developed capitalization rates based on a study of overall rates in Hamden and using a band of investment technique that considered both the return of investment and return on investment. Part of this process was to conduct a survey of mortgage rates for local and regional banks to establish rates leading up to the date of value. The appraisers then compared these to capitalization rates from investor surveys conducted by industry sources. The table below shows, a selection of capitalization rates used for this project.

BAND OF INVESTMENT CAPITALIZATION RATE DEVELOPMENT

	MORTGAGE TERMS			BANK POSITION			INVESTOR POSITION			EFFECTIVE TAX RATE			CAPITALIZATION RATE		
	Years	Interest Rate	Annual ITAO	Loan to Value	ITAO	Return on Investment	Equity	Equity Dividend Rate	Return on Investment	Mill Rate	Asmt Ratio	ETR	Base Rate	ETR	Total Cap Rate
Apartments	30	5.50%	0.068135	80%	6.81%	5.45%	20%	3.01%	0.60%	\$56.38	70%	0.0395	6.05%	3.95%	10.00%
Office	30	6.50%	0.075848	75%	7.58%	5.69%	25%	13.46%	3.36%	\$56.38	70%	0.0395	9.05%	3.95%	13.00%
Retail	30	6.50%	0.075848	75%	7.58%	5.69%	25%	7.46%	1.86%	\$56.38	70%	0.0395	7.55%	3.95%	11.50%
Industrial	30	6.50%	0.075848	75%	7.58%	5.69%	25%	5.46%	1.36%	\$56.38	70%	0.0395	7.05%	3.95%	11.00%
Hotel	30	7.50%	0.083906	75%	8.39%	6.29%	25%	11.04%	2.76%	\$56.38	70%	0.0395	9.05%	3.95%	13.00%

Reconciliation + Review

After initial application of the cost, sales comparison, and income approaches to value, appraisers began the review phase of the project. During the review phase, appraisers review the value estimates, verify observable data, adjust the value estimates for any changes, choose the final valuation methodology, and ensure that like properties are appraised equitably.

Field Review

During the field review process, Tyler Technologies appraisers performed a physical review of parcels in the City of Hamden, comparing their physical observations to data present on property record cards generated by the Vision CAMA system*. Based on these in-person observations, CAMA data— including grade, condition, style, story height, outbuildings, and influence factors— were adjusted for accuracy and consistency. When possible, building sketches were also reviewed for accuracy.

** Field review is performed primarily from inside the reviewer's vehicle. The appraiser makes physical observations from the vehicle by finding the most reasonable observation point from the street or driveway. As such, it should be noted that the field review process is not a replacement for physical data collection. It is not possible for the field reviewer to observe all properties' physical characteristics. Rather, the primary goal of this process is to ensure an overall consistent approach to the application of grade and condition ratings and to correct data errors observable from the street.*

Commercial Review

The Tyler Technologies commercial review process involves the review of all taxable commercial, industrial, and apartment properties using a variety of reports and tools including CAMA data, online GIS mapping, Microsoft Excel, income and expense reports, and sale data. This detailed, line-by-line process includes the individual review of:

- Submitted income data
- Units of comparison including value per square foot, value per living unit, and value per acre
- Sale data including sale price per square foot and market-extracted cap rates
- Listing data including asking prices, asking rents, and lease types
- Cost-value to income-value correlation
- Old-to-new appraisal change percentage

Using this data, the appraisers choose the approach to value that is most appropriate for each property and tailor that approach to achieve an accurate and reliable estimate of market value. Common adjustments made at the parcel level include:

- Rent per square foot
- Rent per living unit
- Vacancy percentage
- Expense percentage
- Capitalization rate
- Quality grade
- Condition rating
- Land influence factors
- Functional obsolescence
- Economic obsolescence

After completion of the commercial review process, Tyler Technologies provided an Excel document to the Assessor with parcel-level detail including:

- Parcel use
- Appraisal neighborhood
- Prior appraised value
- New appraised value
- Old-to-new percentage
- Units of comparison
- Valid sale data
- Listing data
- Income approach summary
- Submitted income summary
- Appraisal notes

Informal Hearings

In December 2024 and January 2025, after the appraisers established preliminary assessments, property owners in the city were mailed a reassessment notice. This notice informed property owners of the new preliminary assessment of their property and offered them an opportunity to participate in a process of informal valuation hearings. This process allowed property owners to make an appointment with a representative of Tyler Technologies to discuss their new assessed value.

During the informal hearings, held during January of 2025, property owners were able to ask questions about the valuation process, communicate their concerns with the preliminary assessment, and provide the appraisers additional information on the property's physical characteristics, condition, and income. Owners were able to submit documentation to the appraisers in person or via email, including property photos, income and expense statements, and recent appraisals. The appraisers then reviewed these properties and recommended actions based on the information and documents provided by property owners. These actions included data corrections and value reductions for some properties where warranted. The Hamden Assessor had final approval for these changes. The table below summarizes the informal hearing results.

INFORMAL HEARING STATISTICS

Hearing Result	Parcel Count	% of Total	Average Change in Value
Value Change	649	64%	-9%
No Change	263	26%	
Info Only	80	8%	
No-Show	27	3%	
Grand Total	1,019	100%	

Reconciliation

After the review process, data was modified or corrected in the CAMA system to reflect the judgment of the reviewer. Once entered, all value conclusions were tested for reliability and validity based on:

- Comparison with valid sales
- Comparison with income and expense data from similar properties
- Comparison with known cost data, if applicable

As discussed earlier, the built-up cost approach was used for residential properties while the cost and income approaches were both used for CIA properties. For CIA properties, the cost approach was used to a limited degree to value atypical properties and smaller single-user properties. It was also used to support the income approach. Because of the modicum of sales data, the sales comparison approach provided support to the primary approach and assisted in testing the accuracy of the models.

Final Testing

After the reassessment, a sales ratio study of all property types was conducted on the new valuation models with respect to value accuracy and validity. This study measured the extent to which the new valuation models reflected market conditions and selling prices on the date of value.

Below are the City of Hamden test results compared to International Association of Assessing Officers (IAAO) Standards using NCSS Statistical Software on the City of Hamden's valid sales file. The sample data consisted of 646 sales in the residential class, 20 sales in the commercial class, and 6 vacant land sales.

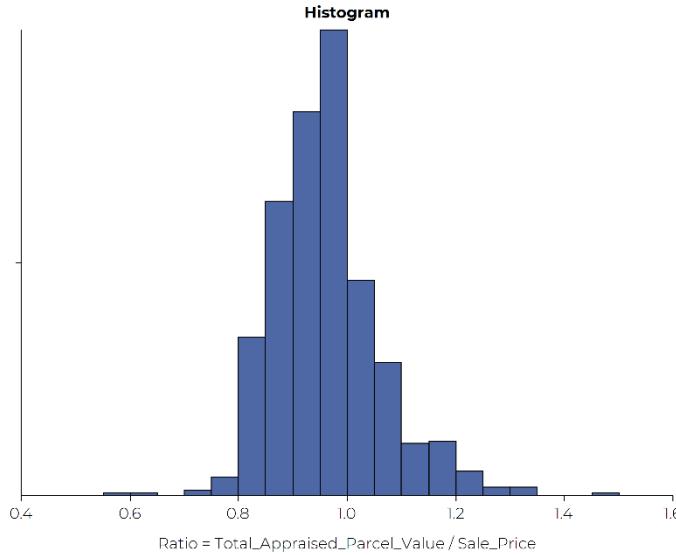
FINAL RATIO STUDY

(672 Valid Sales)

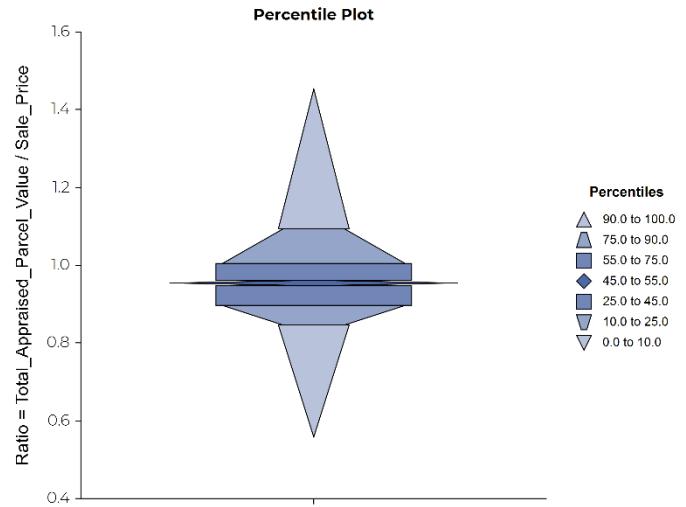
PROPERTY TYPE	MEDIAN ASR	COD	PRD	PRB
Residential	0.95	7.46%	1.01	-0.01
Commercial	0.96	8.16%	.99	0.00
Vacant Land	1.09	14.52%	1.01	0.15
Combined	0.95	7.59%	1.01	-0.01
IAAO Standards	0.90 - 1.10	5% - 15%	0.98 - 1.03	-.05 - .05
Results	PASSES	PASSES	PASSES	PASSES

The passing results in final valuation testing indicate that the City of Hamden revaluation project was successful in creating and employing valuation models that provide accurate, uniform, and equitable appraisals among all property types.

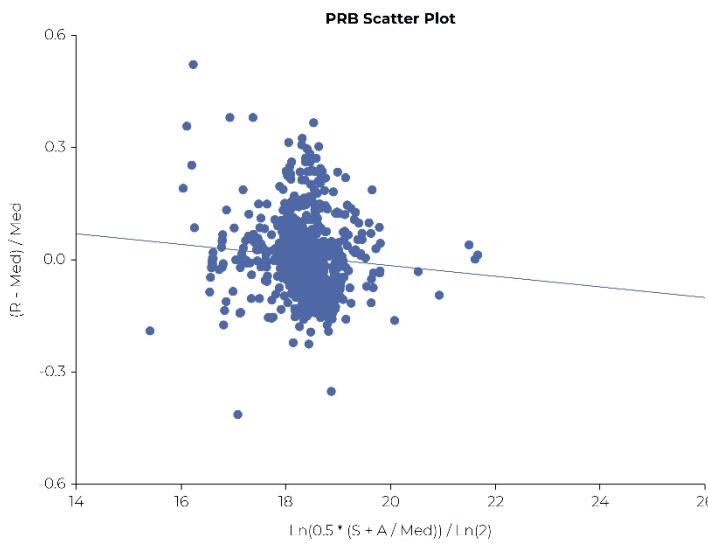
The diagrams and scatter plots below visualize the combined results of the final performance testing:



The histogram above shows that there is a statistically normal distribution of ASRs around the median of 0.95. This indicates an appraisal level well within Connecticut & IAAO standards.



The percentile plot above is presented to illustrate the concentration of ASRs by percentile and recognize the presence of outliers.



The horizontal trendline on the above PRB scatter diagram indicates that, after revaluation, appraisal levels are consistent at different price ranges.



The trendline on the above scatter diagram shows a neutral correlation between the variables ASR and Sale Price. This is another indicator of the vertical equity achieved through this revaluation process.

Conclusion

The City of Hamden, CT revaluation accomplished the following:

- Established fair market values as of the October 1, 2024 valuation date
- Met and/or exceeded IAAO and State of Connecticut standards
- Met USPAP Standards 5 and 6
- Produced accurate, reliable, and valid residential and commercial valuation models
- Gathered extensive national, regional, and local income and expense data that helped to substantiate property values
- Gathered extensive national, regional, and local sales and cost data that helped to substantiate property values

Acknowledgments

The Tyler Technologies revaluation team would like to thank the dedicated staff of the City of Hamden Assessor's Office— Michael Milici, Frederick Kamp, Gina Cambino, and Sajida Farooqui— for their tireless efforts in support of this reappraisal project.

Certification

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 present or prospective interest in property that is the subject of this report, and I have no personal interest with respect to the property.
- 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.
- 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 not made a personal inspection of the properties that are the subject of this report. I did complete an exterior viewing of some properties from a public way or with digital ortho, oblique, and street level imagery captured in the last (3) years.
- My opinion of the total market value for the properties identified in this report and in the CAMA system, as of the December 31, 2023 effective valuation date, is subject to the final adjustments made by the City as a result of the appeal process with property owners.

Salim Serdah
Salim Serdah


John Valente

DM
Drew Manlove, AAS, RES

Appendix

Hamden Valid Sales for 10/01/24 Revaluation
(672 Valid Sales)

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
8486	19 CHERRY HILL RD	RESIDENTIAL	10/02/23	\$330,000	\$390,400	1.18
14238	146 CANNON ST	RESIDENTIAL	10/02/23	\$268,000	\$285,100	1.06
809	11 DIX ST	RESIDENTIAL	10/02/23	\$266,000	\$292,600	1.10
15379	96 MURLYN RD	RESIDENTIAL	10/03/23	\$530,000	\$473,400	0.89
15940	3265 WHITNEY AVE #U6	RESIDENTIAL	10/03/23	\$260,000	\$261,700	1.01
16198	28 COBBLESTONE DR	RESIDENTIAL	10/04/23	\$750,000	\$786,500	1.05
18064	4180 WHITNEY AVE	RESIDENTIAL	10/04/23	\$350,000	\$358,000	1.02
11002	707 MIX AVE #U1-7	RESIDENTIAL	10/04/23	\$145,000	\$140,400	0.97
10748	4 CANTERBURY RD #U4	RESIDENTIAL	10/05/23	\$350,000	\$302,300	0.86
100364	2494 WHITNEY AVE	COMMERCIAL	10/05/23	\$550,000	\$564,900	1.03
4940	37 PERRY RD	RESIDENTIAL	10/06/23	\$303,500	\$305,200	1.01
9216	20 NORTON AVE	RESIDENTIAL	10/06/23	\$305,000	\$291,300	0.96
10898	85 EAST GATE LA #U85	RESIDENTIAL	10/06/23	\$250,000	\$251,700	1.01
13311	75 WASHINGTON AVE #4304	RESIDENTIAL	10/06/23	\$145,000	\$135,500	0.93
6384	115 BLUE HILLS AVE	RESIDENTIAL	10/10/23	\$310,000	\$295,000	0.95
14491	38 PELHAM AVE	RESIDENTIAL	10/11/23	\$391,500	\$385,700	0.99
6218	48 PLAINS AVE	RESIDENTIAL	10/12/23	\$249,900	\$271,100	1.08
338	90 HIGH TOP CR EAST	RESIDENTIAL	10/16/23	\$270,000	\$281,100	1.04
5492	108 WILMOT RD	RESIDENTIAL	10/16/23	\$277,000	\$292,300	1.06
15631	1533 SHEPARD AVE	RESIDENTIAL	10/16/23	\$375,000	\$369,700	0.99
12500	175 MILL POND RD #U201	RESIDENTIAL	10/16/23	\$136,000	\$154,100	1.13
6821	124 MATHER ST	RESIDENTIAL	10/17/23	\$370,000	\$342,100	0.92
7887	38 ORCHARD HEIGHTS DR	RESIDENTIAL	10/17/23	\$292,000	\$338,200	1.16
9658	120 THORNTON ST	RESIDENTIAL	10/17/23	\$363,000	\$419,100	1.15
5396	94 BROOK ST	RESIDENTIAL	10/18/23	\$299,900	\$299,300	1.00
3267	51 THIRD ST	RESIDENTIAL	10/18/23	\$300,000	\$303,700	1.01
3056	215 FAIRVIEW AVE	RESIDENTIAL	10/19/23	\$265,000	\$243,800	0.92
125528	35 CORPORATE RIDGE #U13	COMMERCIAL	10/19/23	\$105,000	\$138,300	1.32
9062	365 MATHER ST #U77	RESIDENTIAL	10/20/23	\$155,000	\$157,300	1.01
8337	29 FIELD CREST LA	RESIDENTIAL	10/24/23	\$345,000	\$327,300	0.95
11156	18 BRECKENRIDGE CT	RESIDENTIAL	10/24/23	\$700,000	\$704,100	1.01
12747	119 THOMPSON ST	RESIDENTIAL	10/24/23	\$279,900	\$287,400	1.03
11965	50 HUNTERS WAY	RESIDENTIAL	10/25/23	\$895,000	\$891,600	1.00
13520	191 WASHINGTON AVE	RESIDENTIAL	10/25/23	\$312,000	\$298,900	0.96
14811	408 BROADWAY	RESIDENTIAL	10/25/23	\$320,000	\$417,200	1.30
103186	157 LEEDER HILL DR #U306	RESIDENTIAL	10/25/23	\$205,000	\$194,500	0.95

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
9297	83 GREENWAY ST	RESIDENTIAL	10/26/23	\$476,000	\$510,700	1.07
190	1776 STATE ST	RESIDENTIAL	10/26/23	\$342,500	\$379,800	1.11
191	1770 STATE ST	RESIDENTIAL	10/26/23	\$342,500	\$362,000	1.06
3276	91 THIRD ST	RESIDENTIAL	10/27/23	\$285,000	\$272,000	0.95
7673	67 SMITH DR	RESIDENTIAL	10/27/23	\$372,500	\$315,600	0.85
8544	48 ARCADIA AVE	RESIDENTIAL	10/30/23	\$275,000	\$251,200	0.91
16816	3409 WHITNEY AVE #U7B	RESIDENTIAL	10/30/23	\$309,500	\$338,300	1.09
1593	47 BRYDEN TR	RESIDENTIAL	11/01/23	\$490,000	\$440,400	0.90
3180	73 WOODIN ST	RESIDENTIAL	11/01/23	\$295,000	\$256,000	0.87
13785	270 MAGEE DR	RESIDENTIAL	11/01/23	\$455,000	\$401,700	0.88
17645	1051 STILL HILL RD	RESIDENTIAL	11/01/23	\$320,000	\$285,100	0.89
13342	75 WASHINGTON AVE #2417	RESIDENTIAL	11/01/23	\$142,500	\$187,700	1.32
13413	75 WASHINGTON AVE #7205	RESIDENTIAL	11/01/23	\$155,000	\$147,700	0.95
8178	157 WHITE DR	RESIDENTIAL	11/02/23	\$320,000	\$315,500	0.99
17589	42 OCTOBER HILL RD	RESIDENTIAL	11/02/23	\$402,900	\$375,700	0.93
6901	21 NORTH LAKE DR #21	RESIDENTIAL	11/02/23	\$255,000	\$256,700	1.01
9242	465 MIX AVE #BB4	RESIDENTIAL	11/02/23	\$252,941	\$269,400	1.07
6062	12 VALLEY RD	RESIDENTIAL	11/03/23	\$239,000	\$245,600	1.03
11791	71 DORRANCE ST	RESIDENTIAL	11/03/23	\$255,000	\$249,100	0.98
5684	95 CONCORD ST	RESIDENTIAL	11/06/23	\$273,900	\$250,700	0.92
8843	101 BENHAM ST	RESIDENTIAL	11/06/23	\$340,000	\$328,500	0.97
6311	1690 DIXWELL AVE #D-2	RESIDENTIAL	11/06/23	\$112,000	\$121,100	1.08
13066	2480 WHITNEY AVE #U20	RESIDENTIAL	11/06/23	\$275,000	\$268,400	0.98
2588	300 HELEN ST	RESIDENTIAL	11/07/23	\$280,000	\$354,000	1.26
12803	116 COLONIAL DR	RESIDENTIAL	11/07/23	\$345,000	\$321,400	0.93
17967	75 JULIAN DR	RESIDENTIAL	11/07/23	\$300,000	\$262,200	0.87
14045	66 TANGLEWOOD DR	RESIDENTIAL	11/08/23	\$253,000	\$293,400	1.16
17126	440 HILLFIELD RD	RESIDENTIAL	11/08/23	\$610,000	\$565,200	0.93
9011	365 MATHER ST #U26	RESIDENTIAL	11/08/23	\$200,000	\$190,500	0.95
10800	56 CANTERBURY RD #U56	RESIDENTIAL	11/08/23	\$415,000	\$415,200	1.00
12518	175 MILL POND RD #U233	RESIDENTIAL	11/08/23	\$147,000	\$144,700	0.98
20201	192 BUTLER ST	COMMERCIAL	11/08/23	\$350,000	\$331,900	0.95
12808	67 EVERGREEN AVE	RESIDENTIAL	11/09/23	\$365,000	\$365,800	1.00
1318	642 NEWHALL ST	RESIDENTIAL	11/13/23	\$235,000	\$247,900	1.05
5020	12 MUELLER DR	RESIDENTIAL	11/13/23	\$264,000	\$286,500	1.09
6537	15 CUMLEY ST	RESIDENTIAL	11/13/23	\$238,000	\$257,500	1.08
7835	47 DUNBAR LA	RESIDENTIAL	11/13/23	\$390,000	\$383,000	0.98
2879	18 HIGH TOP CR	RESIDENTIAL	11/14/23	\$465,000	\$547,800	1.18
11393	900 MIX AVE #U92	RESIDENTIAL	11/15/23	\$235,000	\$224,500	0.96

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
8838	18 GARFIELD ST	RESIDENTIAL	11/16/23	\$300,000	\$286,800	0.96
12227	76 KIRK RD	RESIDENTIAL	11/16/23	\$559,000	\$491,200	0.88
16470	93 LEATHERMAN TRAIL	RESIDENTIAL	11/16/23	\$416,500	\$412,400	0.99
2536	59 ROCKWOOD RD	RESIDENTIAL	11/17/23	\$343,500	\$321,400	0.94
8136	19 LARKSPUR LA	RESIDENTIAL	11/17/23	\$400,000	\$414,000	1.04
12353	481 SHEPARD AVE	RESIDENTIAL	11/17/23	\$348,750	\$321,100	0.92
18049	4204 WHITNEY AVE	RESIDENTIAL	11/20/23	\$312,000	\$367,900	1.18
12197	43 SKY VIEW CR	RESIDENTIAL	11/20/23	\$400,000	\$396,600	0.99
16908	174 GAYLORD MT RD	RESIDENTIAL	11/21/23	\$413,000	\$399,200	0.97
102542	30 ROLFE RD	RESIDENTIAL	11/21/23	\$320,000	\$315,100	0.98
103197	157 LEEDER HILL DR #U502	RESIDENTIAL	11/21/23	\$245,000	\$291,900	1.19
3217	113 WARREN ST	RESIDENTIAL	11/21/23	\$412,000	\$450,100	1.09
619	23 WHITING ST	RESIDENTIAL	11/22/23	\$251,000	\$254,400	1.01
1233	73 GILES ST	RESIDENTIAL	11/22/23	\$247,000	\$249,800	1.01
1907	265 DAVIS ST	RESIDENTIAL	11/22/23	\$326,000	\$311,800	0.96
6335	28 NOBLE CT	RESIDENTIAL	11/22/23	\$295,000	\$303,900	1.03
13660	531 HILL ST	RESIDENTIAL	11/22/23	\$350,000	\$340,200	0.97
5184	160 TWIN BROOK RD	RESIDENTIAL	11/24/23	\$308,500	\$284,000	0.92
3768	304 PUTNAM AVE	RESIDENTIAL	11/27/23	\$283,000	\$333,500	1.18
15414	759 EVERGREEN AVE	RESIDENTIAL	11/27/23	\$347,500	\$352,300	1.01
20202	188 BUTLER ST	RESIDENTIAL	11/27/23	\$420,000	\$413,800	0.99
3033	304 FAIRVIEW AVE	RESIDENTIAL	11/28/23	\$255,000	\$258,200	1.01
7170	132 CARMALT RD	RESIDENTIAL	11/28/23	\$630,000	\$505,700	0.80
9549	15 WOODBINE ST	RESIDENTIAL	11/28/23	\$375,000	\$345,400	0.92
10020	34 FILBERT ST	RESIDENTIAL	11/28/23	\$370,000	\$439,300	1.19
12990	2459 WHITNEY AVE #U8	RESIDENTIAL	11/29/23	\$115,000	\$108,600	0.94
1698	10 DEEPWOOD DR	RESIDENTIAL	12/01/23	\$750,000	\$719,400	0.96
15413	765 EVERGREEN AVE	RESIDENTIAL	12/01/23	\$395,000	\$350,400	0.89
11431	900 MIX AVE #U72	RESIDENTIAL	12/01/23	\$190,000	\$196,400	1.03
9403	88 WOODLAWN ST	RESIDENTIAL	12/05/23	\$352,000	\$437,600	1.24
8163	17 WHITE DR	RESIDENTIAL	12/05/23	\$350,000	\$356,900	1.02
1514	1027 WINCHESTER AVE	RESIDENTIAL	12/06/23	\$215,000	\$227,200	1.06
2948	249 HELEN ST	RESIDENTIAL	12/06/23	\$350,000	\$321,300	0.92
5212	60 TWIN BROOK RD	RESIDENTIAL	12/06/23	\$300,000	\$294,500	0.98
6708	210 TREADWELL ST #U410	RESIDENTIAL	12/06/23	\$240,000	\$193,900	0.81
9554	153 CENTRAL AVE	RESIDENTIAL	12/08/23	\$250,700	\$294,100	1.17
820	42 PINE ST	RESIDENTIAL	12/08/23	\$380,000	\$387,500	1.02
4088	41 QUENTIN ST	RESIDENTIAL	12/11/23	\$320,000	\$318,000	0.99
7663	35 LENT RD	RESIDENTIAL	12/11/23	\$287,500	\$294,600	1.02

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
14196	19 SUNNYSIDE AVE	RESIDENTIAL	12/11/23	\$364,900	\$341,400	0.94
1341	317 BLAKE CR	RESIDENTIAL	12/12/23	\$693,000	\$708,000	1.02
6147	62 HAYWARD RD	RESIDENTIAL	12/12/23	\$255,000	\$275,100	1.08
7591	114 DANIEL RD	RESIDENTIAL	12/12/23	\$375,000	\$304,000	0.81
4545	64 FERNWOOD RD	RESIDENTIAL	12/14/23	\$490,000	\$458,700	0.94
69	1730 STATE ST #U401	RESIDENTIAL	12/14/23	\$100,000	\$95,700	0.96
4821	2390 STATE ST #U2S	RESIDENTIAL	12/14/23	\$165,000	\$167,400	1.01
3489	173 GORHAM AVE	RESIDENTIAL	12/15/23	\$255,000	\$257,200	1.01
5981	58 CHESTER ST	RESIDENTIAL	12/15/23	\$285,000	\$278,600	0.98
16009	3208 WHITNEY AVE #U8A	RESIDENTIAL	12/15/23	\$205,000	\$191,800	0.94
100077	13 VICTOR ST	RESIDENTIAL	12/15/23	\$330,000	\$368,200	1.12
124	33 WEBB ST	RESIDENTIAL	12/18/23	\$289,000	\$276,400	0.96
2324	121 FURMAN RD	RESIDENTIAL	12/18/23	\$250,000	\$243,700	0.97
7053	85 FORD ST	RESIDENTIAL	12/18/23	\$306,000	\$304,100	0.99
9531	101 RUSSELL ST	RESIDENTIAL	12/18/23	\$380,000	\$354,400	0.93
6938	64 NORTH LAKE DR #64C2	RESIDENTIAL	12/18/23	\$300,000	\$364,200	1.21
9914	105 SWARTHMORE ST	RESIDENTIAL	12/19/23	\$475,000	\$462,000	0.97
10275	26 UNDERHILL RD	RESIDENTIAL	12/19/23	\$550,000	\$562,500	1.02
17016	99 MCDERMOTT CR	RESIDENTIAL	12/19/23	\$400,000	\$384,500	0.96
596	83 BURKE ST	RESIDENTIAL	12/20/23	\$265,000	\$261,300	0.99
7951	61 INGLESIDE DR	RESIDENTIAL	12/20/23	\$340,000	\$305,200	0.90
8776	208 GRANDVIEW AVE	RESIDENTIAL	12/20/23	\$350,000	\$345,000	0.99
12911	33 SCHOOL ST #U33A	RESIDENTIAL	12/20/23	\$179,900	\$176,300	0.98
11645	194 TOWNE HOUSE RD #U194	RESIDENTIAL	12/21/23	\$190,000	\$177,900	0.94
103231	39 IVES ST #U110	RESIDENTIAL	12/21/23	\$321,900	\$306,800	0.95
7885	60 ORCHARD HEIGHTS DR	RESIDENTIAL	12/22/23	\$330,000	\$304,800	0.92
14745	65 NORWOOD AVE	RESIDENTIAL	12/22/23	\$325,000	\$295,300	0.91
15431	650 EVERGREEN AVE	RESIDENTIAL	12/22/23	\$359,000	\$359,100	1.00
4819	2390 STATE ST #U2Y	RESIDENTIAL	12/22/23	\$165,000	\$168,200	1.02
102653	25 HAMDEN HILLS DR #U34	RESIDENTIAL	12/22/23	\$330,000	\$328,200	0.99
4226	42 TURNOR AVE	RESIDENTIAL	12/22/23	\$365,000	\$391,400	1.07
100163	2175 DIXWELL AVE	COMMERCIAL	12/22/23	\$3,300,000	\$3,189,700	0.97
45	1730 STATE ST #U209	RESIDENTIAL	12/26/23	\$100,000	\$95,700	0.96
61	1730 STATE ST #U309	RESIDENTIAL	12/26/23	\$100,000	\$95,700	0.96
14871	795 HILL ST	RESIDENTIAL	12/27/23	\$319,000	\$336,500	1.05
12429	33 SHERMAN LA #UC3	RESIDENTIAL	12/27/23	\$190,000	\$186,800	0.98
1440	168 MORSE ST	RESIDENTIAL	12/28/23	\$300,000	\$275,600	0.92
10889	76 EAST GATE LA #U76	RESIDENTIAL	12/28/23	\$231,000	\$261,900	1.13
11338	900 MIX AVE #U35	RESIDENTIAL	12/28/23	\$235,000	\$226,600	0.96

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
5086	80 STANLEY RD	RESIDENTIAL	12/29/23	\$316,000	\$295,500	0.94
12178	829 PARADISE AVE	RESIDENTIAL	12/29/23	\$350,000	\$341,700	0.98
11460	8 TOWNE HOUSE RD #U8	RESIDENTIAL	01/02/24	\$178,500	\$189,300	1.06
3597	61 ROCHFORD AVE	RESIDENTIAL	01/03/24	\$265,000	\$248,300	0.94
11951	1180 MAIN ST	RESIDENTIAL	01/03/24	\$375,000	\$438,800	1.17
12415	39 SHERMAN LA #UC6	RESIDENTIAL	01/03/24	\$225,000	\$221,200	0.98
16847	2 POND HOLLOW DR #U2	RESIDENTIAL	01/03/24	\$185,000	\$184,000	0.99
11423	900 MIX AVE #U54	RESIDENTIAL	01/04/24	\$210,000	\$191,700	0.91
2207	176 LONDON DR	RESIDENTIAL	01/08/24	\$325,000	\$323,400	1.00
7832	36 DUNBAR LA	RESIDENTIAL	01/08/24	\$425,000	\$436,000	1.03
16855	10 POND HOLLOW DR #U10	RESIDENTIAL	01/08/24	\$205,000	\$184,800	0.90
103190	157 LEEDER HILL DR #U404	RESIDENTIAL	01/08/24	\$288,000	\$303,700	1.05
802	43 ARCH ST	RESIDENTIAL	01/08/24	\$308,000	\$342,400	1.11
14101	9 VALLEY VIEW DR #9	RESIDENTIAL	01/09/24	\$250,000	\$242,600	0.97
11904	2676 DIXWELL AVE	RESIDENTIAL	01/10/24	\$345,000	\$418,500	1.21
4573	50 MYRA RD	RESIDENTIAL	01/11/24	\$468,000	\$468,400	1.00
2146	14 JEAN ST	RESIDENTIAL	01/11/24	\$335,000	\$337,700	1.01
137	296 WELTON ST	RESIDENTIAL	01/12/24	\$275,000	\$260,800	0.95
4699	137 HEPBURN RD	RESIDENTIAL	01/12/24	\$350,000	\$396,400	1.13
15092	43 TIMBERWOOD TRAIL	RESIDENTIAL	01/12/24	\$460,000	\$384,300	0.84
17552	45 CHATTERTON WOODS	RESIDENTIAL	01/16/24	\$550,000	\$552,700	1.00
4474	216 HEPBURN RD	RESIDENTIAL	01/17/24	\$380,000	\$359,700	0.95
7409	677 HARTFORD TPK	RESIDENTIAL	01/17/24	\$390,000	\$376,100	0.96
9434	145 HARMON ST	RESIDENTIAL	01/17/24	\$315,000	\$385,900	1.23
9904	90 HAVERFORD ST	RESIDENTIAL	01/17/24	\$355,000	\$366,300	1.03
12411	69 WESTMINSTER ST	RESIDENTIAL	01/17/24	\$410,000	\$349,500	0.85
15538	219 SOUTH NEW RD	RESIDENTIAL	01/17/24	\$320,000	\$258,800	0.81
15945	240 KENWOOD AVE	RESIDENTIAL	01/17/24	\$425,000	\$425,500	1.00
4812	2390 STATE ST #U2F	RESIDENTIAL	01/17/24	\$225,000	\$215,000	0.96
6848	1410 WHITNEY AVE #UA2	RESIDENTIAL	01/17/24	\$217,000	\$212,200	0.98
5721	50 DANTE PL	RESIDENTIAL	01/17/24	\$400,000	\$397,000	0.99
13003	1 WASHINGTON RD	RESIDENTIAL	01/18/24	\$290,000	\$268,000	0.92
6867	1412 WHITNEY AVE #UH1	RESIDENTIAL	01/19/24	\$189,900	\$187,100	0.99
10951	138 EAST GATE LA #U138	RESIDENTIAL	01/19/24	\$241,000	\$228,700	0.95
17865	230 SIX ROD HWY	RESIDENTIAL	01/22/24	\$656,000	\$687,400	1.05
15254	113 KNOB HILL DR	RESIDENTIAL	01/23/24	\$286,000	\$316,600	1.11
16846	1 POND HOLLOW DR #U1	RESIDENTIAL	01/23/24	\$210,000	\$188,800	0.90
6363	35 BLUE HILLS AVE	RESIDENTIAL	01/24/24	\$400,000	\$339,600	0.85
10189	149 SANTA FE AVE	RESIDENTIAL	01/24/24	\$790,000	\$700,200	0.89

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
12943	39 LINCOLN ST	RESIDENTIAL	01/25/24	\$331,000	\$318,800	0.96
6492	56 CONCORD ST	RESIDENTIAL	01/26/24	\$255,000	\$273,900	1.07
8745	284 BATTIS RD	RESIDENTIAL	01/26/24	\$275,000	\$274,800	1.00
10249	123 HAVERFORD ST	RESIDENTIAL	01/26/24	\$415,755	\$398,500	0.96
14260	76 CANNON ST	RESIDENTIAL	01/26/24	\$365,000	\$349,300	0.96
9639	150 WAKEFIELD ST	RESIDENTIAL	01/29/24	\$499,000	\$462,100	0.93
9772	17 WAKEFIELD ST	RESIDENTIAL	01/29/24	\$302,450	\$374,200	1.24
12822	33 EVERGREEN AVE	RESIDENTIAL	01/29/24	\$355,000	\$297,200	0.84
6947	66 NORTH LAKE DR #66D1	RESIDENTIAL	01/30/24	\$168,083	\$168,000	1.00
5188	312 BELDEN RD	RESIDENTIAL	01/31/24	\$335,000	\$325,800	0.97
13461	75 WASHINGTON AVE #5205	RESIDENTIAL	01/31/24	\$175,900	\$177,500	1.01
20174	4 INDUSTRIAL CR	COMMERCIAL	01/31/24	\$650,000	\$631,900	0.97
3994	49 CLIFFORD ST	RESIDENTIAL	02/01/24	\$341,000	\$326,600	0.96
37	1730 STATE ST #U201	RESIDENTIAL	02/01/24	\$110,000	\$102,200	0.93
11264	15 ADLA DR	RESIDENTIAL	02/02/24	\$345,000	\$350,700	1.02
17611	31 OCTOBER HILL RD	RESIDENTIAL	02/02/24	\$385,000	\$376,200	0.98
829	64 WARNER ST	RESIDENTIAL	02/02/24	\$335,000	\$317,000	0.95
691	75 NORTH ST	RESIDENTIAL	02/05/24	\$245,999	\$229,300	0.93
5192	338 BELDEN RD	RESIDENTIAL	02/05/24	\$250,000	\$245,100	0.98
4640	39 CURRY RD	RESIDENTIAL	02/06/24	\$320,000	\$355,700	1.11
16558	1616 SHEPARD AVE	RESIDENTIAL	02/06/24	\$340,000	\$329,600	0.97
13688	383 HILL ST	RESIDENTIAL	02/06/24	\$280,000	\$349,300	1.25
11443	900 MIX AVE #U56	RESIDENTIAL	02/06/24	\$225,000	\$214,200	0.95
2422	2 VICTORIA CT	RESIDENTIAL	02/08/24	\$320,000	\$328,500	1.03
17687	50 BIRCHWOOD DR	RESIDENTIAL	02/14/24	\$550,000	\$601,600	1.09
18221	9 BITTERSWEET LA	RESIDENTIAL	02/14/24	\$360,000	\$389,300	1.08
4030	37 MATHER ST	RESIDENTIAL	02/14/24	\$550,000	\$601,400	1.09
20593	1380 DIXWELL AVE	COMMERCIAL	02/14/24	\$400,000	\$295,700	0.74
4097	35 CLIFFORD ST	RESIDENTIAL	02/15/24	\$299,000	\$283,800	0.95
4985	149 JENNIFER RD	RESIDENTIAL	02/15/24	\$425,000	\$407,500	0.96
4999	118 COUNTRY HILLS RD	RESIDENTIAL	02/15/24	\$360,000	\$393,500	1.09
6904	22 NORTH LAKE DR #22B1	RESIDENTIAL	02/15/24	\$401,400	\$345,200	0.86
7057	15 DOREN AVE	RESIDENTIAL	02/16/24	\$289,900	\$315,800	1.09
7902	50 HODDER RD	RESIDENTIAL	02/20/24	\$300,000	\$307,200	1.02
6651	45 MANOR ST	RESIDENTIAL	02/21/24	\$355,000	\$317,600	0.89
7816	25 CASSELLA DR	RESIDENTIAL	02/21/24	\$485,000	\$521,900	1.08
15183	62 COSTANZO CT	RESIDENTIAL	02/21/24	\$330,000	\$378,500	1.15
32	1730 STATE ST #U105	RESIDENTIAL	02/21/24	\$100,000	\$94,300	0.94
5741	34 CHESTER ST	RESIDENTIAL	02/22/24	\$315,000	\$326,400	1.04

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
406	300 PINE ROCK AVE #A13	RESIDENTIAL	02/22/24	\$110,000	\$112,000	1.02
408	300 PINE ROCK AVE #A6	RESIDENTIAL	02/22/24	\$99,091	\$94,200	0.95
412	300 PINE ROCK AVE #A5	RESIDENTIAL	02/22/24	\$110,000	\$110,100	1.00
416	300 PINE ROCK AVE #A16	RESIDENTIAL	02/22/24	\$99,091	\$94,800	0.96
417	300 PINE ROCK AVE #A17	RESIDENTIAL	02/22/24	\$110,000	\$110,200	1.00
419	302 PINE ROCK AVE #B2	RESIDENTIAL	02/22/24	\$99,091	\$90,100	0.91
421	302 PINE ROCK AVE #B4	RESIDENTIAL	02/22/24	\$99,091	\$94,100	0.95
423	302 PINE ROCK AVE #B6	RESIDENTIAL	02/22/24	\$99,091	\$94,400	0.95
433	302 PINE ROCK AVE #B16	RESIDENTIAL	02/22/24	\$99,091	\$93,700	0.95
437	302 PINE ROCK AVE #B23	RESIDENTIAL	02/22/24	\$110,000	\$110,400	1.00
454	304 PINE ROCK AVE #C6	RESIDENTIAL	02/22/24	\$99,091	\$96,400	0.97
458	306 PINE ROCK AVE #D1	RESIDENTIAL	02/22/24	\$110,000	\$108,500	0.99
459	306 PINE ROCK AVE #D10	RESIDENTIAL	02/22/24	\$99,091	\$92,500	0.93
463	306 PINE ROCK AVE #D6	RESIDENTIAL	02/22/24	\$99,091	\$92,900	0.94
468	306 PINE ROCK AVE #D12	RESIDENTIAL	02/22/24	\$99,091	\$92,700	0.94
472	306 PINE ROCK AVE #D16	RESIDENTIAL	02/22/24	\$99,091	\$95,000	0.96
475	306 PINE ROCK AVE #D19	RESIDENTIAL	02/22/24	\$110,000	\$110,600	1.01
2323	129 FURMAN RD	RESIDENTIAL	02/23/24	\$250,000	\$247,500	0.99
5424	19 BROOK ST	RESIDENTIAL	02/23/24	\$358,000	\$347,400	0.97
11533	81 TOWNE HOUSE RD #U81	RESIDENTIAL	02/23/24	\$190,000	\$179,700	0.95
7851	157 DUNBAR LA	RESIDENTIAL	02/26/24	\$417,000	\$391,500	0.94
5315	50 BELDEN RD	RESIDENTIAL	02/27/24	\$390,000	\$344,300	0.88
5838	91 PEARL AVE	RESIDENTIAL	02/27/24	\$220,000	\$251,100	1.14
13811	20 FUNARO RD	RESIDENTIAL	02/27/24	\$374,720	\$354,200	0.95
14641	59 ROLLING RIDGE RD	RESIDENTIAL	02/27/24	\$415,000	\$389,700	0.94
285	16 HIGH TOP CR EAST	RESIDENTIAL	02/28/24	\$296,000	\$279,200	0.94
3623	148 CIRCULAR AVE	RESIDENTIAL	02/28/24	\$275,000	\$278,500	1.01
17056	348 STILL HILL RD	RESIDENTIAL	02/28/24	\$360,000	\$367,500	1.02
3065	26 BEAVER ST	RESIDENTIAL	03/01/24	\$281,000	\$264,400	0.94
3164	50 HELEN ST	RESIDENTIAL	03/01/24	\$245,000	\$257,400	1.05
14572	440 EVERGREEN AVE	RESIDENTIAL	03/01/24	\$315,000	\$312,900	0.99
10446	820 HARTFORD TPK	RESIDENTIAL	03/04/24	\$925,000	\$851,500	0.92
13685	413 HILL ST	RESIDENTIAL	03/04/24	\$439,000	\$428,800	0.98
9125	365 MATHER ST #U140	RESIDENTIAL	03/04/24	\$189,900	\$208,200	1.10
17615	75 TOM SWAMP RD	VACANT LAND	03/04/24	\$60,000	\$77,700	1.30
10291	1026 RIDGE RD	RESIDENTIAL	03/05/24	\$570,000	\$489,500	0.86
12984	2459 WHITNEY AVE #U2	RESIDENTIAL	03/05/24	\$135,000	\$128,800	0.95
9347	119 ARDMORE ST	RESIDENTIAL	03/06/24	\$450,000	\$448,200	1.00
53	1730 STATE ST #U301	RESIDENTIAL	03/06/24	\$100,000	\$95,700	0.96

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
14852	874 HILL ST	RESIDENTIAL	03/07/24	\$350,000	\$334,200	0.95
5663	658 PINE ROCK AVE	RESIDENTIAL	03/08/24	\$275,000	\$291,900	1.06
783	44 DIX ST	RESIDENTIAL	03/08/24	\$237,000	\$256,100	1.08
2789	18 ROCKWOOD RD	RESIDENTIAL	03/12/24	\$385,000	\$330,500	0.86
2835	69 WESTVIEW ST	RESIDENTIAL	03/12/24	\$243,000	\$251,300	1.03
5118	155 WEST SIDE DR	RESIDENTIAL	03/12/24	\$279,900	\$263,700	0.94
13621	1314 DUNBAR HILL RD	RESIDENTIAL	03/12/24	\$449,000	\$392,300	0.87
310	203 HIGH TOP CR WEST #U25A	RESIDENTIAL	03/12/24	\$190,000	\$186,300	0.98
14640	47 ROLLING RIDGE RD	RESIDENTIAL	03/13/24	\$429,000	\$388,700	0.91
120	1 WEBB ST	RESIDENTIAL	03/13/24	\$235,000	\$294,600	1.25
3290	54 WOODIN ST	RESIDENTIAL	03/15/24	\$330,000	\$310,600	0.94
462	306 PINE ROCK AVE #D4	RESIDENTIAL	03/15/24	\$61,000	\$88,600	1.45
14325	63 CHARLTON HILL #U63	RESIDENTIAL	03/15/24	\$285,000	\$277,200	0.97
8477	11 HIGHWOOD AVE	RESIDENTIAL	03/18/24	\$315,000	\$272,400	0.86
6323	1690 DIXWELL AVE #D-6	RESIDENTIAL	03/18/24	\$126,900	\$131,400	1.04
7156	1559 WHITNEY AVE	RESIDENTIAL	03/19/24	\$305,000	\$276,500	0.91
17336	51 NORTH WOODS RD	RESIDENTIAL	03/20/24	\$635,000	\$560,500	0.88
2772	48 SUNSET RD	RESIDENTIAL	03/21/24	\$315,000	\$303,900	0.96
100762	3825 WHITNEY AVE	COMMERCIAL	03/21/24	\$850,000	\$835,100	0.98
2873	22 WESTERFIELD RD	RESIDENTIAL	03/22/24	\$340,000	\$283,300	0.83
13434	75 WASHINGTON AVE #8204	RESIDENTIAL	03/22/24	\$256,000	\$244,700	0.96
2667	67 LONGMEADOW AVE	RESIDENTIAL	03/25/24	\$320,000	\$301,000	0.94
10447	780 HARTFORD TPK	RESIDENTIAL	03/26/24	\$386,000	\$400,800	1.04
15387	51 HOME PL	RESIDENTIAL	03/26/24	\$305,000	\$319,300	1.05
358	255 PINE ROCK AVE #U15	RESIDENTIAL	03/26/24	\$175,000	\$97,900	0.56
20214	323 GOODRICH ST	RESIDENTIAL	03/26/24	\$345,500	\$407,300	1.18
18173	45 OLD LANE RD	RESIDENTIAL	03/27/24	\$591,000	\$504,100	0.85
6554	13 MANILA AVE	RESIDENTIAL	03/28/24	\$265,000	\$268,300	1.01
4974	37 JENNIFER RD	RESIDENTIAL	04/01/24	\$421,000	\$372,500	0.88
6105	96 PIPER RD	RESIDENTIAL	04/01/24	\$300,000	\$289,400	0.96
10652	23 MEGIN DR	RESIDENTIAL	04/01/24	\$390,000	\$359,900	0.92
16498	31 BERKELEY CT	RESIDENTIAL	04/01/24	\$465,000	\$458,600	0.99
7556	17 WILLIAMSON RD	RESIDENTIAL	04/02/24	\$410,000	\$362,500	0.88
8080	151 LEONARD RD	RESIDENTIAL	04/02/24	\$319,900	\$350,400	1.10
15822	324 KENWOOD AVE	RESIDENTIAL	04/02/24	\$341,000	\$296,900	0.87
12534	175 MILL POND RD #U323	RESIDENTIAL	04/02/24	\$148,625	\$140,700	0.95
7460	540 HARTFORD TPK	RESIDENTIAL	04/03/24	\$320,000	\$385,100	1.20
13535	41 MAHER AVE	RESIDENTIAL	04/03/24	\$416,000	\$351,200	0.84
15550	31 IVES ST	RESIDENTIAL	04/04/24	\$365,000	\$300,900	0.82

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
18275	80 WILLOWCREST DR	RESIDENTIAL	04/04/24	\$437,000	\$411,600	0.94
15444	28 MURLYN RD	VACANT LAND	04/04/24	\$67,000	\$80,100	1.20
12771	151 COLONY ST	RESIDENTIAL	04/05/24	\$375,000	\$431,100	1.15
6002	1 GILBERT AVE	RESIDENTIAL	04/08/24	\$380,000	\$397,600	1.05
20316	40 FIRST ST	RESIDENTIAL	04/08/24	\$540,000	\$577,500	1.07
10604	18 COOPER LA	RESIDENTIAL	04/09/24	\$330,000	\$298,500	0.90
14476	89 FOREST ST	RESIDENTIAL	04/10/24	\$335,000	\$295,800	0.88
15814	161 SLEEPING GIANT DR	RESIDENTIAL	04/10/24	\$340,000	\$316,300	0.93
9950	119 CARMALT RD	RESIDENTIAL	04/11/24	\$418,000	\$386,900	0.93
15224	265 ANNS FARM RD	RESIDENTIAL	04/11/24	\$405,000	\$354,400	0.88
18175	4500 WHITNEY AVE	RESIDENTIAL	04/11/24	\$381,500	\$418,400	1.10
8693	291 BATTIS RD	RESIDENTIAL	04/12/24	\$305,000	\$292,100	0.96
11529	77 TOWNE HOUSE RD #U77	RESIDENTIAL	04/12/24	\$170,000	\$186,400	1.10
5193	142 TWIN BROOK RD	RESIDENTIAL	04/15/24	\$323,900	\$312,800	0.97
15136	60 NUTMEG HILL RD	RESIDENTIAL	04/16/24	\$510,000	\$464,000	0.91
18220	34 HUNTINGTON CR	RESIDENTIAL	04/16/24	\$455,000	\$377,200	0.83
10934	121 EAST GATE LA #U121	RESIDENTIAL	04/16/24	\$230,000	\$225,100	0.98
17564	575 STILL HILL RD	RESIDENTIAL	04/18/24	\$385,000	\$371,100	0.96
13392	75 WASHINGTON AVE #6302	RESIDENTIAL	04/19/24	\$175,000	\$171,500	0.98
6498	55 BEACON ST	RESIDENTIAL	04/19/24	\$515,000	\$472,300	0.92
3384	157 FIRST ST	RESIDENTIAL	04/22/24	\$330,000	\$292,000	0.88
6076	99 VALLEY RD	RESIDENTIAL	04/22/24	\$293,000	\$258,900	0.88
14273	11 CHARLTON HILL #U11	RESIDENTIAL	04/22/24	\$324,000	\$295,600	0.91
123002	17 WAYNE ST	COMMERCIAL	04/22/24	\$157,500	\$149,000	0.95
8547	30 ARCADIA AVE	RESIDENTIAL	04/23/24	\$296,000	\$273,800	0.93
3572	116 HELEN ST	RESIDENTIAL	04/23/24	\$425,000	\$460,600	1.08
12082	320 HILL ST	RESIDENTIAL	04/24/24	\$280,000	\$294,800	1.05
10565	654 GILBERT AVE	RESIDENTIAL	04/24/24	\$525,000	\$465,300	0.89
6065	38 VALLEY RD	RESIDENTIAL	04/26/24	\$285,000	\$283,100	0.99
9769	44 PARK AVE	RESIDENTIAL	04/26/24	\$336,150	\$289,600	0.86
12523	175 MILL POND RD #U302	RESIDENTIAL	04/26/24	\$147,000	\$140,000	0.95
88	1690 STATE ST	RESIDENTIAL	04/29/24	\$225,000	\$234,200	1.04
2519	17 ROCKWOOD RD	RESIDENTIAL	04/29/24	\$320,000	\$312,000	0.98
4429	46 GLENDALE ST	RESIDENTIAL	04/29/24	\$280,000	\$274,400	0.98
3149	34 MURRAY ST	RESIDENTIAL	04/30/24	\$325,000	\$302,800	0.93
12871	49 WASHINGTON AVE	RESIDENTIAL	04/30/24	\$270,000	\$279,000	1.03
17352	22 OLD PASTURE RD	RESIDENTIAL	04/30/24	\$750,000	\$849,500	1.13
13054	131 SCHOOL ST	RESIDENTIAL	04/30/24	\$415,000	\$415,000	1.00
125523	35 CORPORATE RIDGE #U6	COMMERCIAL	04/30/24	\$126,000	\$106,800	0.85

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
125534	35 CORPORATE RIDGE #U7	COMMERCIAL	04/30/24	\$126,000	\$99,300	0.79
102629	25 HAMDEN HILLS DR #U20	RESIDENTIAL	05/01/24	\$375,000	\$336,600	0.90
1633	14 BRIAR LA	RESIDENTIAL	05/02/24	\$835,000	\$755,600	0.90
9676	41 ELIHU ST	RESIDENTIAL	05/02/24	\$517,000	\$450,600	0.87
9830	46 SWARTHMORE ST	RESIDENTIAL	05/02/24	\$700,000	\$676,000	0.97
446	304 PINE ROCK AVE #C17	RESIDENTIAL	05/02/24	\$114,000	\$106,600	0.94
6893	1412 WHITNEY AVE #UE3	RESIDENTIAL	05/02/24	\$203,000	\$198,100	0.98
5094	44 COUNTRY HILLS RD	RESIDENTIAL	05/03/24	\$400,000	\$378,700	0.95
7842	87 DUNBAR LA	RESIDENTIAL	05/03/24	\$530,000	\$495,500	0.93
11992	6 NORMAN RD	RESIDENTIAL	05/03/24	\$330,000	\$321,900	0.98
11674	172 HOWARD DR	RESIDENTIAL	05/06/24	\$420,000	\$369,500	0.88
125374	238 WINTERGREEN AVE	RESIDENTIAL	05/06/24	\$540,000	\$472,900	0.88
125365	236 WINTERGREEN AVE	RESIDENTIAL	05/07/24	\$540,000	\$461,300	0.85
16242	373 JOYCE RD	RESIDENTIAL	05/08/24	\$340,000	\$314,300	0.92
16330	200 JOHNSON RD	RESIDENTIAL	05/08/24	\$460,000	\$447,200	0.97
804	51 ARCH ST	RESIDENTIAL	05/08/24	\$380,000	\$342,200	0.90
16190	856 WEST WOODS RD	RESIDENTIAL	05/09/24	\$525,000	\$429,800	0.82
18092	915 TUTTLE AVE	RESIDENTIAL	05/09/24	\$300,000	\$361,300	1.20
4578	365 RIDGE RD	RESIDENTIAL	05/10/24	\$580,000	\$528,100	0.91
13961	56 HEATHER RD	RESIDENTIAL	05/10/24	\$335,000	\$333,100	0.99
17707	208 GARVIN RD	RESIDENTIAL	05/10/24	\$450,000	\$383,000	0.85
18149	137 WILLOWCREST DR	RESIDENTIAL	05/10/24	\$415,000	\$395,800	0.95
9161	365 MATHER ST #U176	RESIDENTIAL	05/10/24	\$150,000	\$150,500	1.00
10961	148 EAST GATE LA #U148	RESIDENTIAL	05/10/24	\$250,000	\$248,600	0.99
16419	845 WEST WOODS RD	RESIDENTIAL	05/13/24	\$659,900	\$663,900	1.01
16854	9 POND HOLLOW DR #U9	RESIDENTIAL	05/13/24	\$177,900	\$184,300	1.04
20341	1158 DIXWELL AVE	COMMERCIAL	05/13/24	\$2,900,000	\$2,877,600	0.99
1520	103 MORSE ST	RESIDENTIAL	05/14/24	\$290,000	\$257,700	0.89
4616	56 MULBERRY HILL ST	RESIDENTIAL	05/14/24	\$780,000	\$796,900	1.02
4986	161 JENNIFER RD	RESIDENTIAL	05/14/24	\$405,000	\$389,300	0.96
6352	102 BLUE HILLS AVE	RESIDENTIAL	05/14/24	\$360,000	\$288,700	0.80
8304	167 LANE ST	RESIDENTIAL	05/14/24	\$351,000	\$331,200	0.94
15308	169 KNOB HILL DR	RESIDENTIAL	05/14/24	\$383,000	\$343,700	0.90
11114	958 DUNBAR HILL RD	RESIDENTIAL	05/14/24	\$430,000	\$405,600	0.94
3979	139 TREADWELL ST	RESIDENTIAL	05/15/24	\$440,000	\$384,600	0.87
17499	130 TOM SWAMP RD	RESIDENTIAL	05/15/24	\$305,000	\$297,700	0.98
782	52 DIX ST	RESIDENTIAL	05/16/24	\$298,000	\$280,100	0.94
1892	50 QUAKER RD	RESIDENTIAL	05/16/24	\$286,000	\$259,500	0.91
14147	188 ANNS FARM RD	RESIDENTIAL	05/16/24	\$395,000	\$371,200	0.94

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
10962	149 EAST GATE LA #U149	RESIDENTIAL	05/16/24	\$240,000	\$232,100	0.97
103289	39 IVES ST #U404	RESIDENTIAL	05/16/24	\$290,000	\$279,200	0.96
8324	39 KATHRINE DR	RESIDENTIAL	05/20/24	\$270,000	\$301,700	1.12
16907	160 GAYLORD MT RD	VACANT LAND	05/20/24	\$61,500	\$69,900	1.14
20467	1182 WHITNEY AVE	COMMERCIAL	05/20/24	\$375,000	\$354,000	0.94
1407	149 GOODRICH ST	RESIDENTIAL	05/21/24	\$317,000	\$262,500	0.83
6061	53 GILBERT AVE	RESIDENTIAL	05/21/24	\$282,400	\$292,300	1.04
9227	465 MIX AVE #BB8	RESIDENTIAL	05/21/24	\$270,000	\$298,900	1.11
9728	56 HAWTHORNE AVE	RESIDENTIAL	05/21/24	\$400,000	\$350,300	0.88
8812	40 BALDWIN RD	RESIDENTIAL	05/22/24	\$310,000	\$292,400	0.94
6015	72 BATTIS RD	RESIDENTIAL	05/22/24	\$368,000	\$338,400	0.92
14979	52 LAURA RD	RESIDENTIAL	05/22/24	\$424,000	\$390,600	0.92
11410	900 MIX AVE #U34	RESIDENTIAL	05/23/24	\$250,000	\$235,000	0.94
17675	14 FRAZIER RD	RESIDENTIAL	05/24/24	\$510,000	\$431,800	0.85
2991	7 LACONIA ST	RESIDENTIAL	05/28/24	\$347,000	\$306,700	0.88
7683	27 MAPLE ST	RESIDENTIAL	05/28/24	\$275,000	\$269,400	0.98
13993	114 FLOWER DR	RESIDENTIAL	05/28/24	\$390,000	\$368,400	0.94
906	84 ALSTRUM ST	RESIDENTIAL	05/29/24	\$235,000	\$234,300	1.00
2525	14 ROCKVIEW RD	RESIDENTIAL	05/29/24	\$371,000	\$338,600	0.91
103199	157 LEEDER HILL DR #U504	RESIDENTIAL	05/29/24	\$310,000	\$294,600	0.95
20148	852 DIXWELL AVE	COMMERCIAL	05/29/24	\$500,000	\$486,600	0.97
2362	486 WOODIN ST	RESIDENTIAL	05/30/24	\$337,000	\$335,700	1.00
7743	561 WINTERGREEN AVE	RESIDENTIAL	05/30/24	\$470,000	\$407,100	0.87
18123	2620 DOWNES RD	RESIDENTIAL	05/30/24	\$359,900	\$341,900	0.95
103195	157 LEEDER HILL DR #U409	RESIDENTIAL	05/30/24	\$235,000	\$189,200	0.81
1291	20 FARNSWORTH ST	RESIDENTIAL	05/31/24	\$370,000	\$347,200	0.94
3414	4 DALLAS ST	RESIDENTIAL	05/31/24	\$305,000	\$267,200	0.88
5552	239 BROOK ST	RESIDENTIAL	05/31/24	\$350,000	\$335,600	0.96
5865	14 VILLAGE CR	RESIDENTIAL	05/31/24	\$320,000	\$304,400	0.95
11616	164 TOWNE HOUSE RD #U164	RESIDENTIAL	05/31/24	\$151,500	\$162,200	1.07
6130	30 GILBERT AVE	RESIDENTIAL	06/03/24	\$288,000	\$283,500	0.98
9569	174 GREENWAY ST	RESIDENTIAL	06/03/24	\$363,500	\$397,700	1.09
10454	2976 STATE ST	RESIDENTIAL	06/03/24	\$245,000	\$249,600	1.02
12380	155 BRAESIDE DR	RESIDENTIAL	06/03/24	\$400,000	\$366,800	0.92
15659	49 TROIANO RD	RESIDENTIAL	06/03/24	\$425,000	\$348,200	0.82
16303	25 RUSSO DR	RESIDENTIAL	06/03/24	\$384,000	\$340,000	0.89
17397	61 NORTH WOODS RD	VACANT LAND	06/03/24	\$75,000	\$77,700	1.04
1654	27 LAUREL RD	RESIDENTIAL	06/04/24	\$925,000	\$856,400	0.93
13041	106 COLONIAL DR	RESIDENTIAL	06/04/24	\$316,000	\$274,200	0.87

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
14725	70 NORWOOD AVE	RESIDENTIAL	06/04/24	\$340,000	\$305,100	0.90
17636	640 STILL HILL RD	RESIDENTIAL	06/04/24	\$445,000	\$384,900	0.86
14975	1551 PARADISE AVE	RESIDENTIAL	06/05/24	\$550,000	\$529,500	0.96
1136	434 SHELTON AVE	RESIDENTIAL	06/05/24	\$399,000	\$464,000	1.16
100447	900 SHERMAN AVE	COMMERCIAL	06/05/24	\$580,000	\$358,800	0.62
7147	1566 WHITNEY AVE	RESIDENTIAL	06/06/24	\$440,000	\$406,900	0.92
9685	58 ELIHU ST	RESIDENTIAL	06/06/24	\$445,000	\$416,700	0.94
9423	37 INGRAM ST	RESIDENTIAL	06/07/24	\$390,000	\$423,600	1.09
10101	192 RIDGEWOOD AVE	RESIDENTIAL	06/07/24	\$865,000	\$763,900	0.88
124975	2720 STATE ST #4-26	RESIDENTIAL	06/07/24	\$320,000	\$287,200	0.90
3829	25 WINNETT ST	RESIDENTIAL	06/07/24	\$500,000	\$444,300	0.89
1648	224 EDGEHILL RD	RESIDENTIAL	06/10/24	\$1,201,111	\$960,300	0.80
11030	47 NORRIS ST	RESIDENTIAL	06/10/24	\$507,500	\$488,600	0.96
6485	18 CONCORD ST	RESIDENTIAL	06/10/24	\$420,000	\$343,600	0.82
2701	66 OBERLIN RD	RESIDENTIAL	06/11/24	\$285,000	\$282,200	0.99
8897	14 HOPE AVE	RESIDENTIAL	06/11/24	\$285,000	\$253,100	0.89
15106	167 ROCKY TOP RD	RESIDENTIAL	06/11/24	\$380,000	\$448,100	1.18
6309	1690 DIXWELL AVE #C-8	RESIDENTIAL	06/11/24	\$155,000	\$127,100	0.82
10990	707 MIX AVE #U1-1	RESIDENTIAL	06/11/24	\$200,000	\$193,500	0.97
16003	3208 WHITNEY AVE #U6E	RESIDENTIAL	06/11/24	\$250,000	\$243,700	0.97
100392	2590 WHITNEY AVE	COMMERCIAL	06/11/24	\$499,000	\$494,600	0.99
3315	47 FIRST ST	RESIDENTIAL	06/13/24	\$290,000	\$274,500	0.95
12317	430 SHEPARD AVE	RESIDENTIAL	06/13/24	\$350,000	\$370,100	1.06
15456	27 KNOB HILL DR	RESIDENTIAL	06/13/24	\$339,000	\$328,900	0.97
4877	2390 STATE ST #L16F	RESIDENTIAL	06/13/24	\$325,000	\$309,700	0.95
124969	2720 STATE ST #5-32	RESIDENTIAL	06/13/24	\$320,000	\$301,600	0.94
100269	2911 DIXWELL AVE	COMMERCIAL	06/13/24	\$3,200,000	\$3,058,600	0.96
10942	129 EAST GATE LA #U129	RESIDENTIAL	06/14/24	\$257,000	\$233,200	0.91
7638	57 SEBEC ST	RESIDENTIAL	06/17/24	\$330,000	\$291,900	0.88
7265	80 CARROLL RD	RESIDENTIAL	06/17/24	\$323,000	\$381,200	1.18
1901	10 ADDISON RD	RESIDENTIAL	06/18/24	\$365,000	\$333,100	0.91
9272	20 ELGIN ST	RESIDENTIAL	06/18/24	\$500,000	\$438,400	0.88
9312	51 GREENWAY ST	RESIDENTIAL	06/18/24	\$525,000	\$441,800	0.84
6387	131 GRANDVIEW AVE	RESIDENTIAL	06/20/24	\$287,000	\$254,700	0.89
17074	400 WEST TODD ST	RESIDENTIAL	06/20/24	\$540,000	\$553,400	1.02
17476	85 WEST MEADOW RD	RESIDENTIAL	06/20/24	\$556,500	\$505,700	0.91
123521	81 TALMADGE RD	RESIDENTIAL	06/20/24	\$511,000	\$459,000	0.90
2086	48 WINDSOR RD	RESIDENTIAL	06/21/24	\$302,000	\$289,300	0.96
3886	5 HELOISE ST	RESIDENTIAL	06/21/24	\$579,000	\$573,500	0.99

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
8013	208 SANDQUIST CR	RESIDENTIAL	06/21/24	\$410,000	\$337,700	0.82
12851	120 GLEN RIDGE RD	RESIDENTIAL	06/21/24	\$505,000	\$442,000	0.88
7143	1586 WHITNEY AVE	RESIDENTIAL	06/21/24	\$650,000	\$632,500	0.97
2299	495 WOODIN ST	RESIDENTIAL	06/24/24	\$260,000	\$237,000	0.91
12444	72 BRAESIDE DR	RESIDENTIAL	06/24/24	\$420,000	\$364,100	0.87
13593	37 WASHINGTON RD	RESIDENTIAL	06/24/24	\$306,000	\$269,900	0.88
14346	84 CHARLTON HILL #U84	RESIDENTIAL	06/24/24	\$335,000	\$329,700	0.98
16212	24 QUARRY LA	RESIDENTIAL	06/25/24	\$520,000	\$605,100	1.16
2274	429 WOODIN ST	RESIDENTIAL	06/26/24	\$402,000	\$331,300	0.82
15432	160 DICKERMAN ST	RESIDENTIAL	06/26/24	\$260,000	\$286,400	1.10
15115	15 RAINBOW CT	RESIDENTIAL	06/26/24	\$430,000	\$402,100	0.94
282	7 MIDHILL DR	RESIDENTIAL	06/27/24	\$312,000	\$270,900	0.87
9654	160 THORNTON ST	RESIDENTIAL	06/27/24	\$506,000	\$479,400	0.95
10191	165 SANTA FE AVE	RESIDENTIAL	06/27/24	\$660,000	\$556,800	0.84
14518	94 MELROSE DR	RESIDENTIAL	06/27/24	\$370,100	\$309,200	0.84
10122	79 SPRING GLEN TR	RESIDENTIAL	06/28/24	\$860,000	\$726,200	0.84
11111	21 PARTRIDGE CROSSING	RESIDENTIAL	06/28/24	\$501,000	\$537,300	1.07
14361	2838 WHITNEY AVE #U17N	RESIDENTIAL	06/28/24	\$235,000	\$226,100	0.96
1288	261 BLAKE RD	RESIDENTIAL	07/01/24	\$520,000	\$509,300	0.98
2671	47 LONGMEADOW AVE	RESIDENTIAL	07/01/24	\$350,000	\$296,400	0.85
2958	111 GLENBROOK AVE	RESIDENTIAL	07/01/24	\$345,000	\$347,000	1.01
4070	95 GLENDALE ST	RESIDENTIAL	07/01/24	\$345,000	\$299,700	0.87
5943	20 TAFT ST	RESIDENTIAL	07/01/24	\$305,500	\$266,800	0.87
7598	162 DANIEL RD	RESIDENTIAL	07/01/24	\$340,000	\$276,800	0.81
7827	2 DUNBAR LA	RESIDENTIAL	07/01/24	\$440,000	\$414,100	0.94
9935	46 LANSDOWNE AVE	RESIDENTIAL	07/01/24	\$474,000	\$388,600	0.82
10321	54 FENNBROOK DR	RESIDENTIAL	07/01/24	\$865,000	\$897,200	1.04
14515	117 FOREST ST	RESIDENTIAL	07/01/24	\$241,000	\$281,600	1.17
16836	3409 WHITNEY AVE #U27	RESIDENTIAL	07/01/24	\$315,000	\$293,600	0.93
375	175 ARCH ST	RESIDENTIAL	07/02/24	\$298,700	\$303,700	1.02
5498	112 PLEASANT DR	RESIDENTIAL	07/02/24	\$275,000	\$285,400	1.04
5904	425 CIRCULAR AVE	RESIDENTIAL	07/02/24	\$320,000	\$262,800	0.82
16527	1649 SHEPARD AVE	RESIDENTIAL	07/02/24	\$325,000	\$327,200	1.01
20229	896 PROSPECT ST	RESIDENTIAL	07/02/24	\$1,535,000	\$1,418,600	0.92
1768	62 MORRIS ST	RESIDENTIAL	07/03/24	\$285,000	\$240,700	0.84
16214	36 QUARRY LA	RESIDENTIAL	07/03/24	\$581,000	\$630,600	1.09
9348	123 ARDMORE ST	RESIDENTIAL	07/05/24	\$490,000	\$436,700	0.89
7331	26 ORCHARD CT	RESIDENTIAL	07/08/24	\$462,000	\$383,000	0.83
9864	294 RIDGEWOOD AVE	RESIDENTIAL	07/08/24	\$432,000	\$443,400	1.03

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
123622	1 MAPLECREST LA	RESIDENTIAL	07/08/24	\$580,000	\$590,300	1.02
13416	75 WASHINGTON AVE #7302	RESIDENTIAL	07/09/24	\$174,000	\$174,500	1.00
3161	39 HELEN ST	RESIDENTIAL	07/10/24	\$235,000	\$277,300	1.18
8695	132 MAPLEWOOD TR	RESIDENTIAL	07/11/24	\$323,000	\$295,400	0.91
12059	145 HEATHRIDGE RD	RESIDENTIAL	07/11/24	\$385,000	\$342,500	0.89
13526	98 LINCOLN ST	RESIDENTIAL	07/11/24	\$395,000	\$351,400	0.89
16023	100 SHERMAN AVE	RESIDENTIAL	07/11/24	\$365,000	\$349,900	0.96
20044	173 ARCH ST	COMMERCIAL	07/11/24	\$505,000	\$465,100	0.92
1804	15 MORRIS ST	RESIDENTIAL	07/12/24	\$450,000	\$363,000	0.81
14442	41 MARION AVE	RESIDENTIAL	07/12/24	\$300,000	\$282,100	0.94
1780	58 HALL ST	RESIDENTIAL	07/15/24	\$430,000	\$408,600	0.95
8591	57 VANTAGE RD	RESIDENTIAL	07/15/24	\$315,000	\$270,300	0.86
10518	125 HIGH RIDGE RD	RESIDENTIAL	07/15/24	\$442,000	\$434,800	0.98
13975	73 DEST DR	RESIDENTIAL	07/15/24	\$271,100	\$285,000	1.05
16182	72 HIDEAWAY LA	RESIDENTIAL	07/15/24	\$410,000	\$386,700	0.94
17455	4 LANCELOT WAY	RESIDENTIAL	07/15/24	\$850,000	\$782,500	0.92
100754	150 STILL HILL RD	RESIDENTIAL	07/15/24	\$460,000	\$447,000	0.97
9300	315 THORNTON ST	RESIDENTIAL	07/17/24	\$526,000	\$454,500	0.86
16523	1685 SHEPARD AVE	RESIDENTIAL	07/17/24	\$320,000	\$311,200	0.97
17617	40 TOM SWAMP RD	RESIDENTIAL	07/17/24	\$560,000	\$532,900	0.95
12273	4 SHEPARD HILL RD #U4	RESIDENTIAL	07/17/24	\$263,000	\$242,600	0.92
4886	2390 STATE ST #L25C	RESIDENTIAL	07/18/24	\$340,000	\$321,000	0.94
123202	2 LANCELOT WAY	VACANT LAND	07/18/24	\$100,000	\$87,200	0.87
12407	1700 SHERMAN AVE	RESIDENTIAL	07/19/24	\$516,500	\$503,100	0.97
100729	70 NICHOLAS CT	RESIDENTIAL	07/19/24	\$615,000	\$650,000	1.06
5162	141 TWIN BROOK RD	RESIDENTIAL	07/22/24	\$255,000	\$247,300	0.97
6418	15 SAVOY ST	RESIDENTIAL	07/22/24	\$263,000	\$288,500	1.10
11707	72 HOWARD DR	RESIDENTIAL	07/22/24	\$440,000	\$400,700	0.91
13935	15 HEATHER RD	RESIDENTIAL	07/22/24	\$459,000	\$415,300	0.90
1396	337 MILL ROCK RD #U337	RESIDENTIAL	07/23/24	\$195,000	\$166,800	0.86
13288	75 WASHINGTON AVE #4203	RESIDENTIAL	07/23/24	\$164,000	\$155,200	0.95
14264	1 CHARLTON HILL #U1	RESIDENTIAL	07/23/24	\$325,000	\$309,900	0.95
438	304 PINE ROCK AVE #C1	RESIDENTIAL	07/24/24	\$136,000	\$118,800	0.87
4291	104 CARLETON ST	RESIDENTIAL	07/24/24	\$365,000	\$410,200	1.12
4501	21 ROBINWOOD RD	RESIDENTIAL	07/25/24	\$380,000	\$379,200	1.00
11206	64 BROOK HILL RD	RESIDENTIAL	07/25/24	\$385,000	\$340,500	0.88
4077	81 BELMONT ST	RESIDENTIAL	07/26/24	\$325,000	\$288,400	0.89
9607	191 THORNTON ST	RESIDENTIAL	07/26/24	\$525,000	\$434,900	0.83
14566	6 VINE ST	RESIDENTIAL	07/26/24	\$341,000	\$307,600	0.90

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
10910	97 EAST GATE LA #U97	RESIDENTIAL	07/26/24	\$250,000	\$243,000	0.97
102664	25 HAMDEN HILLS DR #U47	RESIDENTIAL	07/26/24	\$300,000	\$300,000	1.00
102680	25 HAMDEN HILLS DR #U68	RESIDENTIAL	07/26/24	\$369,900	\$304,400	0.82
100390	2612 WHITNEY AVE	COMMERCIAL	07/26/24	\$260,000	\$248,800	0.96
1559	53 MORSE ST	RESIDENTIAL	07/29/24	\$330,000	\$288,500	0.87
4289	114 CARLETON ST	RESIDENTIAL	07/29/24	\$376,500	\$342,200	0.91
16774	145 WEST WOODS RD	RESIDENTIAL	07/29/24	\$425,000	\$397,600	0.94
17581	51 WAGNER DR	RESIDENTIAL	07/29/24	\$405,000	\$348,900	0.86
4333	1204 WHITNEY AVE #U306	RESIDENTIAL	07/29/24	\$180,000	\$171,300	0.95
12870	53 WASHINGTON AVE	RESIDENTIAL	07/29/24	\$400,000	\$351,200	0.88
2088	130 HUBBARD RD	RESIDENTIAL	07/30/24	\$327,500	\$318,600	0.97
10893	80 EAST GATE LA #U80	RESIDENTIAL	07/30/24	\$255,000	\$262,800	1.03
1607	994 WINCHESTER AVE	RESIDENTIAL	07/30/24	\$505,000	\$405,200	0.80
2526	22 ROCKVIEW RD	RESIDENTIAL	07/31/24	\$344,500	\$282,200	0.82
102971	15 NATURE TRAIL	RESIDENTIAL	07/31/24	\$650,000	\$637,000	0.98
13603	57 JAMES ST	RESIDENTIAL	08/01/24	\$400,000	\$332,900	0.83
17816	111 GARVIN RD	RESIDENTIAL	08/01/24	\$335,000	\$321,500	0.96
125367	234 WINTERGREEN AVE	RESIDENTIAL	08/01/24	\$539,000	\$468,800	0.87
125372	232 WINTERGREEN AVE	RESIDENTIAL	08/01/24	\$539,000	\$477,700	0.89
11591	139 TOWNE HOUSE RD #U139	RESIDENTIAL	08/01/24	\$125,000	\$103,100	0.82
4148	81 PUTNAM AVE	RESIDENTIAL	08/02/24	\$385,000	\$363,100	0.94
4606	245 HARTFORD TPK	RESIDENTIAL	08/02/24	\$699,500	\$678,900	0.97
12041	1030 DUNBAR HILL RD	RESIDENTIAL	08/02/24	\$435,000	\$366,400	0.84
15264	50 KNOB HILL DR	RESIDENTIAL	08/02/24	\$360,000	\$335,700	0.93
17746	4050 WHITNEY AVE	RESIDENTIAL	08/02/24	\$377,000	\$399,700	1.06
9005	365 MATHER ST #U20	RESIDENTIAL	08/02/24	\$175,000	\$149,700	0.86
6	144 EDGEHILL RD	RESIDENTIAL	08/05/24	\$2,095,000	\$1,810,000	0.86
3498	121 GORHAM AVE	RESIDENTIAL	08/05/24	\$240,000	\$207,900	0.87
5955	125 CHESTER ST	RESIDENTIAL	08/05/24	\$330,000	\$294,600	0.89
8253	311 GILBERT AVE	RESIDENTIAL	08/05/24	\$375,000	\$320,800	0.86
10137	110 CHURCHILL RD	RESIDENTIAL	08/05/24	\$499,000	\$426,700	0.86
14444	29 MARION AVE	RESIDENTIAL	08/05/24	\$365,000	\$331,000	0.91
625	55 WHITING ST	RESIDENTIAL	08/05/24	\$403,000	\$310,300	0.77
7240	85 DESSA DR	RESIDENTIAL	08/06/24	\$453,000	\$404,400	0.89
9360	140 ARDMORE ST	RESIDENTIAL	08/08/24	\$460,000	\$402,600	0.88
11721	72 FARM BROOK CT	RESIDENTIAL	08/08/24	\$562,000	\$506,200	0.90
1219	360 GOODRICH ST	RESIDENTIAL	08/08/24	\$324,900	\$326,300	1.00
6421	18 SAVOY ST	RESIDENTIAL	08/09/24	\$305,000	\$308,700	1.01
125370	6 FIELD VIEW LA	RESIDENTIAL	08/09/24	\$539,000	\$446,900	0.83

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
7254	228 CORBIN RD	RESIDENTIAL	08/12/24	\$360,000	\$336,600	0.94
8800	99 BATTIS RD	RESIDENTIAL	08/12/24	\$334,000	\$290,600	0.87
14186	571 EVERGREEN AVE	RESIDENTIAL	08/12/24	\$340,000	\$317,900	0.94
913	54 ALSTRUM ST	RESIDENTIAL	08/12/24	\$400,000	\$335,400	0.84
16544	124 FANS ROCK RD	RESIDENTIAL	08/13/24	\$540,000	\$480,200	0.89
3649	52 COLLINS ST	RESIDENTIAL	08/13/24	\$400,000	\$452,400	1.13
1625	285 AUGUR ST	RESIDENTIAL	08/14/24	\$337,000	\$304,900	0.90
2491	135 OBERLIN RD	RESIDENTIAL	08/14/24	\$365,000	\$316,700	0.87
15168	2 COSTANZO CT	RESIDENTIAL	08/14/24	\$446,750	\$366,700	0.82
18047	4186 WHITNEY AVE	RESIDENTIAL	08/14/24	\$336,000	\$331,000	0.99
3221	102 WOODIN ST	RESIDENTIAL	08/15/24	\$300,000	\$269,000	0.90
6899	20 NORTH LAKE DR #20C1	RESIDENTIAL	08/16/24	\$385,500	\$342,500	0.89
10947	134 EAST GATE LA #U134	RESIDENTIAL	08/16/24	\$249,900	\$220,700	0.88
16810	3409 WHITNEY AVE #U1B	RESIDENTIAL	08/16/24	\$339,900	\$328,300	0.97
2544	610 PINE ROCK AVE	RESIDENTIAL	08/19/24	\$250,000	\$301,000	1.20
10617	64 SCHUPP RD	RESIDENTIAL	08/19/24	\$351,000	\$299,900	0.85
11714	134 HOWARD DR	RESIDENTIAL	08/19/24	\$420,000	\$379,500	0.90
15549	25 IVES ST	RESIDENTIAL	08/19/24	\$325,000	\$241,400	0.74
13474	75 WASHINGTON AVE #5406	RESIDENTIAL	08/19/24	\$239,900	\$218,800	0.91
4214	141 AUGUR ST	RESIDENTIAL	08/19/24	\$320,000	\$286,000	0.89
9679	61 ELIHU ST	RESIDENTIAL	08/20/24	\$500,000	\$450,600	0.90
9292	111 GREENWAY ST	RESIDENTIAL	08/21/24	\$503,000	\$453,700	0.90
13779	182 MAGEE DR	RESIDENTIAL	08/21/24	\$438,000	\$386,100	0.88
15167	102 ROBERTSON DR	RESIDENTIAL	08/21/24	\$305,000	\$353,200	1.16
15521	144 SOUTH NEW RD	RESIDENTIAL	08/21/24	\$345,000	\$270,400	0.78
125371	4 FIELD VIEW LA	RESIDENTIAL	08/21/24	\$540,000	\$450,700	0.83
18294	740 BROOKSVALE AVE REAR	VACANT LAND	08/21/24	\$48,000	\$37,100	0.77
9540	52 WOODBINE ST	RESIDENTIAL	08/22/24	\$455,000	\$367,900	0.81
17599	804 STILL HILL RD	RESIDENTIAL	08/22/24	\$469,000	\$394,400	0.84
6575	31 LEXINGTON ST	RESIDENTIAL	08/22/24	\$480,000	\$478,900	1.00
1750	44 WILKINS ST	RESIDENTIAL	08/23/24	\$315,000	\$261,400	0.83
8248	290 GILBERT AVE	RESIDENTIAL	08/23/24	\$375,000	\$368,900	0.98
125323	134 SANFORD ST #U1	RESIDENTIAL	08/23/24	\$302,000	\$288,100	0.95
13703	1116 PARADISE AVE	RESIDENTIAL	08/26/24	\$349,000	\$307,200	0.88
9479	136 CENTRAL AVE	RESIDENTIAL	08/27/24	\$350,000	\$340,600	0.97
6544	24 CHURCH ST	RESIDENTIAL	08/28/24	\$266,000	\$242,900	0.91
7117	31 DESSA DR	RESIDENTIAL	08/28/24	\$425,000	\$348,600	0.82
15085	26 TIMBERWOOD TRAIL	RESIDENTIAL	08/28/24	\$410,000	\$362,400	0.88
17116	385 HILLFIELD RD	RESIDENTIAL	08/28/24	\$460,000	\$443,300	0.96

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
14670	95 CARMEL ST	RESIDENTIAL	08/28/24	\$365,000	\$328,200	0.90
8220	32 FALLOON DR	RESIDENTIAL	08/29/24	\$393,000	\$354,400	0.90
8543	56 ARCADIA AVE	RESIDENTIAL	08/29/24	\$275,000	\$247,900	0.90
11072	790 MAIN ST	RESIDENTIAL	08/29/24	\$585,000	\$546,700	0.93
15019	1015 SHEPARD AVE	RESIDENTIAL	08/29/24	\$535,000	\$467,500	0.87
11879	144 SHEPARD AVE #U144	RESIDENTIAL	08/29/24	\$280,000	\$276,100	0.99
13052	121 SCHOOL ST	RESIDENTIAL	08/30/24	\$240,000	\$263,600	1.10
1166	472 SHELTON AVE	RESIDENTIAL	09/03/24	\$263,700	\$218,300	0.83
13128	197 HIGHLAND AVE	RESIDENTIAL	09/03/24	\$315,000	\$290,600	0.92
13772	880 SHEPARD AVE	RESIDENTIAL	09/03/24	\$355,000	\$343,000	0.97
17200	45 WEST TODD ST	RESIDENTIAL	09/03/24	\$560,000	\$498,200	0.89
17483	25 WEST MEADOW RD	RESIDENTIAL	09/03/24	\$510,000	\$393,600	0.77
11440	900 MIX AVE #U55	RESIDENTIAL	09/03/24	\$225,000	\$181,600	0.81
3160	43 HELEN ST	RESIDENTIAL	09/04/24	\$385,000	\$347,400	0.90
5187	306 BELDEN RD	RESIDENTIAL	09/05/24	\$360,000	\$296,800	0.82
16562	1690 SHEPARD AVE	RESIDENTIAL	09/06/24	\$405,000	\$362,000	0.89
9169	365 MATHER ST #U184	RESIDENTIAL	09/06/24	\$193,000	\$182,600	0.95
102622	25 HAMDEN HILLS DR #U9	RESIDENTIAL	09/06/24	\$315,000	\$316,900	1.01
16541	162 ERA MO TR	RESIDENTIAL	09/09/24	\$429,900	\$373,100	0.87
18060	4255 WHITNEY AVE	RESIDENTIAL	09/09/24	\$325,000	\$347,000	1.07
1788	1070 WHITNEY AVE	RESIDENTIAL	09/09/24	\$618,750	\$665,300	1.08
12676	254 DORRANCE ST	RESIDENTIAL	09/10/24	\$305,000	\$294,900	0.97
13008	5 HAMPTON RD	RESIDENTIAL	09/10/24	\$335,000	\$322,600	0.96
12566	175 MILL POND RD #U424	RESIDENTIAL	09/10/24	\$150,000	\$143,400	0.96
13237	75 WASHINGTON AVE #2109	RESIDENTIAL	09/10/24	\$153,500	\$125,600	0.82
13555	32 HARDING ST	RESIDENTIAL	09/12/24	\$365,000	\$321,000	0.88
12584	175 MILL POND RD #U456	RESIDENTIAL	09/12/24	\$170,000	\$155,700	0.92
14125	41 VALLEY VIEW DR #41	RESIDENTIAL	09/12/24	\$250,000	\$233,300	0.93
14313	51 CHARLTON HILL #U51	RESIDENTIAL	09/12/24	\$345,000	\$291,900	0.85
1103	272 GOODRICH ST	RESIDENTIAL	09/13/24	\$230,000	\$195,800	0.85
16698	40 SERAFIN CT	RESIDENTIAL	09/13/24	\$495,000	\$390,100	0.79
5349	35 JOSEPH LA	RESIDENTIAL	09/16/24	\$325,000	\$303,800	0.93
270	35 HIGH TOP CR EAST	RESIDENTIAL	09/17/24	\$320,000	\$296,700	0.93
2508	391 PINE ROCK AVE	RESIDENTIAL	09/17/24	\$400,000	\$345,800	0.86
16573	110 HILLFIELD RD	RESIDENTIAL	09/18/24	\$475,000	\$421,000	0.89
102681	25 HAMDEN HILLS DR #U69	RESIDENTIAL	09/18/24	\$317,000	\$312,500	0.99
7067	10 WALDEN ST	RESIDENTIAL	09/18/24	\$515,000	\$514,100	1.00
13107	2587 WHITNEY AVE	COMMERCIAL	09/18/24	\$325,000	\$323,300	0.99
5339	4 JOSEPH LA	RESIDENTIAL	09/19/24	\$420,000	\$359,800	0.86

PID	Location	Type	Sale Date	Sale Price	Appraised Value	ASR
20358	28 THIRD ST	RESIDENTIAL	09/19/24	\$450,000	\$507,400	1.13
20123	879 DIXWELL AVE	COMMERCIAL	09/19/24	\$210,000	\$213,800	1.02
221	86 WEBB ST	RESIDENTIAL	09/24/24	\$270,000	\$232,800	0.86
10387	105 JACKSON RD	RESIDENTIAL	09/26/24	\$380,000	\$367,100	0.97
4581	21 FERNWOOD RD	RESIDENTIAL	09/27/24	\$525,000	\$421,900	0.80
7613	209 DANIEL RD	RESIDENTIAL	09/27/24	\$380,000	\$309,600	0.81
3019	105 WILMOT RD	RESIDENTIAL	09/30/24	\$300,000	\$283,600	0.95
6082	67 VALLEY RD	RESIDENTIAL	09/30/24	\$275,000	\$262,600	0.95
7620	105 CARDO RD	RESIDENTIAL	09/30/24	\$375,000	\$308,800	0.82
10170	18 MIDDLE RD	RESIDENTIAL	09/30/24	\$630,000	\$615,400	0.98
12643	162 WESTMINSTER ST	RESIDENTIAL	09/30/24	\$300,000	\$264,100	0.88
15077	16 PONDWOOD CT	RESIDENTIAL	09/30/24	\$500,000	\$419,200	0.84

Additional Stratifications for Residential Sales

(Excludes Condominiums)

NBD	Count	Median	COD	PRD	PRB
10	7	1.04	8.14	1.00	0.07
20	7	0.96	4.52	1.00	0.25
25	13	0.88	9.01	1.01	-0.02
30	30	0.93	8.49	1.01	-0.07
33	10	0.95	8.69	1.01	-0.20
35	22	0.94	12.03	1.02	-0.73
40	8	0.93	5.74	1.02	-0.08
41	2	1.00	2.57	1.00	0.26
50	52	0.95	8.39	1.00	0.02
58	13	0.90	11.16	1.00	0.06
60	11	0.94	5.06	1.00	0.12
63	12	0.92	9.37	1.00	0.07
64	2	0.88	8.17	1.00	3.12
65	28	0.95	6.49	1.00	-0.04
70	51	0.97	6.34	1.01	-0.07
75	31	0.95	6.50	1.01	-0.06
80	27	0.90	8.87	1.02	-0.18
90	3	1.01	2.53	1.01	-0.10
100	51	0.93	6.00	1.00	0.02
110	49	0.94	7.36	1.01	-0.11
120	14	0.96	9.49	1.02	-0.44
130	12	0.85	10.09	1.01	0.07
133	1	1.05	0.00	1.00	0.00
140	29	0.94	7.19	0.99	0.13
150	4	0.91	6.70	1.00	0.13
R	2	0.98	3.58	1.00	-0.62
T	1	1.01	0.00	1.00	0.00
T2	1	1.21	0.00	1.00	0.00
W	12	1.04	6.31	1.01	-0.03
Combined	505	0.95	7.97	1.01	-0.02

GRADE	Count	Median	COD	PRD	PRB
A	5	0.97	3.87	1.00	0.01
A-	1	0.90	0.00	1.00	0.00
A +	2	0.86	7.23	0.99	0.32
A ++	1	0.86	0.00	1.00	0.00
B	22	1.01	4.74	1.00	-0.05
B -	46	0.91	6.83	1.00	-0.06
B +	8	1.04	9.70	1.02	-0.32
C	276	0.96	8.06	1.01	-0.01
C -	5	0.86	11.79	1.00	0.88
C +	139	0.94	7.72	1.01	-0.13
Combined	505	0.95	7.97	1.01	-0.02

CONDITION	Count	Median	COD	PRD	PRB
A	104	0.96	9.42	1.01	-0.03
A-	11	1.02	4.72	1.00	0.06
A+	161	0.96	7.55	1.00	0.02
F	3	0.97	4.50	1.01	-0.42
G	190	0.94	7.55	1.01	-0.03
VG	36	0.91	5.76	1.00	0.00
Combined	505	0.95	7.97	1.01	-0.02

STYLE	Count	Median	COD	PRD	PRB
Bungalow	4	0.94	7.64	1.00	0.05
Cape Cod	113	0.94	7.11	1.01	-0.05
Colonial	149	0.94	8.20	1.01	-0.02
Contemporary	7	0.97	9.09	1.02	-0.11
Multi Family	42	1.02	9.32	1.01	-0.02
Old Style	32	0.95	7.25	1.01	-0.02
Raised Ranch	33	0.92	8.05	1.01	-0.20
Ranch	103	0.95	6.89	1.01	-0.07
Split-Level	17	0.96	7.37	1.01	-0.24
Tudor	5	0.97	8.99	1.02	-0.19
Combined	505	0.95	7.97	1.01	-0.02

STANDARD 5: MASS APPRAISAL, DEVELOPMENT

In developing a mass appraisal, an appraiser must identify the problem to be solved, determine the scope of work necessary to solve the problem, and correctly complete research and analyses necessary to produce a credible mass appraisal. 1044
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Comment: STANDARD 5 applies to all mass appraisals of real or personal property regardless of the purpose or use of such appraisals.⁶⁰ 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. 1047
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1049

A mass appraisal includes: 1050

- 1) identifying properties to be appraised; 1051
- 2) defining market area of consistent behavior that applies to properties; 1052
- 3) identifying characteristics (supply and demand) that affect the creation of value in that market area; 1053
- 4) developing a model structure that reflects the relationship among the characteristics affecting value in the market area; 1054
1055
- 5) calibrating the model structure to determine the contribution of the individual characteristics affecting value; 1056
1057
- 6) applying the conclusions reflected in the model to the characteristics of the property(ies) being appraised; and 1058
1059
- 7) reviewing the mass appraisal results. 1060

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. 1061
1062

STANDARDS RULE 5-1, GENERAL DEVELOPMENT REQUIREMENTS

In developing a mass appraisal, an appraiser must: 1063
1064

(a) be aware of, understand, and correctly employ those recognized methods and techniques necessary to produce a credible mass appraisal; 1065
1066

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. 1067
1068

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. 1069
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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. 1072
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⁶⁰ In USPAP Guidance and Reference Manual (USPAP GRM), see Advisory Opinion 32, Ad Valorem Property Tax Appraisal and Mass Appraisal Assignments.

- 1077 **(b) not commit a substantial error of omission or commission that significantly affects a mass appraisal; and**
- 1078 Comment: An appraiser must use sufficient care to avoid errors that would significantly affect his or her
1079 opinions and conclusions. Diligence is required to identify and analyze the factors, conditions, data, and
1080 other information that would have a significant effect on the credibility of the assignment results.
- 1081 **(c) not render a mass appraisal in a careless or negligent manner.**

1082 **STANDARDS RULE 5-2, PROBLEM IDENTIFICATION**

1083 **In developing a mass appraisal, an appraiser must:**

- 1084 **(a) identify the client and other intended users;⁶¹**

1085 Comment: In ad valorem mass appraisal, the assessor, or party responsible for certification of the assessment or
1086 tax roll is required to apply the relevant law or statute and identify the clients and other intended users (if any).

- 1087 **(b) identify the intended use of the appraisal;⁶²**

1088 Comment: An appraiser must not allow the intended use of an assignment or a client's objectives to cause
1089 the assignment results to be biased.

- 1090 **(c) identify the type and definition of value, and ascertain whether the value is to be the most probable price;**

1091 (i) **in terms of cash; or**

1092 (ii) **in terms of financial arrangements equivalent to cash; or**

1093 (iii) **in such other terms as may be precisely defined; and**

1094 (iv) **if the opinion of value is to be based on non-market financing or financing with unusual conditions
1095 or incentives, identify the terms of such financing and any influences on value;**

- 1096 **(d) identify the effective date of the appraisal;**

- 1097 **(e) identify, from sources the appraiser reasonably believes to be reliable, the characteristics of the
1098 properties that are relevant to the type and definition of value and intended use;⁶³ including:**

1099 (i) **the group with which a property is identified according to similar market influence;**

1100 (ii) **the appropriate market area and time frame relative to the property being valued; and**

1101 (iii) **their location and physical, legal, and economic characteristics;**

1102 Comment: The properties must be identified in general terms, and each individual property in
1103 the universe must be identified, with the information on its identity stored or referenced in its
1104 property record.

1105 When appraising proposed improvements, an appraiser must examine and have available for
1106 future examination, plans, specifications, or other documentation sufficient to identify the extent and
1107 character of the proposed improvements.⁶⁴

1108 Ordinarily, proposed improvements are not appraised for ad valorem tax purposes. Appraisers,
1109 however, are sometimes asked to provide opinions of value of proposed improvements so that
1110 developers can estimate future property tax burdens. Sometimes units in condominiums and planned
1111 unit developments are sold with an interest in un-built community property, the pro rata value of
1112 which, if any, must be considered in the analysis of sales data.

⁶¹ In USPAP GRM, see Advisory Opinion 36, *Identification and Disclosure of Client, Intended Use, and Intended Users*.

⁶² In USPAP GRM, see Advisory Opinion 36, *Identification and Disclosure of Client, Intended Use, and Intended Users*.

⁶³ In USPAP GRM, see Advisory Opinion 23, *Identifying Relevant Characteristics of the Subject Property of a Real Property Appraisal Assignment*, if applicable.

⁶⁴ In USPAP GRM, 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:	1113
(i) location of the market area;	1114
(ii) physical, legal, and economic characteristics;	1115
(iii) time frame of market activity; and	1116
(iv) property interests reflected in the market;	1117
(g) in appraising real property or personal property:	1118
(i) identify the appropriate market area and time frame relative to the property being valued;	1119
(ii) when the subject is real property, identify and consider any personal property, trade fixtures, or intangible assets that are not real property but are included in the appraisal;	1120
(iii) when the subject is personal property, identify and consider any real property or intangible assets that are not personal property but are included in the appraisal;	1121
(iv) identify known easements, restrictions, encumbrances, leases, reservations, covenants, contracts, declarations, special assessments, ordinances, or other items of similar nature; and	1122
(v) identify and analyze whether an appraised fractional interest, physical segment or partial holding contributes pro rata to the value of the whole;	1123
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.	1124
(h) analyze the relevant economic conditions at the time of the valuation, including market acceptability of the property and supply, demand, scarcity, or rarity;	1125
(i) identify any extraordinary assumptions necessary in the assignment. An extraordinary assumption may be used in an assignment only if:	1126
(i) the extraordinary assumption is required to properly develop credible opinions and conclusions;	1127
(ii) the appraiser has a reasonable basis for the extraordinary assumption; and	1128
(iii) use of the extraordinary assumption results in a credible analysis;	1129
(j) identify any hypothetical conditions necessary in the assignment. A hypothetical condition may be used in an assignment only if:	1130
(i) use of the hypothetical condition is clearly required for legal purposes, for purposes of reasonable analysis, or for purposes of comparison; and	1131
(ii) use of the hypothetical condition results in a credible analysis; and	1132
(k) determine the scope of work necessary to produce credible assignment results in accordance with the SCOPE OF WORK RULE.⁶⁵	1133

⁶⁵ In USPAP GRM, see Advisory Opinion 28, Scope of Work Decision, Performance, and Disclosure, and Advisory Opinion 29, An Acceptable Scope of Work.

STANDARDS RULE 5-3, PROPERTY'S USE AND APPROPRIATE MARKET

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:

(i) existing land use regulations;

(ii) reasonably probable modifications of such regulations;

(iii) economic supply and demand;

(iv) the physical adaptability of the real estate;

(v) neighborhood trends; and

(vi) 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.

STANDARDS RULE 5-4, APPRAISAL METHODS

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, APPROACHES TO VALUE	1187
In developing a mass appraisal, when necessary for credible assignment results, an appraiser must:	1188
(a) collect, verify, and analyze such data as are necessary and appropriate to develop:	1189
(i) the cost new of the improvements;	1190
(ii) depreciation;	1191
(iii) value of the land by sales of comparable properties;	1192
(iv) value of the property by sales of comparable properties;	1193
(v) value by capitalization of income or potential earnings (i.e., rentals, expenses, interest rates, capitalization rates, and vacancy data);	1194 1195
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 mass appraisals.	1196 1197 1198
(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;⁶⁶	1199 1200
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.	1201 1202 1203
(c) identify and, as applicable, analyze terms and conditions of any available leases; and	1204
(d) identify the need for and extent of any physical inspection.⁶⁷	1205
STANDARDS RULE 5-6, CALIBRATED MASS APPRAISAL MODEL APPLICATION	1206
When necessary for credible assignment results in applying a calibrated mass appraisal model an appraiser must:	1207 1208
(a) value improved parcels by recognized methods or techniques based on the cost approach, the sales comparison approach, and income approach;	1209 1210
(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;	1211 1212 1213
(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;	1214 1215
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.	1216 1217 1218
(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	1219 1220 1221
Comment: Although the value of the whole may be equal to the sum of the separate estates or parts, it also may be greater than or less than the sum of such estates or parts.	1222 1223

66 In USPAP GRM, see Advisory Opinion 33, *Discounted Cash Flow Analysis*.

67 In USPAP GRM, see Advisory Opinion 2, *Inspection of Subject Property*.

- 1224 (e) when analyzing anticipated public or private improvements, located on or off the site, analyze the effect
1225 on value. If any, of such anticipated improvements to the extent they are reflected in market actions.

1226 STANDARDS RULE 5-7. RECONCILIATION

1227 In developing a mass appraisal an appraiser must:

- 1228 (a) reconcile the quality and quantity of data available and analyzed within the approaches used and
1229 the applicability and relevance of the approaches, methods and techniques used; and
1230 (b) employ recognized mass appraisal testing procedures and techniques to ensure that standards of
1231 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.

STANDARD 6: MASS APPRAISAL, REPORTING

In reporting the results of a mass appraisal, an appraiser must communicate each analysis, opinion, and conclusion in writing and in a manner that is not misleading.	1239 1240
Comment: STANDARD 6 addresses the content and level of information required in a report that communicates the results of a mass appraisal.	1241 1242
STANDARD 6 does not dictate the form, format, or style of mass appraisal reports. The substantive content of a report determines its compliance.	1243 1244
STANDARDS RULE 6-1, GENERAL REPORTING REQUIREMENTS	1245
Each written report of a mass appraisal must:	1246
(a) clearly and accurately set forth the appraisal in a manner that will not be misleading;	1247
(b) contain sufficient information to enable the intended user(s) of the appraisal to understand the report properly; and	1248 1249
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.	1250 1251 1252
(c) clearly and accurately disclose all assumptions, extraordinary assumptions, hypothetical conditions, and limiting conditions used in the assignment.	1253 1254
STANDARDS RULE 6-2, CONTENT OF A MASS APPRAISAL REPORT	1255
The content of a mass appraisal report must be appropriate for the intended use of the appraisal and, at a minimum:	1256 1257
(a) state the identity of the client, or if the client has requested anonymity, state that the identity is withheld at the client's request but is retained in the appraiser's workfile; state the identity of any intended user(s) by name or type; ⁶⁸	1258 1259 1260
Comment: Because the client is an intended user, they must be identified in the report as such. However, if the client has requested anonymity the appraiser must use care when identifying the client to avoid violations of the Confidentiality section of the ETHICS RULE.	1261 1262 1263
(b) state the intended use of the appraisal; ⁶⁹	1264
(c) disclose any assumptions or limiting conditions that result in deviation from recognized methods and techniques or that affect analyses, opinions, and conclusions;	1265 1266
(d) state the effective date of the appraisal and the date of the report;	1267
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. ⁷⁰	1268 1269 1270

⁶⁸ In USPAP Guidance and Reference Manual (USPAP GRM), see Advisory Opinion 36, *Identification and Disclosure of Client, Intended Use, and Intended Users*.

⁶⁹ In USPAP GRM, see Advisory Opinion 36, *Identification and Disclosure of Client, Intended Use, and Intended Users*.

⁷⁰ In USPAP GRM, see Advisory Opinion 34, *Retrospective and Prospective Value Opinions*.

1271 (e) state the type and definition of value and cite the source of the definition;

1272 Comment: Stating the type and definition of value also requires any comments needed to clearly indicate
1273 to intended users how the definition is being applied.

1274 When reporting an opinion of value, state whether the opinion is:

- 1275 • In terms of cash or of financing terms equivalent to cash; or**
- 1276 • Based on non-market financing with unusual conditions or incentives.**

1277 When an opinion of value is based on non-market financing terms or financing with unusual conditions or
1278 incentives, summarize the terms of such financing and any influences on value.

**1279 (f) state the properties appraised including the property rights; and, when the property rights to be
1280 appraised are specified in a statute or court ruling, reference the law;**

1281 Comment: The report documents the sources for location, describing and listing the property. When
1282 applicable, include references to legal descriptions, addresses, parcel identifiers, photos, and building
1283 sketches. In mass appraisal this information is often included in property records.

**1284 (g) summarize the scope of work used to develop the appraisal,⁷¹ and explain the exclusion of the sales
1285 comparison approach, cost approach, or income approach;**

1286 Comment: Summarizing the scope of work includes disclosure of research and analyses performed and
1287 might also include disclosure of research and analyses not performed.

**1288 (h) when any portion of the work involves significant mass appraisal assistance, summarize the extent of
1289 that assistance;⁷²**

**1290 (i) summarize and support the model specification(s) considered, data requirements, and the model(s)
1291 chosen; provide sufficient information to enable the client and intended users to have confidence
1292 that the process and procedures used conform to accepted methods and result in credible value
1293 conclusions; and include a summary of the rationale for each model, the calibration techniques to be
1294 used, and the performance measures to be used;**

1295 Comment: In the case of mass appraisal for ad valorem taxation, stability and accuracy are important to the
1296 credibility of value opinions.

**1297 (j) summarize the procedure for collecting, validating, and reporting data; and summarize the sources
1298 of data and the data collection and validation processes;**

1299 Comment: Reference to detailed data collection manuals or electronic records must be made, as
1300 appropriate, including where they may be found for inspection.

**1301 (k) summarize calibration methods considered and chosen, including the mathematical form of the final
1302 model(s); summarize how value conclusions were reviewed; and, if necessary, state the availability
1303 and location of individual value conclusions;****1304 (l) when an opinion of highest and best use, or the appropriate market or market level was developed,
1305 summarize how that opinion was determined, and reference case law, statute, or public policy that
1306 describes highest and best use requirements;**

1307 Comment: When actual use is the requirement, the report must summarize how use-value opinions were
1308 developed. The appraiser's reasoning in support of the highest and best use opinion must be provided in
1309 the depth and detail required by its significance to the appraisal.

71 In USPAP GRM, see Advisory Opinion 28, *Scope of Work Decision, Performance, and Disclosure*, and Advisory Opinion 29, *An Acceptable Scope of Work*.

72 In USPAP GRM, see Advisory Opinion 31, *Assignments Involving More than One Appraiser*.

(m) identify the appraisal performance tests used and the performance measures attained;	1310
(n) summarize the reconciliation performed, in accordance with Standards Rule 5-7; and	1311
(o) include a signed certification in accordance with Standards Rule 6-3.	1312
STANDARDS RULE 6-3, CERTIFICATION	
A signed certification is an integral part of the appraisal report.	1313
(a) The wording of a certification does not have to match the following verbatim, but each of the elements must be addressed:	1314
I certify that, to the best of my knowledge and belief:	
— the statements of fact contained in this report are true and correct.	1315
— 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.	1316
— I have no (or the specified) present or prospective interest in the property that is the subject of this report, and no (or the specified) personal interest with respect to the parties involved.	1317
— 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 the agreement to perform this assignment.	1318
— I have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment.	1319
— my engagement in this assignment was not contingent upon developing or reporting predetermined results.	1320
— 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.	1321
— my analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the <i>Uniform Standards of Professional Appraisal Practice</i> .	1322
— 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 this certification, the certification must clearly specify which individuals did and which individuals did not make a personal inspection of the appraised property.) ⁷³	1323
— 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.) ⁷⁴	1324
<u>Comment:</u> The above certification is not intended to disturb an elected or appointed assessor's work plans or oaths of office.	1325
(b) An appraiser who signs any part of the appraisal report, including a letter of transmittal, must also sign a certification.	1326
<u>Comment:</u> In an assignment that includes only assignment results developed by the real property appraiser, any appraiser 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 who	1327
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⁷³ In USPAP GRM, see Advisory Opinion 2, *Inspection of Subject Property*.

⁷⁴ In USPAP GRM, see Advisory Opinion 31, *Assignments Involving More than One Appraiser*.

- 1349 signs a certification accepts full responsibility for the real property elements of the certification, for the real
1350 property assignment results, and for the real property contents of the appraisal report.

1351 In an assignment that includes only assignment results developed by the personal property appraiser(s),
1352 any appraiser who signs a certification accepts full responsibility for all elements of the certification, for the
1353 assignment results, and for the contents of the appraisal report. In an assignment that includes real property
1354 assignment results not developed by the personal property appraiser(s), any personal property appraiser
1355 who signs a certification accepts full responsibility for the personal property elements of the certification, for
1356 the personal property assignment results, and for the personal property contents of the appraisal report.

(c) When a signing appraiser has relied on work done by appraisers and others who do not sign the
1357 **certification, the signing appraiser is responsible for the decision to rely on their work.**

(i) The signing appraiser is required to have a reasonable basis for believing that those individuals
1359 **performing the work are competent; and**

(ii) The signing appraiser is required to have a reasonable basis for concluding that the work of those individuals is credible.

1362 **Comment:** Although a certification must contain the names of individuals providing significant mass
1363 appraisal assistance, it is not required that the description of the extent of their assistance be located
1364 in a certification. This disclosure may be in any part(s) of the report.

Residential Data Collection Manual

For use with VISION®

Town of Hamden Connecticut

Prepared By:
©Tyler Technologies / P & R Division
Connecticut
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Project Scope

1. A total of 19,533 properties are to be visited by Tyler and a new photo of every property will be taken.
2. All properties will be visited (unless a no access issue arises) and will consist of a spot check re-measure and homeowner interview if possible. All “New Construction” building permits will be done from scratch.
3. All improved property owners will receive a data mailer. Data mailers that reflect homeowner changes will be called if necessary to schedule an inspection and will be included in the required list of 19,533 physical inspections.
4. Tyler will send a sales verification form to all sales that have closed within the time frame of 10/1/22 to 10/1/24.
5. Above ground pools, and hard-wired hot tubs should be listed in the notes section.
6. Solar Panels should be noted in the OBY section as SOL with estimated installation date typically found in building permit section.
7. Woodstoves, pellet stoves, and gas stoves are currently being treated as fireplaces and should be indicated as such on the field card in OBY section.
8. Generators and elevators are ALSO to be picked up and indicated in the OBY (Outbuilding & Yard Items – Building Extra Features section).
9. All masonry patios are to be picked up as well as all brick and stone in sand or concrete patio areas.
10. Do not pick up or list fences, stoops or stone walls only seawalls and bulkheads (if/when applicable).
11. All woodsheds 100 square feet and over are to be picked up regardless of condition and noted in the OB & Yard Items section of the PRC. Do NOT pick up OLD metal or portable rubber style sheds. Any sheds under 100 Square feet are to be noted in the note section as shed (dimensions) N/V.
12. Do not enter properties with No Trespassing signs. Private property, No Soliciting are to be treated as another inspection. For beware of dog signs take caution and proceed accordingly. If you cannot knock on door due to dog still estimate property.

INTRODUCTION

CLT Residential Data Collection Manual

Town of Hamden, Connecticut

GENERAL BACKGROUND

In compliance with Connecticut laws requiring periodic reassessments, or revaluations, the Town of Hamden has begun a town-wide reappraisal of all real estate to equalize property assessments according to current fair estimated market value.

PROPERTY TAXATION - ASSESSMENT

Property taxation is based on the worth of the property.... the term *ad valorem* means "according to the value." Real Estate assessments are based on the assessor's opinion of value. Tyler Technologies personnel will act as agents of the assessor in determining an opinion of value for each property in the town.

ASSESSMENT/VALUATION STANDARD

The basis for any "ad valorem" assessment is defined as the "Fair Market Value" of the property as of the valuation date, October 1, 2023 to October 1, 2024.

Fair Market Value is the current estimate of the highest price the property would bring on the open market - if exposed for sale for a reasonable length of time - with both the buyer and the seller being fully aware of all the current and potential uses of the property; and further, neither the buyer or seller being under any undue compulsion or duress to buy or sell.

Obviously, in order to be fair and equitable to all taxpayers, this standard requires a professional opinion (based on market data and facts with no extraordinary assumptions) and an appraisal based on accurate information about each property.

DATA COLLECTOR FUNCTIONS

The data collector - while not making the appraisal of the property - is responsible for gathering and recording accurate and complete information for each assigned property. It should be recognized by all that to an exceptionally large degree, the accuracy of any final appraisal depends on the quality of work done by the data collector.

This is a PROFOUNDLY serious business and requires adherence to all specified guidelines. It is wise to keep in mind four basic responsibilities:

- 1) To the *Client* - Represent yourself in a manner which will bring credit to the client we represent.

- 2) To the *Property Owner* - Conduct yourself in a competent, courteous, thorough, and fair manner which will give the property owner the assurance that they have been fairly and equitably treated.
- 3) To the *Company* - You represent the largest and most professional company in the industry. If you want to be a part of that team, remember the responsibility you have to the company to act as a professional at all times. "Doing your best" may be an old-fashioned concept in some places, but it is considered required at Tyler Technologies. Take NO shortcuts and do the same quality work on every property visited.
- 4) *To Yourself* - If you are the kind of person we want, you should want to do the best job you can - for your own personal satisfaction and advancement. Remember in this technical age you are always being watched and under surveillance.

INSTRUCTIONS FOR MAKING CHANGES TO THE DATA COLLECTION CARD

The Town of Hamden data collection card to be used during the reappraisal project is a computer-generated document summarizing existing assessor's office records. The data may or **may NOT** be correct.

The following procedures are to be followed when the data is correct, when changes need to be made, and/or when information needs to be added.

- 1) If pre-printed data is correct, **leave it alone**.
- 2) If pre-printed data is incorrect, draw a line through the data and write the correct data next to the old data, and/or circle the NEW data description using PENCIL ONLY.
- 3) If a required field is blank, enter the correct data on the data collection card in its appropriate place, as instructed throughout this manual.

PROPERTY LOCATION - This refers to the current street address of the property. *Any discrepancies should be brought to the attention of the crew leader, Assessor or staff in the same way Record of Ownership is explained later in this manual.*

MAP ID- This number refers to the City/Town's unique map and lot parcel identification number. Maps are available in the Assessor's office.

BLDG NAME - Typically for commercial structures but can also be used for older historical residential homes with a name i.e. The William Packer House.

STATE USE – Land use code. The basis for classification is the most predominant current use. If the parcel is unused, the basis for classification would depend upon the anticipated use or the use for which it is zoned i.e. vacant residential or vacant commercial. Can be changed in the use code section field at the bottom of the front page within the **LAND LINE VALUATION SECTION of PRC** (Other Land Adjustments & Notes Will Be Made Here as Well)

WHEN UPDATING, VERIFYING OR CLOSING OUT PERMITS IN THE BUILDING PERMIT RECORD SECTION OF PRC

Per Assessor. We are being given ONLY cards that have the most recent permit information on file reflected on them that they have evaluated in office. Please pay close attention to OVERALL % complete and WHY! Verify if the work has been completed or needs to be updated! This Will Also Be Reflected In The Remodel Rating & Depreciation Code Which is Directly above This % Complete Section With Specific Codes Being Detailed and Defined on Pages 17 & 18 of This Manual. They ALL correlate as one cohesive unit to reflect the overall condition and effective age of the dwelling.

AGAIN – PLEASE PAY SPECIFIC ATTENTION TO ALL OPEN PERMITS AND % COMPLETE UPDATE/REMODEL LEVELS ALONG WITH ANY OTHER TYPES OF OPEN PERMIT SITUATIONS THAT REQUIRE MODIFICATION!

RESIDENTIAL LAND USE CODES

USE CODE	DESCRIPTION	LAND CLASS
1010	Single Fam M01	R
1011	SFR (NL)	R
1012	SFR In-Law	R
1013	SFR Water	R
1014	SFR Golf	R
101C	Single Fam M94	R
101I	Single Fam M96	R
101V	Single Fam M00	R
1020	Condo M05	R
1021	Condo-2Fam M05	R
1022	Dockominiu	R
102B	Condo-2Fam M01	R
102R	Condo M01	R
102V	Condo M00	R
1030	Mobile Hom	R
1031	Trailer	R
1040	Two Family M01	R
1041	Two Family	R
104C	Two Family M94	R
1050	Three Fam M01	R
1051	Three Fam	R
105I	Three Fam M96	R
1060	Outbulding M00	R
106R	Outbulding M01	R

1090	Multi Hses	R
1091	Multi Hses	R
1110	APT 4-Unit M01	C
1111	APT 5 - 8	C
1112	APT CO-OP	C
111C	APT 4-Unit M94	C
111R	APT 5 - 8 M01	C
1120	APT Over 8	C
1121	SUBSIDIZED APT	C
112C	CONDO APT BLDG	C
112V	APT Over 8 LAND	C
1210	Boarding Hs	C
1220	FRAT/SOROR	C
1230	DORMITORY M94	C
123S	STUDENT HSNG	C
1240	REC/CONVEN	C
1250	GROUP HOMES	C
1300	Vacant M00	R
130R	Vacant M01	R
1310	Vacant	R
1320	Vacant Unb M00	R
1321	HOA Cmn Space M00	R
132R	Vacant Unb M01	R
132S	Vac Unb Open Space	R

CARD NUMBER Typically 1 of 1 – This field indicates how many data collection forms, or cards, are required to catalogue a property. A separate card is needed for each living area structure on a parcel. A property containing two houses would require two data collection forms. Enter “1 of 2” in the card field of the form for the first (larger) MAIN house and “2 of 2” in the card field of the form for the second dwelling and third dwelling etc. There may also be a barn or garage with apartment (living area) that could also be an additional card RATHER than an outbuilding. **Pay Attention Out There Please.**

CURRENT OWNER - This information is obtained from existing client records. The assessor's office periodically supplies Tyler Technologies with new owner information. If an owner indicates the mailing address OR owner's name is incorrect, note the change and separate it from your field cards being turned in for that day. **Do NOT just mix them in with all your cards!** We will copy the card and then inform the assessor's office staff of these address or owner changes when the work is returned to the office.

TOPO - Enter the appropriate code that best describes the topography of the parcel

0	-	Average
1	-	Level
2	-	Above Street
3	-	Below Street
4	-	Rolling
5	-	Steep
6	-	Low
7	-	Swampy
8	-	Ledge
9	-	Varied

UTILITIES - This information is obtained from existing client records and should not be changed without definitive proof and then consulting the assessor's office staff.

0	-	Unknown	9	-	Gas & Electric
1	-	Typical	10	-	Sewer & Septic
2	-	Sewer	11	-	New CDU Sewer
2NB	-	Sewer Not Billed	12	-	New Parcel TBD
3	-	Water	13	-	No Sewer
4	-	Electric	14	-	Not Connected
5	-	Gas			
6	-	No Cable			
7	-	Well			
8	-	Septic			
8NS	-	No Sewer Avail.			

STR/ROAD – Enter the code that best describes the type of street on which the property is located.

1	-	Paved
2	-	Partially Paved
3	-	Unpaved
4	-	Proposed
5	-	Paper
6	-	Paved With Curb
7	-	Paved With Sidewalk
8	-	Typical
9	-	Paved With Curb & Sidewalk
10	-	None

LOCATION – Enter the code that best describes the properties location. **This is NOT the Land Influence which is reflected in the Land section of the card.**

1	-	Major Rt
2	-	Secondary St
3	-	Subdivision
4	-	Business District
5	-	Waterfront
6	-	Recreational
7	-	Industrial
8	-	Flood Plain
9	-	Town Line

**CURRENT ASSESSMENT & SUPPLEMENTAL DATA – Do NOTHING Here!
Unless You Need To Change the Description. Typically Done Use Code.**

RECORD OF OWNERSHIP/SALE DATA - This information is obtained from existing client records and should not be changed. If change required separate card from cards completed for the day and give to your group leader.

Sales Validity Codes

- 00 - VALID SALE
- 01- RELATIVE SALE
- 02- "LOVE & AFFECTION"
- 03- RELATED CORPORATIONS
- 04- TRANSFER OF CONVENIENCE
- 05- DEED PRIOR TO APRIL 1
- 06- SPLIT
- 07- CHANGED AFTER ASSESSMENT DATE
- 08- SALE OF PART INTEREST
- 09- TAX SALE
- 10- CONVEYANCE MADE IN ACCORDANCE WITH / DECENDE
- 11- SALE BY COURT ORDER
- 12- SALE TO ABUTTER (NON-BLDABLE)
- 13- BANKRUPTCY/LIQUIDATION
- 14- SALE OF PROPOSED PROPERTY
- 15- TO OR FROM GVT AGENCY
- 16- TO OR FROM EXEMPT ORG
- 17- PROPERTY IN TWO TOWNS
- 18- TRANSFER IN LIEU OF FORECLOSURE
- 19- RIGHT OF WAY
- 20- CEMETERY LOT
- 21- EXCHANGE OTHER THAN CASH
- 22- INCLUDES EXCESS PERSONAL PROPERTY
- 23- ZONE CHANGE AFTER ASSESSMENT DATE
- 24- PLOTTAGE/ASSEMBLAGE
- 25- SALE OF ALL OTHER NOT INCLUDE ABOVE
- 26- REHAB DEFERRED
- 27- VOID M-45
- 28- SALE OF PROPERTY UNDER USE ASSESSMENT
- 29- NO CONSIDERATION PAID
- 30- AUCTION SALE
- 31- TEARDOWN
- 32- HOUSE BUILD AFTER LAND BOUG

PREVIOUS ASSESSMENTS (HISTORY) – This majority of data reflects the latest assessment on the property based on fair market value from 2020. **This information is available to the public but any discussion of these values**

should be avoided. Never offer any opinions on whether these values are accurate, even if changes are made to the data on the property at time of inspection. If a taxpayer asked if they have been over-assessed, refer them to the assessor's office staff. **Do not discuss value or the specific PRC details with anyone in the field. You are collecting data, nothing else!!!**

EXEMPTIONS/OTHER ASSESSMENTS/ASSESSING NEIGHBORHOOD – This data is for assessment purposes and should not be changed.

NOTES – This area is reserved for notes that will be data entered and will appear on the property record card. It is very important that EXTREME care be taken so that this information be suitable for public viewing. Other notes in any other section of the card will be disregarded during data entry.

APPRAISED VALUE SUMMARY – Same as Previous Assessments **DO NOT Discuss Value With ANYONE**. You can say “We are just getting started on the project and the new estimated values will be sent out to everyone at the same time when they have been preliminarily concluded later in the project”.

BUILDING PERMIT RECORD – If an active permit exists, update the percentage of completion as of the date of the inspection to the best of your ability. Do not just guess regarding interior finishes like basements and attics unless verified by some indicators or property owner. **Use The % Complete Forms for New Construction.**

VISIT/CHANGE HISTORY – Enter the date, your initials and the appropriate entrance and information code in the VISIT HISTORY section each time you visit a property. (If Full, Enter Info Above the Total Appraised Parcel Value Box)

ENTRANCE CODE - One character position is provided to enter one of seven numeric codes denoting if entrance was gained or not, and the current status of the entrance information.

The appropriate entrance codes are as follows:

- 00 – Measure and Listed** to indicate that entrance (inspection) and a witness's signature was gained.
- 01 – Measured (List Attempt)** to indicate that interior was estimated but exterior was verified. No at home, Measured property and verified everything possible.
- 02 – Interior Inspection – Use for Scheduled Appointments** – To reflect a full inspection appointment was requested by the homeowner
- 03 – Measure - Interior Vacant/Under Construction** to indicate property is vacant, all measurements verified.
- 05 – Measure/Remodeling In Process** – to indicate the home is being renovated or updated in some way.
- 08 – Info At Door** - to indicate that entrance/information was refused, but a

responsible occupant allowed to measure exterior.

09 – Owner Refusal - Interior and Exterior Estimated to indicate that data collector was asked to leave the property. Please Write in quotes exactly what the property owner said adjacent to signature portion of the card near the entrance code on the record card.

22 – NO TRESPASSING – Estimated to indicate that posted signs prevented inspection of the improvements. Includes Minor at home, leave letter and exit property immediately. If dog is loose in yard estimate property. Gated property where you cannot access the front door. Etc.

Make sure that if entry is obtained it is confirmed with a signature, space for which can be found above the Appraised Value Summary

LAND LINE VALUATION SECTION - This data is for appraisal purposes and should not be changed with the exception of change in Land Use, visible topographical deficiencies such as high banks, steep slopes or ledge. If you see adverse items like railroad tracks, heavy traffic, commercial influences or positive factors like golf course, lakefront etc and it is NOT currently specified. **Please write this information neatly in the “Notes Section” within this Land Line Value area of the form and separate the card from your stack of work for the day along with any other specific question(s) cards you may have for that day!**

CONSTRUCTION DETAIL

STYLE - Required entry for dwellings. Enter the numeric code which is most representative of the style of the dwelling. **Only one entry is allowed.**

Enter 01 to indicate Ranch

Enter 02 to indicate Split Level.

Enter 03 to indicate Colonial.

Enter 04 to indicate Cape.

Enter 05 to indicate Bungalow

Enter 06 to indicate Old Style

Enter 07 to indicate Modern/Contemporary

Enter 08 to indicate Raised Ranch

Enter 09 to indicate Multi Family

Enter 10 to indicate Family Duplex

- Enter 14B to indicate Student Housing Res
- Enter 20 to indicate Mobile Home
- Enter 36 to indicate Cottage
- Enter 60 to indicate Mansion
- Enter 63 to indicate Tudor
- Enter 94 to indicate Outbuilding
- Enter 99 to indicate Vacant Land

MODEL - This data is for appraisal purposes and should not be changed. **Unless it is incorrect & you have an explanation along with a photo as to why!**

GRADE - This data is evaluated on overall component quality and complexity of dwelling construction for appraisal purposes. Grades should be changed and brought to the attention of any specifically designated, qualified individuals at the end of the day.

STORIES – Required entry for dwellings. Refers to the actual story height of the MAIN BODY of the subject dwelling. **Write In** the number that is most representative of the overall story height of the MAIN BODY of the dwelling. This would include attic (.25 story) reflected in the sketch as UAT (Unfinished Attic) / FAT (Finished Attic) = TRUE ATTIC .3 STORY OR LESS.

USE EAF/EAU (Expansion Attic Finish/Expansion Attic Unfinish) WHICH IS EQUAL TO .5 STORY HEIGHT AND MAY HAVE SOME SMALL DORMERS AND/OR STEEP ROOF PITCH. Other sections (boxes drawn) on the dwelling sketch are designated by floor level(s) on the sketch without any reference to OVERALL STORY HEIGHT WHICH IS JUST FOR THE MAIN BODY PORTION!

- Enter 1.0 to indicate one story (**BAS**).
- Enter 1.25 to indicate attic area with specific finish on sketch!
- Enter 1.5 to indicate one and one-half story.
- Enter 1.75 to indicate one and three-quarter story.
- Enter 2.0 to indicate two stories.
- Enter 2.25 to indicate two story w/ attic (finish type is noted on sketch)

- Enter 2.5 to indicate two and one-half story.
- Enter 2.75 to indicate two and three quarter story.
- Enter 3.0 to indicate three stories.

Note: Refer to the story height illustrations found in the Appendix of this manual.

EXTERIOR WALLS - Required entry for dwellings. Enter the numeric code which is most representative of the exterior walls of the dwelling. *Two entries are allowed.*

- Enter 02 to indicate Comp/Wall Board
- Enter 06 to indicate Board & Batten .
- Enter 07 to indicate Asbestos Shingle
- Enter 09 to indicate Logs
- Enter 11 to indicate Clapboard
- Enter 12 to indicate Cedar or Redwood
- Enter 13 to indicate Pre-Fab Wood
- Enter 14 to indicate Wood Shingle
- Enter 15 to indicate Concr/Cinder
- Enter 16 to indicate Stucco
- Enter 18 to indicate Asphalt
- Enter 19 to indicate Brick Veneer
- Enter 20 to indicate Brick
- Enter 21 to indicate Stone/Masonry
- Enter 23 to indicate Pre-Cast Concrete
- Enter 25 to indicate Vinyl Siding
- Enter 26 to indicate Aluminum Siding

- Enter 27 to indicate Pre-Finish Metal
- Enter 28 to indicate Glass/Thermo
- Enter 29 to indicate Drivit
- Enter 30 to indicate Stone Veneer I

COLOR – Note the color next to the dwelling style in the Description section.

ROOF STRUCTURE – Enter the code that best describes the roof structure.

- Enter 01 to indicate Flat
- Enter 02 to indicate Shed
- Enter 03 to indicate Gable
- Enter 04 to indicate Hip
- Enter 05 to indicate Salt Box
- Enter 06 to indicate Mansard
- Enter 07 to indicate Gambrel
- Enter 08 to indicate Irregular
- Enter 09 to indicate Rigid/Frm/BJst
- Enter 10 to indicate Steel/Frm/Truss
- Enter 11 to indicate Bowstring Truss
- Enter 12 to indicate Reinforced Concrete
- Enter 13 to indicate Pre-stress Concrete

ROOF COVER – Enter the code that best describes the roof cover material. Asphalt is typical.

- Enter 01 to indicate LOW quality Metal/Tin (NOT higher quality engineered steel – (See #13 Below))
- Enter 02 to indicate Roll Roofing

- Enter 03 to indicate Asphalt
- Enter 04 to indicate Tar & gravel
- Enter 05 to indicate Corrugated Asbestos
- Enter 06 to indicate Asbestos Shingles
- Enter 07 to indicate Concrete Tile
- Enter 08 to indicate Clay Tile
- Enter 09 to indicate Enamel Metal Shingles
- Enter 10 to indicate Wood Shingle
- Enter 11 to indicate Slate
- Enter 12 to indicate Shingle Composition
- Enter 13 to indicate Architectural.

INTERIOR WALL – Enter the code that best describes the interior walls. Two entries are allowed

- Enter 01 to indicate Minimum
- Enter 02 to indicate Wall Board/Wood
- Enter 03 to indicate Plastered
- Enter 04 to indicate Plywood Panel
- Enter 05 to indicate Drywall/Sheet
- Enter 06 to indicate Custom Wood Panel
- Enter 07 to indicate Knotty Pine/ A Wood

INTERIOR FLOORS – Enter the code that best describes the interior floors. Two entries are allowed. Carpet should only be listed if it is installed directly onto the subfloor. If it is over hardwood, the proper listing is hardwood.

- Enter 01 to indicate Dirt/None
- Enter 03 to indicate Concrete-Finished
- Enter 05 to indicate Vinyl
- Enter 06 to indicate Linoleum
- Enter 07 to indicate Cork Tile
- Enter 09 to indicate Pine/Soft Wood
- Enter 11 to indicate Ceramic Clay Tile
- Enter 12 to indicate Hardwood
- Enter 13 to indicate Parquet
- Enter 14 to indicate Carpet
- Enter 15 to indicate Quarry Tile
- Enter 17 to indicate Pre-Cast Concrete
- Enter 18 to indicate Slate
- Enter 19 to indicate Marble
- Enter 20 to indicate Pergo (laminate)

Heat Fuel - Required entry for dwellings. Refers to the type of fuel used to power the heating system. Eight alternatives are provided. Only one may be entered or None if applicable.

- Enter 00 to indicate NONE
- Enter 01 to indicate COAL or WOOD
- Enter 02 to indicate OIL
- Enter 03 to indicate GAS
- Enter 04 to indicate ELECTRIC
- Enter 05 to indicate SOLAR ASSISTED

- Enter 09 to indicate Heat Pump
- Enter 10 to indicate HYDRO AIR
- Enter 11 to indicate GEOTHERMAL

HEAT TYPE - Required entry for dwellings. Refers to the actual type of heating system. Nine alternatives are provided. Only one selection may be entered.
Utilize None or Other if/when applicable.

- Enter 01 NONE indicates there is no central heating system.
- Enter 02 to indicate FLOOR FURNACE (not space heaters)
- Enter 03 to indicate HOT AIR-NO DUCT
- Enter 04 to indicate FORCED AIR-DUCT
- Enter 05 to indicate HOT WATER
- Enter 06 to indicate STEAM
- Enter 07 to indicate ELECTRIC BASEBOARDS
- Enter 08 to indicate RADIANT
- Enter 09 to indicate HEAT PUMP
- Enter 10 to indicate HYDRO AIR
- Enter 11 to indicate GEO-THERMAL

A/C TYPE - Enter the code to indicate the existence of central air conditioning.

- Enter 01 to indicate None – no central air conditioning
- Enter 02 to indicate Heat Pump
- Enter 03 to indicate Central Air
- Enter 04 to indicate Unit / AC
- Enter 05 to indicate Vapor Cooler
- Enter 06 to indicate Partial AC (Mini Split)

BEDROOMS - Enter the total number of separate rooms designed to be used as bedrooms. If a room was designed to be a bedroom, but is being utilized for some other purpose - such as a den, it is to be included in this count.

FULL BATHS - Enter the number of three-fixture bathrooms which include a

water closet, lavatory, and bathtub or shower stall (a bathtub with a shower outlet is considered one fixture).

HALF BATHS - Enter the number of two fixture toilet rooms including a water closet and lavatory.

EXTRA FIXTURES – Enter the number of fixtures over 3 in a full bath, or the existence of fixtures not in a bathroom, not including the kitchen sink. Examples include a laundry sink or outdoor shower. Enter what the fixture is in the notes.

TOTAL ROOMS – Enter the number of rooms including bedrooms but excluding bathrooms.

KITCHEN STYLE- There are four choices for this section and they are all self-explanatory based on the descriptions designated below.

Enter 1 to indicate Below Average and in need of repair.

Enter 2 to indicate Average which means a kitchen that is somewhat dated at or nearly the same age of the dwelling. Old style fixtures, limited counter space etc.

Enter 3 to indicate Updated or Above Average overall. Which means there has been installation of new flooring or refaced cabinets or updated appliances or minor cosmetic updates with lower quality materials
NOT A FULL REMODEL.

BATH STYLE- There are three choices for this section and are all self-explanatory based on the following descriptions.

Enter 1 to indicate Old style reflect below average or repairs needed.

Enter 2 to indicate Average which means a Bathroom that is somewhat dated at or nearly the same age of the dwelling. Old style fixtures, limited counter space etc.

Enter 3 to indicate “Remodeled” or (Modern) for high quality grade of workmanship and materials. Extra sinks, built in Jacuzzis, Spas or saunas may be common. Tile, Marble or granite floors professionally installed. Very spacious in size. Which means exactly what it says COMPLETE GUTTING & REMODELING of the entire bathroom. Everything is NEWER & represents good overall quality.

YEAR BUILT - Required entry for dwellings found in the Cost/Market Valuation section as AYB (actual year built). This refers to the original date of construction. This term must always be entered. If the exact date cannot be ascertained,

make the best estimate possible based on known construction dates in the immediate area and your professional working knowledge of structure age.

EFF YEAR BUILT- Not part of field data collection. Used to override the physical age of a building when remodeling or other factors indicate depreciation should be based on a different year.

PHYSICAL CONDITION- Refers to a composite judgment of the overall physical condition or state of repair of the interior and exterior features of the dwelling, relative to its age or the level of maintenance which you would normally expect to find in a dwelling of a given age. Consideration should be given to foundation, porches, walls, exterior trim, roofing, chimneys, wall finish, interior trim, kitchen cabinets, heating system, and plumbing. Six alternatives are provided.

BASEMENTS – Here in Hamden we are dealing with and describing **two different basement style types (Basement & FLL)** and three different finished area “condition and utility” designation options.

STANDARD BASEMENTS:

- (1) First Gradient Is UBM** = This designates an UNFINISHED standard or more “traditional style” basement that is below grade with little or no window exposure. This UBM code should be left alone or used in the sketch if the designated size/area and location are known.
- (2) Second Gradient Is FBM** = This designates A FINISHED standard or “traditional style” basement. The FBM code should be left alone or used in the sketch. To accurately reflect that section utility.

IMPORTANT - Please Note: You can leave the basement area blank on the sketch and designate the UBM and FBM areas in the upper left hand corner of the sketch area on the PRC. (You will be trained how to quickly do this and when it will be useful during training)

FLL (FINISHED LOWER LEVEL) STYLE BASEMENTS:

1. **Finished Lower Level (FLL Quality)** = Generally this type of basement will typically demonstrate daylight walkout style, or have code size wellec exit windows or an exterior door and reflect a similar overall quality finish to the level above. Basic criteria overview below.
 - a. Have a fixed heat source.
 - b. Ceiling height must be above a 7' minimum
 - c. There must a direct exterior door/daylight walkout or wellec/above grade windows.
 - d. Must be finished to a level of quality that is similar to the GLA on the floor above.

FLL should always be reflected with Raised Ranch and Split Entry style

dwellings.

PLEASE NOTE: This overall “condition” is to be entered in the DEPRECIATION CODE Line NOT in the condition line of the Cost/Market Valuation Section of the PRC.

- Enter E EXCELLENT to indicate that the dwelling exhibits an outstanding standard of maintenance and upkeep in relation to its age. Rarely used.
- Enter VG VERY GOOD to indicate that the dwelling has been recently updated or remodeled and well maintained on both the exterior and interior in relation to its age. (within approx the last 5+/- years)
- Enter G GOOD to indicate that the dwelling exhibits an update to the exterior or interior within the last 10 years or so and above average standard of maintenance and upkeep in relation to its age.
- Enter A+ ABOVE AVERAGE to indicate that the dwelling has received some level of update ie newer windows or siding or doors or some interior updates but NOT a high level of overall updating. Should appear better than the average rating noted below and look slightly inferior overall to GOOD or VERY GOOD.
- Enter 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.
- Enter A- BELOW AVERAGE to indicate that the dwelling shows slightly higher degree of deterioration caused by excessive "wear and tear". The dwelling exhibits a low quality standard of maintenance and upkeep in relation to its age.
- Enter F FAIR to indicate that the dwelling is in structurally sound condition, but has greater than normal deterioration present relative to its age. Dwellings in "fair" physical condition may be characterized as having a significant degree of deferred maintenance.
- Enter P POOR to indicate that the dwelling shows signs of structural damage (a sagging roof, foundation cracks, uneven floors, etc.) possible combined with a significant degree of deferred maintenance (as roof shingles need replacement).

TO ACTUALLY FACTOR “MODIFIED” PHYSICAL DEPRECIATION AS IT PERTAINS TO VALUE - ONE OF THE FOLLOWING MUST BE USED IN THE

REMODEL RATING SECTION:

B: Bath Remodel

C: Cosmetic

G: Gut Rehab – Complete Dwelling Renovation

K: Kitchen

KB: Kitchen/Bath Remodel

M: Minor

MJ: Major

OB-OUTBUILDING & YARD ITEMS (L) – BUILDING EXTRA FEATURES (B)

This section provides guidelines for collecting and recording additional structural characteristics affecting property value. (Now Reflects FND Regarding Flood Zone Compliance Raised Foundations (Must See Bill O'Brien For Details))

OUTBUILDING CODES - Refers to a category of improvements such as pools, barns, etc.

To Find The Specific OB and Detached Features Codes **SEE ATTACHED ADDENDUM TITLED – OUTBUILDING CODES Hamden, CT**

L/B – Indicate whether the item is a feature of the **Land** (outbuildings) or **Building** (features).

UNITS - Refers to the size or quantity of the outbuilding or feature. Most features represent the quantity (1 fireplace) and most outbuildings represent the size (80sf of shed). **The absence of the unit results in no value so take care to enter the unit of 1.**

YEAR - Refers to the year the item was constructed.

GRADE –A character position is provided to enter one alpha character denoting the quality grade of the item. Valid grades are A, B, C, D, or E. If a quality grade is not applicable to the item, draw a line or dash through the character position.

SKETCH – For Use With Vision (Residential List)

The following is a list of valid sketch or subarea codes.

FAT	Finished Attic		STP	Stoop
UAT	Attic, Unfinished		WDK	Wood Deck
EAF	Expansion Attic Finished			
EAU	Expansion Attic Unfinished		PTO	Patio Concrete
LFT	Res. Loft		RPB	Patio Brick
FHS	Finished ½ Story		RPS	Patio Stone
UHS	Unfinished Half Story		FOP	Framed Open Porch
TQS	¾ Story		FSP	Screen Porch
UQS	Unfinished ¾ Story		FEP	Enclosed Porch
FUS	Finished Upper Story		UEP	Utility Enclosed Porch
UUS	Unfinished Upper Story			
FLL	Finished Lower Level		RSH	Workshop
BAS	First Floor		LNT	Lean To
UBS	Unfinished 1st Floor		FST	Storage
CTH	Cathedral Ceiling		STG	Storage, Unfinished
VLT	Vaulted Ceiling		ATR	Atrium
UBM	Unfinished Basement		GRN	Greenhouse
FBM	Finished Basement		SOL	Solarium
FLL	Raised Bsmt/Walk-Out Style		CAN	Canopy
ULL	Unfinished Lower Level		GAZ	Gazebo
BMC	Basement for Condo		EPL	Pool Enclosure
UGR	Garage Under (Bsmt)		APT	Apartment
CPT	Carport		NVS	No Value
FGR	Garage			
CRL	Crawl Space			
SLB	Slab			
PRS	Piers			

**PROJECT POLICY
TOWN OF HAMDEN, CONNECTICUT**

Following are specific project policy statements relating to field operations procedures. They should be viewed by all employees as "the rules". Compliance and cooperation is expected as a part of your duties. Periodically, updates and/or revisions may be issued and should be filed within this section.

CONTENTS

- Employee Dress Code
- Attendance - Reporting Procedures
- Inspection - Entry Policy
- Residential Call Back Procedure
- Individual Daily Production Report
- Field Complaint Procedure
- Quality Control Procedures

EMPLOYEE DRESS CODE

Effective immediately, the following dress code is to be Company policy:

MALE EMPLOYEES, OFFICE or FIELD –

- | | |
|-------------------------|--|
| <i>Shoes</i> | Dress shoes, athletic shoes, or work boots required. Sandals are not permitted. |
| <i>Pants</i> | Dress slacks or khaki pants, clean and pressed required. Jeans and shorts are not permitted. |
| <i>Shirts</i> | Dress OR polo shirts, short or long sleeve, white or sport shirts with collars, clean and pressed required. Tank tops or T-shirts are not permitted. |
| <i>Hats</i> | Not required and are okay for use. |
| <i>Personal Hygiene</i> | Hair should be of modest length, neatly trimmed and combed. Moustaches and beards are permissible, so long as they are neatly maintained. |

FEMALE EMPLOYEES, OFFICE or FIELD

- | | |
|-----------------------|---|
| <i>Shoes</i> | Dress shoes, or athletic shoes is required. Flats or moderate heels are permitted. Thongs, flip-flops, tennis shoes, platform shoes, spiked heels and similar footwear are not permitted. |
| <i>General Attire</i> | Modest, clean and pressed businesslike dresses, slacks or skirts and blouses, and pantsuits are considered suitable |

office attire.

Not Permitted See-through blouses, T-shirts, tank tops, halters, shorts, jeans, or in general, any attire considered immodest or dangerous to the employee's health or safety.

Hats Not required.

Personal Hygiene General cleanliness and neatness required at all times.

ATTENDANCE - EMERGENCY – REPORTING

Each day you must report to the office manager what streets you will be working for police notification.

Property Record Cards will be assigned to each data collector by Office management. need to be signed out before they are removed from the office. It is necessary for the field supervisor and the office to be aware of the location of all members of their group at all times to:

- A. Respond to possible police calls
- B. Be able to locate listers quickly for training sessions, assistance, etc.
- C. Relay personal emergency messages (your wife may be having the baby early)

5 - General Rules

- A. You are not to leave your assigned work area at any time, except lunch hour or a 10-15 minute call of nature trip to the corner restaurant.
- B. The field supervisor's instructions are:
 - 1 - Drive slowly and carefully through your assigned map - looking for the lister's car if they are inside the house.
 - 2 - If the lister is not located, stop and wait 10 minutes - drive through the map area once more - if the lister is still not found - call the office to see if the lister reported sick, out in field, or changing locations. If no call was made lister is marked absent for the day.
- C. If you are changing locations, become ill, or must leave the field for any reason, you are required to call the office and report.
- D. Meetings scheduled and bad weather - procedure will be covered by the field supervisor.

INSPECTION AND ENTRY POLICY

General: It is a contractual responsibility of our work that all property owners be given the opportunity to allow inspection of their property. Certainly, it is their right to permit this inspection or not permit it. As a representative of the client and the Company, you should be aware of your professional responsibility to:

- 1 - Properly identify yourself – **Show Your Badge IMMEDIATELY**
- 2 - Tactfully explain your purpose
- 3 - Ask permission to inspect and ensure that the property owner's record is complete and accurate
- 4 - Conduct your work in a polite, businesslike, efficient and professional manner

Specific Instructions:

1. Approach
 - A - Make sure you have the correct card ready for the property
 - B - While approaching the house, mentally note the nature of the property to remind yourself of pertinent questions about the property
 - C - **Have your I.D. card ready. Do *not attempt to contact or enter the property without it!* If you lose your card, see your supervisor immediately!**
 - D - People respond positively to being called by name. It distinguishes you from a door-to-door salesman. So, be ready to greet the occupant by name.
 - E - Go directly to the front door or the entrance apparently used by the occupants.
2. Contact
 - A - Ring doorbell – Wait – If No Answer Then KNOCK firmly! **Must Do Both BEFORE Beginning the Dwelling Measurement Process!**
 - B - Take a step back, away from the door. People are unlikely to open the door to a stranger if he is close enough to pounce on them.
 - C - When the occupant answers, verify ownership at the door. Example, "Good morning! Are you Mrs. Cooper?" The answer could be, "No, I am not." (Renter) Respond, "Oh, I see. Is this the

Cooper property?" The answer will be, "Yes, it is". Respond, "Good! "

3. Introduction - Give a short, factual statement identifying yourself, your purpose in calling, and closing with a request to inspect.

Example:

Identify yourself:	"My name is Ray Cudworth."
Who do you represent:	"I work for the company hired by the Town/City to conduct the revaluation."
Verify your credentials:	Show your I.D. card and say, "I am asked to show my I.D. card to you."
State your purpose:	<i>"I have been requested to ask your permission to briefly see the inside of the property to be sure we have the correct information about the property, so no error is made in your property valuation."</i>
Ask permission tactfully:	"May I come in for a few moments and ask you some questions about the property?" or "Would that be alright?"
Important:	Do not enter the house unless the occupant clearly indicates their approval. Make them say yes or no!
Typical objections:	"Do I have to let you in?" - Answer "No, Mrs. Cooper, but it would be to your advantage by making sure that any errors can be corrected and the data is correct." "I am very busy now." - Answer "I should only take a few minutes, Mrs. Cooper." "How can I be sure you are who you say you are?" - Answer "My name is registered with the police, the assessor's office and the company office, I would be happy to give you the phone number so you could call while I wait outside." "My husband is not home" - Answer "Yes, I understand, Mrs. Cooper, but I am sure the owner would prefer the inspection be made to be certain the valuation is correct, in any case I will wait outside while you call the owner for permission, if you wish."

Summary: Introduction

- A - Remain polite at all times
- B - Remind yourself to communicate in a friendly, clear, brief manner
- C - Don't joke with or tease people
- D - Don't be defensive - you have no reason to be ashamed of your work
- E - Don't be aggressive - you are not a policeman with a search warrant. You are there to ask permission to inspect.

4. If entrance is refused –

For many reasons, many of them are perfectly legitimate, the owner may decline to permit entry. The owner may simply say, "No, I would rather not let you in the house," or may have difficulty in saying no, and simply pose numerous objections. The rule of thumb is that when the owner makes more than 3 objections or rebuttals which you answer, recognize that they don't want to let you enter (their prerogative) and are having trouble saying no.

Whichever occurs (it will be a small percentage) **go to the next best course in securing accurate data about the property, i.e., ask the property owner if they would help you out by answering some questions at the door.**

Example: "I see, Mrs. Cooper. Well if you would prefer I not come in, I could ask you a few questions about the property here. Would that be alright?"

Most persons will agree with little objection. **Ask the most pertinent questions about the interior features and sales data, thank them, and ask if it would be alright to measure the outside.** PLEASE NOTE: I will usually say – Thank You For Taking Time To Clarify The Physical Characteristics and Now All I Need To Do Is Measure The Exterior Of The Dwelling Which Should Only Take About 5 Minutes & I'll Move Onto The Next. Thank You Again Mr or Mrs. _____
(Almost never refused).

Be certain to mark the card with the proper entrance information.

5. If the owner refuses entry or info at the door –

- A. Thank them for their trouble – Example: "I see, well would it be alright to just measure the outside of the house"?
- B. Generally the permission is always granted – thank them and measure the exterior quickly. Example: "Thank you, Mrs. Cooper, sorry to have troubled you, have a nice day."

6. If the owner refuses permission to measure or list

- A. Excuse yourself immediately.

- B. Leave the property.
 - C. From the sidewalk – estimate the interior and exterior based on outside observation, similar houses in the area and common sense.
 - D. Mark your card with the proper entry code.
 - E. Report all refusals to your supervisor and fill out a refusal form.
Refusal forms should be turned in to the Assessor, preferably on the same day but at the minimum the next working day.
7. Summary – “Do’s and Don’ts” of Entry Procedure:

Don't

Discuss taxes, property values, rentals, politics, or any other town information OR Argue with anyone you contact about any issue Joke with or tease the people you contact or Badger people EVER!

Do

Be courteous and respectful at all times
Always show your I.D. card
Conduct yourself as a professional

8. Special circumstances -
- A - Minors only present – Do not under any circumstances enter the house. Proper action is simply to
 - 1 - Ask if their parents are home
 - 2 - Ask the child to tell their parent someone is at the door
 - 3 - Do not enter until an adult gives permission
 - 4 - If no adult is present - excuse yourself- Do not measure house. Just Leave Letter exit property and verify/estimate property from the street.
 - B - Illness or death in family -
 - 1 - Excuse yourself and ask if it would be alright to recall at another time
 - 2 - Establish a definite recall time in accordance with your callback policy
 - 3 - **In most cases, it will be alright with the owner to permit exterior measurements. Ask first!**

4 - Temporarily estimate interior & Don't forget to recall

Interior Inspection

All of the foregoing has been directed toward gaining entry. Following is a standard guideline on *How to inspect*, quickly, efficiently, courteously, and thoroughly.

Situation - the lister has entered the house and is standing inside the front door.

- I - Have a definite question - place to go, immediately after entrance. If the lister does not direct the process, the owner may start a one-sided conversation, complicating the process and wasting time.

Examples: "Is there a basement, Mrs. Cooper?" "May we see it briefly?" or "Is the kitchen at the rear of the house?" "May we start there?"

- 2 - Turn the property record card over to the building side and use it as a guide or checklist during your inspection.
- 3 - Do not write on the card while in the house. This simply creates a defensive attitude in the mind of the owner and complicates your task.
- 4 - Don't go anywhere inside the house unless accompanied by the occupant.
- 5 - Don't open any doors or enter any rooms without asking permission.
- 6 - While going through the house, mentally note pertinent interior features, such as:

- A - Total rooms
- B - No. of bedrooms
- C - No. of full baths
- D - No. of half baths
- E - Additional plumbing fixtures
- F - Recent kitchen, bathroom, or general remodeling
- G - Size and finish type of basement
- H - Heating - system type
- I - Attic finish
- J - Relative condition
- K - Rec room - finished basement area
- L - Woodburning or other fireplace
- M - Unfinished areas

- 7 - At some point during the inspection, tactfully inquire about:
 - A - The approximate age of the house

- B - How long owned?
- C - If owned 5 years or less, establish purchase price, what was included, time of sale, conditions and terms of sale.

Examples:

- Lister - "May I ask what the purchase price was?"
- Owner- "What do you want to know that for?"
- Lister - "The information is used as a guide in noting values within the area."
- Owner- "I think we paid \$85,000."
- Lister - "I see, do you recall when you purchased?"
- Owner- "June last year."
- Lister - "Were there any items included with the sale other than the house and lot, as perhaps other lots, furniture, other personal property?"
- Owner- "No, just the house and lot."
- Lister - "Did you purchase the property on the open market, or through the family or bank?"
- Owner - Typical answers could be "We bought my mother's estate" (not valid) or "We bought it from my father" (not valid) or "We bought it through a realtor." (valid)

D - Recent remodeling or changes since the purchase?

Example: "Were there any significant changes since you bought the property?"

- E - In cases of obvious remodeling, ask: "When was the house last remodeled?"
"What was done?"
"Do you recall the approximate amount it cost?"
- F - If rented - ask for the amount of rent, utilities furnished by owner, lease term (1 year, month to month, etc.)
- 8 - The age of the house is a question best reserved for the end of the inspection as it usually generates a fair amount of discussion. A good approach is "Well, I believe I am about done now, by the way, Mrs. Cooper, do you recall the approximate year the house was built?"
- 9 - Close the inspection quickly and tactfully.
 - A - Say something like "I believe that about does it, Mrs. Cooper."
 - B - Thank the owner for their cooperation
 - C - Move toward the door and leave

- D - **As you are leaving, thank the owner again and mention you will be outside the house for a few minutes verifying measurements.**
- 10 - In all cases -
 - A - Be sure to inspect all portions of the structure if invited or asked to do so by the owner, including basements and unfinished attics (with permanent stairs).
 - B - Make note in the memoranda area of any unusual circumstances:
 - 1 - you feel are significant and cannot be effectively noted elsewhere on the card
 - 2 - the property owner brings to your attention and wishes noted
- 11 - Once outside the house
 - A - Systematically enter the correct data
 - B - Verify the measurements of the structure and complete the sketch
 - C - *Re-check* the complete card before leaving the property
 - D - If an omission is detected, *don't guess*, re-knock on the door and ask! That is the way professionals work!

RESIDENTIAL CALLBACK/ENTRY PROCEDURES

Lister Responsibilities

First Call

- A - If occupant is at home and contact (not necessarily entry) is made - complete all required data, per listing instructions. No further calls will be made by the lister.
- B - If no occupant is home
 - 1 Verify measurements and correct sketch as required.
 - 2 Estimate interior using exterior observation and the property record card as a guide. **Do NOT Look In The Windows.** A Quick Glance In A Walkout Style Basement Is OK To Verify If Finished.
 - 3 Complete all required data, on front of Property Record Card.
 - 4 Complete Entrance Information area.

INDIVIDUAL DAILY PRODUCTION REPORT

General: It is standard policy that all production persons, field and office staff, are required to personally maintain a daily production record based on an actual count of their work. This is a significant matter and should be treated in a serious manner. Errors or negligence in reporting will call for reprimand. Repeated errors will result in dismissal.

Specific Instructions:

- 1 - Enter correct date under week day.
- 2 - At the close of each business day each production employee is to count all production units based on their particular work type.
- 3 - This count is to be entered on a standard individual production report on a daily basis.

FIELD COMPLAINT PROCEDURE

General: It is standard project policy that all complaints from the public relative to our field data collection efforts will be systematically noted, investigated, and finalized. It is probably inevitable that possible misunderstandings may occur during the course of our work. We, of course, should take all reasonable steps to:

- A - Prevent legitimate complaints from developing by conducting ourselves in a responsible, courteous and professional manner.
- B - Respond in an objective and responsible manner to all complaints which are brought to our attention.

Specific Instructions:

- 1 - All complaints brought to our attention relative to our work or our employees' conduct, will be logged in on a Field Complaint Form. Sample following.
- 2 - All persons receiving a complaint, i.e., the client's staff, clerical persons, field employees, etc., are to record the pertinent facts of the matter on the complaint form.
- 3 - Unless the complaint is actually a request for information, rather than a specific complaint, the person filling out the form should take care to tactfully obtain complete data to properly respond to the caller. Such as:
 - A - Name, address, phone and parcel I.D. if possible of the property in question

- B - Date received
 - C - From where, as phone, personal visit, etc.
 - D - Nature of complaint
 - E - Any pertinent details
- 4 - Proper procedures dictate that the caller should be treated in a respectful manner, but specific explanations should be avoided. You should take care to inform the property owner that you will be certain to see that your supervisor is informed of the matter and they will be contacted by a representative of the Company. Close the discussion by saying "We thank you for bringing this matter to our attention and you may be assured that we will look into the matter."
- 5 - Following the logging of the complaint, the form is to be directed to the appraisal operations supervisor for follow-up. The appraisal supervisor is to personally follow up and complete any necessary investigation either in person or by phone, or delegate this task to a competent staff person.
- 6 - When re-contacting the property owner it is prudent to be totally professional and sincerely helpful. Your task is simply to:
- A - Verify the facts
 - B - Give the property owner an opportunity to "get it off their chest."
 - C - Provide explanation as appropriate
 - D - Apologize for any inconvenience they may have been caused
 - E - Assure them that proper action will be taken.
 - F - Finalize the report
 - G - Provide the completed report to the appraisal supervisor.
- 7 - A permanent record of all complaints will be maintained in chronological order by the secretarial staff.
- 8 - Complaints involving injury or serious property damage should be reported to the Company personnel and legal department immediately.

QUALITY CONTROL PROCEDURES

1 - In the interest of the production of a high quality product, it is a matter of some concern to:

- A - The client
- B - Our company
- C - Property owners
- D - All responsible employees

A comprehensive system of quality controls must be an ongoing part of all phases of the revaluation program.

2 - A good quality control program assures a number of good events:

- A - Discovery of errors so correction can be made
- B - Highlight needed areas of additional instruction for individuals
- C - Recognition of individual results - both good and bad
- D - Continued prosperity of our company and ourselves by producing the best product in the industry

3 - Minimum quality control steps planned (more as needed) -

- A - Field supervisor re-check of all properties listed during training period. Review with lister all noted deficiencies and corrective action required.
 - B - Field supervisor re-list (occupant interview, re-measure, re-inspect) of at least 25 of the first 100 dwellings listed by each data collector.
 - C - Field supervisor exterior observation of 10% of remaining properties.
 - D - Data collector will be required to revisit and correct errors as noted
 - E - After each pack of cards is completed, a comprehensive clerical check of all lister responsibilities. Errors noted, returned to the concerned field supervisor and lister for correction. Simply stated, a report card on every work pack will be performed.
 - F - Bi-weekly review by project supervisor and all field supervisors for current lister status of: quality results, productivity, acceptance of training, corrective actions, etc.
 - G - Similar quality control steps for all clerical, field and computer operations
 - H - **Errors will be made! They are expected and inevitable but errors require correction. Further repeated errors with no significant improvement are not permissible and will result in**
- a - Reprimand
 - b - Dismissal

APPENDIX
TABLE OF CONTENTS

Ranch, HIGH Ranch, Raised Ranch, Split Level, Cape Cod, Colonial & Contemporary Illustrations with brief descriptions

Architectural Terms
Real Estate Appraisal Terms
Story Heights / Roof Types
Dormers

Measuring and Sketching Instructions

Land Influences
Special Calculations
Outbuilding Definitions

RANCH - They are most often single-story homes that are built low to the ground and follow the contour of the land. In the eastern United States they are typically built on basements or crawl spaces with a lesser number being built directly on concrete slabs.



HIGH Ranch – HAMDEN, CT – This style dwelling is all above grade living area (**2 Story Height With NO Basement**) which has a raised ranch style layout and overall utility on a slab foundation.



Raised Ranch (Bi-Level) – This dwelling dictates that you must go up or down upon entering the front door. The living room, kitchen and bedrooms are generally on the upper level and the family room, garage, mechanical and utility rooms are on the lower level.



Split Level Structures – Split-level homes are a style of house in which the floor levels are staggered. There are typically two short sets of stairs, one running upward to a bedroom level, and one going downward toward a basement area. Please Note: There can be more than three levels and the style can remain a split level dwelling.



Cape Cod - Traditional Cape Cod cottages were typically one-and-a-half story, with the interior floor plan revolving around a central living room with a large hearth as the centerpiece. Full dormers are now frequently found resulting in “three-quarter” Capes.



Colonial - Regardless of the size, story height of 2, 2.5 or even 3 floors Colonial style homes share several characteristics. Typically rectangular, feature an entry door in the middle of the front of the home, can have paired chimneys and a stairway that is directly behind the entry door and leads to a hallway that typically bisects the middle of the second floor.



Original 70's Contemporary Style - Common in this style are the large plate glass windows, metal or concrete and natural look of wood or stones and some geometrical shapes like rounds and rectangles to create vaults and volume. Contemporary designs are also asymmetrical in form. This style is not into too much detail and ornamentation.



Newer Style Contemporary Dwelling



ARCHITECTURAL TERMS

apartment hotel	a building designed for non-transient residential use, divided into dwelling units similar to an apartment house, but having such hotel accommodations as room furnishings, lounges, public dining room, maid service, etc.
apartment house	a multi-family residence containing three or more non-transient residential living units and generally providing them with a number of common facilities and services.
attic	an unfinished or semi-finished portion of a building lying between the highest finished story and the roof and wholly within the roof framing.
Basement	a building story which is wholly or partly below the grade level.
bay	(1) a horizontal area division of a building usually defined as the space between columns or division walls. (2) an internal recess formed by causing a wall to project beyond its general line.
bay window	a window, or group of continuous windows, projecting from the main wall of a building.
beam	a long structural load-bearing member which is placed horizontally or nearly so and which is supported at both ends or, infrequently, at intervals along its length.
beam, spandrel	a wall beam supporting the wall above, as well as the floor.
building	any structure partially or wholly above ground which is designed to afford shelter to persons, animals, or goods. See also <i>construction</i> .
building, fireproof	a building in which all parts carrying loads or resisting stresses and all exterior and interior w", floors, and staircases are made of incombustible materials, and in which all metallic structural members are encased in materials which remain rigid at the highest probable temperature in case its contents are burned, or which provide ample insulation from such a temperature.
building, loft	a building having three or more stories with few or no interior bearing walls and designed for storage, wholesaling, or light industrial purposes.
building, single-purpose	a building designed for a specific purpose which cannot be used for another purpose without substantial alterations; e.g., a theater or church.
Bungalow	a one-story dwelling unit which is somewhat more pretentious than a cottage.
column	a structurally isolated vertical member which is at least 8 to 10 times as long as its least lateral dimension and which is designed to carry loads. Compare <i>pier</i> .
conduit	a tube, pipe, or small artificial tunnel used to enclose wires or pipes or to convey water or other fluids.
Construction, masonry/brick	a type of construction in which the exterior walls are bearing walls (q.v) made of solid brick.
Brick veneer	a type of construction in which the exterior walls are one-layer brick curtain walls backed by a wood fr.
construction, fireproof	see <i>fireproof building</i> .
construction, mill	type of construction in which the exterior walls are substantial masonry bearing walls, in which the structural members are of heavy timber, and which is further characterized by an open design and by other safeguards against fire hazards. Sometimes called "slow-burning construction."
construction, reinforced concrete	a type of construction in which the principal structural members, such as the floors, columns, beams, etc., are made of concrete poured around isolated steel bars or steel meshwork in such manner that the two materials act together in resisting forces.
Construction steel frame support of all	a type of construction in which there is a framework of steel structural members for the loads and the resistance of all stresses.
construction, wood frame	a type of construction in which there is a framework of wooden structural members for the support of all loads and the resistance of all stresses. Loosely called "frame construction."
coping	a special capping at the top of a wall, serving principally as a watershed.

cornice	a projecting element at the top of a wall, serving principally as a decoration or as part of the coping (q.v.).
cottage	a one story to two story dwelling unit of small size and humble character.
course	a uniform horizontal layer of brick, stone, terra cotta, shingles, or some other structural material extending continuously around a building or along a wall.
court	an open space bordered on two or more sides by the walls of a single building, or of two or more buildings, and by a lot line or a yard on any side not so bordered.
dormer	(1) a relatively small structure projecting from a sloping roof. (2) a window set upright in the face of such a structure.
dwelling	any building or portion thereof designed or occupied in whole or in part as a place of residence.
dwelling, attached	a multi-family dwelling in which the dwelling units are separated vertically by means of common or party walls. See <i>terrace</i> .
dwelling, double	a two-family dwelling in which the dwelling units are separated vertically, by means of a common or party wall. Synonymous with "semi-detached dwelling."
dwelling, duplex	a two-family dwelling in which the two dwelling units are separated horizontally with a private street entrance for each; i.e., a two-family flat.
dwelling, multi-family	a building designed as a place of residence for more than two families or households; e.g., an apartment house or tenement.
dwelling, row	any one of a series of similar single family, two family, or multifamily dwellings having one or more contiguous common or party walls. Compare <i>terrace</i> ; <i>dwelling, double</i> .
dwelling unit	any room or group of room designed as the living quarters of one family or household, equipped with cooking and toilet facilities, and having an independent entrance from a public hall or from the outside.
eaves	the portion of a sloping roof which projects beyond the outside walls of a building.
elevation	a drawing representing a projection of any one of the vertical sides or vertical cross-sections of a building or of any other object. Compare <i>plan</i> .
facade	the face of a building.
firewall	a wall of fire-resisting material erected between two parts of a building to prevent the spread of fire from one part to the other.
flashing	small metal strips used to prevent leaking of roofs around chimneys, dormers, hips, and valleys.
flat	(1) any one floor of a building two or more stories high, each floor of which constitutes a single dwelling unit and has a private street entrance. (2) the building containing two or more such floors. Compare <i>dwelling, duplex</i> .
footing	a spreading base to a wall, column, or other supporting member,, which serves to widen the ground area to which structural loads are transmitted.
foundation	the structural members below grade level, or below the first tier of beams above grade level, which transmit the load of a superstructure to the ground.
gable	(1) the triangular portion of a wall between the slopes of a double-sloping (i.e., gable) roof. (2) the whole of the wall containing such a triangular portion. (3) a portion of a building extending from the remainder of the building and covered with a gable roof.
girder	a large or principal beam (q.v.) used to support concentrated loads at isolated points along its length. (Girders usually support the beams and structure above).
header	(1) a structural member which is laid perpendicularly to a parallel series of similar members and against which the latter members abut. (2) a brick or other piece of masonry which is laid in a wall in such manner that its longest dimension extends along the thickness of the wall. Contrast <i>stretcher</i> .
hip	(1) a sloping line along which two roof surfaces meet to form an external angle of more than 180 degrees. (2) a hip rafter (q.v.) Compare <i>ridge; valley</i> .

hotel	a building designed for transient or semi-transient residential use, divided into furnished single rooms and suites, and having such accommodations as lounges, public dining rooms and maid service, etc.
hotel, apartment	see <i>apartment hotel</i> .
joist	one of a series of small parallel beams laid on edge and used to support floor and ceiling loads, and usually supported in turn by larger beams and girders.
lintel such opening.	a beam over a wall opening, such as a door or windows, designed to carry the load of the wall over
loft	an un-partitioned or relative]), unpartitioned upper story of a building, designed for storage, wholesaling, or light manufacturing. See also <i>loft building</i> .
louver (or louvre)	a ventilator containing slats which are placed lengthwise across the ventilator opening, each slat being slanted in such manner as to overlap the next lower slat and to permit ventilation but exclude rain.
Marquee	a flat roof-like structure which shelters a doorway, which has no floor beneath it, and which is usually supported wholly from the walls or the building.
mezzanine	a low story formed by placing a floor between what would ordinarily be the floor and ceiling of a high story. Note: the mezzanine floor frequently has a smaller area than other floors and, if present at all, is usually between the first and second stories.
millwork	all of the wooden portions of a building, whether frame construction or otherwise, which are customarily purchased in finished form from a planing mill, such as doors, windows, trim, balusters, etc.
overhang	a finished portion of a building having full story height which extends beyond the foundation wall line if part of the ground story, or beyond the exterior walls of the ground story if part of any higher story.
overhead Addition.	structure similar to overhang above ground story, such as O.H. bridge or passage, O.H. walk, O.H.
partition	see <i>wall, partition</i> .
pier	(1) a thick, solid mass of masonry which is fully or partially isolated from a structural standpoint and which is designed to transmit vertical loads to the earth. (2) a structure projecting from land into water for use in loading and unloading vessels. Compare column.
pilaster	a flat-faced pillar projecting somewhat from, but engaged in, the wall of a building and used for decorative purposes or to help support truss and girder loads or both.
pile	a heavy timber, metallic, or masonry pillar forced into the earth to form a foundation member.
pitch	the slope of any structural member, such as a roof or rafter, usually expressed as a simple fraction representing the rise per lateral foot.
plan	a drawing representing a projection of any one of the floors or horizontal cross-sections of a building or of the horizontal plane of any other object or area. Compare <i>elevation</i> .
Purlin	a beam running along the underside of a sloping roof surface and at right angles to the rafters, used to support the common rafters, and usually supported in turn by larger structural members, such as trusses or girders (usually run along length of building).
rafter	a structural member placed, as a rule, in a sloping position and used as the supporting element for the structural material forming the plane of the roof. See also <i>purlin</i> .
Rafter, hip	a rafter placed in an inclined position to support the edges of two sloping roof surfaces which meet to form an external angle of more than 180 degrees.
rafter, valley	a rafter placed in an inclined position to support the edges of two sloping roof surfaces which meet to form an external angle of less than 180 degrees.
ramp	an inclined walk or passage connecting two different floor levels and used in lieu of steps.
residence	see <i>dwelling</i> .
ridge	a horizontal line along which the upper edges of two roof surfaces meet to form an external angle of more than 180 degrees. Compare <i>hip; valley</i> .
rise	(1) in general, any vertical distance. (2) specifically, the rise of a roof being the distance between the

	top of an exterior wall and the peak of the roof; the rise of a stair being the distance from tread to tread.
roof single pitch.	the top portion of a structure. Types of roofs include double pitch, flat, gable, gambrel, hip, lean-to, single pitch.
roof, curb (or curbed)	a roof with a ridge at the center and a double slope on each of its two sides.
roof, flat	a roof which is flat or sloped only enough to provide proper drainage.
roof, gable	a double-sloped roof having a cross section similar in general to the shape of the inverted letter "V".
roof, gambrel	a ridged roof with two slopes on each side, the lower having a steeper pitch.
roof, hip (or hipped)	(1) in general, any roof having one or more hips (q.v.) (2) usually, a roof with four sloping sides meeting along four hips or along four hips and a ridge. Compare <i>roof, pyramid</i> .
roof, lean-to	(1) a roof having a single sloping side which is supported at the upper edge by the wall of an attached building or of a larger and higher portion of the same building (preferred). (2) any roof with a single slope. Compare <i>roof, flat</i> .
roof, mansard	a special type of curb roof (q.v.) in which the pitch of the upper part of each of the four equally sloping sides is small or negligible and that of the lower part is very great; a series of dormers projects from the lower part.
roof, monitor	a type of gable roof commonly found on industrial buildings - having a small raised portion along the ridge, with openings for the admission of light and air.
roof, pyramid	A hip roof having four sloping triangular sides, usually of equal pitch, meeting together at the peak.
roof, ridged	a roof having one or more ridges (q.v.)
roof, sawtooth	a roof with a series of parallel sloping surfaces interspersed between a series of vertical surfaces which rise from the lower edges of such sloping surfaces and which contain windows for the admission of light and air.
roof, single pitch	any roof with a single slope, other than a lean-to roof.
sash	the wooden or metal framework in which the glass of a door or window is set.
Sheathing	the covering, usually of rough lumber, placed immediately over studding or rafters.
sill	(1) the lower horizontal part of a door-case (the threshold) or of a window. (2) the lowest horizontal structural member of a frame building, upon which the superstructure is supported.
sleeper other superstructure.	a structural member laid horizontally on the ground or upon a masonry base as a support to a floor or other superstructure.
specifications	a detailed description of the dimensions, materials, quantities, structural procedures, etc. applicable to a projected or completed piece of construction.
story	that portion of a building enclosed by a floor, a ceiling and the exterior walls.
story, ground	the first story lying wholly above the ground level. Synonymous with "first story."
story, half (or one-half)	(1) for buildings with a mansard or gambrel roof, a finished portion of a building which lies above the wall plate or cornice and which has a usable floor area substantially less than that of the next lower story. (2) for all other buildings, a finished portion of a building which is above one or more full stories, which is wholly or partly within the roof frame and which has one or more exterior walls substantially lower than the full height of the story.
story, one	a building having no finished story above the ground story.
stretcher	a brick or other piece of masonry which is laid lengthwise in a wall. Contrast <i>header</i> .
strut	any structural member which holds apart two or more other members of counteracting a pressure which tends to bring them together. Contrast <i>tie</i> .
stud	one of a series of small slender structural members placed vertically and used as the supporting element of exterior or interior walls. (Plural: studs or studding)
subfloor	the flooring laid directly on top of the floor joists, but beneath the finish floor.

tenement	a building, usually of obsolete nature, designed primarily for non-transient residential use and divided into three or more dwelling units having common stairs, halls and street entrances, and sometimes common bath and toilet rooms. Compare <i>apartment house, flat, terrace</i> .
terrace	(1) an unroofed level area covered with grass or masonry or both, raised above the surrounding ground level, and having a vertical or sloping front. (2) a multi-family dwelling in which the dwelling units are separated vertically by means of common or party walls. Compare <i>dwelling, row; dwelling, double</i> .
terra cotta trim on buildings.	a hard-baked ceramic clay molded into decorative tiles, bricks, etc., and used particularly for facing a
tie	any structural member which binds together two or more members by counteracting a stress which tends to draw them apart. Contrast <i>strut</i> .
trim	1) the wooden portions of a plastered room, such as the doors, windows, wainscoting, and molding or the corresponding portions of a room finished otherwise than with plaster. (2) the contrasting elements on the exterior of a building which serve no structural purpose, but intended to enhance its appearance, e.g., the cornice. (3) occasionally, the hardware of a house, such as locks, hinges, doorknobs, etc.
truss	a combination of structural pieces fastened together into a rigid open member which is supported at both ends and upon which loads are superimposed. Compare <i>girder</i> .
valley	a sloping line along which two roof surfaces meet to form an external angle of less than 180 degrees. Compare <i>ho; ridge</i> .
veneer	a thin ornamental or protective facing which does not add appreciably to the strength of the body to which it is attached.
wainscot (or wainscoting)	(1) a wooden facing on the lower portion of a contrasting interior wall. (2) by extension, a facing of marble tile, or the like, on the lower portion of interior walls.
wall	a vertical structure serving to enclose, support, divide; such as one of the vertical enclosing sides of a building or room.
wall, bearing	a wall designed primarily to withstand vertical pressure in addition to its own weight.
wall, common	a wall owned by one or two parties and jointly used by both, one or both of whom is entitled to such use under the provisions of ownership.
wall, curtain	a non-bearing wall which is supported by columns, beams, or other structural members, and whose primary function is to enclose space.
wall, fire	see <i>firewall</i> .
wall, partition	an interior bearing or non-bearing wall which separates portions of a story. Synonymous with <i>partition</i> .
wall, party	a wall jointly used by two parties under easement agreement and erected at or upon a line separating two parcels of land held under different ownership.
wall, retaining	a wall designed primarily to withstand lateral pressures of earth or other filling or backing deposited behind it after construction.
window, bay	see <i>bay window</i> .
window, dormer	see dormer.
wing	a subordinate part of a building extending from the main part, or any one of two or more substantially co-ordinate parts of a building which extend out from one or more common junctions.

REAL ESTATE APPRAISAL TERMS

abstract	a computer-printed report of appraised and/or assessed values for each parcel of real property in a given taxing district; generally sequenced geographically.
accrued depreciation	<i>see depreciation.</i>
actual age	the number of years elapsed since the original construction, as of the effective valuation date. Compare with <i>effective age</i> .
ad valorem tax	in reference to property, a tax based upon the value of the property.
aesthetic value	a value, intangible in nature, which is attributable to the pleasing appearance of a property.
agricultural property	land an improvements devoted to or best adaptable for the production of crops, fruits, and timber, and the raising of livestock.
air rights	the right to the use of a certain specified space within the boundaries of a parcel of land and above a specified evaluation.
alley influence	the enhancement to the value of a property rising out of the presence of an abutting alley, most generally applicable to commercial properties.
amenities	in reference to property, the intangible benefits arising out of ownership; <i>amenity value</i> 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 <i>valuation</i> or <i>appraised value</i> .
appraisal schedules	any standardized schedules and tables used in conjunction with a revaluation program, such as replacement cost pricing schedules, depreciation tables, land depth tables, etc.
appraised value	<i>see appraisal.</i>
Appraiser	one who estimates value. More specifically, one who possesses the expertise to execute or direct the execution of an appraisal.
assessed value	<i>see assessment.</i>
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 <i>assessed value</i> , <i>taxable value</i> , and <i>tax base</i> .
assessment district	an assessor's jurisdiction; it may or may not be an entire tax district.
Assessment period	the period of time during which the assessment of all properties within a given assessment district must be completed; the period between tax lien dates.
assessment ratio	the ratio of assessed value to a particular standard of value, generally the appraised value. A percentage to be applied to the appraised value in order to derive the assessed value.
assessment roll	the official listing of all properties within a given taxing jurisdiction by ownership, description, and location showing the corresponding assessed values for each; also referred to as <i>tax list</i> , <i>tax book</i> , <i>tax duplicate</i> , and <i>tax roll</i> .
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.
asthetic value	a value, intangible in nature, which is attributable to the pleasing appearance of a property.
average deviation	in a distribution of values, the average amount of deviation of all the values from the mean value, equal to the total amount of deviation from the mean divided by the number of deviations. As applied to an assessment-to-sale ratio distribution, the average amount which all the ratios within the distribution deviate from the mean ratio.
base price	a value or unit rate established for a certain specified model, and subject to adjustments to account for variations between that particular model and the subject property under appraisal.
blighted area	a declining area characterized by marked structural deterioration and/or environmental deficiencies.

Board of Equalization	a non-jurisdictional board charged with the responsibility of reviewing assessments across properties and taxing districts and to assure that said properties and districts are assessed at a uniform level, either raising or lowering assessments accordingly; also referred to as <i>Board of Appeals</i> , and <i>Board of Review</i> .
building residual	building residual technique a building valuation technique which requires the value of the land to be a known factor; the value of the buildings can then be indicated by capitalizing the residual net income remaining after deducting the portion attributable to the land.
capitalization	a mathematical procedure for converting the net income which a property is capable of producing into an indication of its current value. See <i>income approach</i> .
central business district	the center of a Town - in which the primary commercial, governmental, and recreational activities are concentrated.
certified assessment evaluator	a professional designation (C.A.E.) conferred upon qualifying assessors by the International Association of Assessing Officers (IAAO).
classified property tax	an ad valorem property tax under which the assessment ratio varies for different property classes.
component part-in-place method	the application of the unit-in-place method to unit groupings or construction components. See <i>unit-in-place method</i> .
corner influence	the enhancement to the value of a property due to its corner location; most generally applicable to commercial properties.
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.
cost factor	a factor or multiplier applied to a replacement or reproduction cost to account for variations in location and time, as well as for other elements of construction costs not otherwise considered.
cubic content	the cubic volume of a building within the outer surface of the exterior wall and roof and the upper surface of the lowest floor.
deed	a written instrument which conveys an interest in real property. A <i>quitclaim deed</i> conveys the interest described therein without warranty of title. A <i>trust deed</i> conveys interest described therein to a trustee. A <i>warranty deed</i> conveys the interest described therein with the provisions that the freehold is guaranteed by the grantor, his heirs, or successors.
depreciation	loss in value from all causes; may be further classified as <i>physical</i> , referring to the loss of value caused by physical deterioration; <i>functional</i> , referring to the loss of value caused by obsolescence inherent in the property itself; and <i>economic</i> , referring to the loss of value caused by factors extraneous to the property.
Accrued depreciation refers to the actual depreciation existing in a particular property as of a specified date.	
<i>Normal</i> depreciation refers to that amount of accrued depreciation one would normally expect to find in buildings of certain construction, design, quality, and age.	
depreciation allowance	a loss of value expressed in terms of a percentage of replacement or reproduction cost new.
depth factor	a factor or multiplier applied to a unit land value to adjust the value in order to account for variations in depth from an adopted standard depth.
depth table	a table of depth factors.
design factor	a factor or multiplier applied to a computed replacement cost as an adjustment to account for cost variations attributable to the particular design of the subject property which were not accounted for in the particular pricing schedule used.
deterioration	impairment of structural condition evidenced by the wear and tear caused by physical use and the action of the elements, also referred to as <i>physical depreciation</i> .
economic depreciation	see <i>depreciation</i> .
economic life	the life expectancy of a property during which it can be expected to be profitably utilized.

economic obsolescence	obsolescence caused by factors extraneous to the property. Also referred to as <i>economic depreciation</i> .
economic rent	the rent which a property can be expected to bring in the open market as opposed to <i>contract rent</i> or the rent the property is actually realizing at a given time.
effective age	an age assigned to a structure based upon its condition as of the effective valuation date; it may be greater or less than the structure's actual age. Compare with <i>actual age</i> .
effective depth factor is based.	in reference to property valuation, that depth, expressed in feet, upon which the selection of the depth
effective frontage	in reference to property valuation, that total frontage, expressed in lineal feet, to which the unit land value is applied, it may or may not be the same as the actual frontage.
effective gross income	the estimated gross income of a property less an appropriate allowance for vacancies and credit losses.
effective valuation date	in reference to a revaluation program, the date as of which the value estimate is applicable.
encroachment	the displacement of an existing use by another use.
environmental deficiency	a neighborhood condition such as adverse land uses, congestion, poorly designed streets, etc., operating to cause economic obsolescence and, when coupled with excessive structural deterioration, blight.
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 <i>revaluation</i> 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 unequitable distribution of the tax burden. Inequity is a natural product of changing economic conditions 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.	
excessive frontage	frontage which because of the particular utility of the lot does not serve to add value to the lot.
exempt property	see <i>tax exemption</i> .
fee appraisal	see <i>mass appraisal</i> .
field crew	the total professional staff assigned to a specific appraisal project, including listers, reviewers, staff appraisers, and clerical and administrative supporting personnel.
functional depreciation	see <i>depreciation</i> .
functional obsolescence	obsolescence caused by factors inherent in the property itself. Also referred to as <i>functional depreciation</i> .
functional utility	the composite effect of a property's usefulness and desirability upon its marketability.
grade	the classification of an improvement based upon certain construction specifications, and quality of materials and workmanship.
grade factor	a factor or multiplier applied to a base grade level for the purpose of interpolating between grades or establishing an intermediate grade.
grantee other similar d	a person to whom property is transferred and property rights are granted by deed, trust instrument, or documents. Compare with <i>grantor</i> .
grantor	a person who transfers property or grants property rights by deed, trust instrument, or other similar documents. Compare with <i>grantee</i> .
gross area	the total floor area of a building measured from the exterior of the walls.
gross income	the scheduled annual income produced by the operation of a business or by the property itself.
gross income multiplier	a multiplier representing the relationship between the gross income of a property and its estimated value.

gross sales etc.	the total amount of invoiced sales before making any deductions for returns, allowances, etc.
ground lease	a document entitling the lessee certain specified rights relating to the use of the land.
ground rent	net rent from a ground lease; that portion of the total rent which is attributable to the land only.
improved land	land developed for use by the erection of buildings and other improvements.
income approach	one of the three traditional approaches to determination of value; measures the present worth of the future benefits of a property by the capitalization of its net income stream over its remaining economic life. The approach involves making an estimate of the potential net income the property may be expected to yield, and capitalizing that income into an indication of value.
income property	a property primarily used to produce a monetary income.
industrial park	a subdivision designed and developed to accommodate specific types of industry.
industrial property	land, improvements, and/or machinery used or adaptable for use in the production of goods either for materials, or by changing other materials and products, i.e. assembling, processing and manufacturing ... as well as the supporting auxiliary facilities thereof.
inequity	see <i>equity</i> .
influence factor	a factor serving to either devalue or enhance the value of a particular parcel of land, or portions thereof, relative to the norm for which the base unit values were established, generally expressed in terms of a percentage adjustment.
	institutional property land and improvements used in conjunction with providing public services and generally owned and operated by the government or other nonprofit organizations ... hospitals, schools, prisons, etc. Such property is generally held exempt from paying property taxes.
interest rate	the rate of return from an investment.
land classification	the classification of land based upon its capabilities for use and/or production.
land contract	a purchase contract wherein the grantee takes possession of the property with the grantor retaining the deed to the property until the terms of the contract are met as specified.
land residual technique	a land valuation technique which requires the value of the buildings to be known; the value of the land can then be indicated by capitalizing the residual net income remaining after deducting the portion attributable to the building(s).
landscaping	natural features such as lawns, shrubs and trees added to a plot of ground or modified in such a way as to make it more attractive.
land use restrictions	legal restrictions regulating the use to which land may be put.
land value maps	a map used in conjunction with mass appraising; generally drawn at a small scale, and showing comparative unit land values on a block to block basis.
lease	a written contract by which one party (lessor) gives to another
lessee	party (lessee) the possession and use of a specified property, for a
lessor	specified time, and under specified terms and conditions.
Leasehold	a property held under the terms of a lease.
leasehold improvements	additions, renovations, and similar improvements made to a leased property by the lessee.
leasehold value	the value of a leasehold; the difference between the contractual rent and the currently established economic or market rent.
legal description	a description of a parcel of land which serves to identify the parcel in a manner sanctioned by law.
lister appraiser)	a field inspector or data collector whose principle duty is to collect and record property data (not an appraiser).
market data approach	one of the three traditional approaches to determination of the value of a property; arrived at by 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 comparables 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 <i>fee appraisal</i> which is generally used to refer to a rather extensive, detailed appraisal of a single property or singularly used properties for a specified purpose.
member appraisal institute	a professional designation (M.A.I.) conferred upon qualifying real estate appraisers by The American Institute of Real Estate Appraisers.
mineral rights	the right to extract subterranean deposits such as oil, gas, coal, and minerals, as specified in the grant.
minimum rental	that portion of the rent in a percentage lease which is fixed.
model method	a method of computing the replacement or the reproduction cost of an improvement by applying the cost of a specified model and adjusting the cost to account for specified variations between the subject improvement and the model.
modernization	the corrective action taken to update a property so that it may conform with current standards.
Mortgage mortgagee mortgagor	a legal document by which the owner of a property (mortgagor) pledges the property to a creditor (mortgagee) as security for the payment of a debt.
neighborhood	a geographical area exhibiting a high degree of homogeneity in residential amenities, land use, economic and social trends, and housing characteristics.
neighborhood trend	three stages in the life cycle of a neighborhood...the <i>improving stage</i> characterized by development and growth; the <i>static stage</i> characterized by a leveling off of values, and the <i>declining stage</i> characterized by infiltration and decay.
net income	the income remaining from the effective gross income after deducting all operating expenses related to the cost of ownership.
net lease	a lease wherein the lessee assumes to pay all applicable operating expenses related to the cost of ownership, also referred to as <i>net net</i> , or <i>net net net lease</i> .
net sales	gross sales less returns and allowances.
net sales area etc.	the actual floor area used for merchandising, excluding storage rooms, utility and equipment rooms, etc.
non-conforming	use a use which, because of modified or new zoning ordinances, no longer conforms to current use regulations, but which is nevertheless upheld to be legal so long as certain conditions are adhered to.
observed depreciation	that loss in value which is discernable through physical observation by comparing the subject property with a comparable property either new or capable of rendering maximum utility.
obsolescence	a diminishing of a property's desirability and usefulness brought about by either functional inadequacies and over-adequacies inherent in the property itself, or adverse economic factors external to the property. Refer to <i>functional depreciation</i> and <i>economic depreciation</i> .
operating expenses	the fixed expenses, operating costs, and reserves for replacements which are required to produce net income before depreciation, and which are to be deducted from effective gross income in order to arrive at net income.
overage income	rental received in addition to the minimum contract rental, based upon a specified percentage of a tenant's business receipts.
overall rate	a capitalization rate representing the relationship of the net income (before recapture) of a property to its value as a single rate; it necessarily contains, in their proper proportions, the elements of both the land and the building capitalization rates.
overassessed	a condition wherein a property is assessed proportionately higher than comparable properties.
parcel	piece of land held in one ownership.
percentage lease	a type of lease in which the rental is stipulated to be a percentage of the tenant's gross or net sales,

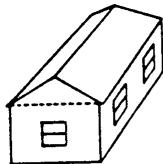
whichever specified.

permanent parcel number	an identification number which is assigned to a parcel of land to uniquely identify that parcel from any other parcel within a given taxing jurisdiction.
personal property	property which is not permanently affixed to and a part of the real estate, as specified by state statutes.
physical depreciation	<i>see depreciation.</i>
preferential assessment	an assessing system which provides preferential treatment in the form of reduced rates to a particular class of property, such as a system providing for farm properties to be assessed in accordance to their value in use as opposed to their value in the open market.
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. See <i>classified property tax</i> .
property inspection data	a physical inspection of a property for the purpose of collecting and/or reviewing property data.
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.
public utility property	properties devoted to the production of commodities or services for public consumption under the control of governmental agencies such as the Public Utility Commission.
quantity survey method	a method of computing the replacement or the reproduction cost of an improvement by applying unit costs to the actual or estimated material and labor quantities and adding an allowance for overhead, profit, and all other indirect construction costs.
real estate	the physical land and appurtenances affixed thereto; often used synonymously with <i>real property</i> .
real property	all the interests, benefits, and rights enjoyed by the ownership of the real estate.
reassessment base	the revaluation of all properties within a given jurisdiction for the purpose of establishing a new tax base.
rent	the amount paid for the use of a capital good. <i>See economic rent.</i>
replacement cost	the current cost of reproducing an improvement of equal utility to the subject property; it may or may not be the cost of reproducing a replica property. Compare with <i>reproduction cost</i> .
reproduction cost	the current cost of reproducing a replica property. Compare with <i>replacement cost</i> .
reserve for replacements	a reserve established to cover renewal and replacements of fixed assets.
residential property	vacant or improved land devoted to or available for use primarily as a place to live.
revaluation program	<i>see equalization program.</i>
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.
salvage value	the price one would be justified in paying for an item of property to be removed from the premises and used elsewhere.
site development costs	all costs incurred in the preparation of a site for use.
soil productivity	the capacity of a soil to produce crops.
sound value	the depreciated value of an improvement.
sound value estimate	an estimate of the depreciated value of an improvement made directly by comparing it to improvements of comparable condition, desirability, and usefulness without first estimating its replacement cost new.
standard depth typical depth	that lot depth selected as the norm against which other lots are to be compared; generally the most typical depth.
sublease	<i>see lease;</i> the lessee in a prior lease simply becomes a lessor in a sublease.

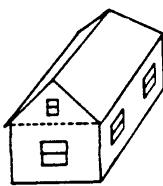
tax bill	an itemized statement showing the amount of taxes owed for certain property described therein and forwardable to the party(s) legally liable for payment thereof.
tax book	see <i>assessment roll</i> .
tax district	a political subdivision over which a governmental unit has authority to levy a tax.
tax duplicate	see <i>assessment roll</i> .
tax exemption	either total or partial freedom from tax -I total exemption such as that granted to governmental, educational, charitable, religious, and similar nonprofit organizations, and partial exemption such as that granted on homesteads, etc.
tax levy	in reference to property taxes, the total revenue which is to be realized by the tax.
tax list	see <i>assessment roll</i> .
tax mapping	the creation of accurate representations of property boundary lines at appropriate scales to provide a graphic inventory of parcels for use in accounting, appraising and assessing; such maps show dimensions and the relative size and location of each tract with respect to other tracts.
tax notice	a written notification to a property owner of the assessed value of certain properties described therein; often mandated by law to be given to each property owner following a revaluation.
tax rate	the rate - generally expressed in dollars per hundred or dollars per thousand (mills) - which is to be applied against the tax base (assessed value) to compute the amount of taxes. The tax rate is derived by dividing the total amount of the tax levy by the total assessed value of the taxing district.
tax roll	see <i>assessment roll</i> .
tillable land	land suitable for growing annual crops.
underassessed	a condition A-herein a property is assessed proportionately lower than comparable properties.
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 particular assessing practices followed.
unimproved land	vacant land; a parcel for which there is no improvement value.
unit cost or price	the price or cost of one item of a quantity of similar items.
unit-in-place method	a method of computing the replacement or reproduction cost of an improvement by applying established unit-in-place rates. developed to include the cost of materials, equipment, labor, overhead and profit, to the various construction units.
use density units per acre.	the number of buildings in a particular use per unit of area, such as a density of so many apartment
use value	the actual value of a commodity to a specific owner, as opposed to its value in exchange or market value.
vacancy	an unrented unit of rental property.'
vacant land	unimproved land; a parcel for which there is no improvement value.
valuation	see appraisal.
view	the scene as viewed from a property.
waterfrontage	land abutting on a body of water.
Woodland	land which is fairly densely covered with trees.
zoning regulations	governmental restrictions relating to the use of land.

LAND INFLUENCE ADJUSTMENTS GUIDE
STATED AS AN OVERVIEW FOR REFERENCE

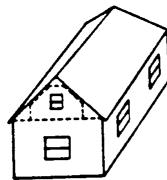
Adj. Park	POSITIVE
Adj. Park	POSITIVE
Adj. River/Stream	POSITIVE
Comm. Infl	Negative 10 to 20 Percent (Depending on Proximity & Overall Impact)
Drainage	Negative 5 to 20 Percent (Depending on Severity)
Ex. View	POSITIVE
FR View	POSITIVE
GD View	POSITIVE
Hvy Traff	Negative 10 to 15 Percent (Depending on Severity)
HWY Adj.	Negative 5 to 20 Percent (Depending on Severity)
HWY Infl.	Negative 5 to 10 Percent (Depending on Severity)
Ledge	Negative 5 to 15 Percent (Depending on Severity)
Med. Traff	Negative 5 Percent (On Average)
Multi Town	
Pwr. Line	Negative 5 to 20 Percent (Depending on Severity)
RR Adj.	Negative 5 to 25 Percent (Depending on Severity)
RR Infl.	Typically Negative 5 to 10 Percent (Depending on Actual Proximity & Severity)
TOPO	Negative 5 to 20 Percent (Depending on Actual Severity)
Water Acc.	POSITIVE (Case By Case Basis Regarding Estimated Market Reaction Value)
Water Infl.	POSITIVE (Case By Case Basis Regarding Estimated Market Reaction Value)

STORY HEIGHT ILLUSTRATIONS**A 1 Story**

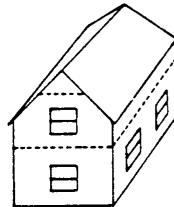
All rooms are on one floor and are below the square of house at the eave line. This design usually has a low pitch roof with a slope of about 1/6.

**B 1 Story and Attic**

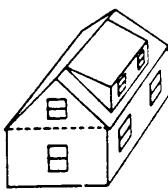
Same basic design as 1 Story, except the pitch of the roof is usually greater, with a slope of about 1/4 or 1/3. This design has a permanent stairway to a usable, floored attic area. There are usually windows at each end of the attic.

**C 1 Story and Finished Attic**

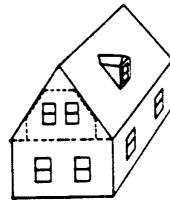
Same basic design as 1 Story and Attic, except the attic interior is finished and is usually divided into rooms. The attic floor area is approximately 55% of the first floor area.

**D 1 1/2 Story**

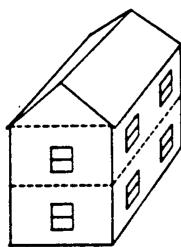
The second floor area of this design is equal to the area of the first floor; however, the wall height of the second floor is approximately one-half of the first floor - with the balance of wall height as sloping ceiling.

**E 1 1/2 Story**

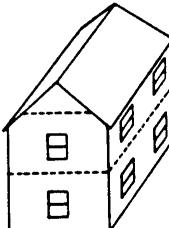
This design is similar to 1 Story and Finished Attic, except that the roof pitch is greater - with a slope of about 1/3 or 1/2 - and there is a large dormer on one side of the roof and possibly one or two small dormers on the opposite side of the roof. Area of the finished second floor is approximately 75% of the first floor area.

**F 1 1/2 Story**

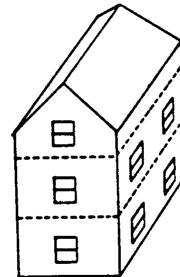
This design has a high pitch roof with a slope of about 5/8 or 3/4, and small dormers on one or both sides of the roof. The area of the finished second floor is approximately 75% of the first floor area.

**G 2 Story**

This is a typical two story dwelling, with the second floor area equal to the first floor area.

**H 2 Story**

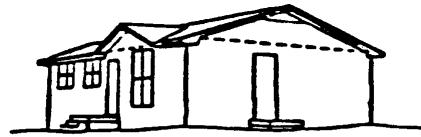
Similar to the 2 Story in example G, except that the second floor side walls are less than full height. Consequently, part of the second floor ceiling follows the slope of the roof.

**I 2 1/2 Story**

This design has two full stories and a half story similar to example D. A two and one-half story dwelling may be similar in design to examples E or F.

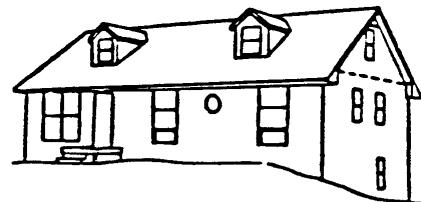
1 story

All rooms are on the ground floor level below the vertical square of the house at the eave line. This story height usually has a roof pitch of 4/12 or 5/12.



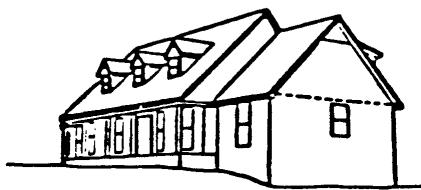
1 story with finished attic

Same basic design as one story, except roof pitch is steeper (6/12). The second floor (attic) may contain from 40% to 55% of the first floor area, and is generally partitioned into rooms and accessible by a permanent stairway.



1½ story

A house designed with a steep pitched roof (8/12) to accommodate living space representing 50% to 65% of the first floor area. The second floor is finished with material and workmanship consistent with the first floor and it is accessible by a permanent stairway. In addition, exterior lighting is provided by several single dormers and/or one shed dormer.



1½ story

Similar to the 1½ story described previously, but having an even steeper roof pitch which accommodates finished living space representing about 75% of the first floor area.



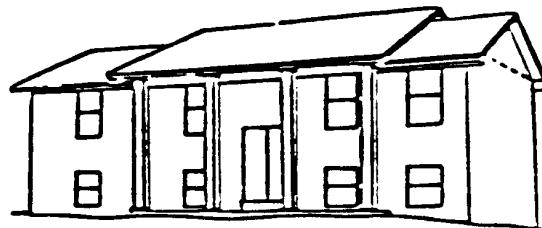
2 story

A designed building having equal living area on the second floor. This area is accessible by a permanent stairway, and is finished with materials and workmanship consistent with that of the first floor.



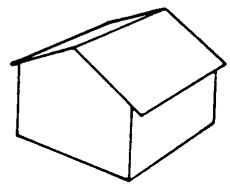
Bi-level

This is essentially a one story house with a full (100%) basement pulled out of the ground. The entrance foyer is between the finished floor (wood) of the main living area and the finished floor (concrete) of the basement level. Frequently the basement is either partially or completely finished.

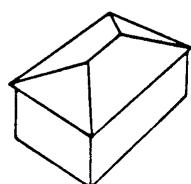


ROOF TYPE ILLUSTRATIONS

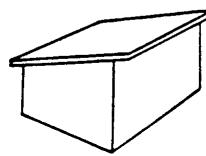
GABLE



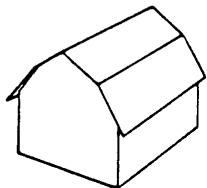
HIP



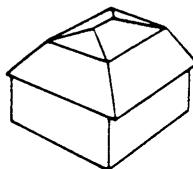
SHED



GAMBREL

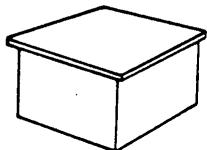


MANSARD

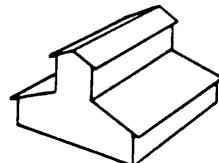


ARCHED

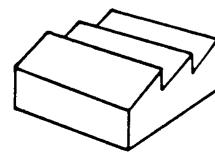
FLAT



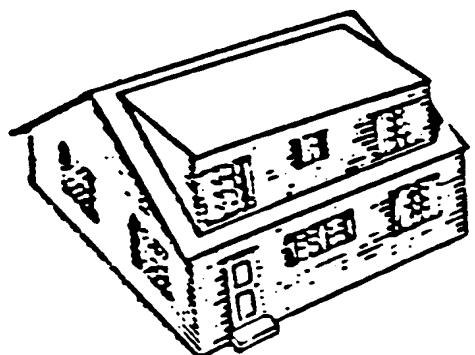
MONITOR



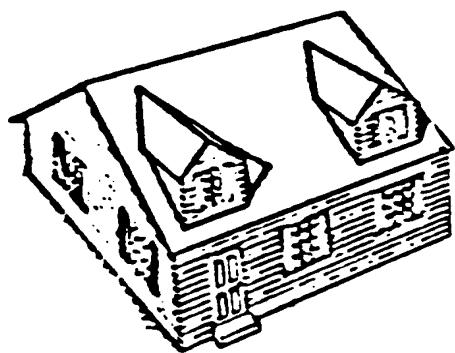
SAWTOOTH



DORMERS



SHED DORMER



INDIVIDUAL DORMER

MEASURING GUIDELINES

Measuring is the first step in the sketching procedure. Accuracy is the key to measuring, and several techniques exist to achieve this objective.

- A. Familiarize yourself with the measuring device. Cloth tapes (50' and 100') and wood measuring sticks, (8') are the most common implements used. Procedures to correctly utilize and maintain each device must be understood and practiced. If using a laser device be certain you know how to properly operate it and if there is ever ANY doubt about the measurement use your measuring tape to verify.
- B. Develop a standard measuring procedure using the following guidelines:
 1. Always begin at the front of the structure.
 2. Pursue a clockwise, or counter-clockwise, course depending on obstacles encountered.
 3. Once started, maintain continuity. Measure adjacent sides; never measure one side, then an opposite side.
- C. When possible, always place the measuring instrument on the surface of the structure being measured. If a measurement cannot be obtained in this manner, place the instrument as close to the structure as possible.
- D. Round all measurements to the nearest foot. If the measurement reads 5'6" or more round to 6'. If it reads 5'5" or less, round to 5'.
- E. All measurements should be taken from the exterior of the structure.
- F. Use a straight edge when completing the final diagram – this assures a neat, precise sketch.
- G. Detached improvements will not be sketched.

SKETCH LABELING GUIDELINES

Labeling of a sketch is necessary to designate specific features of the structure. The sketch must be detailed to achieve a basic picture of the structure. The following guidelines will help obtain the desired results.

- A) Use typical sketch abbreviations when labeling. Numeric symbols will be used to indicate story heights and surface measurements. Alpha symbols will be used to indicate exterior wall material, basement types, unfinished and finished areas, basements garages, and overhangs. Alphanumeric symbols will be used to identify and differentiate attached and detached improvements.
- B) Labels should be legible and precise.

C) Use standard abbreviations as stated in the manual for all exterior walls, basement type, finished and unfinished area, basement garage and story height. Standard structure codes are to be used to identify all improvements.

SPECIAL LAND CALCULATION

Hamden CT

Code	Unit Type	Description	Affect On Price	Price Adjust	Affect Total or Units	Factor 2017	Factor 2018
5735	AC	442 MAIN	Adjust	0.00	Total	1.00	1.00
5MR	SF	5 MILE RIVER	Adjust	0.00	Total	5.00	5.00
5MR LO	SF	5 MILE RIVER SECONDARY	Adjust	0.00	Total	2.00	2.00
6000	AC	RPDE N MAIN	Adjust	0.00	Total	1.10	1.10
6100	AC	WSDD WSHGTN ST	Adjust	0.00	Total	1.20	1.20
6200	AC	CBDB WEST AV	Adjust	0.00	Total	1.10	1.10
6300	AC	C921 Liberty Sq	Adjust	0.00	Total	1.20	1.20
6400	AC	SN COM USE	Adjust	0.00	Total	1.65	1.65
9000	AC	E NHBD LOC E	Adjust	0.00	Total	1.50	1.50
9100	AC	E NHBD LOC VG	Adjust	0.00	Total	1.30	1.30
9200	AC	S NHBD LOC G	Adjust	0.00	Total	1.40	1.40
9300	AC	S NHBD LOC F	Adjust	0.00	Total	0.90	0.90
9400	AC	N ROWAYTON	Adjust	0.00	Total	1.00	1.00
9450	AC	N ROWAYTON RR	Adjust	0.00	Total	1.00	1.00
9500	AC	NE ROWAYTON	Adjust	0.00	Total	0.85	0.85
9600	AC	E NHBD LOC F	Adjust	0.00	Total	0.85	0.85
9700	AC	EN-C VG	Adjust	0.00	Total	1.30	1.30
9800	AC	EN-C G	Adjust	0.00	Total	1.05	1.05
BAA1	AC	BAA ADJ - 15%	Adjust	0.00	Total	0.85	0.85
BAA10	AC	BAA ADJ - 25%	Adjust	0.00	Total	0.75	0.75
BAA11	AC	BAA ADJ - 12%	Adjust	0.00	Total	0.88	0.88
BAA13	AC	BAA ADJ - 6%	Adjust	0.00	Total	0.94	0.94
BAA14	AC	BAA ADJ - 8%	Adjust	0.00	Total	0.92	0.92
BAA15	AC	BAA ADJ - 30%	Adjust	0.00	Total	0.70	0.70
BAA16	AC	BAA ADJ - 22%	Adjust	0.00	Total	0.78	0.78
BAA17	AC	BAA ADJ - 4%	Adjust	0.00	Total	0.96	0.96
BAA18	AC	BAA ADJ - 9%	Adjust	0.00	Total	0.91	0.91
BAA19	AC	BAA ADJ - 40%	Adjust	0.00	Total	0.60	0.60
BAA2	SF	BAA ADJ - 25%	Adjust	0.00	Total	0.75	0.75
BAA20	AC	BAA ADJ - 7%	Adjust	0.00	Total	0.93	0.93

BAA21	AC	BAA ADJ - 35%	Adjust		Total	0.65	0.65
BAA22	AC	BAA ADJ - 14%	Adjust	0.00	Total	0.86	0.86
BAA3	AC	BAA ADJ - 5%	Adjust	0.00	Total	0.95	0.95
BAA4	AC	BAA ADJ - 3%	Adjust	0.00	Total	0.97	0.97
BAA5	AC	BAA ADJ - 10%	Adjust	0.00	Total	0.90	0.90
BAA6	AC	BAA ADJ - 20%	Adjust	0.00	Total	0.80	0.80
BAA7	AC	BAA ADJ - 70%	Adjust	0.00	Total	0.30	0.30
BAA8	AC	BAA ADJ - 2%	Adjust	0.00	Total	0.98	0.98
BAA9	AC	BAA ADJ - 18%	Adjust	0.00	Total	0.82	0.82
FC	SF	FARM CREEK	Adjust	0.00	Total	2.50	2.50
GAS1	SF	GAS MART 1	Adjust	0.00	Total	1.00	1.00
GAS2	SF	GAS MART 2	Adjust	0.00	Total	1.25	1.25
GAS3	SF	GAS MART 3	Adjust	0.00	Total	1.50	1.50
GAS4	SF	GAS MART 4	Adjust	0.00	Total	1.75	1.75
GF1	AC	Golf Front E	Adjust	0.00	Total	1.50	1.75
GF2	AC	Golf front G	Adjust	0.00	Total	1.60	1.60
GF3	AC	Golf Front A	Adjust	0.00	Total	1.40	1.40
GF4	AC	Golf Front F/A	Adjust	0.00	Total	1.00	1.20
GF5	AC	Golf Front F	Adjust	0.00	Total	1.20	1.00
GV1	AC	Golf View E	Adjust	0.00	Total	1.00	1.60
GV2	AC	Golf View G	Adjust	0.00	Total	1.40	1.40
GV3	AC	Golf View A	Adjust	0.00	Total	1.25	1.25
GV4	AC	Golf View F/A	Adjust	0.00	Total	1.15	1.15
GV5	AC	Golf View F	Adjust	0.00	Total	1.00	1.00
HF1	AC	HBRFRTE	Adjust	0.00	Total	3.25	2.95
HF2	AC	HBRFRTG	Adjust	0.00	Total	2.60	2.30
HF3	AC	HBRFRTA	Adjust	0.00	Total	2.20	1.90
HF4	AC	HBRFRTF/A	Adjust	0.00	Total	1.70	1.70
HF5	AC	HBRFRTF	Adjust	0.00	Total	1.30	1.30
HV	SF	HARBOR VIEW	Adjust	0.00	Total	1.25	1.25
HV1	AC	HBRVWE	Adjust	0.00	Total	2.10	2.10
HV2	AC	HBRVWG	Adjust	0.00	Total	1.50	1.50
HV3	AC	HBRVWA	Adjust	0.00	Total	1.35	1.35
HV4	AC	HBRVWF/A	Adjust	0.00	Total	1.25	1.25
HV5	AC	HBRVWF	Adjust	0.00	Total	1.10	1.10

IUA	AC	ISL W/UTIL ANNUAL USE	Adjust	0.00	Total	5.00	5.00
LIS	SF	LONG ISLAND SOUND	Adjust	0.00	Total	2.00	2.00
MF1	AC	MRSHFRT E	Adjust	0.00	Total	2.00	2.00
MF2	AC	MRSHFRT G	Adjust	0.00	Total	1.80	1.80
MF3	AC	MRSHFRT A	Adjust	0.00	Total	1.30	1.40
MF4	AC	MRSHFRT F/A	Adjust	0.00	Total	1.20	1.30
MF5	AC	MRSHFRT F	Adjust	0.00	Total	1.10	1.10
MP	SF	MILL POND	Adjust	0.00	Total	1.20	1.20
MV1	AC	MRSHVW E	Adjust	0.00	Total	1.50	1.50
MV2	AC	MRSHVW G	Adjust	0.00	Total	1.40	1.40
MV3	AC	MRSHVW A	Adjust	0.00	Total	1.25	1.25
MV4	AC	MRSHVW F/A	Adjust	0.00	Total	1.10	1.10
MV5	AC	MRSHVW F	Adjust	0.00	Total	1.05	1.05
NHAR	SF	HAMDEN HARBOR	Adjust	0.00	Total	1.50	1.50
NRIV 2	SF	LARGE HAMDEN RIVER	Adjust	0.00	Total	2.00	2.00
NRIVER	SF	HAMDEN RIVER	Adjust	0.00	Total	1.50	1.50
RF1	AC	RVRFRTE	Adjust	0.00	Total	3.00	3.00
RF2	AC	RVRFRTG	Adjust	0.00	Total	2.45	2.45
RF3	AC	RVRFRTA	Adjust	0.00	Total	1.95	1.95
RF4	AC	RVRFRTF/A	Adjust	0.00	Total	1.55	1.55
RF5	AC	RVRFRTF	Adjust	0.00	Total	1.15	1.15
RMA1	AC	Res Mkt Adj Loc	Adjust	0.00	Total	0.66	0.66
RMA2	AC	res Mkt Adj Loc	Adjust	0.00	Total	0.72	0.72
RMA3	AC	Res Mkt Adj Loc	Adjust	0.00	Total	0.78	0.78
RMA4	AC	Res Mkt Adj Loc	Adjust	0.00	Total	0.85	0.85
RMA5	AC	Res mkt Adj Loc	Adjust	0.00	Total	0.92	0.92
RMA6	AC	Res Mkt Adj Loc	Adjust	0.00	Total	1.10	1.10
RMA7	AC	Res Mkt Adj loc	Adjust	0.00	Total	1.15	1.15
RMA8	AC	Res Mkt Adj Loc	Adjust	0.00	Total	1.30	1.30
RMA9	AC	Res Mkt Adj Loc	Adjust	0.00	Total	1.40	1.40
RV1	AC	RVRVWE	Adjust	0.00	Total	1.85	1.85
RV2	AC	RVRVWG	Adjust	0.00	Total	1.45	1.45
RV3	AC	RVRVWA	Adjust	0.00	Total	1.25	1.25
RV4	AC	RVRVWF/A	Adjust	0.00	Total	1.15	1.15
RV5	AC	RVRVWF	Adjust	0.00	Total	1.05	1.05

SF1	AC	SNDFRT E	Adjust	0.00	Total	4.00	3.50
SF2	AC	SNDFRT G	Adjust	0.00	Total	3.50	3.00
SF3	AC	SNDFRT A	Adjust	0.00	Total	2.50	2.00
SF4	AC	SNDFRT F/A	Adjust	0.00	Total	2.00	1.50
SF5	AC	SNDFRT F	Adjust	0.00	Total	1.50	1.10
SV1	AC	SNDVW E	Adjust	0.00	Total	2.50	2.50
SV2	AC	SNDVW G	Adjust	0.00	Total	1.75	1.75
SV3	AC	SNDVW A	Adjust	0.00	Total	1.55	1.55
SV4	AC	SNDVW F/A	Adjust	0.00	Total	1.35	1.35
SV5	AC	SNDVW F	Adjust	0.00	Total	1.20	1.20
VAC	AC	Vacant	Adjust	0.00	Total	1.00	1.00
WC	SF	WILSON COVE	Adjust	0.00	Total	2.00	2.00

OUTBUILDING CODES
Hamden CT

Code	Description	Sub Code	Description	Unit Types	Unit Price 2017	Unit Price 2018	Measure 1 Price	
BBE	Billboard Electronic			UNITS	20,000.00	700,000.00	0.00	
BBL	Billboard Large	LT		UNITS	12,000.00	250,000.00	0.00	
BBL	Billboard Large	NL		UNITS	11,000.00	225,000.00	0.00	
BBM	Billboard Medium	LT		UNITS	10,000.00	150,000.00	0.00	
BBM	Billboard Medium	NL		UNITS	9,000.00	125,000.00	0.00	
BBS	Billboard Small	LT		UNITS	8,000.00	20,000.00	0.00	
BBS	Billboard Small	NL		UNITS	7,000.00	15,000.00	0.00	
BGRC	Basement Garage	01	Silvermine 0170	S.F.	18.00			
BH	Boat House	BH	Frame	S.F.	125.00		0.00	
BIN1	Agricul Bin			S.F.	2.00		0.00	
BKH1	Marina Bulkhead	Stone	Stone	L.F.	1,000.00		0.00	
BRDG	Bridge - Roadway		Conc/Steel	S.F.	145.00		0.00	
BRN1	Barn 1 Story	FR	Frame	S.F.	23.00	32.55	0.00	
BRN1	Barn 1 Story	SN	Stone/Frame	S.F.	22.00	31.55	0.00	
BRN1	Barn 1 Story	MT	Metal	S.F.	20.00	29.55	0.00	
BRN1	Barn 1 Story	CB	CindBk/Frame	S.F.	21.00	30.55	0.00	
BRN2	Barn w Bsmt	CB	CindBk/Frame	S.F.	26.00	41.29	0.00	
BRN2	Barn w Bsmt	MT	Metal	S.F.	25.00	40.29	0.00	
BRN2	Barn w Bsmt	SN	Stone/Frame	S.F.	28.00	43.29	0.00	
BRN2	Barn w Bsmt	FR	Frame	S.F.	27.00	42.29	0.00	
BRN3	Barn w Loft	FR	Frame	S.F.	27.00	42.93	0.00	
BRN3	Barn w Loft	SN	Stone/Frame	S.F.	28.00	43.93	0.00	
BRN3	Barn w Loft	CB	CindBk/Frame	S.F.	26.00	41.93	0.00	
BRN3	Barn w Loft	MT	Metal	S.F.	25.00	40.93	0.00	
BRN4	Barn w Lft Bsmt	MT	Metal	S.F.	28.00	48.56	0.00	
BRN4	Barn w Lft Bsmt	SN	Stone/Frame	S.F.	32.00	52.56	0.00	
BRN4	Barn w Lft Bsmt	FR	Frame	S.F.	31.00	51.56	0.00	
BRN4	Barn w Lft Bsmt	CB	CindBk/Frame	S.F.	30.00	50.66	0.00	
BRN5	Barn 2 St.	CB	CindBk/Frame	S.F.	32.00	31.56	0.00	
BRN5	Barn 2 St.	FR	Frame	S.F.	33.00	32.56	0.00	
BRN5	Barn 2 St.	SN	Stone/Frame	S.F.	34.00	33.56	0.00	
BRN5	Barn 2 St.	MT	Metal	S.F.	30.00	29.56	0.00	
BRN6	Barn 2 St w Bs	MT	Metal	S.F.	32.00	40.31	0.00	
BRN6	Barn 2 St w Bs	SN	Stone/Frame	S.F.	36.00	44.31	0.00	
BRN6	Barn 2 St w Bs	FR	Frame	S.F.	35.00	43.31	0.00	
BRN6	Barn 2 St w Bs	CB	CindrBlk/Fr	S.F.	34.00	42.31	0.00	
BRN7	Barn Tobacco	FR	Frame	S.F.	26.00	32.34	0.00	

BRN7	Barn Tobacco	MT	Metal	S.F.	25.00	31.34	0.00	
BRN8	Pole Barn	MT	Metal	S.F.	15.00	26.25	0.00	
BRN8	Pole Barn	FR	Frame	S.F.	16.00	27.25	0.00	
BRN9	Barn 1.5 St	MT	Metal	S.F.	26.00	41.93	0.00	
BRN9	Barn 1.5 St	FR	Frame	S.F.	27.00	42.93	0.00	
BRN9	Barn 1.5 St	CB	CindBk/Frame	S.F.	26.00	41.93	0.00	
BRN9	Barn 1.5 St	SN	Stone/Frame	S.F.	28.00	43.93	0.00	
BTH1	Bath Hse/Dressing	CB	CindBk/Frame	S.F.	30.00	44.47	0.00	
BTH1	Bath Hse/Dressing	BR	Brick/Frame	S.F.	31.00	45.47	0.00	
BTH1	Bath Hse/Dressing	ST	Stucco	S.F.	31.00	45.47	0.00	
BTH1	Bath Hse/Dressing	FR	Frame	S.F.	30.00	44.47	0.00	
BTH1	Bath Hse/Dressing	SN	Stone/Frame	S.F.	32.00	46.47	0.00	
BTH2	Bath Hse w/ Plumb	FR	Frame	S.F.	35.00	86.22	0.00	
BTH2	Bath Hse w/ Plumb	BR	Brick/Frame	S.F.	36.00	87.22	0.00	
BTH2	Bath Hse w/ Plumb	SN	Stone/Frame	S.F.	37.00	88.22	0.00	
BTH2	Bath Hse w/ Plumb	ST	Stucco	S.F.	36.00	87.22	0.00	
CAB1	Cabin			S.F.	40.00	70.93	0.00	
CBN	Cabana			S.F.	30.00	60.93	0.00	
CEL1	Cell Tower			UNITS	160,000.00	300,000.00	0.00	
CEL2	Cell Rooftop			UNITS	75,000.00	75,000.00	0.00	
CELL	Cell Site Carrier			UNITS	160,000.00	160,000.00	0.00	
CN1	Condo Approval			UNITS	30,000.00		0.00	
CNCP	Concrete Pad		Concrete	S.F.	50.00		0.00	
CNP	Canopy			S.F.	25.00	10.60	0.00	
CNP2	Pump Canopy	FR	Frame	S.F.	35.00	80.00	0.00	
CNP3	Gas Canopy			S.F.	25.00	70.00	0.00	
CNPS	Comm Canopy w/ Shed			S.F.	4.00	25.00	0.00	
COND	Conduits			L.F.	1,100,000.00	100,000.00	0.00	
COOP	Coop			S.F.	4.00	25.00	0.00	
CRN	Rail Crane			UNITS	0.00		0.00	
CRT	Sport Court			S.F.	5.00	5.00	0.00	
CTAN	Cooling Tanks			UNITS	250,000.00	250,000.00	0.00	
DEV	Condo Dev Right	01	Blue Mtn 0560	UNIT	60,000.00	60,000.00	0.00	
DOCK	Dock		Comm	S.F.	75.00	50.82	0.00	
DOK	Boat Slip	03	Dorlons Terr	S.F.	105.00	67.30	0.00	
DOK	Boat Slip	04	Charles Cove	S.F.	88.00	54.82	0.00	
DOK	Boat Slip	01	Oyster Bend	S.F.	60.00	42.90	0.00	
DOK	Dock	R	Residential	S.F.	55.00	38.26	0.00	

DOK	Boat Slip	02	Vantage Pt	S.F.	120.00	105.60	0.00	
DRIV	Drive	1	Gravel	S.F.	5.00		0.00	
EDR	Eye Dormer			UNITS	0.00		0.00	
FCP	Carport	FR	Frame	S.F.	20.00	11.50	0.00	
FCP	Carport	01	Sheffield 0162	S.F.	40.00		0.00	
FCP	Carport	02	Clarmont 0249	S.F.	40.00		0.00	
FCP	Carport	03	Kingsley 0239	S.F.	55.00	89.98	0.00	
FDN	Foundation	R	Residential	UNITS	10,000.00		0.00	
FDN	Foundation	C	Commercial	UNITS	15,000.00	25,000.00	0.00	
FDN	Foundation	G	Garage	UNITS	2,500.00		0.00	
FDN	Foundation	RE	Res Flood Elevated	S.F.	20.00		0.00	
FDN	Foundation	TEST	Com Flood Elevated		55.00		0.00	
FDN	Foundation	CE	Com Flood Elevated		55.00	65.00	0.00	
FEP	Enclosed Porch	FR	Frame	S.F.	32.00		0.00	
FEP	Enclosed Porch	BR	Brick/Frame	S.F.	33.00		0.00	
FEP	Enclosed Porch	MS	Masonry	S.F.	35.00		0.00	
FEP	Enclosed Porch	SN	Stone/Frame	S.F.	34.00		0.00	
FEP	Enclosed Porch	ST	Stucco	S.F.	33.00		0.00	
FN10	Fence 10'			L.F.	23.00	32.60	0.00	
FN3	Fence 3'			L.F.	8.00	10.60	0.00	
FN4	Fence 4'			L.F.	10.00	12.61	0.00	
FN5	Fence 5'			L.F.	12.00	15.40	0.00	
FN6	Fence 6'			L.F.	14.00	18.18	0.00	
FN8	Fence 8'			L.F.	19.00	23.94	0.00	
FNO	Fence - Ornamental			L.F.	25.00	29.56	0.00	
FNS	Fence - Stockade			L.F.	22.00	26.56	0.00	
FOP	FOP	FRR	Frame	S.F.	16.00		0.00	
FOP	Open Porch	FR	Frame	S.F.	16.00		0.00	
FOP	Open Porch	BR	Brick/Frame	S.F.	17.00		0.00	
FOP	Open Porch	SN	Stone/Frame	S.F.	17.00		0.00	
FOP	Open Porch	ST	Stucco	S.F.	16.00		0.00	
FOP	Open Porch	MS	Masonry	S.F.	18.00		0.00	
FSP	Screen Porch			S.F.	25.00		0.00	
FUEL	Fuel Cell	Ext	Energy Cell	KW	300.00	300.00	0.00	
GAR1	Garage	MT	Metal	S.F.	24.00	50.00	0.00	
GAR1	GARAGE						0.00	
GAR1	Garage	CD	Condo	UNITS	5,500.00		0.00	
GAR1	Garage	ST	Stucco	S.F.	31.00	31.93	0.00	
GAR1	Garage	BR	Brick/Frame	S.F.	31.00	31.93	0.00	
GAR1	Garage	CB	CindBk/Frame	S.F.	30.00	30.93	0.00	
GAR1	Garage	FR	Frame	S.F.	30.00	30.93	0.00	
GAR1	Garage	SN	Stone/Frame	S.F.	31.00	31.93	0.00	
GAR1	Garage	08	Ledgebrook 0219	S.F.	74.00		0.00	
GAR1	Garage	03	Oyster Bend 0102	S.F.	70.00		0.00	
GAR1	Garage	01	Stevens 0205	S.F.	220.00	110.00	0.00	
GAR1	Garage	02	10 Arch 0530	S.F.	178.00		0.00	
GAR1	Garage	04	Sutton PI 0071	S.F.	88.00		0.00	

GAR1	Garage	05	Strathmore 0076	S.F.	66.00		0.00	
GAR1	Garage	06	Winnebago 0217	S.F.	116.00	122.84	0.00	
GAR1	Garage	07	Rockmeadow 0148	S.F.	74.00		0.00	
GAR1	Garage	09	Skyview 0125	S.F.	148.00		0.00	
GAR1	Garage	10	Kingswood 0061	S.F.	114.00		0.00	
GAR1	Garage	11	Rowayton Woods	S.F.	180.00	259.02	0.00	
GAR1	Garage	12	Orchard Lane 0181	S.F.	80.00		0.00	
GAR1	Garage	13	Falls At Silv 0090	S.F.	60.00		0.00	
GAR1	Garage	14	Thomas Pl 0095	S.F.	300.00		0.00	
GAR1	Garage	15	HarborEast 0255	S.F.	112.00		0.00	
GAR2	Garage w Lft	SN	Stone/Frame	S.F.	37.00	38.16	0.00	
GAR2	Garage w Lft	ST	Stucco	S.F.	36.00	37.16	0.00	
GAR2	Garage w Lft	CB	CindBk/Frame	S.F.	35.00	36.16	0.00	
GAR2	Garage w Lft	FR	Frame	S.F.	35.00	36.13	0.00	
GAR2	Garage w Lft	BR	Brick/Frame	S.F.	36.00	37.13	0.00	
GAR3	Gar. w/Bsmt	FR	Frame	S.F.	35.00	36.13	0.00	
GAR3	Gar. w/Bsmt	CB	CindBk/Frame	S.F.	34.00	35.13	0.00	
GAR3	Gar. w/Bsmt	ST	Stucco	S.F.	36.00	37.13	0.00	
GAR3	Gar. w/Bsmt	SN	Stone/Frame	S.F.	36.00	37.13	0.00	
GAR3	Gar. w/Bsmt	BR	Brick/Frame	S.F.	35.00	36.13	0.00	
GAR4	Gar w Lft&Bsmt	BR	Brick/Frame	S.F.	38.00	39.13	0.00	
GAR4	Gar w Lft&Bsmt	SN	Stone/Frame	S.F.	39.00	40.13	0.00	
GAR4	Gar w Lft&Bsmt	ST	Stucco	S.F.	38.00	39.13	0.00	
GAR4	Gar w Lft&Bsmt	CB	CindBk/Frame	S.F.	36.00	37.13	0.00	
GAR4	Gar w Lft&Bsmt	FR	Frame	S.F.	37.00	38.13	0.00	
GAR5	Gar. 2 Story	CB	CindBk/Frame	S.F.	39.00	42.35	0.00	
GAR5	Gar. 2 Story	ST	Stucco	S.F.	40.00	43.35	0.00	
GAR5	Gar. 2 Story	SN	Stone/Frame	S.F.	41.00	44.35	0.00	
GAR5	Gar. 2 Story	FR	Frame	S.F.	39.00	42.35	0.00	
GAR5	Gar. 2 Story	BR	Brick/Frame	S.F.	40.00	43.35	0.00	
GAR6	Gar. 2 St w/Bsmt	BR	Brick/Frame	S.F.	43.00	46.35	0.00	
GAR6	Gar. 2 St w/Bsmt	FR	Frame	S.F.	42.00	45.35	0.00	
GAR6	Gar. 2 St w/Bsmt	SN	Stone/Frame	S.F.	43.00	46.35	0.00	
GAR6	Gar. 2 St w/Bsmt	ST	Stucco	S.F.	43.00	46.35	0.00	
GAR6	Gar. 2 St w/Bsmt	CB	CindBk/Frame	S.F.	42.00	45.35	0.00	
GAR7	Gar 1.5 st	ST	Stucco	S.F.	38.00	41.35	0.00	
GAR7	Gar 1.5 St	FR	Frame	S.F.	37.00	40.35	0.00	
GAR7	Gar 1.5 St	CB	Conc/Frame	S.F.	35.00	38.35	0.00	
GAR7	Gar 1.5 St	MT	Metal	S.F.	33.00	36.35	0.00	
GAR7	Gar 1.5 St	SN	Stone/Frame	S.F.	40.00	43.35	0.00	
GAR7	Gar 1.5 St	BR	Brick/Frame	S.F.	39.00	42.35	0.00	
GAS1	Gas Pump Dispenser	Single	Electronic	EACH	8,500.00	14,000.00	0.00	
GASP	Gas Pump Dispenser	Twin	Electronic	EACH	15,000.00	20,000.00	0.00	
GAZ1	Gazebo			S.F.	26.00		0.00	
GAZ2	Gazebo Screened			S.F.	27.00		0.00	

GAZ3	Gazebo Enclosed			S.F.	30.00		0.00	
GOLF	Golf Per Hole			UNITS	125,000.00	125,000.00	0.00	
GRN1	Res Green Hse			S.F.	25.00		0.00	
GRN2	Comm Green Hse			S.F.	15.00	40.00	0.00	
GRN3	Green Hse Plst			S.F.		15.00	0.00	
HDR	Half Dormer			UNITS	0.00		0.00	
ISLD	Gas Pump Island		Concrete	S.F.	25.00	75.00	0.00	
KEN1	Kennel			S.F.	30.00	35.00	0.00	
KIT	Community Kitchen	Kit	Extra Kitchen	S.F.	200.00	200.00	0.00	
KSK1	Kiosk - Retail			S.F.	80.00	168.74	0.00	
KSK2	Kiosk - Gas			S.F.	80.00	230.23	0.00	
KSK3	Det Bank Booth			UNITS	20,000.00	302.17	0.00	
LCK	Boat Locker	01	Pine Point	UNITS	80,400.00		0.00	
LCK	Boat Locker	02	Bluff Ave	UNITS	19,000.00		0.00	
LCK	Boat Locker	03	Pine Pt Half Unit	UNITS	72,000.00		0.00	
LDK	Load Dock			S.F.	12.50	22.00	0.00	
LGTH	Lighthouse	LT	Cast Iron	S.F.	250.00	250.00	0.00	
LNT	Lean-To	FR	Frame	S.F.	10.00	10.00	0.00	
LT1	Light 1			UNITS	1,000.00	1,438.00	0.00	
LT2	Light 2			UNITS	1,500.00	1,962.00	0.00	
LT3	Light 3			UNITS	2,100.00	2,485.00	0.00	
LT4	Light 4			UNITS	2,700.00	3,008.00	0.00	
MH	Mobile Home			UNITS	30.00	30.00	0.00	
MISC	Yard Imrvts etc		Lndscp; Igghtng.	UNITS	10.00		0.00	
MOR	Buoy Mooring			UNITS	0.00		0.00	
MWL	Masonry Wall			L.F.	20.00		0.00	
ODW	Overhead Door - Wood			UNITS	0.00		0.00	
PADT	Paddle Tennis		Courts	UNITS	60,000.00		0.00	
PAT1	Patio	CR	Concrete	S.F.	2.50	4.23	0.00	
PAT1	Patio	BR	Brick	S.F.	3.50	5.44	0.00	
PAT1	PATIO	SP	Stamped	S.F.	4.50	5.44	0.00	
PAT1	Patio	ST	Stone	S.F.	4.50	5.44	0.00	
PAV1	Paving Asph.			S.F.	2.90	2.62	0.00	
PAV2	Paving Concrt			S.F.	5.25	5.77	0.00	
PDK	Pool Deck			S.F.	10.00	10.80	0.00	
PGAR	Parking Garage			S.F.	35.00	50.00	0.00	
PIER	Light Duty	Wood	4' Wdth	L.F.	350.00			
PIER	Med Duty	Wood	6 Ft Wdth	L.F.	750.00			
PLT1	Pltry Hse 1 St			S.F.	8.00		0.00	
PLT2	Pltry Hse 2 St			S.F.	10.00		0.00	
PLT3	Pltry Hse 3 St			S.F.	12.00		0.00	
PMPC	Pump House Com			SF	100.00		0.00	

PMPR	Pump Hse Res	SN	Stone/Frame	S.F.	55.00		0.00	
PMPR	Pump Hse Res	CB	CindBk/Frame	S.F.	50.00		0.00	
PMPR	Pump Hse Res	BR	Brick/Frame	S.F.	53.00		0.00	
PMPR	Pump Hse Res	FR	Frame	S.F.	50.00		0.00	
PTEN	Paddle Tennis	Courts		UNIT	40,000.00		0.00	
PWRW	Power Wash Eqpt		Equipment	UNITS			0.00	
RAR	Riding Arena			S.F.	50.00	50.00	0.00	
RBP	Patio Brick			S.F.	12.00		0.00	
RCP	Carport			S.F.	22.00		0.00	
RGH	Greenhouse			S.F.	25.00		0.00	
RPB	Patio Brick			S.F.	12.00		0.00	
RPC	Patio Concrete			S.F.	10.00		0.00	
RPO	Patio			S.F.	10.00		0.00	
RPS	Patio Stone			S.F.	12.00		0.00	
RSH	Workshop			S.F.	25.00	30.00	0.00	
RST	Storage			S.F.	15.00	25.00	0.00	
SCL1	Scales Manual			TONS	1,000.00	1,500.00	0.00	
SCL2	Scales Elec.			TONS	1,500.00	2,000.00	0.00	
SDR	Shed Dormer			UNITS	0.00		0.00	
SHD1	Shed	BR	Brick/Frame	S.F.	23.00	21.53	0.00	
SHD1	Shed	VN	Vinyl	S.F.	21.00	17.53	0.00	
SHD1	Shed	SN	Stone/Frame	S.F.	24.00	21.53	0.00	
SHD1	Shed	FR	Frame	S.F.	20.00	17.53	0.00	
SHD1	Shed	CB	CindBk/Frame	S.F.	18.00	17.53	0.00	
SHD1	Shed	MT	Metal	S.F.	16.00	10.80	0.00	
SHD2	Shed LQ	FR	Frame	S.F.	14.00		0.00	
SHD2	Shed LQ	MT	Metal	S.F.	8.00		0.00	
SHD2	Shed LQ	BR	Brick/Frame	S.F.	16.10		0.00	
SHD2	Shed LQ	SN	Stone/Frame	S.F.	16.80		0.00	
SHD2	Shed LQ	CB	Conc/Frame	S.F.	12.60		0.00	
SHD2	Shed LQ	VN	Vinyl/Frame	S.F.	14.70		0.00	
SHD3	Shed 2St	FR	Frame	S.F.	30.00		0.00	
SHD3	Shed 2St	MT	Metal	S.F.	20.00		0.00	
SHD3	Shed 2St	BR	Brick/Frame	S.F.	34.50		0.00	
SHD3	Shed 2St	SN	Stone/Frame	S.F.	36.00		0.00	
SHD3	Shed 2St	CB	Conc/Frame	S.F.	27.00		0.00	
SHD3	Shed 2St	VN	Vinyl/Frame	S.F.	31.50		0.00	
SHD3	Cell Equip						0.00	
SHD4	Cell Equip	FR	Frame	S.F.	100.00	200.00	0.00	
SHD5	Shed - Quality	FR	Frame	S.F.	100.00		0.00	
SHP1	Work Shop	SN	Stone/Frame	S.F.	26.00	29.55	0.00	
SHP1	Work Shop	CB	CindBk/Frame	S.F.	20.00	29.55	0.00	
SHP1	Work Shop	BR	Brick/Frame	S.F.	25.00	28.55	0.00	
SHP1	Work Shop	FR	Frame	S.F.	22.00	25.55	0.00	
SITE	Misc Site Work			LUMP	1.00		0.00	
SLIP	Boat Slip	S	Boat Slip < 20'	UNIT	5,000.00		0.00	

SLIP	Boat Slip	M	Boat Slip 21'-29'	UNITS	7,000.00		0.00	
SLIP	Boat Slip	L	Boat Slip >30'	UNITS	10,000.00			
SLP	Boat Slip			UNITS	0.00		0.00	
SPA	Therapeutic Spa			UNITS	0.00		0.00	
SPL1	InGround Pool	FG	Fiberglass	S.F.	31.00	50.43	0.00	
SPL1	InGround Pool	GNW	Gunite/Whirl	S.F.	42.00	63.44	0.00	
SPL1	InGround Pool	VNH	Heatl/Vinyl	S.F.	29.00	47.52	0.00	
SPL1	InGround Pool	FGH	Heatl/Fibergls	S.F.	32.00	51.43	0.00	
SPL1	InGround Pool	CRH	Heatl/Concrt	S.F.	31.00	50.43	0.00	
SPL1	InGround Pool	VN	Vinyl	S.F.	28.00	45.52	0.00	
SPL1	InGround Pool	CR	Concrete	S.F.	30.00	45.52	0.00	
SPL1	InGround Pool	GNH	Heatl/Gunite	S.F.	38.00	63.44	0.00	
SPL1	InGround Pool	GN	Gunite	S.F.	37.00	61.44	0.00	
SPL1	InGround Pool	I	Infinity	S.F.	75.00	75.00	0.00	
SPL2	Pool AG Rnd			UNITS			0.00	
SPL3	Pool AG Oval			UNITS			0.00	
SPL4	Pool AG Rect.			UNITS			0.00	
STB1	Stable	FR	Frame	S.F.	30.00	25.00	0.00	
STB1	Stable	MT	Metal Frame	S.F.	29.00	23.00	0.00	
STB1	Stable	BR	Brick/Frame	S.F.	31.00	35.00	0.00	
STB1	Stable	CB	CindBk/Frame	S.F.	29.00	30.00	0.00	
STB1	Stable	SN	Stone/Frame	S.F.	32.00	35.00	0.00	
STG	Res Storage			UNITS	0.00		0.00	
STGC	Storage Condo			S.F.	30.00		0.00	
STK	Stack			L.F.	1,000.00	1,500.00	0.00	
STS	Theater Seats	NHB	Neighborhood	UNITS	215.00		0.00	
SWL1	Seawall	SW	Reinf Masonry	L.F.	1,000.00		0.00	
TANK	UndGrd Petro 5-6K	FG 1W	FibGlas Single Wall	GALS	3.55		0.00	
TANK	UndGrd Petro 5-6K	FG 2W	FibGlas Double Wall	GALS	6.25		0.00	
TANK	UndGrd Petro 5-6K	ST 1W	Steel Single Wall	GALS	3.25		0.00	
TANK	UndGrd Petro 5-6K	ST 2W	Steel Double Wall	GALS	5.25		0.00	
TANK	UndGrd Petro 8-10K	FG DW	FibGlas Double Wall	GALS	5.00		0.00	
TANK	UndGrd Petro 8-10K	FG SW	FibGlas SingleWall	GALS	3.00		0.00	
TANK	UndGrd Petro 8-10K	ST SW	Steel Single Wall	GALS	2.75		0.00	
TANK	UndGrd Petro 8-10K	ST DW	Steel Double Wall	GALS	5.65		0.00	
TANK	UndGrdPetro 12-20K	FG WS	FibGlas Single Wall	GALS	2.50		0.00	
TANK	UndGrd Petro 12-20K	FG WD	FibGlas Double Wall	GALS	4.00		0.00	
TANK	UndGrd Petro 12-20K	ST WS	Steel Single Wall	GALS	2.50		0.00	
TANK	UndGrd Petro 12-20K	ST WD	Steel Double Wall	GALS	4.00		0.00	

TDK	Trek Deck			S.F.	15.00	23.00	0.00	
TDR	Three Qtr Dormer			UNITS	0.00		0.00	
TEN	Tennis Court			UNITS	40,000.00	45,000.00	0.00	
TNK1	Tank Under Grn			GALS	1.50	2.00	0.00	
TNK2	Tank 3K-10K			GALS	1.50	2.00	0.00	
TNK3	Tank >10K			GALS	1.50	2.00	0.00	
TWR	Water Tower			GAL	1.50	2.00	0.00	
WDK	Wood Deck			S.F.	10.00	16.91	0.00	

Residential Data Entry Guidelines

For use with VISION®

Town of Hamden Connecticut

Prepared By:
©Tyler Technologies / P & R Division
Connecticut
August 2023

Project Scope

1. A total of 19,533 properties are to be visited by Tyler and a new photo of every property will be taken.
2. All properties will be visited (unless a no access issue arises) and will consist of a spot check re-measure and homeowner interview if possible. All “New Construction” building permits will be done from scratch.
3. All improved property owners will receive a data mailer. Data mailers that reflect homeowner changes will be called if necessary to schedule an inspection and will be included in the required list of 19,533 physical inspections.
4. Tyler will send a sales verification form to all sales that have closed within the time frame of 10/1/22 to 10/1/24.
5. Any changes that can't be made i.e. sales, Owner Changes, Land adjustments etc. should be noted with a sticky note and returned on the top of the returned work.
6. Solar Panels should be noted in the OBY section as SOL with estimated installation date typically found in building permit section.
7. Woodstoves, pellet stoves, and gas stoves are currently being treated as fireplaces and should be indicated as such on the field card in OBY section.
8. Generators and elevators are ALSO to be picked up and indicated in the OBY (Outbuilding & Yard Items – Building Extra Features section).
9. All masonry patios are to be picked up as well as all brick and stone in sand or concrete patio areas.
10. Do not pick up or list fences, stoops or stone walls only seawalls and bulkheads (if/when applicable).
11. All wood sheds 100 square feet and over are to be picked up regardless of condition and noted in the OB & Yard Items section of the PRC. Do NOT pick up OLD metal or portable rubber style sheds. Any sheds under 100 Square feet are to be noted in the note section as shed (dimensions) N/V.

INTRODUCTION

CLT Residential Data Entry Guidelines

Town of Hamden, Connecticut

GENERAL BACKGROUND

In compliance with Connecticut laws requiring periodic reassessments, or revaluations, the Town of Hamden has begun a town-wide reappraisal of all real estate to equalize property assessments according to current fair estimated market value.

How to access remote computer:

To access the computers for Hamden remotely you will need your login information and key fob which has been provided to you.

Open a web browser and go to <https://secureid.hamden.com> , Login using the information provided on the sheet and select the center token labeled “Work from Home Access”. From here then select “VMware Horizon HTML Access” on the right side. From here again enter your same login information and your security pin along with the numbers listed on your key fob this will take you to your desktop. You pin combined with the security code will be 10 digits long.

How to access Vision Cama:

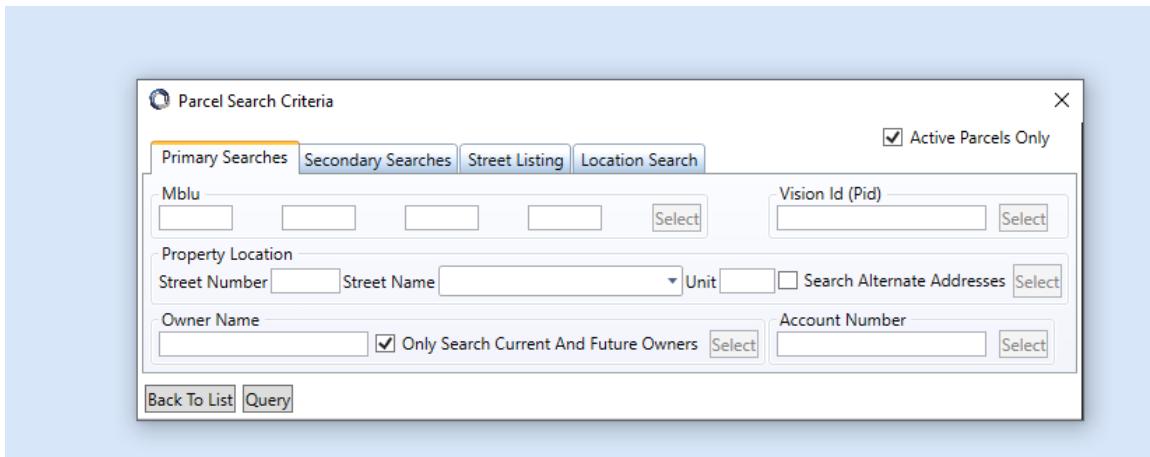
Once logged into the remote desktop you will log into Vision Cama by clicking the shortcut on your desktop. From here log in using your starting username and password (your password will be changed upon your first log in).

How to search for a property:



To search for a property first select the binocular icon that looks like

You will then be taken to the following search browser:



To find a single property you have the option to enter the address, MBLU which is the map ID located on the top of card, the Vision ID or street address.

When working on one street I would suggest searching for just that street as a search box will appear on the bottom of the screen listing all addresses on that street making switching from one building to the next easier and quicker.

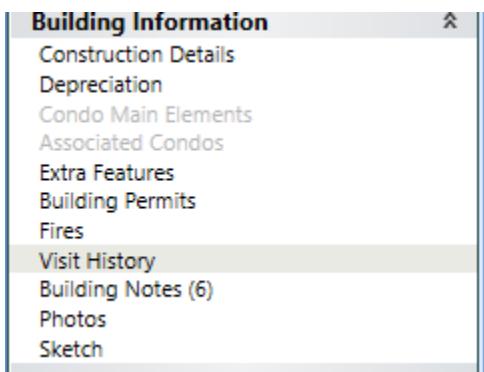
Search Results: 124 Parcels returned						
Prcl Locn	Mblu	Owner Full Name	Co-Owner Full Name	Primary Use	Account Number	
▼ 12 AUGUR ST	2228 / 432 / / / /	YOUNG MICHAEL P TRUSTEE			1040	
▼ 13 AUGUR ST	2228 / 428 / / / /	SHEA FRANCIS J JR & DENISE M			1050	
▼ 16 AUGUR ST	2228 / 433 / / / /	COSTANZO CHARLES M & THOMAS F			1010	
▼ 20 AUGUR ST	2228 / 434 / / / /	KJRJ 20 AUGER STREET LLC			3520	
▼ 26 AUGUR ST	2228 / 435 / / / /	CROWDER CHRISTINA AND CASIMIRO CHARLES			1010	

Changing Data

When changing data for a property it is crucial to make sure all changes labeled on the card are then changed on the computer. When making corrections highlight the item changed on the card as this will confirm the change has been made. When a card has been data entered write your initials in the top right corner of the card in highlighter.

Entrance codes:

On all property record cards we will be adding a new "visit" in the visit history tab



After selecting the visit history tab in the left column you will then select "Add Visit"

A screenshot of a software application window titled "Add Visit". The window has a header with the date "04-20-2010_MU_02" and a toolbar with "Add Visit" and "Delete Visit" buttons. The main area is labeled "Details" and contains the following fields: Date (set to 10-01-2015), Initials (VG), Result (dropdown menu), Purpose (95: Reassessment Project), Info Source (dropdown menu), and Notes (text input field). There are also small "X" icons in the top corners of the window.

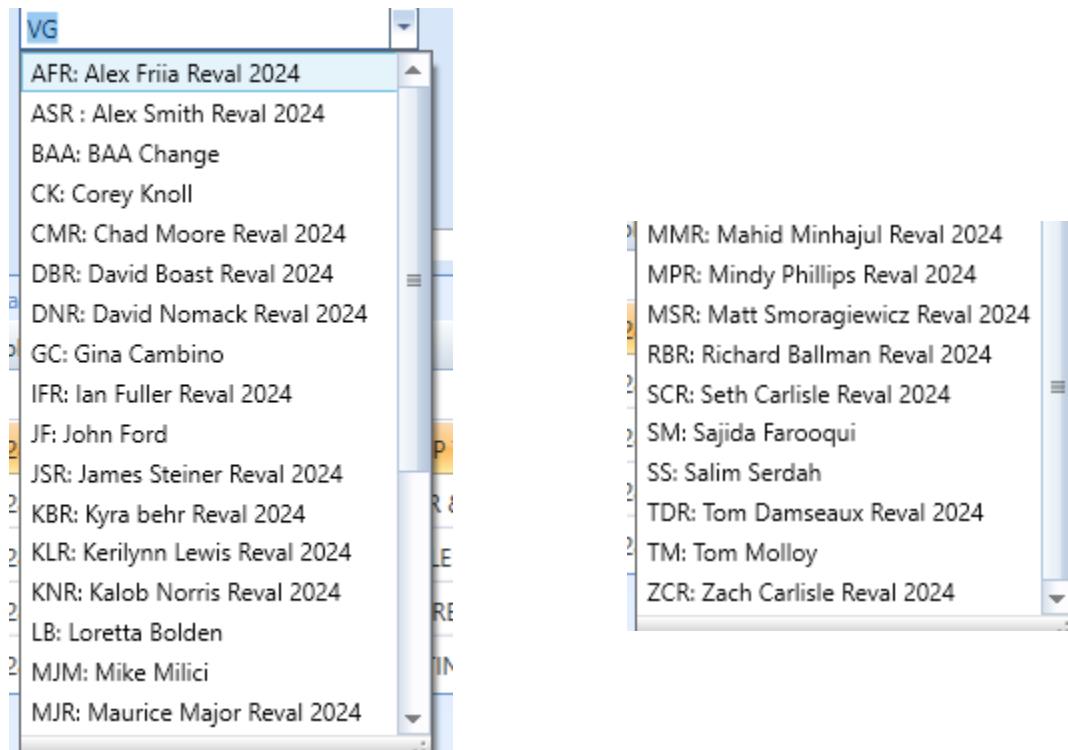
Please select the correct date as listed by the data collector. We have had several different data collectors work on this project and their initials are as follows:

ON THE PRC

JPS – James Steiner
DB- David Boast
MS – Matt Smoragiewicz
MJ- Maurice Major
MM- Mahid Minhajul
CM- Chad Moore
DN – David Nomack
TD – Tom Damseaux
ZC – Zach Carlisle
ALS – Alex Smith
MP – Mindy Phillips
KN – Kalob Norris
KL – Kerilynn Lewis
IF – Ian Fuller
AF – Alex Friia
KNB – Kyra Behr
SJC – Seth Carlisle
RB – Richard Ballman

Due to overlapping initials on Vision the initials listed are slightly different on the computer than they will appear on the card.

ON THE COMPUTER



All Tyler employees will have “Reval 2024” listed after their name. Any other names will not be from our office and should be ignored.

After entering the employees’ Initials the “RESULT” section can be left blank and the “PURPOSE” section will be filled according to the entrance code noted by the data collector.

Measure and List	00
No one at home	01
Interior Inspection	02
Info at door	08
Refusal	09
Estimated	22
Vacant	99

If applicable i.e. if the data collector spoke to someone at the home you will include whether it was a tenant, homeowner, etc. only if the data collected noted same. If no info source is indicated on the card it will not be necessary to include same upon data entry.

Please note at the start of the project several data collectors stated they had estimated a property if the backyard was fenced off. In many of these situations the data collector had knocked on the front door and the entrance code should be listed as 01 Noah.

CONSTRUCTION DETAILS

On the rear of the property record cards the top left section is the “construction detail” section and this section corresponds to the Construction details section in the left column of the vision program.

Classification & Land Information

Classification & Land Information

Building Information

Construction Details

Depreciation

Condo Main Elements

Associated Condos

Extra Features (1)

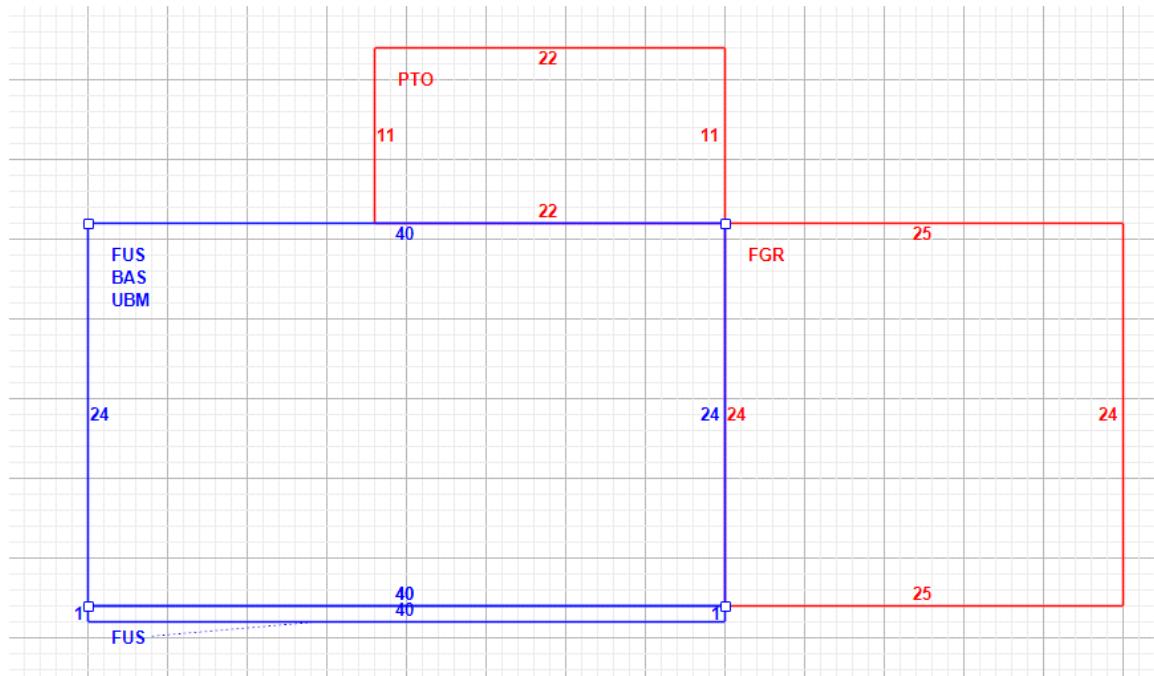
Building Permits

The changes noted on this section of the property record card should match the options in the drop-down menus of each section. If the description does not exactly match to an option in the drop-down menu either use the closest option or ask Matt, James, or Keri

Style:	03: Colonial	Total Bthrms:	2
Model	01: Residential	Total Half Baths:	0
Grade:	03: C	Total Xtra Fixtrs:	
Stories:	2	Total Rooms:	8: 8 Rooms
Occupancy	1	Bath Style:	02: Average
Exterior Wall 1	14: Wood Shingle	Kitchen Style:	02: Average
Exterior Wall 2		Whirlpool	
Roof Structure:	03: Gable		
Roof Cover	03: Asphalt		
Interior Wall 1	05: Drywall		
Interior Wall 2			
Interior Flr 1	12: Hardwood		
Interior Flr 2	14: Carpet		
Heat Fuel	03: Gas		
Heat Type:	05: Hot Water		
AC Type:	01: None		
Total Bedrooms:	05: 5 Bedrooms		

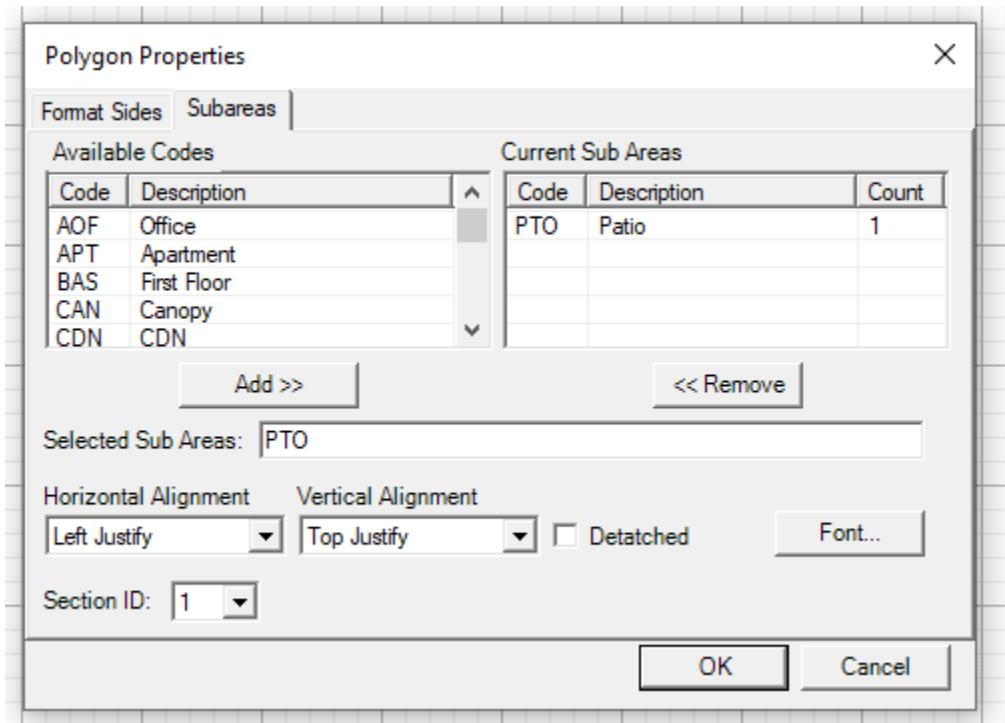
Sketch Changes

To start sketch changes You will need to select the Sketch option in the left column in the building information section. Your basic sketch will look like the following:

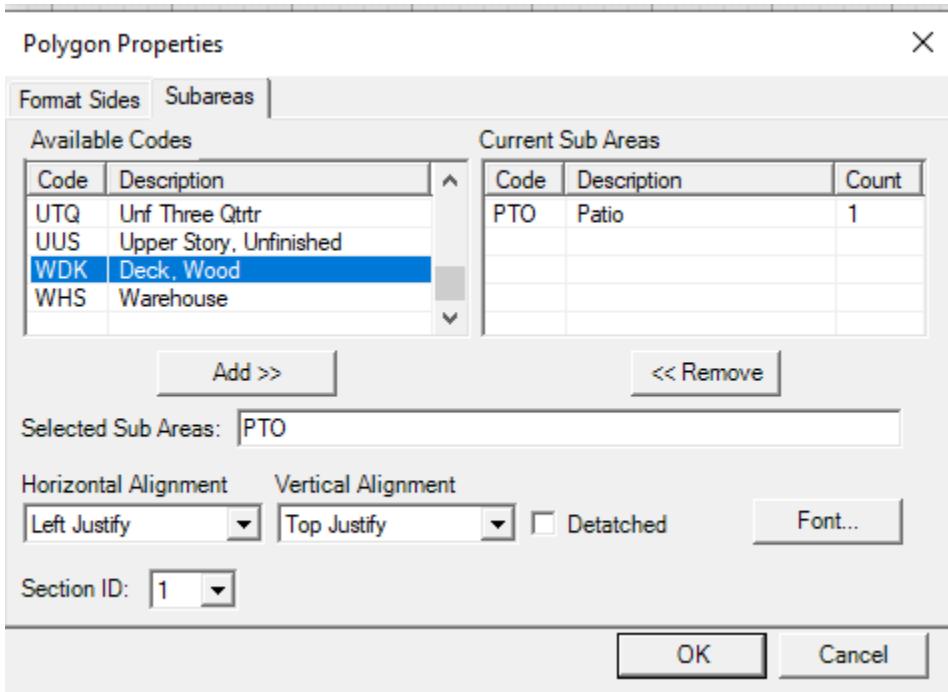


The area outlined in blue is considered the living area, as this is a sketch of a 2 story home it is labeled FUS, full upper story, BAS, 1st floor and UBM for unfinished basement. A complete list of the abbreviations used can be found in this guide.

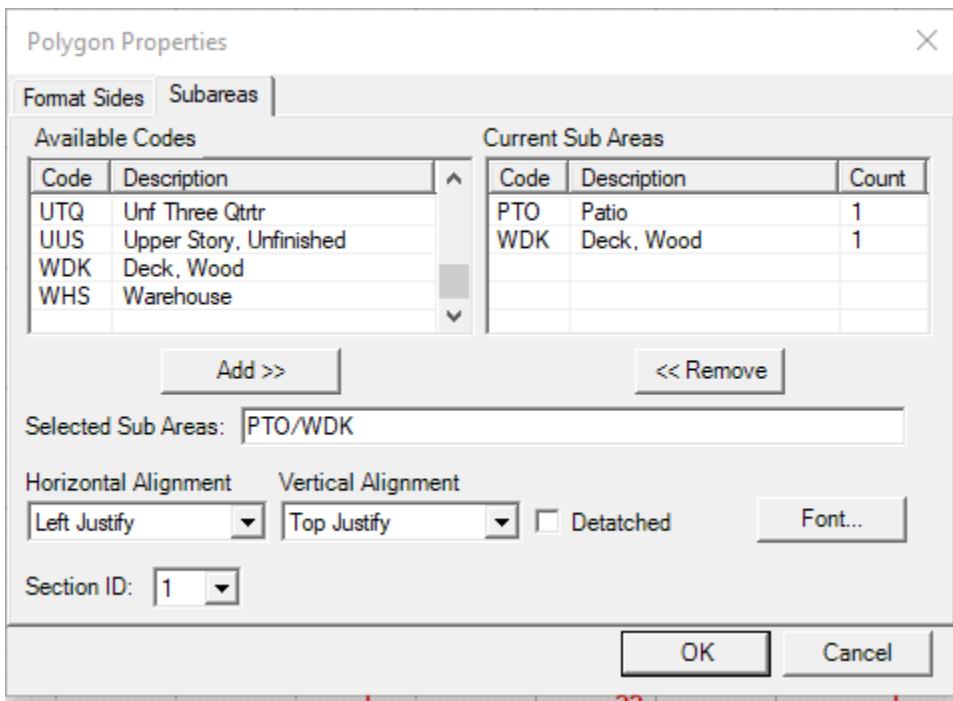
In the top section of this sketch is a rectangle labeled PTO for Patio. As an example to change this to a wood deck as noted by the data collector you will first double click inside the Patio shape prompting the Polygon properties screen on the next page.



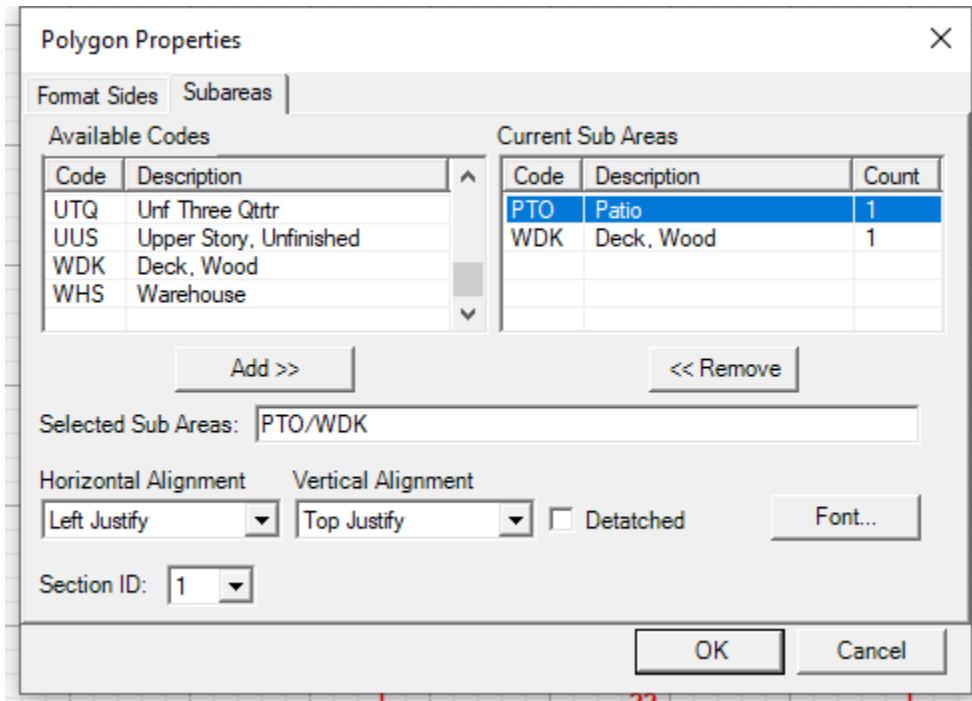
To change the patio (PTO) to a wood deck (WDK) you will first need to select the wood deck option on the left column by scrolling to the bottom.



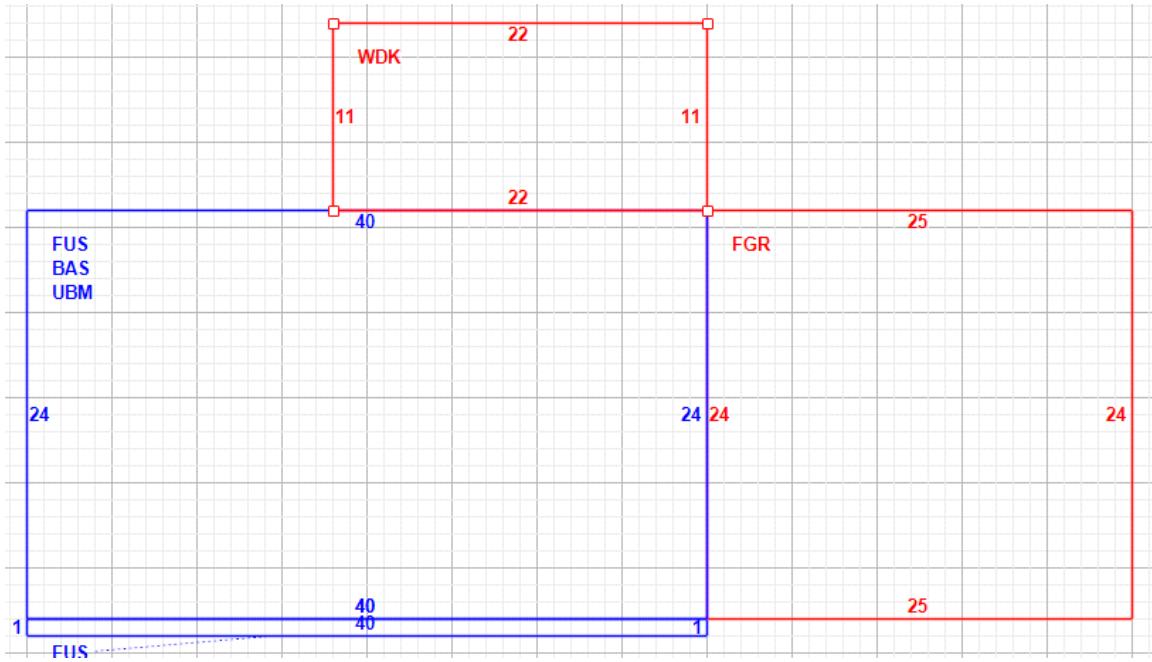
By either double clicking on Deck, Wood itself or the Add>> button it will then appear in the Current Sub Areas Section. Like so



Since both PTO and WDK are in the right column, the sketch is currently stating that the patio and wood deck are both in one area. You will have properties where this can happen but in this scenario, we are going to select the patio in the Current Sub areas section and hit the <<Remove button to delete the Patio.



By removing the patio the sketch will be corrected to show their being a Wood deck in the rear of the home.



Creating New Shapes

There are several options of new shapes to create including rectangles, circles, ovals, polygons, trapezoid etc. located on the left side of the sketch screen.

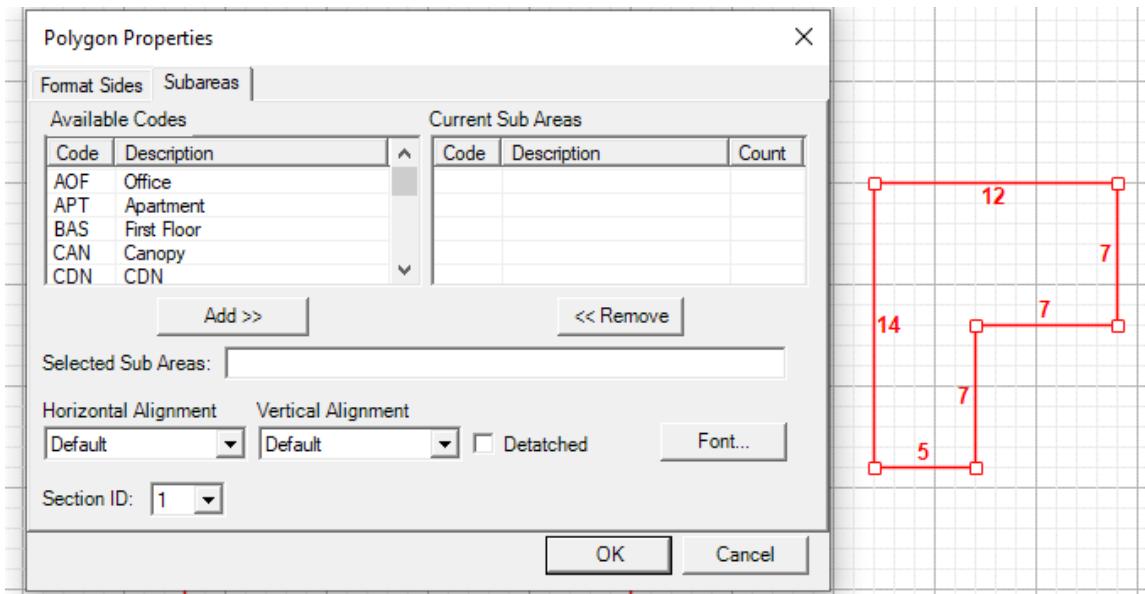


To create a new shape first select what shape it will be. In this scenario we will

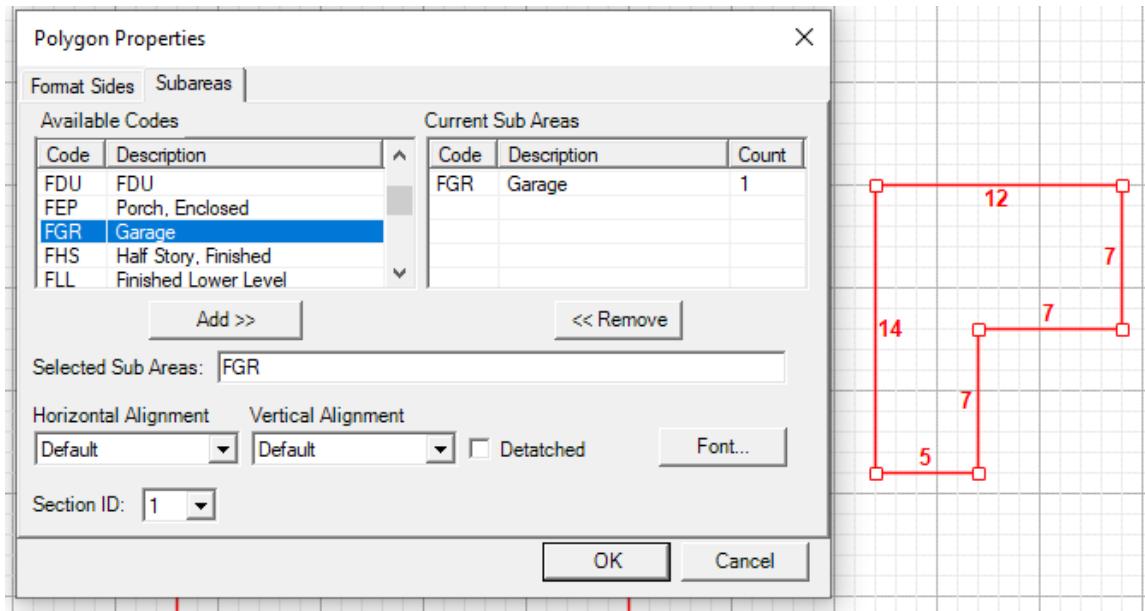
 draw an L shaped garage. First select the make polygon option  . In order to start your shape left click and hold within the grid field to start your shape and release once your first side is the desired length.



Repeating this step you will be able to add additional sides to your shape until it is your desired size.

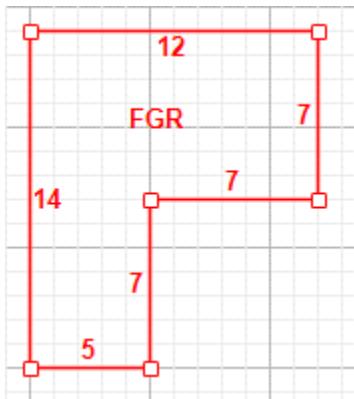


Once you close your shape the outline will turn from Green to red and the polygon properties option will automatically appear.



Then by selecting your desired building code and double clicking it will appear in the Current sub area section and by clicking okay to confirm the new shape will now be listed as a garage.

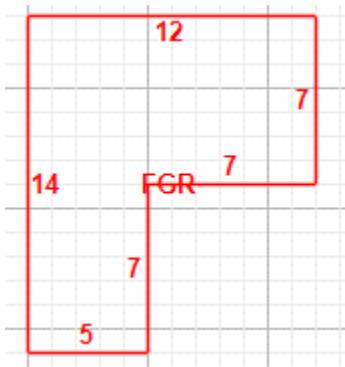
When done correctly the finished sketch will look like this.



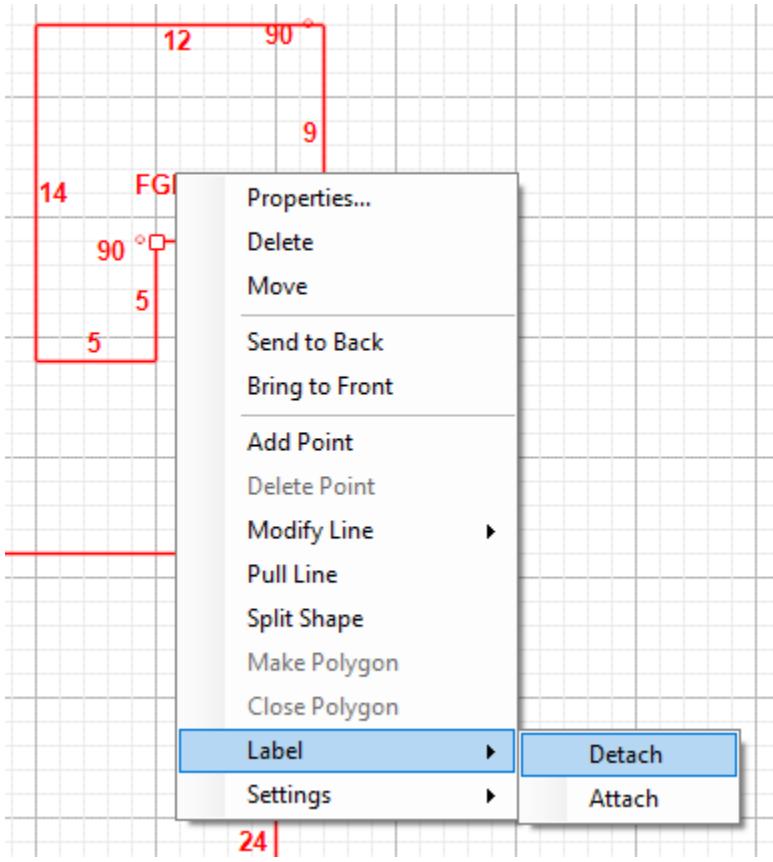
MOVING LABELS

Option 1

When data entering you may find labels on cards or new shapes that are in poor positions resulting in them becoming illegible.



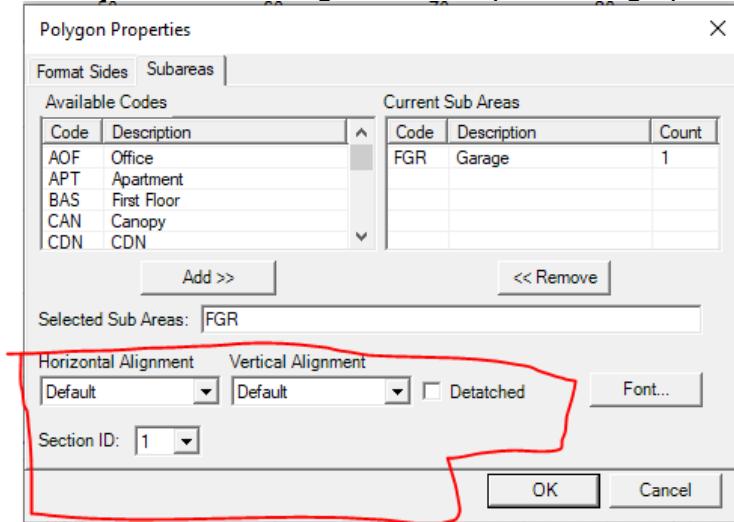
To correct this you will need to right click on the label and go to the “label” option and select “Detach”



Please note that you may need to slightly change the shape to correctly click on the label to detach it and your shape will have to be turned back to the correct shape once the label is moved.

Option 2

Start by double clicking on the shape to bring up the properties window.



The highlighted section will allow you to change where the label is placed on the shape. By varying the alignment, you will be able to put the label in a legible spot.

SKETCH TIPS

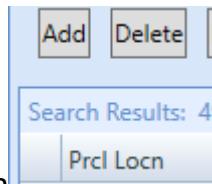
- Allows you to undo and redo changes in your sketch.
- Allows you to rotate a shape.
- Allows you to increase or decrease the size of a shape.
- **Nudge ft** allows you to move a section in increments of one.
- If you right click on a shape there is a “Split Shape” option which will allow you to cut a shape into smaller pieces which would be helpful if one large patio turns into a deck and a patio
- When adding segments with multiple codes i.e. First floor over Slab you can type in BAS/SLB into “Selected Sub areas” of the Properties screen.

UPLOADING PHOTOS

Along with collecting data for each property we have also been asked to photograph all properties in the town. As there is no way to mass download these photos they are going to be uploaded as we data enter.

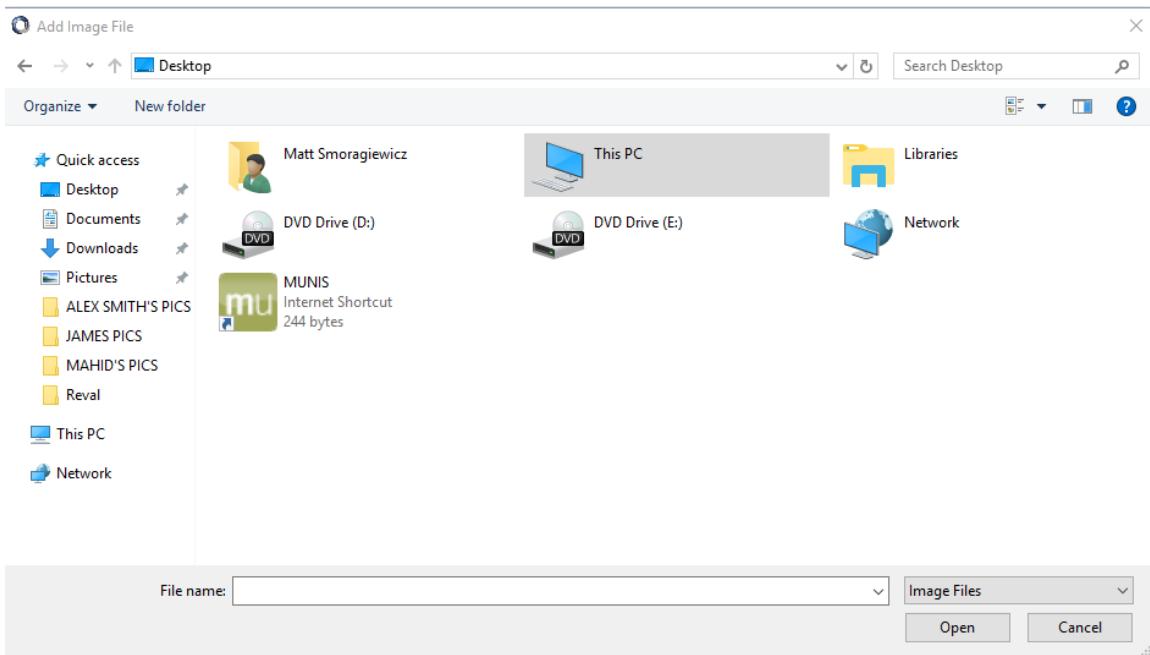


To add a photo first select the “photos option”

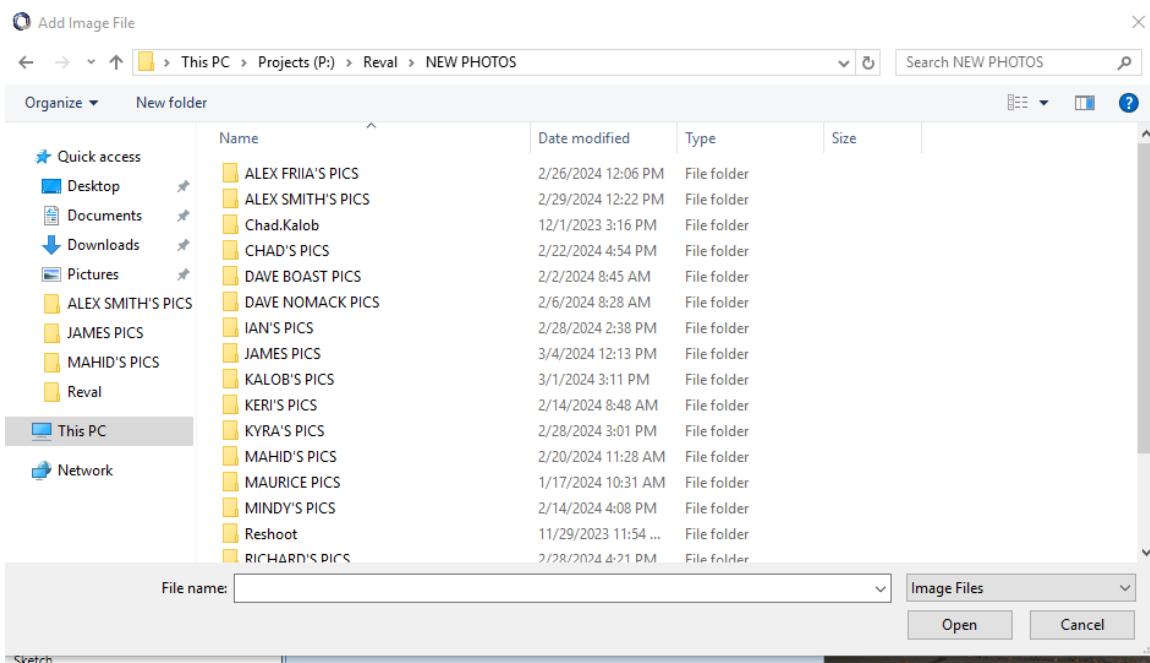


then select the “Add” option

Upon your first time adding a photo you will be brought to the desktop file



Then select “this PC” and scroll to the “Projects (P:)” Folder then the “Reval” Folder and then the “New Photos” Folder.

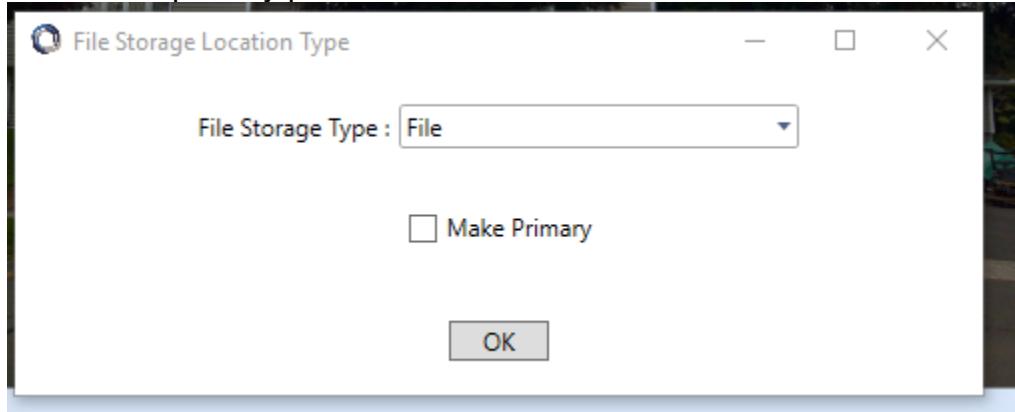


From here each data collector has a folder with the photos they have taken to date.

The data collector will have added a number in the top right corner of the PRC under the VISION Logo. This is the photo number. If this number has been highlighted already then the photo has been renamed and is ready to be added. If not you will have to confirm the photo is acceptable. If not and the photo needs

to be reshot you will move same to the “Reshoot” folder located in the “NEW PHOTOS” Folder. You will then not add a photo

If the photo is acceptable you will open the file and will be brought to an option to make it the primary photo.



You will make the photo we have taken the primary photo so it will appear on the property record card when it is reprinted.

The photo will have the date we inputted it listed under the photo and this is fine to be left as is.

Definitions

PROPERTY LOCATION - This refers to the current street address of the property. Any discrepancies should be brought to the attention of the crew leader, Assessor or staff in the same way Record of Ownership is explained later in this manual.

MAP ID- This number refers to the City/Town's unique map and lot parcel identification number. Maps are available in the Assessor's office.

BLDG NAME - Typically for commercial structures but can also be used for older historical residential homes with a name i.e. The William Packer House.

STATE USE – Land use code. The basis for classification is the most predominant current use. If the parcel is unused, the basis for classification would depend upon the anticipated use or the use for which it is zoned i.e. vacant residential or vacant commercial. Can be changed in the use code section field at the bottom of the front page within the **LAND LINE VALUATION SECTION of PRC** (Other Land Adjustments & Notes Will Be Made Here as Well)

WHEN UPDATING, VERIFYING OR CLOSING OUT PERMITS IN THE BUILDING PERMIT RECORD SECTION OF PRC

Per Assessor. We are being given ONLY cards that have the most recent permit

formation on file reflected on them that they have evaluated in office. Please pay close attention to OVERALL % complete and WHY! Verify if the work has been completed or needs to be updated! This Will Also Be Reflected In The Remodel Rating & Depreciation Code Which is Directly above This % Complete Section With Specific Codes Being Detailed and Defined on Pages 17 & 18 of This Manual. They ALL correlate as one cohesive unit to reflect the overall condition and effective age of the dwelling.

AGAIN – PLEASE PAY SPECIFIC ATTENTION TO ALL OPEN PERMITS AND % COMPLETE UPDATE/REMODEL LEVELS ALONG WITH ANY OTHER TYPES OF OPEN PERMIT SITUATIONS THAT REQUIRE MODIFICATION!

RESIDENTIAL LAND USE CODES

USE CODE	DESCRIPTION	LAND CLASS	USE CODE	DESCRIPTION	LAND CLASS
1010	Single Fam M01	R	1090	Multi Hses	R
1011	SFR (NL)	R	1091	Multi Hses	R
1012	SFR In-Law	R	1110	APT 4-Unit M01	C
1013	SFR Water	R	1111	APT 5 - 8	C
1014	SFR Golf	R	1112	APT CO-OP	C
101C	Single Fam M94	R	111C	APT 4-Unit M94	C
101I	Single Fam M96	R	111R	APT 5 - 8 M01	C
101V	Single Fam M00	R	1120	APT Over 8	C
1020	Condo M05	R	1121	SUBSIDIZED APT	C
1021	Condo-2Fam M05	R	112C	CONDO APT BLDG	C
1022	Dockominiu	R	112V	APT Over 8 LAND	C
102B	Condo-2Fam M01	R	1210	Boarding Hs	C
102R	Condo M01	R	1220	FRAT/SOROR	C
102V	Condo M00	R	1230	DORMITORY M94	C
1030	Mobile Hom	R	123S	STUDENT HSNG	C
1031	Trailer	R	1240	REC/CONVEN	C
1040	Two Family M01	R	1250	GROUP HOMES	C
1041	Two Family	R	1300	Vacant M00	R
104C	Two Family M94	R	130R	Vacant M01	R
1050	Three Fam M01	R	1310	Vacant	R
1051	Three Fam	R	1320	Vacant Unb M00	R
105I	Three Fam M96	R	1321	HOA Crnn Space M00	R
1060	Outbulding M00	R	132R	Vacant Unb M01	R
106R	Outbulding M01	R	132S	Vac Unb Open Space	R

CARD NUMBER Typically 1 of 1 – This field indicates how many data collection forms, or cards, are required to catalogue a property. A separate card is needed for each living area structure on a parcel. A property containing two houses would require two data collection forms. Enter “1 of 2” in the card field of the form for the first (larger) MAIN house and “2 of 2” in the card field of the form for the second dwelling and third dwelling etc. There may also be a barn or garage with apartment (living area) that could also be an additional card RATHER than an outbuilding. **Pay Attention Out There Please.**

CURRENT OWNER - This information is obtained from existing client records. The assessor's office periodically supplies Tyler Technologies with new owner information. If an owner indicates the mailing address OR owner's name is incorrect, note the change and separate it from your field cards being turned in for that day. **Do NOT just mix them in with all your cards!** We will copy the card and then inform the assessor's office staff of these address or owner changes when the work is returned to the office.

TOPO - Enter the appropriate code that best describes the topography of the parcel

0	-	Average
1	-	Level
2	-	Above Street
3	-	Below Street
4	-	Rolling
5	-	Steep
6	-	Low
7	-	Swampy
8	-	Ledge
9	-	Varied

UTILITIES - This information is obtained from existing client records and should not be changed without definitive proof and then consulting the assessor's office staff.

0	-	Unknown	9	-	Gas & Electric
1	-	Typical	10	-	Sewer & Septic
2	-	Sewer	11	-	New CDU Sewer
2NB	-	Sewer Not Billed	12	-	New Parcel TBD
3	-	Water	13	-	No Sewer
4	-	Electric	14	-	Not Connected
5	-	Gas			
6	-	No Cable			
7	-	Well			
8	-	Septic			
8NS	-	No Sewer Avail.			

STR/ROAD – Enter the code that best describes the type of street on which the property is located.

1	-	Paved
2	-	Partially Paved
3	-	Unpaved
4	-	Proposed
5	-	Paper
6	-	Paved With Curb
7	-	Paved With Sidewalk
8	-	Typical
9	-	Paved With Curb & Sidewalk
10	-	None

LOCATION – Enter the code that best describes the properties location. **This is NOT the Land Influence which is reflected in the Land section of the card.**

1	-	Major Rt
2	-	Secondary St
3	-	Subdivision

- 4 - Business District
- 5 - Waterfront
- 6 - Recreational
- 7 - Industrial
- 8 - Flood Plain
- 9 - Town Line

**CURRENT ASSESSMENT & SUPPLEMENTAL DATA – Do NOTHING Here!
Unless You Need To Change the Description. Typically Done Use Code.**

RECORD OF OWNERSHIP/SALE DATA - This information is obtained from existing client records and should not be changed. If change required separate card from cards completed for the day and give to your group leader.

PREVIOUS ASSESSMENTS (HISTORY) – This majority of data reflects the latest assessment on the property based on fair market value from 2020. **This information is available to the public but any discussion of these values should be avoided. Never offer any opinions on whether these values are accurate, even if changes are made to the data on the property at time of inspection.** If a taxpayer asked if they have been over-assessed, refer them to the assessor's office staff. **Do not discuss value or the specific PRC details with anyone in the field. You are collecting data, nothing else!!!**

EXEMPTIONS/OTHER ASSESSMENTS/ASSESSING NEIGHBORHOOD – This data is for assessment purposes and should not be changed.

NOTES – This area is reserved for notes that will be data entered and will appear on the property record card. It is very important that EXTREME care be taken so that this information be suitable for public viewing. Other notes in any other section of the card will be disregarded during data entry.

APPRAISED VALUE SUMMARY – Same as Previous Assessments **DO NOT Discuss Value With ANYONE**. You can say “We are just getting started on the project and the new estimated values will be sent out to everyone at the same time when they have been preliminarily concluded later in the project”.

BUILDING PERMIT RECORD – If an active permit exists, update the percentage of completion as of the date of the inspection to the best of your ability. Do not just guess regarding interior finishes like basements and attics unless verified by some indicators or property owner. **Use The % Complete Forms for New Construction.**

VISIT/CHANGE HISTORY – Enter the date, your initials and the appropriate entrance and information code in the VISIT HISTORY section each time you visit a property. (If Full, Enter Info Above the Total Appraised Parcel Value Box)

ENTRANCE CODE - One character position is provided to enter one of seven numeric codes denoting if entrance was gained or not, and the current status of the entrance information.

The appropriate entrance codes are as follows:

- 00 – Measure and Listed** to indicate that entrance (inspection) and a witness's signature was gained.
- 01 – Measured (List Attempt)** to indicate that interior was estimated but exterior was verified. No at home, Measured property and verified everything possible.
- 02 – Interior Inspection – Use for Scheduled Appointments** – To reflect a full inspection appointment was requested by the homeowner
- 03 – Measure - Interior Vacant/Under Construction** to indicate property is vacant, all measurements verified.
- 05 – Measure/Remodeling In Process** – to indicate the home is being renovated or updated in some way.
- 08 – Info At Door** - to indicate that entrance/information was refused, but a responsible occupant allowed to measure exterior.
- 09 – Owner Refusal - Interior and Exterior Estimated** to indicate that data collector was asked to leave the property. Please Write in quotes exactly what the property owner said adjacent to signature portion of the card near the entrance code on the record card.
- 22 – NO TRESPASSING – Estimated** to indicate that posted signs prevented inspection of the improvements. Includes Minor at home, leave letter and exit property immediately. If dog is loose in yard estimate property. Gated property where you cannot access the front door. Etc.

Make sure that if entry is obtained it is confirmed with a signature, space for which can be found above the Appraised Value Summary

LAND LINE VALUATION SECTION - This data is for appraisal purposes and should not be changed with the exception of change in Land Use, visible topographical deficiencies such as high banks, steep slopes or ledge. If you see adverse items like railroad tracks, heavy traffic, commercial influences or positive factors like golf course, lakefront etc and it is NOT currently specified. **Please write this information neatly in the “Notes Section” within this Land Line Value area of the form and separate the card from your stack of work for the day along with any other specific question(s) cards you may have for that day!**

CONSTRUCTION DETAIL

STYLE - Required entry for dwellings. Enter the numeric code which is most representative of the style of the dwelling. **Only one entry is allowed.**

- Enter 01 to indicate Ranch
- Enter 02 to indicate Split Level.
- Enter 03 to indicate Colonial.
- Enter 04 to indicate Cape.
- Enter 05 to indicate Bungalow
- Enter 06 to indicate Old Style
- Enter 07 to indicate Modern/Contemporary
- Enter 08 to indicate Raised Ranch
- Enter 09 to indicate Multi Family
- Enter 10 to indicate Family Duplex
- Enter 14B to indicate Student Housing Res
- Enter 20 to indicate Mobile Home
- Enter 36 to indicate Cottage
- Enter 60 to indicate Mansion
- Enter 63 to indicate Tudor
- Enter 94 to indicate Outbuilding
- Enter 99 to indicate Vacant Land

GRADE - This data is evaluated on overall component quality and complexity of dwelling construction for appraisal purposes. Grades should be changed and brought to the attention of any specifically designated, qualified individuals at the end of the day.

STORIES – Required entry for dwellings. Refers to the actual story height of the MAIN BODY of the subject dwelling. **Write In** the number that is most representative of the overall story height of the MAIN BODY of the dwelling. This would include attic (.25 story) reflected in the sketch as UAT (Unfinished Attic) / FAT (Finished Attic) = TRUE ATTIC .3 STORY OR LESS.

USE EAF/EAU (Expansion Attic Finish/Expansion Attic Unfinish) WHICH IS EQUAL TO .5 STORY HEIGHT AND MAY HAVE SOME SMALL DORMERS

AND/OR STEEP ROOF PITCH . Other sections (boxes drawn) on the dwelling sketch are designated by floor level(s) on the sketch without any reference to OVERALL STORY HEIGHT WHICH IS JUST FOR THE MAIN BODY PORTION!

- Enter 1.0 to indicate one story (**BAS**).
- Enter 1.25 to indicate attic area with specific finish on sketch!
- Enter 1.5 to indicate one and one-half story.
- Enter 1.75 to indicate one and three-quarter story.
- Enter 2.0 to indicate two stories.
- Enter 2.25 to indicate two story w/ attic (finish type is noted on sketch)
- Enter 2.5 to indicate two and one-half story.
- Enter 2.75 to indicate two and three quarter story.
- Enter 3.0 to indicate three stories.

Note: Refer to the story height illustrations found in the Appendix of this manual.

EXTERIOR WALLS - Required entry for dwellings. Enter the numeric code which is most representative of the exterior walls of the dwelling. *Two entries are allowed.*

- Enter 02 to indicate Comp/Wall Board
- Enter 06 to indicate Board & Batten .
- Enter 07 to indicate Asbestos Shingle
- Enter 09 to indicate Logs
- Enter 11 to indicate Clapboard
- Enter 12 to indicate Cedar or Redwood
- Enter 13 to indicate Pre-Fab Wood
- Enter 14 to indicate Wood Shingle
- Enter 15 to indicate Concr/Cinder

- Enter 16 to indicate Stucco
- Enter 18 to indicate Asphalt
- Enter 19 to indicate Brick Veneer
- Enter 20 to indicate Brick
- Enter 21 to indicate Stone/Masonry
- Enter 23 to indicate Pre-Cast Concrete
- Enter 25 to indicate Vinyl Siding
- Enter 26 to indicate Aluminum Siding
- Enter 27 to indicate Pre-Finish Metal
- Enter 28 to indicate Glass/Thermo
- Enter 29 to indicate Drivit
- Enter 30 to indicate Stone Veneer I

COLOR – Note the color next to the dwelling style in the Description section.

ROOF STRUCTURE – Enter the code that best describes the roof structure.

- Enter 01 to indicate Flat
- Enter 02 to indicate Shed
- Enter 03 to indicate Gable
- Enter 04 to indicate Hip
- Enter 05 to indicate Salt Box
- Enter 06 to indicate Mansard
- Enter 07 to indicate Gambrel
- Enter 08 to indicate Irregular
- Enter 09 to indicate Rigid/Frm/BJst

- Enter 10 to indicate Steel/Frm/Truss
- Enter 11 to indicate Bowstring Truss
- Enter 12 to indicate Reinforced Concrete
- Enter 13 to indicate Pre-stress Concrete

ROOF COVER – Enter the code that best describes the roof cover material. Asphalt is typical.

- Enter 01 to indicate LOW quality Metal/Tin (NOT higher quality engineered steel – (See #13 Below)
- Enter 02 to indicate Roll Roofing
- Enter 03 to indicate Asphalt
- Enter 04 to indicate Tar & gravel
- Enter 05 to indicate Corrugated Asbestos
- Enter 06 to indicate Asbestos Shingles
- Enter 07 to indicate Concrete Tile
- Enter 08 to indicate Clay Tile
- Enter 09 to indicate Enamel Metal Shingles
- Enter 10 to indicate Wood Shingle
- Enter 11 to indicate Slate
- Enter 12 to indicate Shingle Composition
- Enter 13 to indicate Architectural.

INTERIOR WALL – Enter the code that best describes the interior walls. Two entries are allowed

- Enter 01 to indicate Minimum
- Enter 02 to indicate Wall Board/Wood

- Enter 03 to indicate Plastered
- Enter 04 to indicate Plywood Panel
- Enter 05 to indicate Drywall/Sheet
- Enter 06 to indicate Custom Wood Panel
- Enter 07 to indicate Knotty Pine/ A Wood

INTERIOR FLOORS – Enter the code that best describes the interior floors. Two entries are allowed. Carpet should only be listed if it is installed directly onto the subfloor. If it is over hardwood, the proper listing is hardwood.

- Enter 01 to indicate Dirt/None
- Enter 03 to indicate Concrete-Finished
- Enter 05 to indicate Vinyl
- Enter 06 to indicate Linoleum
- Enter 07 to indicate Cork Tile
- Enter 09 to indicate Pine/Soft Wood
- Enter 11 to indicate Ceramic Clay Tile
- Enter 12 to indicate Hardwood
- Enter 13 to indicate Parquet
- Enter 14 to indicate Carpet
- Enter 15 to indicate Quarry Tile
- Enter 17 to indicate Pre-Cast Concrete
- Enter 18 to indicate Slate
- Enter 19 to indicate Marble
- Enter 20 to indicate Pergo (laminate)

Heat Fuel - Required entry for dwellings. Refers to the type of fuel used to power the heating system. Eight alternatives are provided. Only one may be entered or None if applicable.

- Enter 00 to indicate NONE
- Enter 01 to indicate COAL or WOOD
- Enter 02 to indicate OIL
- Enter 03 to indicate GAS
- Enter 04 to indicate ELECTRIC
- Enter 05 to indicate SOLAR ASSISTED
- Enter 09 to indicate Heat Pump
- Enter 10 to indicate HYDRO AIR
- Enter 11 to indicate GEOTHERMAL

HEAT TYPE - Required entry for dwellings. Refers to the actual type of heating system. Nine alternatives are provided. Only one selection may be entered.

Utilize None or Other if/when applicable.

- Enter 01 NONE indicates there is no central heating system.
- Enter 02 to indicate FLOOR FURNACE (not space heaters)
- Enter 03 to indicate HOT AIR-NO DUCT
- Enter 04 to indicate FORCED AIR-DUCT
- Enter 05 to indicate HOT WATER
- Enter 06 to indicate STEAM
- Enter 07 to indicate ELECTRIC BASEBOARDS
- Enter 08 to indicate RADIANT
- Enter 09 to indicate HEAT PUMP
- Enter 10 to indicate HYDRO AIR
- Enter 11 to indicate GEO-THERMAL

A/C TYPE - Enter the code to indicate the existence of central air conditioning.

- Enter 01 to indicate None – no central air conditioning
- Enter 02 to indicate Heat Pump
- Enter 03 to indicate Central Air
- Enter 04 to indicate Unit / AC
- Enter 05 to indicate Vapor Cooler
- Enter 06 to indicate Partial AC (Mini Split)

BEDROOMS - Enter the total number of separate rooms designed to be used as bedrooms. If a room was designed to be a bedroom, but is being utilized for some other purpose - such as a den, it is to be included in this count.

FULL BATHS - Enter the number of three-fixture bathrooms which include a water closet, lavatory, and bathtub or shower stall (a bathtub with a shower outlet is considered one fixture).

HALF BATHS - Enter the number of two fixture toilet rooms including a water closet and lavatory.

EXTRA FIXTURES – Enter the number of fixtures over 3 in a full bath, or the existence of fixtures not in a bathroom, not including the kitchen sink. Examples include a laundry sink or outdoor shower. Enter what the fixture is in the notes.

TOTAL ROOMS – Enter the number of rooms including bedrooms but excluding bathrooms.

KITCHEN STYLE- There are four choices for this section and they are all self-explanatory based on the descriptions designated below.

- Enter 1 to indicate Below Average and in need of repair.
- Enter 2 to indicate Average which means a kitchen that is somewhat dated at or nearly the same age of the dwelling. Old style fixtures, limited counter space etc.
- Enter 3 to indicate Updated or Above Average overall. Which means there has been installation of new flooring or refaced cabinets or updated appliances or minor cosmetic updates with lower quality materials NOT A FULL REMODEL.

BATH STYLE- There are three choices for this section and are all self-explanatory based on the following descriptions.

- Enter 1 to indicate Old style reflect below average or repairs needed.

- Enter 2 to indicate Average which means a Bathroom that is somewhat dated at or nearly the same age of the dwelling. Old style fixtures, limited counter space etc.
- Enter 3 to indicate “Remodeled” or (Modern) for high quality grade of workmanship and materials. Extra sinks, built in Jacuzzis, Spas or saunas may be common. Tile, Marble or granite floors professionally installed. Very spacious in size. Which means exactly what it says COMPLETE GUTTING & REMODELING of the entire bathroom. Everything is NEWER & represents good overall quality.

YEAR BUILT - Required entry for dwellings found in the Cost/Market Valuation section as AYB (actual year built). This refers to the original date of construction. This term must always be entered. If the exact date cannot be ascertained, make the best estimate possible based on known construction dates in the immediate area and your professional working knowledge of structure age.

EFF YEAR BUILT- Not part of field data collection. Used to override the physical age of a building when remodeling or other factors indicate depreciation should be based on a different year.

PHYSICAL CONDITION- Refers to a composite judgment of the overall physical condition or state of repair of the interior and exterior features of the dwelling, relative to its age or the level of maintenance which you would normally expect to find in a dwelling of a given age. Consideration should be given to foundation, porches, walls, exterior trim, roofing, chimneys, wall finish, interior trim, kitchen cabinets, heating system, and plumbing. Six alternatives are provided.

BASEMENTS – Here in Hamden we are dealing with and describing **two different basement style types (Basement & FLL)** and three different finished area “condition and utility” designation options.

STANDARD BASEMENTS:

- (1) **First Gradient Is UBM** = This designates an UNFINISHED standard or more “traditional style” basement that is below grade with little or no window exposure. This UBM code should be left alone or used in the sketch if the designated size/area and location are known.
- (2) **Second Gradient Is FBM** = This designates A FINISHED standard or “traditional style” basement. The FBM code should be left alone or used in the sketch. To accurately reflect that section utility.

IMPORTANT - Please Note: You can leave the basement area blank on the sketch and designate the UBM and FBM areas in the upper left hand corner of the sketch area on the PRC. (You will be trained how to quickly do this and when it will be useful during training)

FLL (FINISHED LOWER LEVEL) STYLE BASEMENTS:

1. **Finished Lower Level (FLL Quality)** = Generally this type of basement will typically demonstrate daylight walkout style, or have code size welled exit windows or an exterior door and reflect a similar overall quality finish to the level above. Basic criteria overview below.
 - a. Have a fixed heat source.
 - b. Ceiling height must be above a 7' minimum
 - c. There must a direct exterior door/daylight walkout or welled/above grade windows.
 - d. Must be finished to a level of quality that is similar to the GLA on the floor above.

FLL should always be reflected with Raised Ranch and Split Entry style dwellings.

PLEASE NOTE: This overall “condition” is to be entered in the DEPRECIATION CODE Line NOT in the condition line of the Cost/Market Valuation Section of the PRC.

Enter E	EXCELLENT to indicate that the dwelling exhibits an outstanding standard of maintenance and upkeep in relation to its age. Rarely used.
Enter VG	VERY GOOD to indicate that the dwelling has been recently updated or remodeled and well maintained on both the exterior and interior in relation to its age. (within approx the last 5+- years)
Enter G	GOOD to indicate that the dwelling exhibits an update to the exterior or interior within the last 10 years or so and above average standard of maintenance and upkeep in relation to its age.
Enter A+	ABOVE AVERAGE to indicate that the dwelling has received some level of update ie newer windows or siding or doors or some interior updates but NOT a high level of overall updating. Should appear better than the average rating noted below and look slightly inferior overall to GOOD or VERY GOOD.
Enter 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.
Enter A-	BELOW AVERAGE to indicate that the dwelling shows slightly higher degree of deterioration caused by excessive "wear and tear". The dwelling exhibits a low quality standard of maintenance

and upkeep in relation to its age.

- | | |
|---------|---|
| Enter F | FAIR to indicate that the dwelling is in structurally sound condition, but has greater than normal deterioration present relative to its age. Dwellings in "fair" physical condition may be characterized as having a significant degree of deferred maintenance. |
| Enter P | POOR to indicate that the dwelling shows signs of structural damage (a sagging roof, foundation cracks, uneven floors, etc.) possible combined with a significant degree of deferred maintenance (as roof shingles need replacement). |

TO ACTUALLY FACTOR "MODIFIED" PHYSICAL DEPRECIATION AS IT PERTAINS TO VALUE - ONE OF THE FOLLOWING MUST BE USED IN THE REMODEL RATING SECTION:

- B: Bath Remodel**
- C: Cosmetic**
- G: Gut Rehab – Complete Dwelling Renovation**
- K: Kitchen**
- KB: Kitchen/Bath Remodel**
- M: Minor**
- MJ: Major**

OB-OUTBUILDING & YARD ITEMS (L) – BUILDING EXTRA FEATURES (B)

This section provides guidelines for collecting and recording additional structural characteristics affecting property value. (Now Reflects FND Regarding Flood Zone Compliance Raised Foundations (Must See Bill O'Brien For Details))

OUTBUILDING CODES - Refers to a category of improvements such as pools, barns, etc.

To Find The Specific OB and Detached Features Codes **SEE ATTACHED ADDENDUM TITLED – OUTBUILDING CODES Hamden, CT**

L/B – Indicate whether the item is a feature of the **Land** (outbuildings) or **Building** (features).

UNITS - Refers to the size or quantity of the outbuilding or feature. Most features represent the quantity (1 fireplace) and most outbuildings represent the size (80sf of shed). **The absence of the unit results in no value so take care to enter the unit of 1.**

YEAR - Refers to the year the item was constructed.

GRADE –A character position is provided to enter one alpha character denoting the quality grade of the item. Valid grades are A, B, C, D, or E. If a quality grade is not applicable to the item, draw a line or dash through the character position.

SKETCH – For Use With Vision (Residential List)

The following is a list of valid sketch or subarea codes.

FAT	Finished Attic		STP	Stoop
UAT	Attic, Unfinished		WDK	Wood Deck
EAF	Expansion Attic Finished			
EAU	Expansion Attic Unfinished		PTO	Patio Concrete
LFT	Res. Loft		RPB	Patio Brick
FHS	Finished ½ Story		RPS	Patio Stone
UHS	Unfinished Half Story		FOP	Framed Open Porch
TQS	¾ Story		FSP	Screen Porch
UQS	Unfinished ¾ Story		FEP	Enclosed Porch
FUS	Finished Upper Story		UEP	Utility Enclosed Porch
UUS	Unfinished Upper Story			
FLL	Finished Lower Level		RSH	Workshop
BAS	First Floor		LNT	Lean To
UBS	Unfinished 1st Floor		FST	Storage
CTH	Cathedral Ceiling		STG	Storage, Unfinished
VLT	Vaulted Ceiling		ATR	Atrium
UBM	Unfinished Basement		GRN	Greenhouse
FBM	Finished Basement		SOL	Solarium
FLL	Raised Bsmt/Walk-Out Style		CAN	Canopy
ULL	Unfinished Lower Level		GAZ	Gazebo
BMC	Basement for Condo		EPL	Pool Enclosure
UGR	Garage Under (Bsmt)		APT	Apartment
CPT	Carport		NVS	No Value

FGR	Garage			
CRL	Crawl Space			
SLB	Slab			
PRS	Piers			

APPENDIX
TABLE OF CONTENTS

Ranch, HIGH Ranch, Raised Ranch, Split Level, Cape Cod, Colonial & Contemporary Illustrations with brief descriptions

Architectural Terms
 Real Estate Appraisal Terms
 Story Heights / Roof Types
 Dormers

Measuring and Sketching Instructions

Land Influences
 Special Calculations
 Outbuilding Definitions

RANCH - They are most often single-story homes that are built low to the ground and follow the contour of the land. In the eastern United States they are typically built on basements or crawl spaces with a lesser number being built directly on concrete slabs.



HIGH Ranch – HAMDEN, CT – This style dwelling is all above grade living area (**2 Story Height With NO Basement**) which has a raised ranch style layout and overall utility on a slab foundation.



Raised Ranch (Bi-Level) – This dwelling dictates that you must go up or down upon entering the front door. The living room, kitchen and bedrooms are generally on the upper level and the family room, garage, mechanical and utility rooms are on the lower level.



Split Level Structures – Split-level homes are a style of house in which the floor levels are staggered. There are typically two short sets of stairs, one running upward to a bedroom level, and one going downward toward a basement area. Please Note: There can be more than three levels and the style can remain a split level dwelling.



Cape Cod - Traditional Cape Cod cottages were typically one-and-a-half story, with the interior floor plan revolving around a central living room with a large hearth as the centerpiece. Full dormers are now frequently found resulting in “three-quarter” Capes.



Colonial - Regardless of the size, story height of 2, 2.5 or even 3 floors Colonial style homes share several characteristics. Typically rectangular, feature an entry door in the middle of the front of the home, can have paired chimneys and a stairway that is directly behind the entry door and leads to a hallway that typically bisects the middle of the second floor.



Original 70's Contemporary Style - Common in this style are the large plate glass windows, metal or concrete and natural look of wood or stones and some geometrical shapes like rounds and rectangles to create vaults and volume. Contemporary designs are also asymmetrical in form. This style is not into too much detail and ornamentation.



Newer Style Contemporary Dwelling



ARCHITECTURAL TERMS

apartment hotel	a building designed for non-transient residential use, divided into dwelling units similar to an apartment house, but having such hotel accommodations as room furnishings, lounges, public dining room, maid service, etc.
apartment house	a multi-family residence containing three or more non-transient residential living units and generally providing them with a number of common facilities and services.
attic	an unfinished or semi-finished portion of a building lying between the highest finished story and the roof and wholly within the roof framing.
Basement	a building story which is wholly or partly below the grade level.
bay	(1) a horizontal area division of a building usually defined as the space between columns or division walls. (2) an internal recess formed by causing a wall to project beyond its general line.
bay window	a window, or group of continuous windows, projecting from the main wall of a building.
beam	a long structural load-bearing member which is placed horizontally or nearly so and which is supported at both ends or, infrequently, at intervals along its length.
beam, spandrel	a wall beam supporting the wall above, as well as the floor.
building	any structure partially or wholly above ground which is designed to afford shelter to persons, animals, or goods. See also <i>construction</i> .
building, fireproof	a building in which all parts carrying loads or resisting stresses and all exterior and interior w", floors, and staircases are made of incombustible materials, and in which all metallic structural members are encased in materials which remain rigid at the highest probable temperature in case its contents are burned, or which provide ample insulation from such a temperature.
building, loft	a building having three or more stories with few or no interior bearing walls and designed for storage, wholesaling, or light industrial purposes.
building, single-purpose	a building designed for a specific purpose which cannot be used for another purpose without substantial alterations; e.g., a theater or church.
Bungalow	a one-story dwelling unit which is somewhat more pretentious than a cottage.
column	a structurally isolated vertical member which is at least 8 to 10 times as long as its least lateral dimension and which is designed to carry loads. Compare <i>pier</i> .
conduit	a tube, pipe, or small artificial tunnel used to enclose wires or pipes or to convey water or other fluids.
Construction, masonry/brick	a type of construction in which the exterior walls are bearing walls (q.v) made of solid brick.
Brick veneer	a type of construction in which the exterior walls are one-layer brick curtain walls backed by a wood fr.
construction, fireproof	see <i>fireproof building</i> .
construction, mill	type of construction in which the exterior walls are substantial masonry bearing walls, in which the structural members are of heavy timber, and which is further characterized by an open design and by other safeguards against fire hazards. Sometimes called "slow-burning construction."
construction, reinforced concrete	a type of construction in which the principal structural members, such as the floors, columns, beams, etc., are made of concrete poured around isolated steel bars or steel meshwork in such manner that the two materials act together in resisting forces.
Construction steel frame support of all	a type of construction in which there is a framework of steel structural members for the loads and the resistance of all stresses.
construction, wood frame	a type of construction in which there is a framework of wooden structural members for the support of all loads and the resistance of all stresses. Loosely called "frame construction."
coping	a special capping at the top of a wall, serving principally as a watershed.

cornice	a projecting element at the top of a wall, serving principally as a decoration or as part of the coping (q.v.).
cottage	a one story to two story dwelling unit of small size and humble character.
course	a uniform horizontal layer of brick, stone, terra cotta, shingles, or some other structural material extending continuously around a building or along a wall.
court	an open space bordered on two or more sides by the walls of a single building, or of two or more buildings, and by a lot line or a yard on any side not so bordered.
dormer	(1) a relatively small structure projecting from a sloping roof. (2) a window set upright in the face of such a structure.
dwelling	any building or portion thereof designed or occupied in whole or in part as a place of residence.
dwelling, attached	a multi-family dwelling in which the dwelling units are separated vertically by means of common or party walls. See <i>terrace</i> .
dwelling, double	a two-family dwelling in which the dwelling units are separated vertically, by means of a common or party wall. Synonymous with "semi-detached dwelling."
dwelling, duplex	a two-family dwelling in which the two dwelling units are separated horizontally with a private street entrance for each; i.e., a two-family flat.
dwelling, multi-family	a building designed as a place of residence for more than two families or households; e.g., an apartment house or tenement.
dwelling, row	any one of a series of similar single family, two family, or multifamily dwellings having one or more contiguous common or party walls. Compare <i>terrace</i> ; <i>dwelling, double</i> .
dwelling unit	any room or group of room designed as the living quarters of one family or household, equipped with cooking and toilet facilities, and having an independent entrance from a public hall or from the outside.
eaves	the portion of a sloping roof which projects beyond the outside walls of a building.
elevation	a drawing representing a projection of any one of the vertical sides or vertical cross-sections of a building or of any other object. Compare <i>plan</i> .
facade	the face of a building.
firewall	a wall of fire-resisting material erected between two parts of a building to prevent the spread of fire from one part to the other.
flashing	small metal strips used to prevent leaking of roofs around chimneys, dormers, hips, and valleys.
flat	(1) any one floor of a building two or more stories high, each floor of which constitutes a single dwelling unit and has a private street entrance. (2) the building containing two or more such floors. Compare <i>dwelling, duplex</i> .
footing	a spreading base to a wall, column, or other supporting member,, which serves to widen the ground area to which structural loads are transmitted.
foundation	the structural members below grade level, or below the first tier of beams above grade level, which transmit the load of a superstructure to the ground.
gable	(1) the triangular portion of a wall between the slopes of a double-sloping (i.e., gable) roof. (2) the whole of the wall containing such a triangular portion. (3) a portion of a building extending from the remainder of the building and covered with a gable roof.
girder	a large or principal beam (q.v.) used to support concentrated loads at isolated points along its length. (Girders usually support the beams and structure above).
header	(1) a structural member which is laid perpendicularly to a parallel series of similar members and against which the latter members abut. (2) a brick or other piece of masonry which is laid in a wall in such manner that its longest dimension extends along the thickness of the wall. Contrast <i>stretcher</i> .
hip	(1) a sloping line along which two roof surfaces meet to form an external angle of more than 180 degrees. (2) a hip rafter (q.v.) Compare <i>ridge; valley</i> .

hotel	a building designed for transient or semi-transient residential use, divided into furnished single rooms and suites, and having such accommodations as lounges, public dining rooms and maid service, etc.
hotel, apartment	see <i>apartment hotel</i> .
joist	one of a series of small parallel beams laid on edge and used to support floor and ceiling loads, and usually supported in turn by larger beams and girders.
lintel such opening.	a beam over a wall opening, such as a door or windows, designed to carry the load of the wall over
loft	an un-partitioned or relative]), unpartitioned upper story of a building, designed for storage, wholesaling, or light manufacturing. See also <i>loft building</i> .
louver (or louvre)	a ventilator containing slats which are placed lengthwise across the ventilator opening, each slat being slanted in such manner as to overlap the next lower slat and to permit ventilation but exclude rain.
Marquee	a flat roof-like structure which shelters a doorway, which has no floor beneath it, and which is usually supported wholly from the walls or the building.
mezzanine	a low story formed by placing a floor between what would ordinarily be the floor and ceiling of a high story. Note: the mezzanine floor frequently has a smaller area than other floors and, if present at all, is usually between the first and second stories.
millwork	all of the wooden portions of a building, whether frame construction or otherwise, which are customarily purchased in finished form from a planing mill, such as doors, windows, trim, balusters, etc.
overhang	a finished portion of a building having full story height which extends beyond the foundation wall line if part of the ground story, or beyond the exterior walls of the ground story if part of any higher story.
overhead Addition.	structure similar to overhang above ground story, such as O.H. bridge or passage, O.H. walk, O.H.
partition	see <i>wall, partition</i> .
pier	(1) a thick, solid mass of masonry which is fully or partially isolated from a structural standpoint and which is designed to transmit vertical loads to the earth. (2) a structure projecting from land into water for use in loading and unloading vessels. Compare column.
pilaster	a flat-faced pillar projecting somewhat from, but engaged in, the wall of a building and used for decorative purposes or to help support truss and girder loads or both.
pile	a heavy timber, metallic, or masonry pillar forced into the earth to form a foundation member.
pitch	the slope of any structural member, such as a roof or rafter, usually expressed as a simple fraction representing the rise per lateral foot.
plan	a drawing representing a projection of any one of the floors or horizontal cross-sections of a building or of the horizontal plane of any other object or area. Compare <i>elevation</i> .
Purlin	a beam running along the underside of a sloping roof surface and at right angles to the rafters, used to support the common rafters, and usually supported in turn by larger structural members, such as trusses or girders (usually run along length of building).
rafter	a structural member placed, as a rule, in a sloping position and used as the supporting element for the structural material forming the plane of the roof. See also <i>purlin</i> .
Rafter, hip	a rafter placed in an inclined position to support the edges of two sloping roof surfaces which meet to form an external angle of more than 180 degrees.
rafter, valley	a rafter placed in an inclined position to support the edges of two sloping roof surfaces which meet to form an external angle of less than 180 degrees.
ramp	an inclined walk or passage connecting two different floor levels and used in lieu of steps.
residence	see <i>dwelling</i> .
ridge	a horizontal line along which the upper edges of two roof surfaces meet to form an external angle of more than 180 degrees. Compare <i>hip; valley</i> .
rise	(1) in general, any vertical distance. (2) specifically, the rise of a roof being the distance between the

	top of an exterior wall and the peak of the roof; the rise of a stair being the distance from tread to tread.
roof single pitch.	the top portion of a structure. Types of roofs include double pitch, flat, gable, gambrel, hip, lean-to, single pitch.
roof, curb (or curbed)	a roof with a ridge at the center and a double slope on each of its two sides.
roof, flat	a roof which is flat or sloped only enough to provide proper drainage.
roof, gable	a double-sloped roof having a cross section similar in general to the shape of the inverted letter "V".
roof, gambrel	a ridged roof with two slopes on each side, the lower having a steeper pitch.
roof, hip (or hipped)	(1) in general, any roof having one or more hips (q.v.) (2) usually, a roof with four sloping sides meeting along four hips or along four hips and a ridge. Compare <i>roof, pyramid</i> .
roof, lean-to	(1) a roof having a single sloping side which is supported at the upper edge by the wall of an attached building or of a larger and higher portion of the same building (preferred). (2) any roof with a single slope. Compare <i>roof, flat</i> .
roof, mansard	a special type of curb roof (q.v.) in which the pitch of the upper part of each of the four equally sloping sides is small or negligible and that of the lower part is very great; a series of dormers projects from the lower part.
roof, monitor	a type of gable roof commonly found on industrial buildings - having a small raised portion along the ridge, with openings for the admission of light and air.
roof, pyramid	A hip roof having four sloping triangular sides, usually of equal pitch, meeting together at the peak.
roof, ridged	a roof having one or more ridges (q.v.)
roof, sawtooth	a roof with a series of parallel sloping surfaces interspersed between a series of vertical surfaces which rise from the lower edges of such sloping surfaces and which contain windows for the admission of light and air.
roof, single pitch	any roof with a single slope, other than a lean-to roof.
sash	the wooden or metal framework in which the glass of a door or window is set.
Sheathing	the covering, usually of rough lumber, placed immediately over studding or rafters.
sill	(1) the lower horizontal part of a door-case (the threshold) or of a window. (2) the lowest horizontal structural member of a frame building, upon which the superstructure is supported.
sleeper other superstructure.	a structural member laid horizontally on the ground or upon a masonry base as a support to a floor or other superstructure.
specifications	a detailed description of the dimensions, materials, quantities, structural procedures, etc. applicable to a projected or completed piece of construction.
story	that portion of a building enclosed by a floor, a ceiling and the exterior walls.
story, ground	the first story lying wholly above the ground level. Synonymous with "first story."
story, half (or one-half)	(1) for buildings with a mansard or gambrel roof, a finished portion of a building which lies above the wall plate or cornice and which has a usable floor area substantially less than that of the next lower story. (2) for all other buildings, a finished portion of a building which is above one or more full stories, which is wholly or partly within the roof frame and which has one or more exterior walls substantially lower than the full height of the story.
story, one	a building having no finished story above the ground story.
stretcher	a brick or other piece of masonry which is laid lengthwise in a wall. Contrast <i>header</i> .
strut	any structural member which holds apart two or more other members of counteracting a pressure which tends to bring them together. Contrast <i>tie</i> .
stud	one of a series of small slender structural members placed vertically and used as the supporting element of exterior or interior walls. (Plural: studs or studding)
subfloor	the flooring laid directly on top of the floor joists, but beneath the finish floor.

tenement	a building, usually of obsolete nature, designed primarily for non-transient residential use and divided into three or more dwelling units having common stairs, halls and street entrances, and sometimes common bath and toilet rooms. Compare <i>apartment house, flat, terrace</i> .
terrace	(1) an unroofed level area covered with grass or masonry or both, raised above the surrounding ground level, and having a vertical or sloping front. (2) a multi-family dwelling in which the dwelling units are separated vertically by means of common or party walls. Compare <i>dwelling, row; dwelling, double</i> .
terra cotta trim on buildings.	a hard-baked ceramic clay molded into decorative tiles, bricks, etc., and used particularly for facing a
tie	any structural member which binds together two or more members by counteracting a stress which tends to draw them apart. Contrast <i>strut</i> .
trim	1) the wooden portions of a plastered room, such as the doors, windows, wainscoting, and molding or the corresponding portions of a room finished otherwise than with plaster. (2) the contrasting elements on the exterior of a building which serve no structural purpose, but intended to enhance its appearance, e.g., the cornice. (3) occasionally, the hardware of a house, such as locks, hinges, doorknobs, etc.
truss	a combination of structural pieces fastened together into a rigid open member which is supported at both ends and upon which loads are superimposed. Compare <i>girder</i> .
valley	a sloping line along which two roof surfaces meet to form an external angle of less than 180 degrees. Compare <i>ho; ridge</i> .
veneer	a thin ornamental or protective facing which does not add appreciably to the strength of the body to which it is attached.
wainscot (or wainscoting)	(1) a wooden facing on the lower portion of a contrasting interior wall. (2) by extension, a facing of marble tile, or the like, on the lower portion of interior walls.
wall	a vertical structure serving to enclose, support, divide; such as one of the vertical enclosing sides of a building or room.
wall, bearing	a wall designed primarily to withstand vertical pressure in addition to its own weight.
wall, common	a wall owned by one or two parties and jointly used by both, one or both of whom is entitled to such use under the provisions of ownership.
wall, curtain	a non-bearing wall which is supported by columns, beams, or other structural members, and whose primary function is to enclose space.
wall, fire	see <i>firewall</i> .
wall, partition	an interior bearing or non-bearing wall which separates portions of a story. Synonymous with <i>partition</i> .
wall, party	a wall jointly used by two parties under easement agreement and erected at or upon a line separating two parcels of land held under different ownership.
wall, retaining	a wall designed primarily to withstand lateral pressures of earth or other filling or backing deposited behind it after construction.
window, bay	see <i>bay window</i> .
window, dormer	see dormer.
wing	a subordinate part of a building extending from the main part, or any one of two or more substantially co-ordinate parts of a building which extend out from one or more common junctions.

REAL ESTATE APPRAISAL TERMS

abstract	a computer-printed report of appraised and/or assessed values for each parcel of real property in a given taxing district; generally sequenced geographically.
accrued depreciation	<i>see depreciation.</i>
actual age	the number of years elapsed since the original construction, as of the effective valuation date. Compare with <i>effective age</i> .
ad valorem tax	in reference to property, a tax based upon the value of the property.
aesthetic value	a value, intangible in nature, which is attributable to the pleasing appearance of a property.
agricultural property	land an improvements devoted to or best adaptable for the production of crops, fruits, and timber, and the raising of livestock.
air rights	the right to the use of a certain specified space within the boundaries of a parcel of land and above a specified evaluation.
alley influence	the enhancement to the value of a property rising out of the presence of an abutting alley, most generally applicable to commercial properties.
amenities	in reference to property, the intangible benefits arising out of ownership; <i>amenity value</i> 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 <i>valuation</i> or <i>appraised value</i> .
appraisal schedules	any standardized schedules and tables used in conjunction with a revaluation program, such as replacement cost pricing schedules, depreciation tables, land depth tables, etc.
appraised value	<i>see appraisal.</i>
Appraiser	one who estimates value. More specifically, one who possesses the expertise to execute or direct the execution of an appraisal.
assessed value	<i>see assessment.</i>
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 <i>assessed value</i> , <i>taxable value</i> , and <i>tax base</i> .
assessment district	an assessor's jurisdiction; it may or may not be an entire tax district.
Assessment period	the period of time during which the assessment of all properties within a given assessment district must be completed; the period between tax lien dates.
assessment ratio	the ratio of assessed value to a particular standard of value, generally the appraised value. A percentage to be applied to the appraised value in order to derive the assessed value.
assessment roll	the official listing of all properties within a given taxing jurisdiction by ownership, description, and location showing the corresponding assessed values for each; also referred to as <i>tax list</i> , <i>tax book</i> , <i>tax duplicate</i> , and <i>tax roll</i> .
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.
asthetic value	a value, intangible in nature, which is attributable to the pleasing appearance of a property.
average deviation	in a distribution of values, the average amount of deviation of all the values from the mean value, equal to the total amount of deviation from the mean divided by the number of deviations. As applied to an assessment-to-sale ratio distribution, the average amount which all the ratios within the distribution deviate from the mean ratio.
base price	a value or unit rate established for a certain specified model, and subject to adjustments to account for variations between that particular model and the subject property under appraisal.
blighted area	a declining area characterized by marked structural deterioration and/or environmental deficiencies.

Board of Equalization	a non-jurisdictional board charged with the responsibility of reviewing assessments across properties and taxing districts and to assure that said properties and districts are assessed at a uniform level, either raising or lowering assessments accordingly; also referred to as <i>Board of Appeals</i> , and <i>Board of Review</i> .
building residual	building residual technique a building valuation technique which requires the value of the land to be a known factor; the value of the buildings can then be indicated by capitalizing the residual net income remaining after deducting the portion attributable to the land.
capitalization	a mathematical procedure for converting the net income which a property is capable of producing into an indication of its current value. See <i>income approach</i> .
central business district	the center of a Town - in which the primary commercial, governmental, and recreational activities are concentrated.
certified assessment evaluator	a professional designation (C.A.E.) conferred upon qualifying assessors by the International Association of Assessing Officers (IAAO).
classified property tax	an ad valorem property tax under which the assessment ratio varies for different property classes.
component part-in-place method	the application of the unit-in-place method to unit groupings or construction components. See <i>unit-in-place method</i> .
corner influence	the enhancement to the value of a property due to its corner location; most generally applicable to commercial properties.
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.
cost factor	a factor or multiplier applied to a replacement or reproduction cost to account for variations in location and time, as well as for other elements of construction costs not otherwise considered.
cubic content	the cubic volume of a building within the outer surface of the exterior wall and roof and the upper surface of the lowest floor.
deed	a written instrument which conveys an interest in real property. A <i>quitclaim deed</i> conveys the interest described therein without warranty of title. A <i>trust deed</i> conveys interest described therein to a trustee. A <i>warranty deed</i> conveys the interest described therein with the provisions that the freehold is guaranteed by the grantor, his heirs, or successors.
depreciation	loss in value from all causes; may be further classified as <i>physical</i> , referring to the loss of value caused by physical deterioration; <i>functional</i> , referring to the loss of value caused by obsolescence inherent in the property itself; and <i>economic</i> , referring to the loss of value caused by factors extraneous to the property.
Accrued depreciation refers to the actual depreciation existing in a particular property as of a specified date.	
<i>Normal</i> depreciation refers to that amount of accrued depreciation one would normally expect to find in buildings of certain construction, design, quality, and age.	
depreciation allowance	a loss of value expressed in terms of a percentage of replacement or reproduction cost new.
depth factor	a factor or multiplier applied to a unit land value to adjust the value in order to account for variations in depth from an adopted standard depth.
depth table	a table of depth factors.
design factor	a factor or multiplier applied to a computed replacement cost as an adjustment to account for cost variations attributable to the particular design of the subject property which were not accounted for in the particular pricing schedule used.
deterioration	impairment of structural condition evidenced by the wear and tear caused by physical use and the action of the elements, also referred to as <i>physical depreciation</i> .
economic depreciation	see <i>depreciation</i> .
economic life	the life expectancy of a property during which it can be expected to be profitably utilized.

economic obsolescence	obsolescence caused by factors extraneous to the property. Also referred to as <i>economic depreciation</i> .
economic rent	the rent which a property can be expected to bring in the open market as opposed to <i>contract rent</i> or the rent the property is actually realizing at a given time.
effective age	an age assigned to a structure based upon its condition as of the effective valuation date; it may be greater or less than the structure's actual age. Compare with <i>actual age</i> .
effective depth factor is based.	in reference to property valuation, that depth, expressed in feet, upon which the selection of the depth
effective frontage	in reference to property valuation, that total frontage, expressed in lineal feet, to which the unit land value is applied, it may or may not be the same as the actual frontage.
effective gross income	the estimated gross income of a property less an appropriate allowance for vacancies and credit losses.
effective valuation date	in reference to a revaluation program, the date as of which the value estimate is applicable.
encroachment	the displacement of an existing use by another use.
environmental deficiency	a neighborhood condition such as adverse land uses, congestion, poorly designed streets, etc., operating to cause economic obsolescence and, when coupled with excessive structural deterioration, blight.
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 <i>revaluation</i> 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 unequitable distribution of the tax burden. Inequity is a natural product of changing economic conditions 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.	
excessive frontage	frontage which because of the particular utility of the lot does not serve to add value to the lot.
exempt property	see <i>tax exemption</i> .
fee appraisal	see <i>mass appraisal</i> .
field crew	the total professional staff assigned to a specific appraisal project, including listers, reviewers, staff appraisers, and clerical and administrative supporting personnel.
functional depreciation	see <i>depreciation</i> .
functional obsolescence	obsolescence caused by factors inherent in the property itself. Also referred to as <i>functional depreciation</i> .
functional utility	the composite effect of a property's usefulness and desirability upon its marketability.
grade	the classification of an improvement based upon certain construction specifications, and quality of materials and workmanship.
grade factor	a factor or multiplier applied to a base grade level for the purpose of interpolating between grades or establishing an intermediate grade.
grantee other similar d	a person to whom property is transferred and property rights are granted by deed, trust instrument, or documents. Compare with <i>grantor</i> .
grantor	a person who transfers property or grants property rights by deed, trust instrument, or other similar documents. Compare with <i>grantee</i> .
gross area	the total floor area of a building measured from the exterior of the walls.
gross income	the scheduled annual income produced by the operation of a business or by the property itself.
gross income multiplier	a multiplier representing the relationship between the gross income of a property and its estimated value.

gross sales etc.	the total amount of invoiced sales before making any deductions for returns, allowances, etc.
ground lease	a document entitling the lessee certain specified rights relating to the use of the land.
ground rent	net rent from a ground lease; that portion of the total rent which is attributable to the land only.
improved land	land developed for use by the erection of buildings and other improvements.
income approach	one of the three traditional approaches to determination of value; measures the present worth of the future benefits of a property by the capitalization of its net income stream over its remaining economic life. The approach involves making an estimate of the potential net income the property may be expected to yield, and capitalizing that income into an indication of value.
income property	a property primarily used to produce a monetary income.
industrial park	a subdivision designed and developed to accommodate specific types of industry.
industrial property	land, improvements, and/or machinery used or adaptable for use in the production of goods either for materials, or by changing other materials and products, i.e. assembling, processing and manufacturing ... as well as the supporting auxiliary facilities thereof.
inequity	see <i>equity</i> .
influence factor	a factor serving to either devalue or enhance the value of a particular parcel of land, or portions thereof, relative to the norm for which the base unit values were established, generally expressed in terms of a percentage adjustment.
	institutional property land and improvements used in conjunction with providing public services and generally owned and operated by the government or other nonprofit organizations ... hospitals, schools, prisons, etc. Such property is generally held exempt from paying property taxes.
interest rate	the rate of return from an investment.
land classification	the classification of land based upon its capabilities for use and/or production.
land contract	a purchase contract wherein the grantee takes possession of the property with the grantor retaining the deed to the property until the terms of the contract are met as specified.
land residual technique	a land valuation technique which requires the value of the buildings to be known; the value of the land can then be indicated by capitalizing the residual net income remaining after deducting the portion attributable to the building(s).
landscaping	natural features such as lawns, shrubs and trees added to a plot of ground or modified in such a way as to make it more attractive.
land use restrictions	legal restrictions regulating the use to which land may be put.
land value maps	a map used in conjunction with mass appraising; generally drawn at a small scale, and showing comparative unit land values on a block to block basis.
lease	a written contract by which one party (lessor) gives to another
lessee	party (lessee) the possession and use of a specified property, for a
lessor	specified time, and under specified terms and conditions.
Leasehold	a property held under the terms of a lease.
leasehold improvements	additions, renovations, and similar improvements made to a leased property by the lessee.
leasehold value	the value of a leasehold; the difference between the contractual rent and the currently established economic or market rent.
legal description	a description of a parcel of land which serves to identify the parcel in a manner sanctioned by law.
lister appraiser)	a field inspector or data collector whose principle duty is to collect and record property data (not an appraiser).
market data approach	one of the three traditional approaches to determination of the value of a property; arrived at by 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 comparables 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 <i>fee appraisal</i> which is generally used to refer to a rather extensive, detailed appraisal of a single property or singularly used properties for a specified purpose.
member appraisal institute	a professional designation (M.A.I.) conferred upon qualifying real estate appraisers by The American Institute of Real Estate Appraisers.
mineral rights	the right to extract subterranean deposits such as oil, gas, coal, and minerals, as specified in the grant.
minimum rental	that portion of the rent in a percentage lease which is fixed.
model method	a method of computing the replacement or the reproduction cost of an improvement by applying the cost of a specified model and adjusting the cost to account for specified variations between the subject improvement and the model.
modernization	the corrective action taken to update a property so that it may conform with current standards.
Mortgage mortgagee mortgagor	a legal document by which the owner of a property (mortgagor) pledges the property to a creditor (mortgagee) as security for the payment of a debt.
neighborhood	a geographical area exhibiting a high degree of homogeneity in residential amenities, land use, economic and social trends, and housing characteristics.
neighborhood trend	three stages in the life cycle of a neighborhood...the <i>improving stage</i> characterized by development and growth; the <i>static stage</i> characterized by a leveling off of values, and the <i>declining stage</i> characterized by infiltration and decay.
net income	the income remaining from the effective gross income after deducting all operating expenses related to the cost of ownership.
net lease	a lease wherein the lessee assumes to pay all applicable operating expenses related to the cost of ownership, also referred to as <i>net net</i> , or <i>net net net lease</i> .
net sales	gross sales less returns and allowances.
net sales area etc.	the actual floor area used for merchandising, excluding storage rooms, utility and equipment rooms, etc.
non-conforming	use a use which, because of modified or new zoning ordinances, no longer conforms to current use regulations, but which is nevertheless upheld to be legal so long as certain conditions are adhered to.
observed depreciation	that loss in value which is discernable through physical observation by comparing the subject property with a comparable property either new or capable of rendering maximum utility.
obsolescence	a diminishing of a property's desirability and usefulness brought about by either functional inadequacies and over-adequacies inherent in the property itself, or adverse economic factors external to the property. Refer to <i>functional depreciation</i> and <i>economic depreciation</i> .
operating expenses	the fixed expenses, operating costs, and reserves for replacements which are required to produce net income before depreciation, and which are to be deducted from effective gross income in order to arrive at net income.
overage income	rental received in addition to the minimum contract rental, based upon a specified percentage of a tenant's business receipts.
overall rate	a capitalization rate representing the relationship of the net income (before recapture) of a property to its value as a single rate; it necessarily contains, in their proper proportions, the elements of both the land and the building capitalization rates.
overassessed	a condition wherein a property is assessed proportionately higher than comparable properties.
parcel	piece of land held in one ownership.
percentage lease	a type of lease in which the rental is stipulated to be a percentage of the tenant's gross or net sales,

whichever specified.

permanent parcel number an identification number which is assigned to a parcel of land to uniquely identify that parcel from any other parcel within a given taxing jurisdiction.

personal property property which is not permanently affixed to and a part of the real estate, as specified by state statutes.

physical depreciation *see depreciation.*

preferential assessment an assessing system which provides preferential treatment in the form of reduced rates to a particular class of property, such as a system providing for farm properties to be assessed in accordance to their value in use as opposed to their value in the open market.

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. See *classified property tax.*

property inspection a physical inspection of a property for the purpose of collecting and/or reviewing property data.

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.

public utility property properties devoted to the production of commodities or services for public consumption under the control of governmental agencies such as the Public Utility Commission.

quantity survey method a method of computing the replacement or the reproduction cost of an improvement by applying unit costs to the actual or estimated material and labor quantities and adding an allowance for overhead, profit, and all other indirect construction costs.

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.

reassessment the revaluation of all properties within a given jurisdiction for the purpose of establishing a new tax base.

rent the amount paid for the use of a capital good. *See economic rent.*

replacement cost the current cost of reproducing an improvement of equal utility to the subject property; it may or may not be the cost of reproducing a replica property. Compare with *reproduction cost*.

reproduction cost the current cost of reproducing a replica property. Compare with *replacement cost*.

reserve for replacements a reserve established to cover renewal and replacements of fixed assets.

residential property vacant or improved land devoted to or available for use primarily as a place to live.

revaluation program *see equalization program.*

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.

salvage value the price one would be justified in paying for an item of property to be removed from the premises and used elsewhere.

site development costs all costs incurred in the preparation of a site for use.

soil productivity the capacity of a soil to produce crops.

sound value the depreciated value of an improvement.

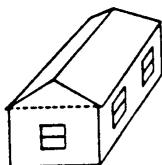
sound value estimate an estimate of the depreciated value of an improvement made directly by comparing it to improvements of comparable condition, desirability, and usefulness without first estimating its replacement cost new.

standard depth typical depth that lot depth selected as the norm against which other lots are to be compared; generally the most

sublease *see lease;* the lessee in a prior lease simply becomes a lessor in a sublease.

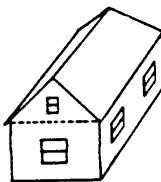
tax bill	an itemized statement showing the amount of taxes owed for certain property described therein and forwardable to the party(s) legally liable for payment thereof.
tax book	see <i>assessment roll</i> .
tax district	a political subdivision over which a governmental unit has authority to levy a tax.
tax duplicate	see <i>assessment roll</i> .
tax exemption	either total or partial freedom from tax -I total exemption such as that granted to governmental, educational, charitable, religious, and similar nonprofit organizations, and partial exemption such as that granted on homesteads, etc.
tax levy	in reference to property taxes, the total revenue which is to be realized by the tax.
tax list	see <i>assessment roll</i> .
tax mapping	the creation of accurate representations of property boundary lines at appropriate scales to provide a graphic inventory of parcels for use in accounting, appraising and assessing; such maps show dimensions and the relative size and location of each tract with respect to other tracts.
tax notice	a written notification to a property owner of the assessed value of certain properties described therein; often mandated by law to be given to each property owner following a revaluation.
tax rate	the rate - generally expressed in dollars per hundred or dollars per thousand (mills) - which is to be applied against the tax base (assessed value) to compute the amount of taxes. The tax rate is derived by dividing the total amount of the tax levy by the total assessed value of the taxing district.
tax roll	see <i>assessment roll</i> .
tillable land	land suitable for growing annual crops.
underassessed	a condition A-herein a property is assessed proportionately lower than comparable properties.
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 particular assessing practices followed.
unimproved land	vacant land; a parcel for which there is no improvement value.
unit cost or price	the price or cost of one item of a quantity of similar items.
unit-in-place method	a method of computing the replacement or reproduction cost of an improvement by applying established unit-in-place rates. developed to include the cost of materials, equipment, labor, overhead and profit, to the various construction units.
use density units per acre.	the number of buildings in a particular use per unit of area, such as a density of so many apartment
use value	the actual value of a commodity to a specific owner, as opposed to its value in exchange or market value.
vacancy	an unrented unit of rental property.'
vacant land	unimproved land; a parcel for which there is no improvement value.
valuation	see appraisal.
view	the scene as viewed from a property.
waterfrontage	land abutting on a body of water.
Woodland	land which is fairly densely covered with trees.
zoning regulations	governmental restrictions relating to the use of land.

STORY HEIGHT ILLUSTRATIONS



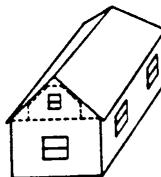
A 1 Story

All rooms are on one floor and are below the square of house at the eave line. This design usually has a low pitch roof with a slope of about 1/6.



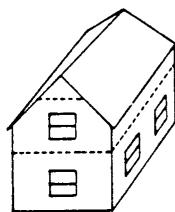
B 1 Story and Attic

Same basic design as 1 Story, except the pitch of the roof is usually greater, with a slope of about 1/4 or 1/3. This design has a permanent stairway to a usable, floored attic area. There are usually windows at each end of the attic.



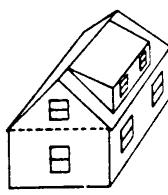
C 1 Story and Finished Attic

Same basic design as 1 Story and Attic, except the attic interior is finished and is usually divided into rooms. The attic floor area is approximately 55% of the first floor area.



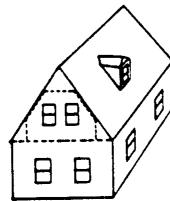
D 1 1/2 Story

The second floor area of this design is equal to the area of the first floor; however, the wall height of the second floor is approximately one-half of the first floor - with the balance of wall height as sloping ceiling.



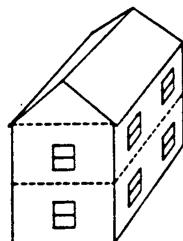
E 1 1/2 Story

This design is similar to 1 Story and Finished Attic, except that the roof pitch is greater - with a slope of about 1/3 or 1/2 - and there is a large dormer on one side of the roof and possibly one or two small dormers on the opposite side of the roof. Area of the finished second floor is approximately 75% of the first floor area.



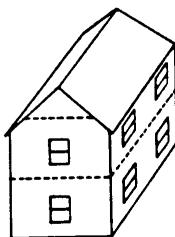
F 1 1/2 Story

This design has a high pitch roof with a slope of about 5/8 or 3/4, and small dormers on one or both sides of the roof. The area of the finished second floor is approximately 75% of the first floor area.



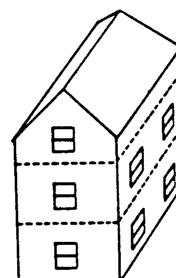
G 2 Story

This is a typical two story dwelling, with the second floor area equal to the first floor area.



H 2 Story

Similar to the 2 Story in example G, except that the second floor side walls are less than full height. Consequently, part of the second floor ceiling follows the slope of the roof.

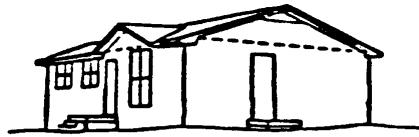


I 2 1/2 Story

This design has two full stories and a half story similar to example D. A two and one-half story dwelling may be similar in design to examples E or F.

1 story

All rooms are on the ground floor level below the vertical square of the house at the eave line. This story height usually has a roof pitch of 4/12 or 5/12.



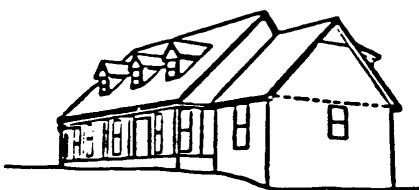
1 story with finished attic

Same basic design as one story, except roof pitch is steeper (6/12). The second floor (attic) may contain from 40% to 55% of the first floor area, and is generally partitioned into rooms and accessible by a permanent stairway.



1½ story

A house designed with a steep pitched roof (8/12) to accommodate living space representing 50% to 65% of the first floor area. The second floor is finished with material and workmanship consistent with the first floor and it is accessible by a permanent stairway. In addition, exterior lighting is provided by several single dormers and/or one shed dormer.



1½ story

Similar to the 1½ story described previously, but having an even steeper roof pitch which accommodates finished living space representing about 75% of the first floor area.



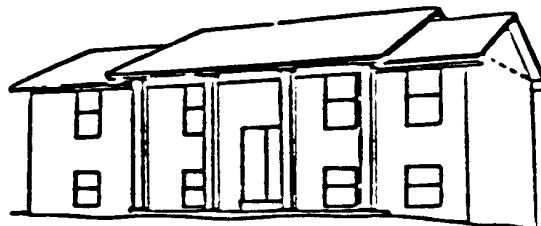
2 story

A designed building having equal living area on the second floor. This area is accessible by a permanent stairway, and is finished with materials and workmanship consistent with that of the first floor.



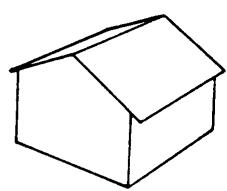
Bi-level

This is essentially a one story house with a full (100%) basement pulled out of the ground. The entrance foyer is between the finished floor (wood) of the main living area and the finished floor (concrete) of the basement level. Frequently the basement is either partially or completely finished.

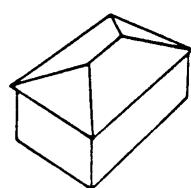


ROOF TYPE ILLUSTRATIONS

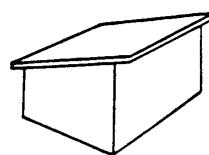
GABLE



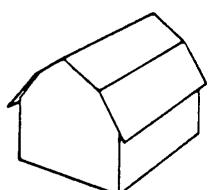
HIP



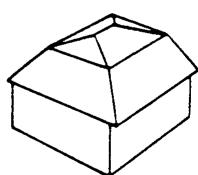
SHED



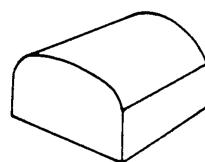
GAMBREL



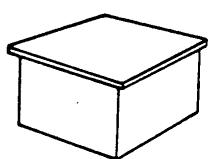
MANSARD



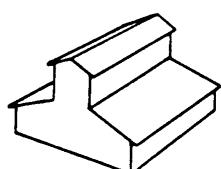
ARCHED



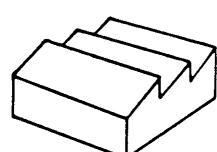
FLAT



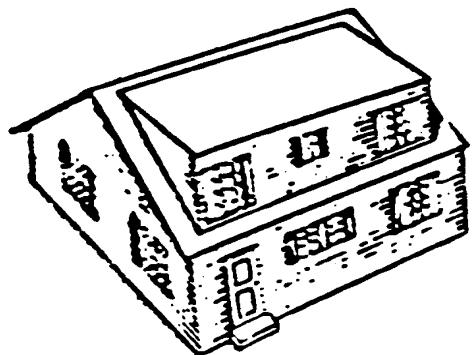
MONITOR



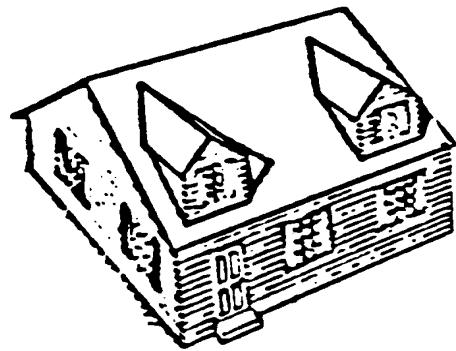
SAWTOOTH



DORMERS



SHED DORMER



INDIVIDUAL DORMER

OUTBUILDING CODES
Hamden CT

Code	Description	Sub Code	Description	Unit Types	Unit Price 2017	Unit Price 2018	Measure 1 Price	
BBE	Billboard Electronic			UNITS	20,000.00	700,000.00	0.00	
BBL	Billboard Large	LT		UNITS	12,000.00	250,000.00	0.00	
BBL	Billboard Large	NL		UNITS	11,000.00	225,000.00	0.00	
BBM	Billboard Medium	LT		UNITS	10,000.00	150,000.00	0.00	
BBM	Billboard Medium	NL		UNITS	9,000.00	125,000.00	0.00	
BBS	Billboard Small	LT		UNITS	8,000.00	20,000.00	0.00	
BBS	Billboard Small	NL		UNITS	7,000.00	15,000.00	0.00	
BGRC	Basement Garage	01	Silvermine 0170	S.F.	18.00			
BH	Boat House	BH	Frame	S.F.	125.00		0.00	
BIN1	Agricul Bin			S.F.	2.00		0.00	
BKH1	Marina Bulkhead	Stone	Stone	L.F.	1,000.00		0.00	
BRDG	Bridge - Roadway		Conc/Steel	S.F.	145.00		0.00	
BRN1	Barn 1 Story	FR	Frame	S.F.	23.00	32.55	0.00	
BRN1	Barn 1 Story	SN	Stone/Frame	S.F.	22.00	31.55	0.00	
BRN1	Barn 1 Story	MT	Metal	S.F.	20.00	29.55	0.00	
BRN1	Barn 1 Story	CB	CindBk/Frame	S.F.	21.00	30.55	0.00	
BRN2	Barn w Bsmt	CB	CindBk/Frame	S.F.	26.00	41.29	0.00	
BRN2	Barn w Bsmt	MT	Metal	S.F.	25.00	40.29	0.00	
BRN2	Barn w Bsmt	SN	Stone/Frame	S.F.	28.00	43.29	0.00	
BRN2	Barn w Bsmt	FR	Frame	S.F.	27.00	42.29	0.00	
BRN3	Barn w Loft	FR	Frame	S.F.	27.00	42.93	0.00	
BRN3	Barn w Loft	SN	Stone/Frame	S.F.	28.00	43.93	0.00	
BRN3	Barn w Loft	CB	CindBk/Frame	S.F.	26.00	41.93	0.00	
BRN3	Barn w Loft	MT	Metal	S.F.	25.00	40.93	0.00	
BRN4	Barn w Lft Bsmt	MT	Metal	S.F.	28.00	48.56	0.00	
BRN4	Barn w Lft Bsmt	SN	Stone/Frame	S.F.	32.00	52.56	0.00	
BRN4	Barn w Lft Bsmt	FR	Frame	S.F.	31.00	51.56	0.00	
BRN4	Barn w Lft Bsmt	CB	CindBk/Frame	S.F.	30.00	50.66	0.00	
BRN5	Barn 2 St.	CB	CindBk/Frame	S.F.	32.00	31.56	0.00	
BRN5	Barn 2 St.	FR	Frame	S.F.	33.00	32.56	0.00	
BRN5	Barn 2 St.	SN	Stone/Frame	S.F.	34.00	33.56	0.00	
BRN5	Barn 2 St.	MT	Metal	S.F.	30.00	29.56	0.00	
BRN6	Barn 2 St w Bs	MT	Metal	S.F.	32.00	40.31	0.00	
BRN6	Barn 2 St w Bs	SN	Stone/Frame	S.F.	36.00	44.31	0.00	
BRN6	Barn 2 St w Bs	FR	Frame	S.F.	35.00	43.31	0.00	
BRN6	Barn 2 St w Bs	CB	CindrBlk/Fr	S.F.	34.00	42.31	0.00	
BRN7	Barn Tobacco	FR	Frame	S.F.	26.00	32.34	0.00	

BRN7	Barn Tobacco	MT	Metal	S.F.	25.00	31.34	0.00	
BRN8	Pole Barn	MT	Metal	S.F.	15.00	26.25	0.00	
BRN8	Pole Barn	FR	Frame	S.F.	16.00	27.25	0.00	
BRN9	Barn 1.5 St	MT	Metal	S.F.	26.00	41.93	0.00	
BRN9	Barn 1.5 St	FR	Frame	S.F.	27.00	42.93	0.00	
BRN9	Barn 1.5 St	CB	CindBk/Frame	S.F.	26.00	41.93	0.00	
BRN9	Barn 1.5 St	SN	Stone/Frame	S.F.	28.00	43.93	0.00	
BTH1	Bath Hse/Dressing	CB	CindBk/Frame	S.F.	30.00	44.47	0.00	
BTH1	Bath Hse/Dressing	BR	Brick/Frame	S.F.	31.00	45.47	0.00	
BTH1	Bath Hse/Dressing	ST	Stucco	S.F.	31.00	45.47	0.00	
BTH1	Bath Hse/Dressing	FR	Frame	S.F.	30.00	44.47	0.00	
BTH1	Bath Hse/Dressing	SN	Stone/Frame	S.F.	32.00	46.47	0.00	
BTH2	Bath Hse w/ Plumb	FR	Frame	S.F.	35.00	86.22	0.00	
BTH2	Bath Hse w/ Plumb	BR	Brick/Frame	S.F.	36.00	87.22	0.00	
BTH2	Bath Hse w/ Plumb	SN	Stone/Frame	S.F.	37.00	88.22	0.00	
BTH2	Bath Hse w/ Plumb	ST	Stucco	S.F.	36.00	87.22	0.00	
CAB1	Cabin			S.F.	40.00	70.93	0.00	
CBN	Cabana			S.F.	30.00	60.93	0.00	
CEL1	Cell Tower			UNITS	160,000.00	300,000.00	0.00	
CEL2	Cell Rooftop			UNITS	75,000.00	75,000.00	0.00	
CELL	Cell Site Carrier			UNITS	160,000.00	160,000.00	0.00	
CN1	Condo Approval			UNITS	30,000.00		0.00	
CNCP	Concrete Pad		Concrete	S.F.	50.00		0.00	
CNP	Canopy			S.F.	25.00	10.60	0.00	
CNP2	Pump Canopy	FR	Frame	S.F.	35.00	80.00	0.00	
CNP3	Gas Canopy			S.F.	25.00	70.00	0.00	
CNPS	Comm Canopy w/ Shed			S.F.	4.00	25.00	0.00	
COND	Conduits			L.F.	1,100,000.00	100,000.00	0.00	
COOP	Coop			S.F.	4.00	25.00	0.00	
CRN	Rail Crane			UNITS	0.00		0.00	
CRT	Sport Court			S.F.	5.00	5.00	0.00	
CTAN	Cooling Tanks			UNITS	250,000.00	250,000.00	0.00	
DEV	Condo Dev Right	01	Blue Mtn 0560	UNIT	60,000.00	60,000.00	0.00	
DOCK	Dock		Comm	S.F.	75.00	50.82	0.00	
DOK	Boat Slip	03	Dorlons Terr	S.F.	105.00	67.30	0.00	
DOK	Boat Slip	04	Charles Cove	S.F.	88.00	54.82	0.00	
DOK	Boat Slip	01	Oyster Bend	S.F.	60.00	42.90	0.00	
DOK	Dock	R	Residential	S.F.	55.00	38.26	0.00	

DOK	Boat Slip	02	Vantage Pt	S.F.	120.00	105.60	0.00	
DRIV	Drive	1	Gravel	S.F.	5.00		0.00	
EDR	Eye Dormer			UNITS	0.00		0.00	
FCP	Carport	FR	Frame	S.F.	20.00	11.50	0.00	
FCP	Carport	01	Sheffield 0162	S.F.	40.00		0.00	
FCP	Carport	02	Clarmont 0249	S.F.	40.00		0.00	
FCP	Carport	03	Kingsley 0239	S.F.	55.00	89.98	0.00	
FDN	Foundation	R	Residential	UNITS	10,000.00		0.00	
FDN	Foundation	C	Commercial	UNITS	15,000.00	25,000.00	0.00	
FDN	Foundation	G	Garage	UNITS	2,500.00		0.00	
FDN	Foundation	RE	Res Flood Elevated	S.F.	20.00		0.00	
FDN	Foundation	TEST	Com Flood Elevated		55.00		0.00	
FDN	Foundation	CE	Com Flood Elevated		55.00	65.00	0.00	
FEP	Enclosed Porch	FR	Frame	S.F.	32.00		0.00	
FEP	Enclosed Porch	BR	Brick/Frame	S.F.	33.00		0.00	
FEP	Enclosed Porch	MS	Masonry	S.F.	35.00		0.00	
FEP	Enclosed Porch	SN	Stone/Frame	S.F.	34.00		0.00	
FEP	Enclosed Porch	ST	Stucco	S.F.	33.00		0.00	
FN10	Fence 10'			L.F.	23.00	32.60	0.00	
FN3	Fence 3'			L.F.	8.00	10.60	0.00	
FN4	Fence 4'			L.F.	10.00	12.61	0.00	
FN5	Fence 5'			L.F.	12.00	15.40	0.00	
FN6	Fence 6'			L.F.	14.00	18.18	0.00	
FN8	Fence 8'			L.F.	19.00	23.94	0.00	
FNO	Fence - Ornamental			L.F.	25.00	29.56	0.00	
FNS	Fence - Stockade			L.F.	22.00	26.56	0.00	
FOP	FOP	FRR	Frame	S.F.	16.00		0.00	
FOP	Open Porch	FR	Frame	S.F.	16.00		0.00	
FOP	Open Porch	BR	Brick/Frame	S.F.	17.00		0.00	
FOP	Open Porch	SN	Stone/Frame	S.F.	17.00		0.00	
FOP	Open Porch	ST	Stucco	S.F.	16.00		0.00	
FOP	Open Porch	MS	Masonry	S.F.	18.00		0.00	
FSP	Screen Porch			S.F.	25.00		0.00	
FUEL	Fuel Cell	Ext	Energy Cell	KW	300.00	300.00	0.00	
GAR1	Garage	MT	Metal	S.F.	24.00	50.00	0.00	
GAR1	GARAGE						0.00	
GAR1	Garage	CD	Condo	UNITS	5,500.00		0.00	
GAR1	Garage	ST	Stucco	S.F.	31.00	31.93	0.00	
GAR1	Garage	BR	Brick/Frame	S.F.	31.00	31.93	0.00	
GAR1	Garage	CB	CindBk/Frame	S.F.	30.00	30.93	0.00	
GAR1	Garage	FR	Frame	S.F.	30.00	30.93	0.00	
GAR1	Garage	SN	Stone/Frame	S.F.	31.00	31.93	0.00	
GAR1	Garage	08	Ledgebrook 0219	S.F.	74.00		0.00	
GAR1	Garage	03	Oyster Bend 0102	S.F.	70.00		0.00	
GAR1	Garage	01	Stevens 0205	S.F.	220.00	110.00	0.00	
GAR1	Garage	02	10 Arch 0530	S.F.	178.00		0.00	
GAR1	Garage	04	Sutton PI 0071	S.F.	88.00		0.00	

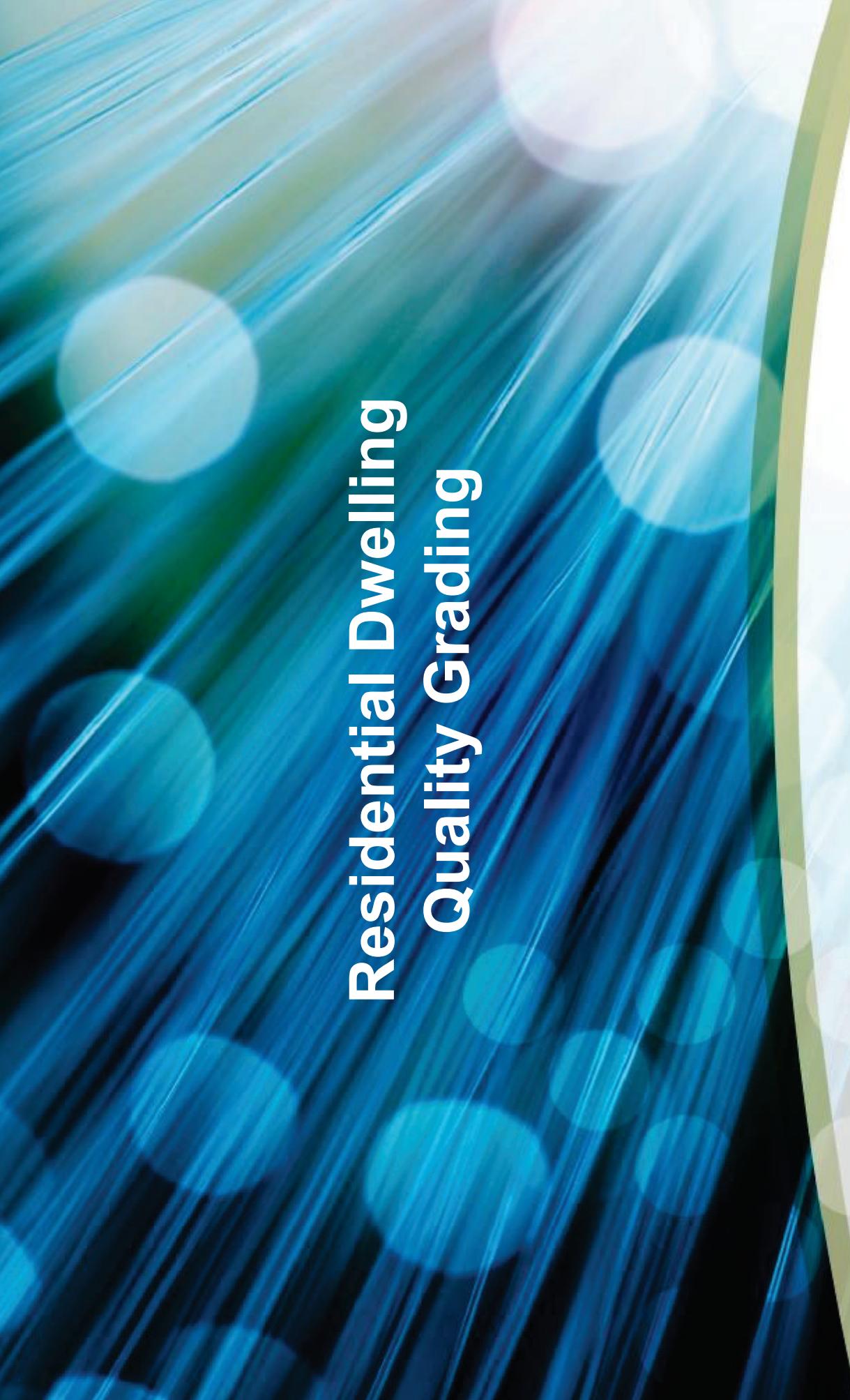
GAR1	Garage	05	Strathmore 0076	S.F.	66.00		0.00	
GAR1	Garage	06	Winnebago 0217	S.F.	116.00	122.84	0.00	
GAR1	Garage	07	Rockmeadow 0148	S.F.	74.00		0.00	
GAR1	Garage	09	Skyview 0125	S.F.	148.00		0.00	
GAR1	Garage	10	Kingswood 0061	S.F.	114.00		0.00	
GAR1	Garage	11	Rowayton Woods	S.F.	180.00	259.02	0.00	
GAR1	Garage	12	Orchard Lane 0181	S.F.	80.00		0.00	
GAR1	Garage	13	Falls At Silv 0090	S.F.	60.00		0.00	
GAR1	Garage	14	Thomas Pl 0095	S.F.	300.00		0.00	
GAR1	Garage	15	HarborEast 0255	S.F.	112.00		0.00	
GAR2	Garage w Lft	SN	Stone/Frame	S.F.	37.00	38.16	0.00	
GAR2	Garage w Lft	ST	Stucco	S.F.	36.00	37.16	0.00	
GAR2	Garage w Lft	CB	CindBk/Frame	S.F.	35.00	36.16	0.00	
GAR2	Garage w Lft	FR	Frame	S.F.	35.00	36.13	0.00	
GAR2	Garage w Lft	BR	Brick/Frame	S.F.	36.00	37.13	0.00	
GAR3	Gar. w/Bsmt	FR	Frame	S.F.	35.00	36.13	0.00	
GAR3	Gar. w/Bsmt	CB	CindBk/Frame	S.F.	34.00	35.13	0.00	
GAR3	Gar. w/Bsmt	ST	Stucco	S.F.	36.00	37.13	0.00	
GAR3	Gar. w/Bsmt	SN	Stone/Frame	S.F.	36.00	37.13	0.00	
GAR3	Gar. w/Bsmt	BR	Brick/Frame	S.F.	35.00	36.13	0.00	
GAR4	Gar w Lft&Bsmt	BR	Brick/Frame	S.F.	38.00	39.13	0.00	
GAR4	Gar w Lft&Bsmt	SN	Stone/Frame	S.F.	39.00	40.13	0.00	
GAR4	Gar w Lft&Bsmt	ST	Stucco	S.F.	38.00	39.13	0.00	
GAR4	Gar w Lft&Bsmt	CB	CindBk/Frame	S.F.	36.00	37.13	0.00	
GAR4	Gar w Lft&Bsmt	FR	Frame	S.F.	37.00	38.13	0.00	
GAR5	Gar. 2 Story	CB	CindBk/Frame	S.F.	39.00	42.35	0.00	
GAR5	Gar. 2 Story	ST	Stucco	S.F.	40.00	43.35	0.00	
GAR5	Gar. 2 Story	SN	Stone/Frame	S.F.	41.00	44.35	0.00	
GAR5	Gar. 2 Story	FR	Frame	S.F.	39.00	42.35	0.00	
GAR5	Gar. 2 Story	BR	Brick/Frame	S.F.	40.00	43.35	0.00	
GAR6	Gar. 2 St w/Bsmt	BR	Brick/Frame	S.F.	43.00	46.35	0.00	
GAR6	Gar. 2 St w/Bsmt	FR	Frame	S.F.	42.00	45.35	0.00	
GAR6	Gar. 2 St w/Bsmt	SN	Stone/Frame	S.F.	43.00	46.35	0.00	
GAR6	Gar. 2 St w/Bsmt	ST	Stucco	S.F.	43.00	46.35	0.00	
GAR6	Gar. 2 St w/Bsmt	CB	CindBk/Frame	S.F.	42.00	45.35	0.00	
GAR7	Gar 1.5 st	ST	Stucco	S.F.	38.00	41.35	0.00	
GAR7	Gar 1.5 St	FR	Frame	S.F.	37.00	40.35	0.00	
GAR7	Gar 1.5 St	CB	Conc/Frame	S.F.	35.00	38.35	0.00	
GAR7	Gar 1.5 St	MT	Metal	S.F.	33.00	36.35	0.00	
GAR7	Gar 1.5 St	SN	Stone/Frame	S.F.	40.00	43.35	0.00	
GAR7	Gar 1.5 St	BR	Brick/Frame	S.F.	39.00	42.35	0.00	
GAS1	Gas Pump Dispenser	Single	Electronic	EACH	8,500.00	14,000.00	0.00	
GASP	Gas Pump Dispenser	Twin	Electronic	EACH	15,000.00	20,000.00	0.00	
GAZ1	Gazebo			S.F.	26.00		0.00	
GAZ2	Gazebo Screened			S.F.	27.00		0.00	

GAZ3	Gazebo Enclosed			S.F.	30.00		0.00	
GOLF	Golf Per Hole			UNITS	125,000.00	125,000.00	0.00	
GRN1	Res Green Hse			S.F.	25.00		0.00	
GRN2	Comm Green Hse			S.F	15.00	40.00	0.00	
GRN3	Green Hse Plst			S.F.		15.00	0.00	
HDR	Half Dormer			UNITS	0.00		0.00	
ISLD	Gas Pump Island		Concrete	S.F.	25.00	75.00	0.00	
KEN1	Kennel			S.F.	30.00	35.00	0.00	
KIT	Community Kitchen	Kit	Extra Kitchen	S.F.	200.00	200.00	0.00	
KSK1	Kiosk - Retail			S.F.	80.00	168.74	0.00	
KSK2	Kiosk - Gas			S.F.	80.00	230.23	0.00	
KSK3	Det Bank Booth			UNITS	20,000.00	302.17	0.00	
LCK	Boat Locker	01	Pine Point	UNITS	80,400.00		0.00	
LCK	Boat Locker	02	Bluff Ave	UNITS	19,000.00		0.00	
LCK	Boat Locker	03	Pine Pt Half Unit	UNITS	72,000.00		0.00	
LDK	Load Dock			S.F.	12.50	22.00	0.00	
LGTH	Lighthouse	LT	Cast Iron	S.F.	250.00	250.00	0.00	
LNT	Lean-To	FR	Frame	S.F.	10.00	10.00	0.00	
LT1	Light 1			UNITS	1,000.00	1,438.00	0.00	
LT2	Light 2			UNITS	1,500.00	1,962.00	0.00	
LT3	Light 3			UNITS	2,100.00	2,485.00	0.00	
LT4	Light 4			UNITS	2,700.00	3,008.00	0.00	
MH	Mobile Home			UNITS	30.00	30.00	0.00	
MISC	Yard Imrvts etc		Lndscp; Igghtng.	UNITS	10.00		0.00	
MOR	Buoy Mooring			UNITS	0.00		0.00	
MWL	Masonry Wall			L.F.	20.00		0.00	
ODW	Overhead Door - Wood			UNITS	0.00		0.00	
PADT	Paddle Tennis		Courts	UNITS	60,000.00		0.00	
PAT1	Patio	CR	Concrete	S.F.	2.50	4.23	0.00	
PAT1	Patio	BR	Brick	S.F.	3.50	5.44	0.00	
PAT1	PATIO	SP	Stamped	S.F.	4.50	5.44	0.00	
PAT1	Patio	ST	Stone	S.F.	4.50	5.44	0.00	
PAV1	Paving Asph.			S.F.	2.90	2.62	0.00	
PAV2	Paving Concrt			S.F.	5.25	5.77	0.00	
PDK	Pool Deck			S.F.	10.00	10.80	0.00	
PGAR	Parking Garage			S.F.	35.00	50.00	0.00	
PIER	Light Duty	Wood	4' Wdth	L.F.	350.00			
PIER	Med Duty	Wood	6 Ft Wdth	L.F.	750.00			
PLT1	Pltry Hse 1 St			S.F.	8.00		0.00	
PLT2	Pltry Hse 2 St			S.F.	10.00		0.00	
PLT3	Pltry Hse 3 St			S.F.	12.00		0.00	
PMPC	Pump House Com			SF	100.00		0.00	

PMPR	Pump Hse Res	SN	Stone/Frame	S.F.	55.00		0.00	
PMPR	Pump Hse Res	CB	CindBk/Frame	S.F.	50.00		0.00	
PMPR	Pump Hse Res	BR	Brick/Frame	S.F.	53.00		0.00	
PMPR	Pump Hse Res	FR	Frame	S.F.	50.00		0.00	
PTEN	Paddle Tennis	Courts		UNIT	40,000.00		0.00	
PWRW	Power Wash Eqpt		Equipment	UNITS			0.00	
RAR	Riding Arena			S.F.	50.00	50.00	0.00	
RBP	Patio Brick			S.F.	12.00		0.00	
RCP	Carport			S.F.	22.00		0.00	
RGH	Greenhouse			S.F.	25.00		0.00	
RPB	Patio Brick			S.F.	12.00		0.00	
RPC	Patio Concrete			S.F.	10.00		0.00	
RPO	Patio			S.F.	10.00		0.00	
RPS	Patio Stone			S.F.	12.00		0.00	
RSH	Workshop			S.F.	25.00	30.00	0.00	
RST	Storage			S.F.	15.00	25.00	0.00	
SCL1	Scales Manual			TONS	1,000.00	1,500.00	0.00	
SCL2	Scales Elec.			TONS	1,500.00	2,000.00	0.00	
SDR	Shed Dormer			UNITS	0.00		0.00	
SHD1	Shed	BR	Brick/Frame	S.F.	23.00	21.53	0.00	
SHD1	Shed	VN	Vinyl	S.F.	21.00	17.53	0.00	
SHD1	Shed	SN	Stone/Frame	S.F.	24.00	21.53	0.00	
SHD1	Shed	FR	Frame	S.F.	20.00	17.53	0.00	
SHD1	Shed	CB	CindBk/Frame	S.F.	18.00	17.53	0.00	
SHD1	Shed	MT	Metal	S.F.	16.00	10.80	0.00	
SHD2	Shed LQ	FR	Frame	S.F.	14.00		0.00	
SHD2	Shed LQ	MT	Metal	S.F.	8.00		0.00	
SHD2	Shed LQ	BR	Brick/Frame	S.F.	16.10		0.00	
SHD2	Shed LQ	SN	Stone/Frame	S.F.	16.80		0.00	
SHD2	Shed LQ	CB	Conc/Frame	S.F.	12.60		0.00	
SHD2	Shed LQ	VN	Vinyl/Frame	S.F.	14.70		0.00	
SHD3	Shed 2St	FR	Frame	S.F.	30.00		0.00	
SHD3	Shed 2St	MT	Metal	S.F.	20.00		0.00	
SHD3	Shed 2St	BR	Brick/Frame	S.F.	34.50		0.00	
SHD3	Shed 2St	SN	Stone/Frame	S.F.	36.00		0.00	
SHD3	Shed 2St	CB	Conc/Frame	S.F.	27.00		0.00	
SHD3	Shed 2St	VN	Vinyl/Frame	S.F.	31.50		0.00	
SHD3	Cell Equip						0.00	
SHD4	Cell Equip	FR	Frame	S.F.	100.00	200.00	0.00	
SHD5	Shed - Quality	FR	Frame	S.F.	100.00		0.00	
SHP1	Work Shop	SN	Stone/Frame	S.F.	26.00	29.55	0.00	
SHP1	Work Shop	CB	CindBk/Frame	S.F.	20.00	29.55	0.00	
SHP1	Work Shop	BR	Brick/Frame	S.F.	25.00	28.55	0.00	
SHP1	Work Shop	FR	Frame	S.F.	22.00	25.55	0.00	
SITE	Misc Site Work			LUMP	1.00		0.00	
SLIP	Boat Slip	S	Boat Slip < 20'	UNIT	5,000.00		0.00	

SLIP	Boat Slip	M	Boat Slip 21'-29'	UNITS	7,000.00		0.00	
SLIP	Boat Slip	L	Boat Slip >30'	UNITS	10,000.00			
SLP	Boat Slip			UNITS	0.00		0.00	
SPA	Therapeutic Spa			UNITS	0.00		0.00	
SPL1	InGround Pool	FG	Fiberglass	S.F.	31.00	50.43	0.00	
SPL1	InGround Pool	GNW	Gunite/Whirl	S.F.	42.00	63.44	0.00	
SPL1	InGround Pool	VNH	Heatl/Vinyl	S.F.	29.00	47.52	0.00	
SPL1	InGround Pool	FGH	Heatl/Fibergls	S.F.	32.00	51.43	0.00	
SPL1	InGround Pool	CRH	Heatl/Concrt	S.F.	31.00	50.43	0.00	
SPL1	InGround Pool	VN	Vinyl	S.F.	28.00	45.52	0.00	
SPL1	InGround Pool	CR	Concrete	S.F.	30.00	45.52	0.00	
SPL1	InGround Pool	GNH	Heatl/Gunite	S.F.	38.00	63.44	0.00	
SPL1	InGround Pool	GN	Gunite	S.F.	37.00	61.44	0.00	
SPL1	InGround Pool	I	Infinity	S.F.	75.00	75.00	0.00	
SPL2	Pool AG Rnd			UNITS			0.00	
SPL3	Pool AG Oval			UNITS			0.00	
SPL4	Pool AG Rect.			UNITS			0.00	
STB1	Stable	FR	Frame	S.F.	30.00	25.00	0.00	
STB1	Stable	MT	Metal Frame	S.F.	29.00	23.00	0.00	
STB1	Stable	BR	Brick/Frame	S.F.	31.00	35.00	0.00	
STB1	Stable	CB	CindBk/Frame	S.F.	29.00	30.00	0.00	
STB1	Stable	SN	Stone/Frame	S.F.	32.00	35.00	0.00	
STG	Res Storage			UNITS	0.00		0.00	
STGC	Storage Condo			S.F.	30.00		0.00	
STK	Stack			L.F.	1,000.00	1,500.00	0.00	
STS	Theater Seats	NHB	Neighborhood	UNITS	215.00		0.00	
SWL1	Seawall	SW	Reinf Masonry	L.F.	1,000.00		0.00	
TANK	UndGrd Petro 5-6K	FG 1W	FibGlas Single Wall	GALS	3.55		0.00	
TANK	UndGrd Petro 5-6K	FG 2W	FibGlas Double Wall	GALS	6.25		0.00	
TANK	UndGrd Petro 5-6K	ST 1W	Steel Single Wall	GALS	3.25		0.00	
TANK	UndGrd Petro 5-6K	ST 2W	Steel Double Wall	GALS	5.25		0.00	
TANK	UndGrd Petro 8-10K	FG DW	FibGlas Double Wall	GALS	5.00		0.00	
TANK	UndGrd Petro 8-10K	FG SW	FibGlas SingleWall	GALS	3.00		0.00	
TANK	UndGrd Petro 8-10K	ST SW	Steel Single Wall	GALS	2.75		0.00	
TANK	UndGrd Petro 8-10K	ST DW	Steel Double Wall	GALS	5.65		0.00	
TANK	UndGrdPetro 12-20K	FG WS	FibGlas Single Wall	GALS	2.50		0.00	
TANK	UndGrd Petro 12-20K	FG WD	FibGlas Double Wall	GALS	4.00		0.00	
TANK	UndGrd Petro 12-20K	ST WS	Steel Single Wall	GALS	2.50		0.00	
TANK	UndGrd Petro 12-20K	ST WD	Steel Double Wall	GALS	4.00		0.00	

TDK	Trek Deck			S.F.	15.00	23.00	0.00	
TDR	Three Qtr Dormer			UNITS	0.00		0.00	
TEN	Tennis Court			UNITS	40,000.00	45,000.00	0.00	
TNK1	Tank Under Grn			GALS	1.50	2.00	0.00	
TNK2	Tank 3K-10K			GALS	1.50	2.00	0.00	
TNK3	Tank >10K			GALS	1.50	2.00	0.00	
TWR	Water Tower			GAL	1.50	2.00	0.00	
WDK	Wood Deck			S.F.	10.00	16.91	0.00	



Residential Dwelling Quality Grading



Empowering people who serve the public™

Res

Applying the Appropriate Quality Grade



Factor Name	Variable Costed	Description	Rate for Valuation Model 1	Rate for Valuation Model 2
GRADE	E-	POOR -	0.4	0.4
GRADE	E	POOR QUALITY	0.5	0.5
GRADE	E+	POOR +	0.6	0.6
GRADE	D-	BELOW AVERAGE -	0.7	0.7
GRADE	D	BELOW AVERAGE QUALITY	0.80	0.78
GRADE	D+	BELOW AVERAGE +	0.90	0.85
GRADE	C-	AVERAGE -	0.90	0.92
GRADE	C	AVERAGE QUALITY	1	1
GRADE	C+	AVERAGE +	1.10	1.10
GRADE	B-	GOOD -	1.40	1.30
GRADE	B	GOOD QUALITY	1.59	1.50
GRADE	B+	GOOD +	1.65	1.65
GRADE	A-	VERY GOOD -	1.90	1.90
GRADE	A	VERY GOOD QUALITY	1.95	1.95
GRADE	A+	VERY GOOD +	2.25	2.15
GRADE	X-	EXCELLENT -	2.5	2.43
GRADE	X	EXCELLENT QUALITY	2.85	2.70
GRADE	X+	EXCELLENT +	3.50	3.30
GRADE	XX-	SUPERIOR -	3.65	3.60
GRADE	XX	SUPERIOR	3.80	3.80
GRADE	XX+	SUPERIOR +	5.0	4.25

Applying the Appropriate Quality Grade



What observations help determine the quality Grade?

- Size (SFLA)
- Style of construction
- Era of construction
- Quality of “trim” (windows?)
- Quantify of “trim” (windows?)
- Plumbing (bathrooms) pertains to sales review

Applying the Appropriate Quality Grade



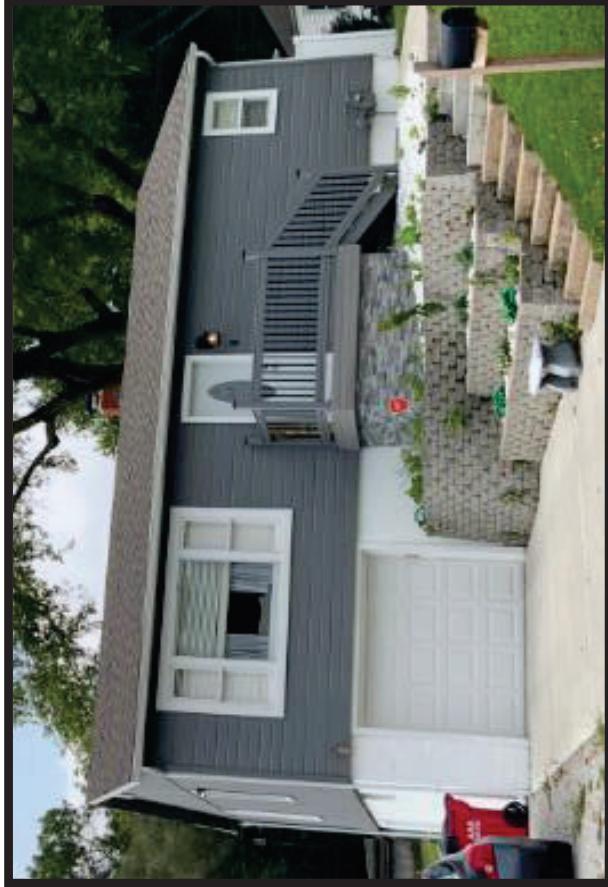
Grade C

- The Grade "C" home is the most commonly constructed residence.
- The newer Grade "C" residences are commonly subdivision homes which may be mass produced in many areas.
- The construction materials and workmanship are standard for the year in which the residence was built. Minimal architectural treatments.
- While these homes are generally constructed on site, they also may be pre-fabricated modular homes.
 - Standard trim and finish
 - Typically, 1 to 1.5 baths

Applying the Appropriate Grade



Grade C



Residential Review/Valuation

Applying the Appropriate Grade



Grade C



Residential Review/Valuation

Applying the Appropriate Grade



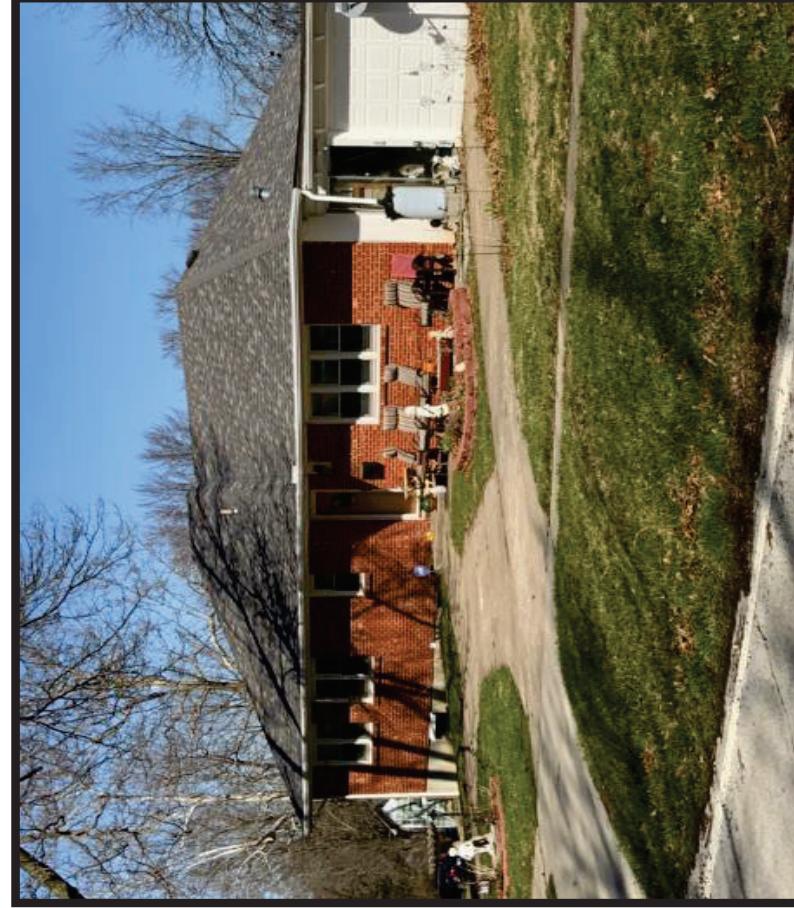
“+” and “-” quality grading options.

- Use of the incremental grades must be consistent, so they must be based on quantifiable observation.
- Generally, the incremental adjustments are based on trim and finish (more windows, higher pitch to roof, better trim, roof overhangs, roof lines/roof cuts), not changes to SFLA, baths or other quantifiable data that is already part of the replacement cost model.

Applying the Appropriate Grade



Grade C+



Residential Review/Valuation

Applying the Appropriate Grade



Grade C+



Residential Review/Valuation

Applying the Appropriate Grade

Grade C+



Residential Review/Valuation



Applying the Appropriate Grade



Grade C+



Residential Review/Valuation

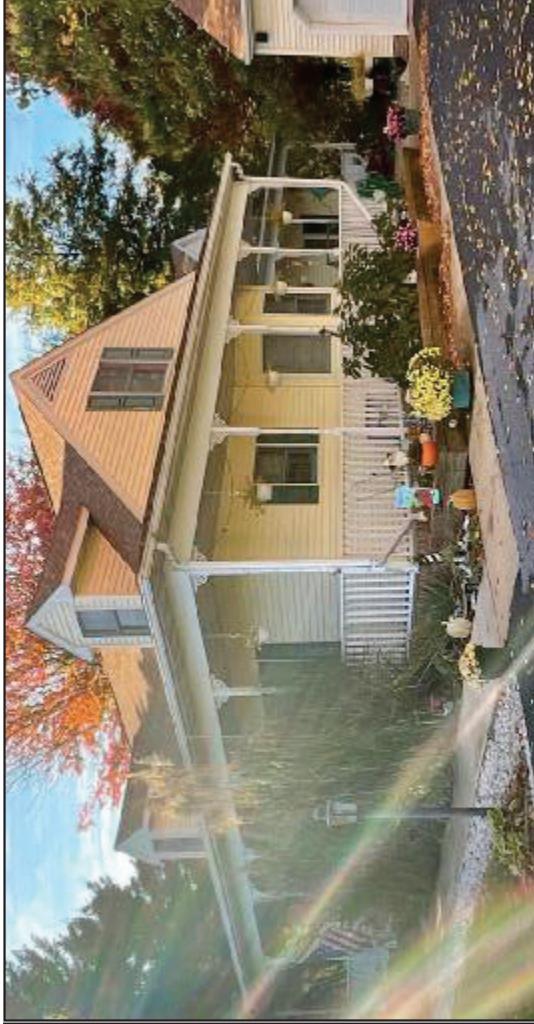
Applying the Appropriate Grade



Grade C



Grade C+



Residential Review/Valuation

Applying the Appropriate Grade



Grade D+



Grade C



Residential Review/Valuation

Applying the Appropriate Grade



Grade C-



Applying the Appropriate Grade



Grade B

The Grade "B" residence is a better built home which is usually larger in size than what you would find in the C grade range. Typically referred to as "custom" homes in marketplace.

For sales review: It will have some custom features throughout the home including better quality kitchen (semi-custom) hardwood floors or ceramic tile, more baths (typically greater than 1.5), and better quality baths – master usually larger, good quality woodwork throughout. Newer homes would be 2x6 construction.

Additionally, more quality details and quality materials (fenestrations and windows).

Applying the Appropriate Grade



Grade B

- Typically would have a greater pitch roof than C categories. Often has dimensional or shake roof instead of standard asphalt shingles.
- Typically has more roof pitches, breaks or offsets.
- Block/poured foundation.
- Good quality doors
- Double-hung or Casement windows and typically more than the C range.
- Exterior may be vinyl but is often cedar or brick.

Applying the Appropriate Grade



Grade B / Grade B-



Residential Review/Valuation

Applying the Appropriate Grade



Grade B+



11/20/2009 11:15



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Residential Review/Valuation

Applying the Appropriate Grade



Grade B



Grade B+

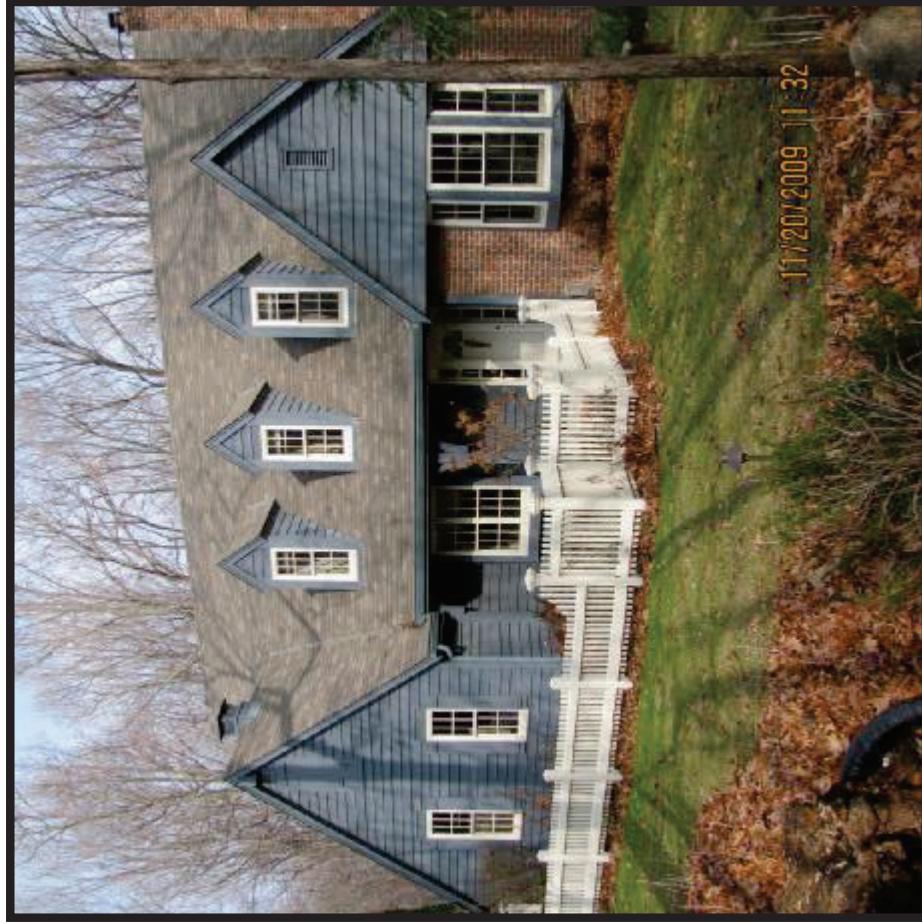


Residential Review/Valuation

Applying the Appropriate Grade



Grade B



Residential Review/Valuation

Applying the Appropriate Grade



Grade B+

The Grade "B+" home is similar to the straight B grade homes only with a few more features. The construction materials and workmanship are slightly better for the year in which the residence was built when compared to a straight B and there are typically more of them. These homes have more custom features. A home doesn't have to have all better features in order to be graded a B+ and the presence of one better feature when compared to a B doesn't make it a B+. A B+ will have somewhere between some and mostly better features than a straight B.

Applying the Appropriate Grade



Grade B+ / B / B-

- Typically, would have a greater pitch roof than C categories. Often has dimensional or shake roof instead of standard asphalt shingles. Vaulted ceilings.
- Typically has more roof breaks or offsets.
- Block/poured foundation.
- Good quality doors
- Double-hung or Casement windows and typically more than the C range.
- Exterior may be vinyl but is often cedar or brick.

Applying the Appropriate Grade



Grade B / B+



Residential Review/Valuation

Applying the Appropriate Grade



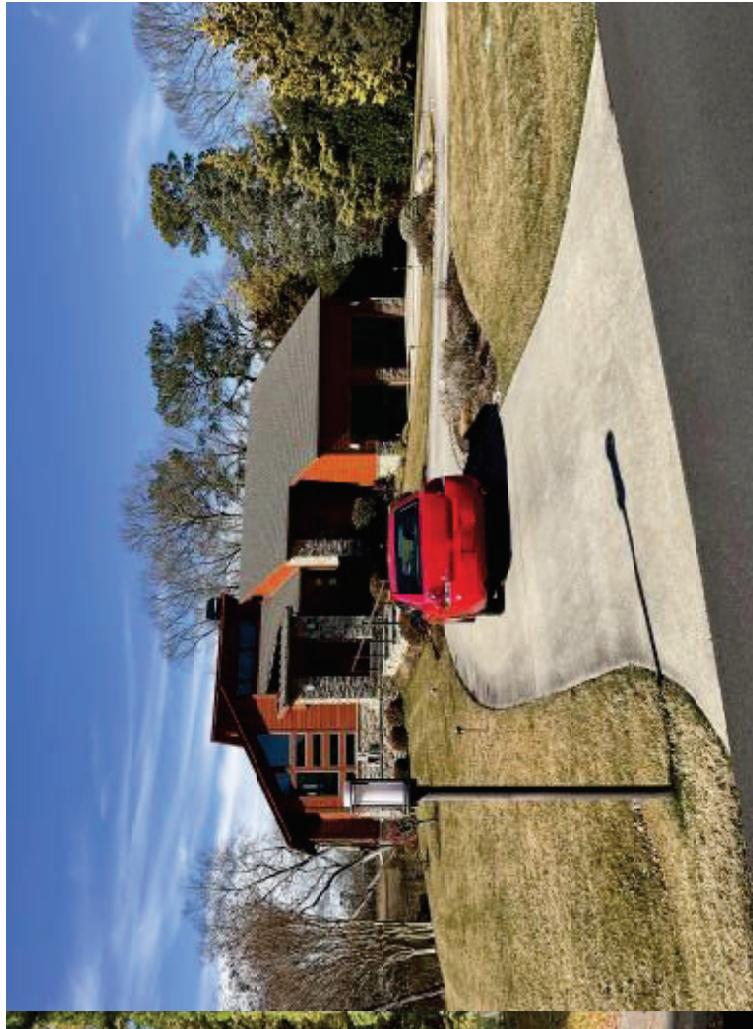
Grade B -

The Grade "B-" home is similar to the straight B and also can be similar to a C+. The B- will have slightly lesser qualitative features than a straight B but will have slightly more than a C+. Again, the presence of one more qualitative item than a C+ does not make a home a B- and the absence of one item does not turn a B into a B-.

Applying the Appropriate Grade



Grade B-



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Applying the Appropriate Grade



Grade A

The Grade "A" residence is a distinctive structure which has been designed with input by an architect and built by a custom builder. First class quality materials available at the time of construction are found throughout and there is a high level of workmanship. Typically, there will be special features to the design, including complex windows and/or staircases, cathedral ceilings, roof lines and interior archways. Aesthetically pleasing or special purpose features and rooms are often included in these properties.

Applying the Appropriate Grade



Grade A

- May have several different roof pitches and/or building offsets. Will have dimensional or shake roof instead of standard asphalt shingles. Perhaps clay tiles. Vaulted ceilings.
- Custom quality fit-outs.
- Double-hung or Casement windows and a good number of them. Usually some type of Palladian or showcase window in the front and/or rear on newer homes.
- For newer homes the exterior is some type of natural wood exterior such as cedar, or brick or stone.

Applying the Appropriate Grade



Grade A / A-



Residential Review/Valuation

Applying the Appropriate Grade

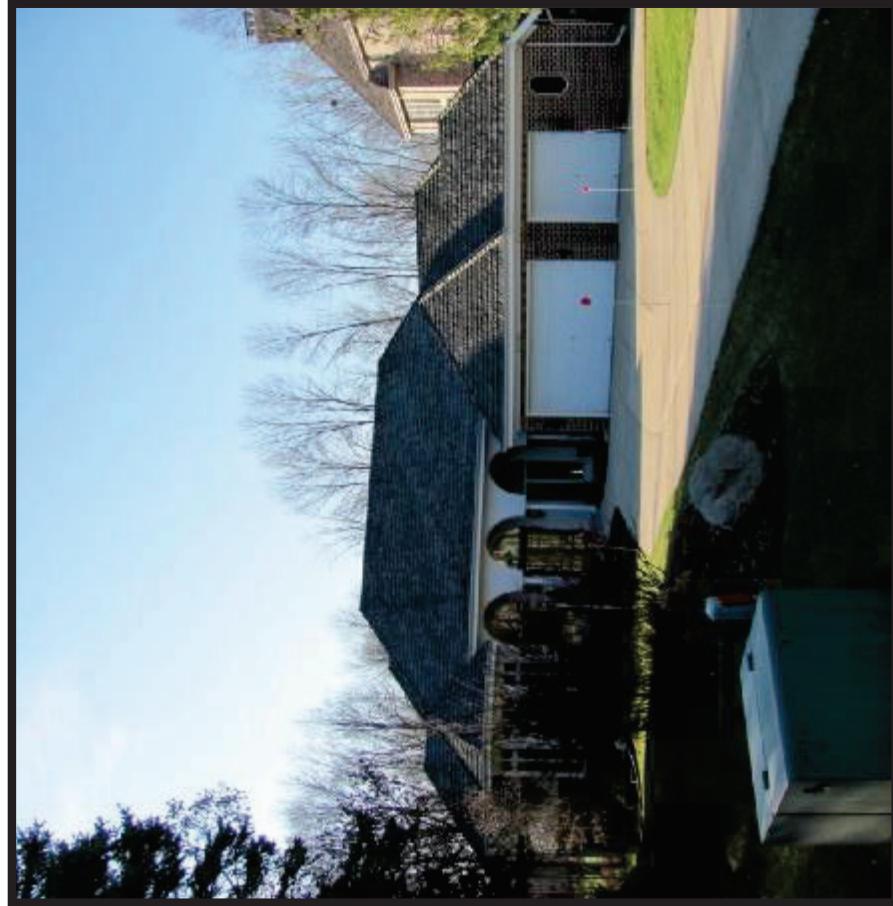
Grade A



Applying the Appropriate Grade



Grade A

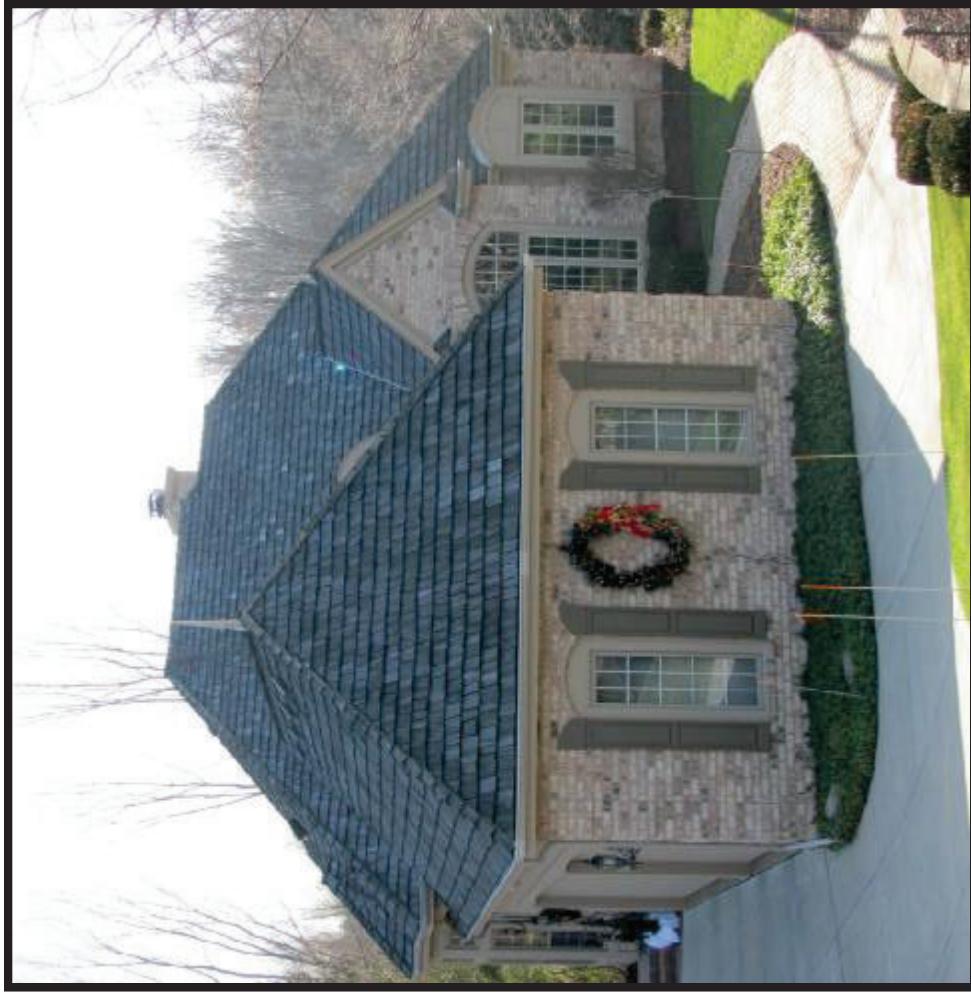


Residential Review/Valuation

Applying the Appropriate Grade



Grade A



Residential Review/Valuation

Applying the Appropriate Grade



Grade A



Grade B



Residential Review/Valuation

Applying the Appropriate Grade



Grade B+



Residential Review/Valuation

Applying the Appropriate Grade



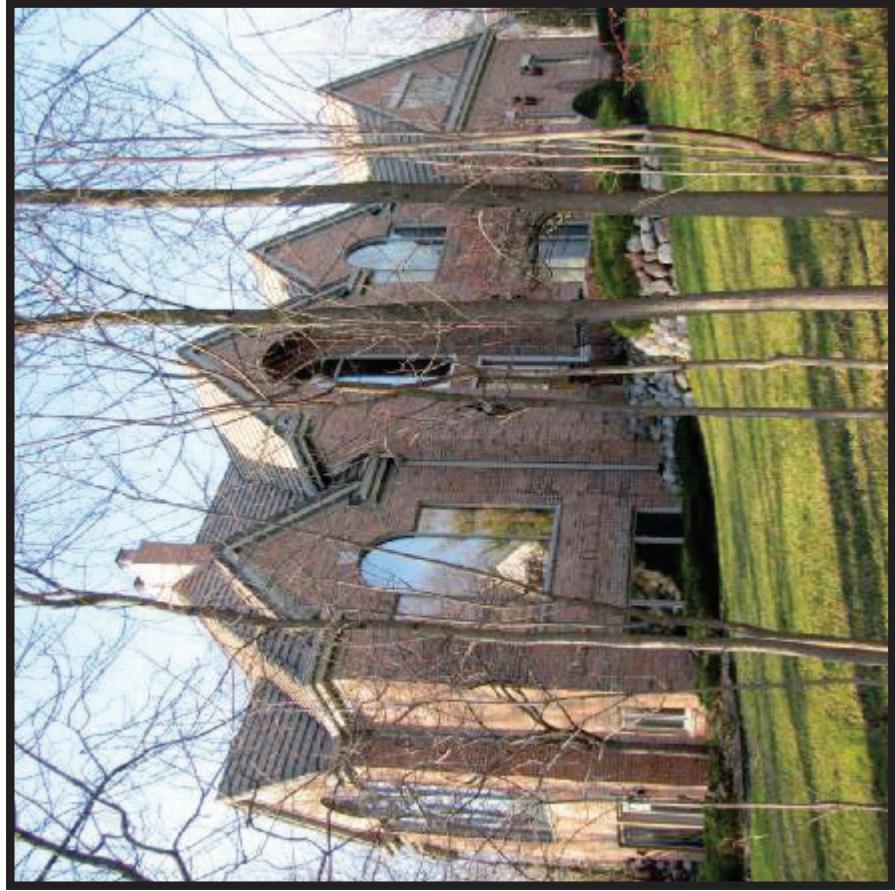
Grade A+

The Grade "A+" will have even more custom features than the "A" Grade home. It will have some of the same characteristics as an A and it can be difficult to decipher the difference between the two. Often the sales in a subdivision will determine whether these homes will be called A or A+ in that particular area.

Applying the Appropriate Grade



Grade A+

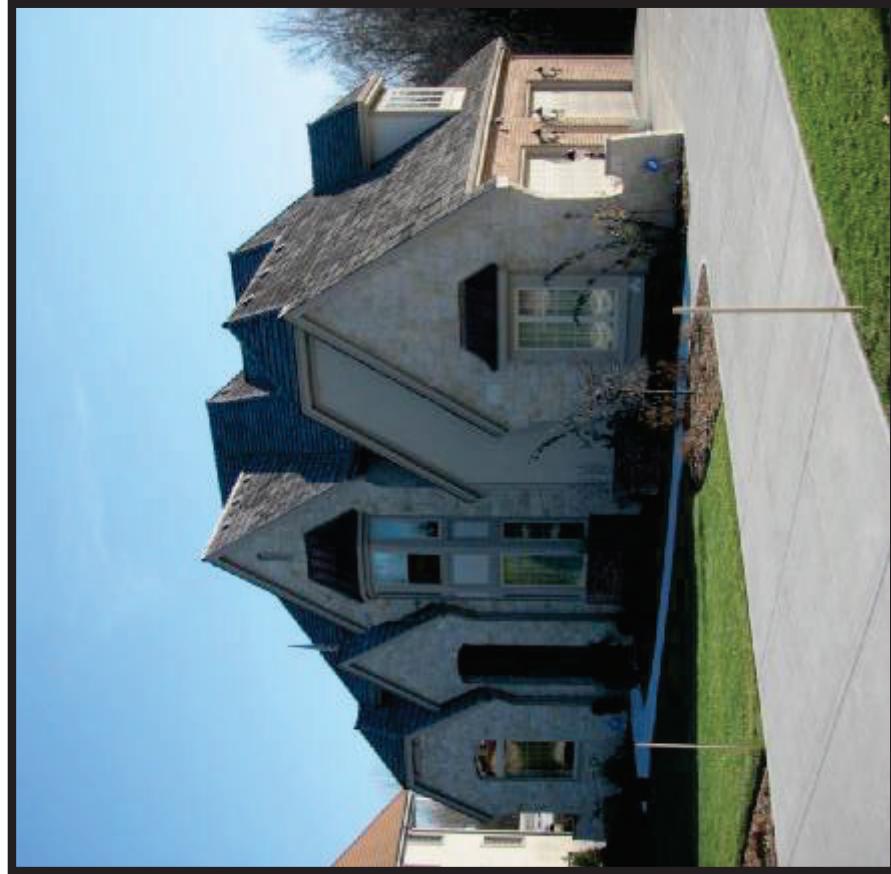


Residential Review/Valuation

Applying the Appropriate Grade



Grade A+



Residential Review/Valuation

Applying the Appropriate Grade



Grade A -

The Grade "A-" home is similar to the straight A and also can be similar to a B+. The A- will have slightly lesser qualitative features than a straight A but will have slightly more than a B+. Again, the presence of one more qualitative item than a B+ does not make a home an A- and the absence of one item does not turn an A into an A-.

Applying the Appropriate Grade



Grade A-



Residential Review/Valuation

Applying the Appropriate Grade



Grade A-



Grade B



Residential Review/Valuation

Applying the Appropriate Grade



Grade A-



Applying the Appropriate Grade



Grade X

The Grade "X" residence is a unique structure, is one of a kind, which has been designed by an architect. Premium quality materials and very high level of workmanship available at the time of construction are found throughout. Typically, there will be special features such as unusual shape or design, an impressive entrance, elaborate windows and/or staircases, cathedral ceilings, and archways. Aesthetically pleasing or special purpose features and rooms are often included in such properties that add to the construction cost.

Applying the Appropriate Grade

Grade X – Excellent



Applying the Appropriate Grade



Grade X



Residential Review/Valuation

Applying the Appropriate Grade



Grade X



Residential Review/Valuation

Applying the Appropriate Grade



Grade X-



Residential Review/Valuation

Applying the Appropriate Grade



Grade X

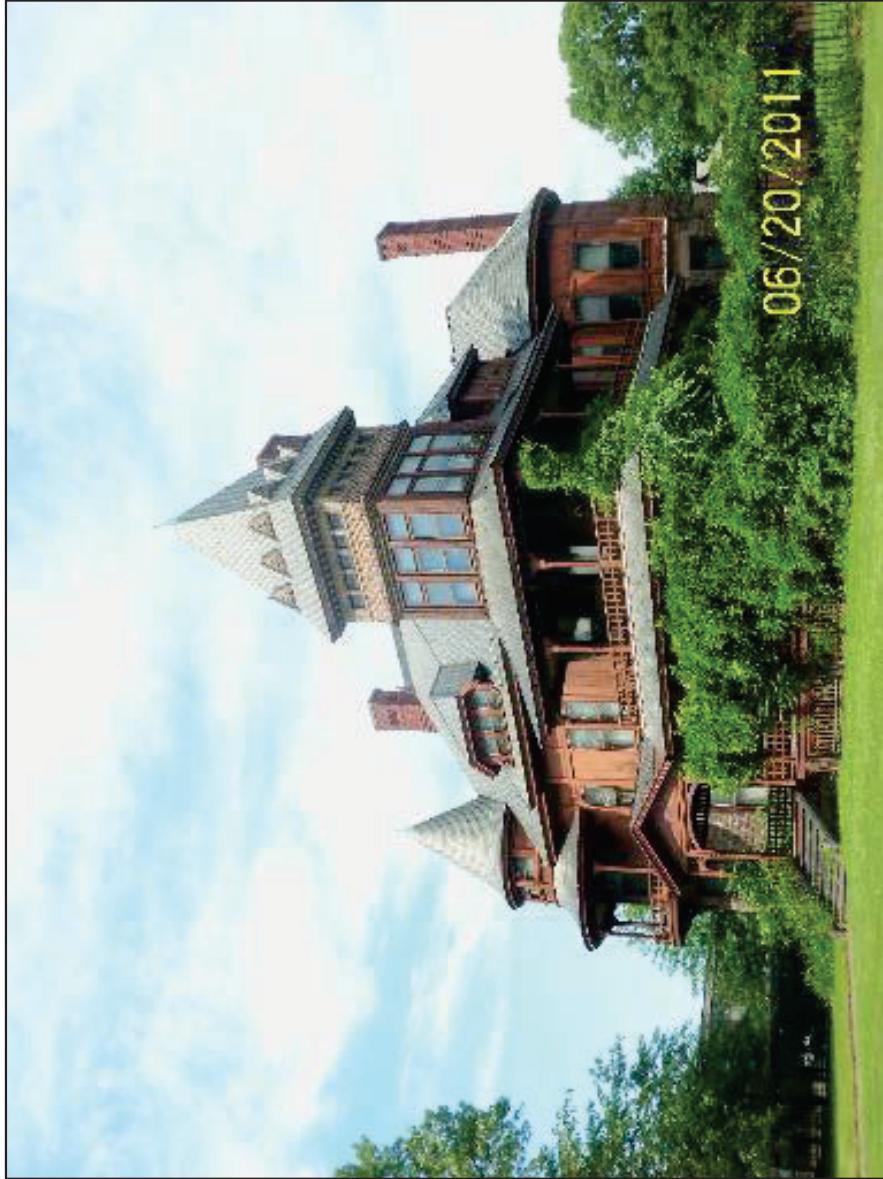


Residential Review/Valuation

Applying the Appropriate Grade



Grade X+



Applying the Appropriate Grade



Grade XX

The Grade "S" residence can be characterized by having exceptional architectural style and design. The Grade "S" residence is a unique structure, one of a kind, which has been designed by an architect. Only the best quality materials and the highest level of workmanship available at the time of construction are found throughout. There will be special features such as unusual shape or design, an impressive entrance, and an abundance of windows many of which are elaborate or ornate. With the exception of a traditional colonial, the roof will have numerous peaks and valleys.

Applying the Appropriate Grade

Grade XX

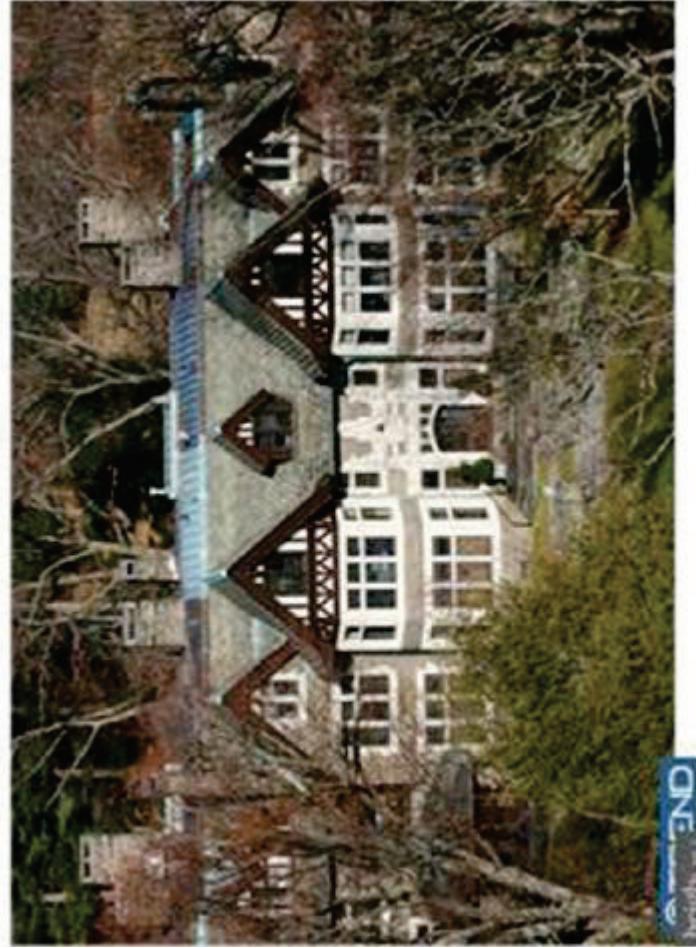


SFLA - 10,000+/- sf
YR BUILT 1925

Applying the Appropriate Grade



Grade XX+



Grade XX+



SFLA - 25000+
YR BUILT - 1912

SFLA – 13,000 +/- sf
YR BUILT 1908

Residential Review/Valuation

Applying the Appropriate Grade



Grade XX+



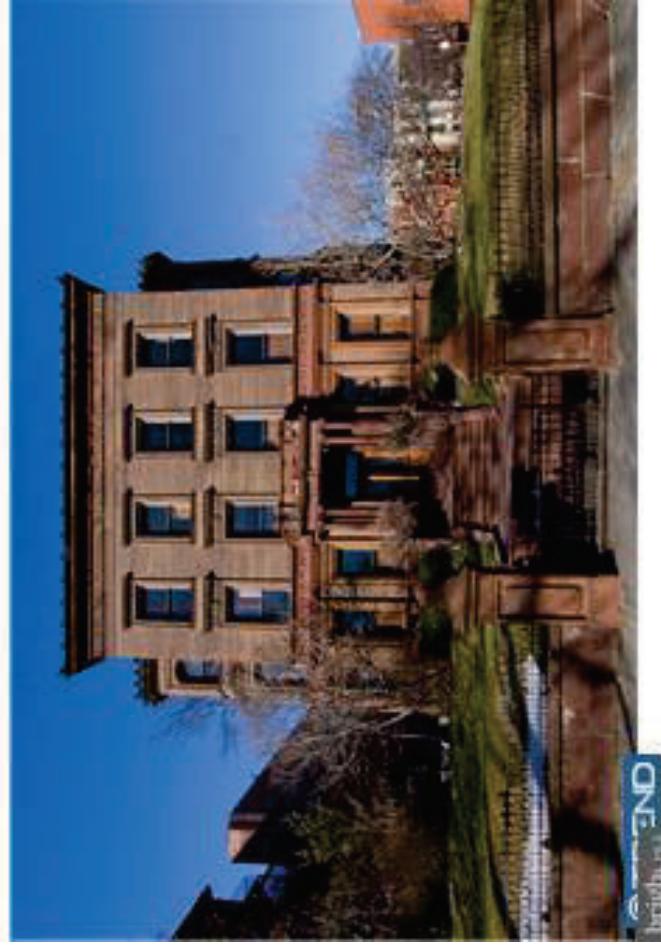
SFLA - 16,500 +/- sf
YR BUILT 1909

Residential Review/Valuation

Applying the Appropriate Grade

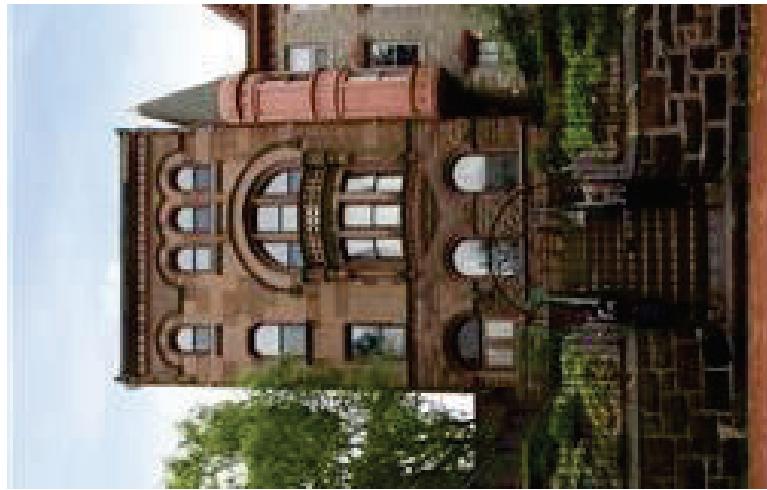


Grade XX-



SFLA – 14,000 +/- sf
YR BUILT - 1882

Grade XX-



SFLA – 12,400 +/- sf
YR BUILT - 1908

Residential Review/Valuation

Applying the Appropriate Grade



Grade D

The Grade "D" residence can be characterized by the use of lesser quality construction materials. The design is quite basic with no expenditure for decorative detail. Lightweight materials and inexpensive exterior finish such as fiberboard, concrete block, asbestos siding, T-111 or lower grade aluminum siding with no protective backing are common. Insulation is likely inadequate. Electricity and plumbing are barely adequate.

Applying the Appropriate Grade



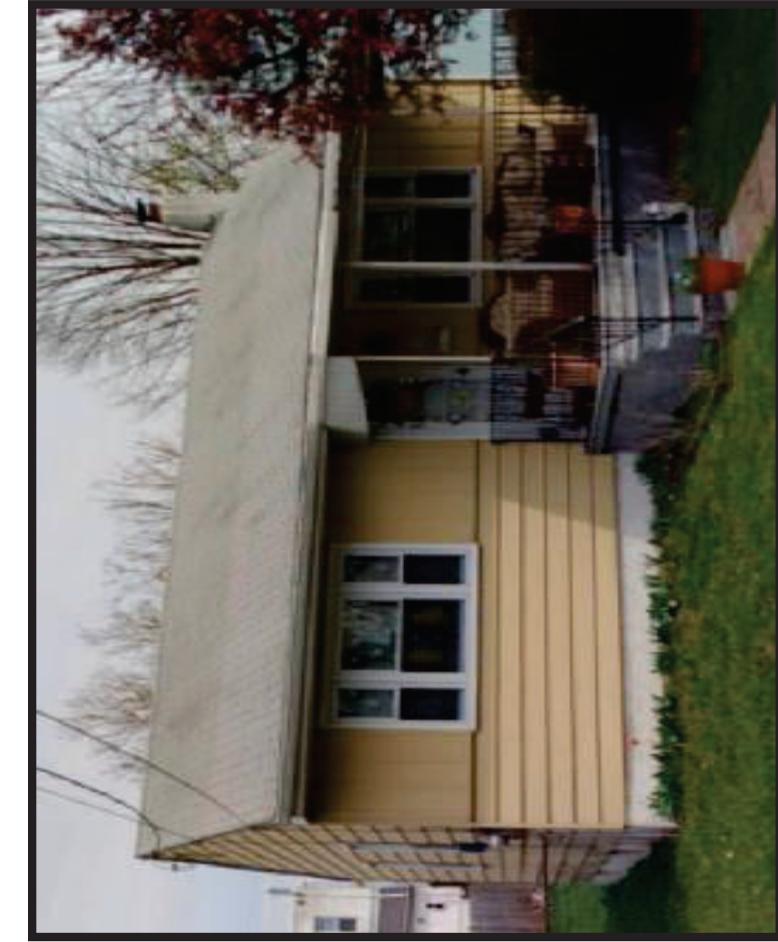
Grade D

- Average to less than average pitch roof – 7-8 foot ceilings.
- Many times, are T-shaped on older two-stories. Where a C grade homes are typically 20'-24' homes, D grade homes are 12'-16' wide.
- Minimal trim and amount of windows. Inexpensive and fewer kitchen cabinets and bathroom fixtures and fit-out.
- Double-hung windows and few of them.
- Newer homes have shallower roof pitch.

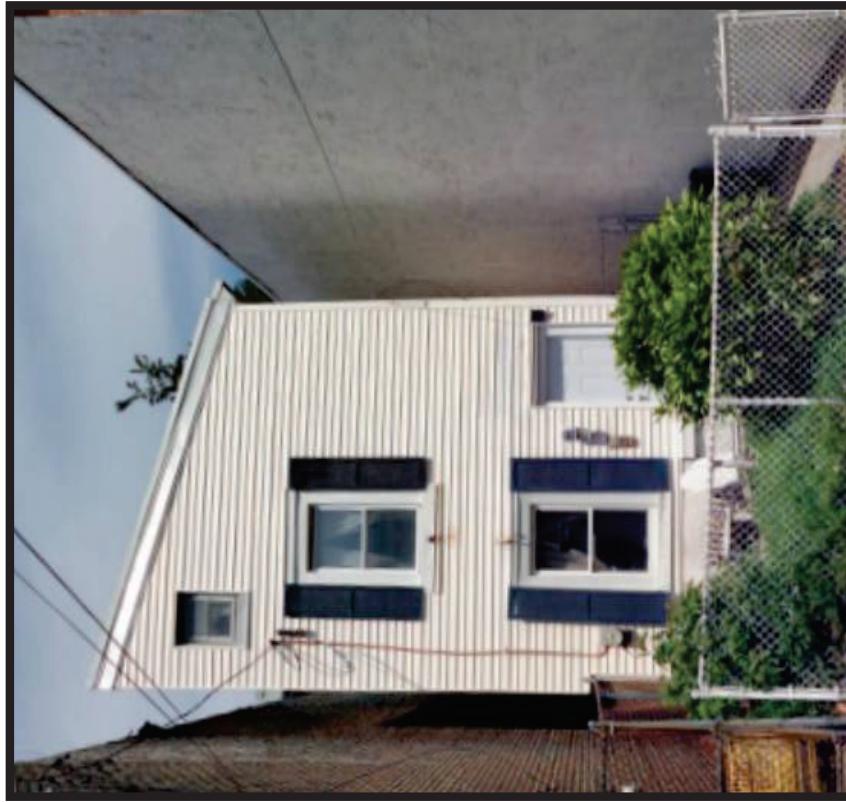
Applying the Appropriate Grade



Grade C-/D+



Grade D

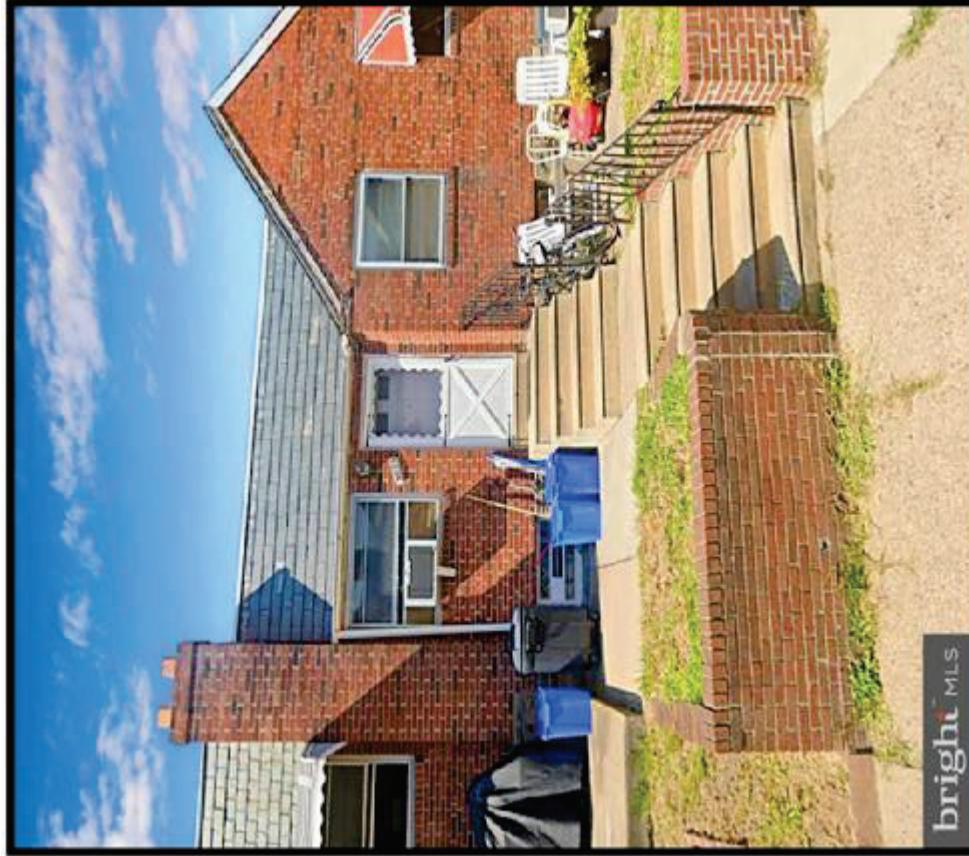


Residential Review/Valuation

Applying the Appropriate Grade



Grade C-

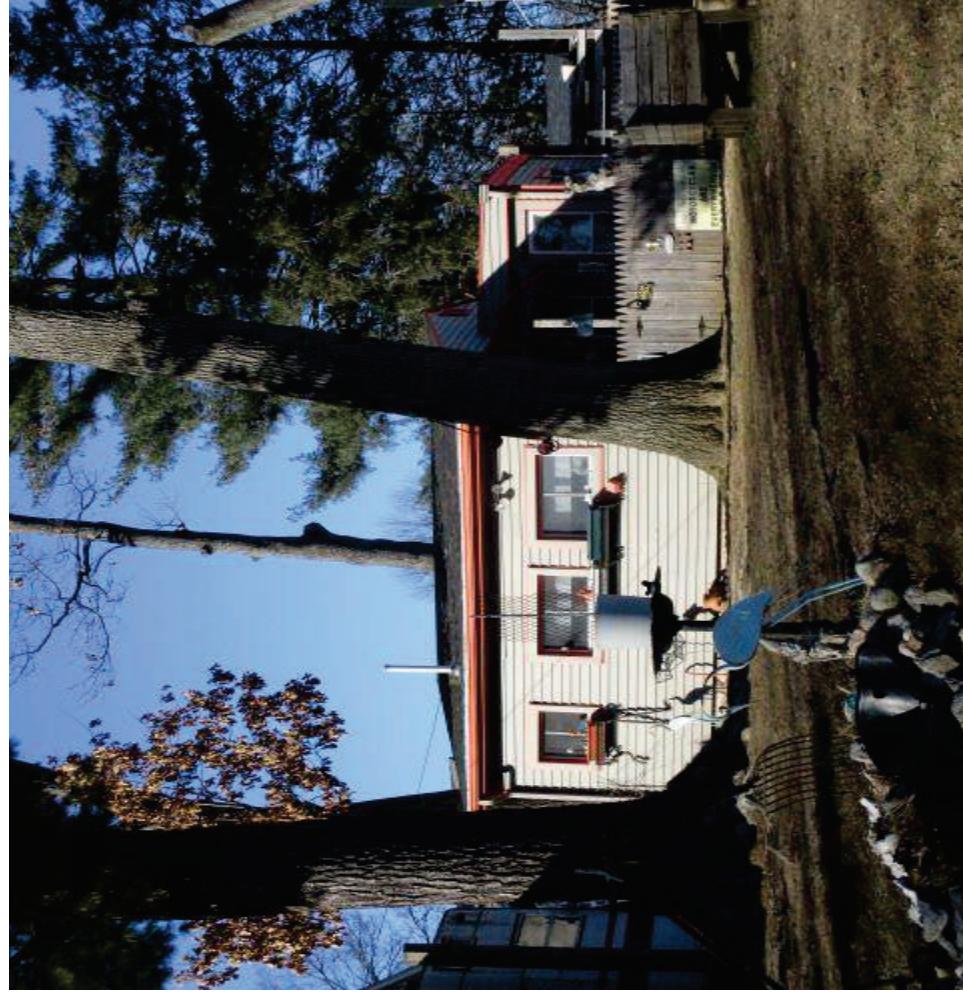


Residential Review/Valuation

Applying the Appropriate Grade



Grade D



Residential Review/Valuation

Applying the Appropriate Grade



Grade D



Residential Review/Valuation

Applying the Appropriate Grade



Grade E

The Grade "E" residence is the poorest quality residence. It is constructed of inferior quality materials and lacks a full complement of features that are generally considered to be essential for year-round living. It is a structure that may have been designed without heating facilities, with few or no interior walls, single-thickness exterior walls, and single-thickness floors instead of the standard double thickness. The few structures that are built in this fashion (unfinished walls and ceilings and minimal structural components, plumbing, heating, and electrical wiring) are usually seasonal residences, but some may be year-round homes. Many are classified as "cabins".

Applying the Appropriate Grade

Grade E – Minimum



Standard on Mass Appraisal of Real Property

Approved January 2011

International Association of Assessing Officers

This standard replaces the 2002 *Standard on Mass Appraisal of Real Property*. The 2002 standard combined and replaced the 1983 *Standard on the Application of the Three Approaches to Value in Mass Appraisal*, the 1984 *Standard on Mass Appraisal*, and the 1988 *Standard on Urban Land Valuation*. The IAAO's assessment standards represent a consensus in the assessing profession and have been adopted by the Executive Board of the International Association of Assessing Officers (IAAO). The objective of the IAAO's standards is to provide a systematic means by which concerned assessing officers can improve and standardize the operation of their offices. The IAAO's standards are advisory in nature and the use of, or compliance with, such standards is purely voluntary. If any portion of these standards is found to be in conflict with the *Uniform Standards of Professional Appraisal Practice (USPAP)* or state laws, *USPAP* and state laws shall govern.

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The last full revision of the *Standard on Mass Appraisal of Real Property* was in February 2002.

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Standard on Mass Appraisal of Real Property

1. Scope

This standard defines requirements for the mass appraisal of real property. The primary focus is on mass appraisal for ad valorem tax purposes. However, the principles defined here should also be relevant to computer-assisted mass appraisals (or automated valuation models) used for other purposes, such as mortgage portfolio management. The standard primarily addresses the needs of the assessor, assessment oversight agencies, and taxpayers.

This standard addresses mass appraisal procedures by which property can be appraised at market value, including mass appraisal application of the three traditional approaches to value (cost, sales comparison, and income). Appraisals made on an other-than-market-value basis or on an individual basis are outside the scope of this standard. Where assessed value differs from market value because of statutory constraints such as use value, acquisition value, base year value, or classification, this standard does not provide guidance for determining assessed value.

Mass appraisal requires complete and accurate data, effective valuation models, and proper management of resources. Section 3 focuses on the collection and maintenance of property data. Section 4 summarizes the primary considerations in valuation methods, including the role of the three approaches to value in the mass appraisal of various types of property. Section 5 discusses certain managerial considerations: staff levels, data processing support, contracting for reappraisals, support of valuations, and benefit-cost issues.

2. Introduction

Market value for assessment purposes is generally determined through the application of mass appraisal techniques. Mass appraisal is the process of valuing a group of properties as of a given date using common data, standardized methods, and statistical testing (IAAO [1990, chapter 5] and Gloudemans [1999, chapter 5]). To determine a parcel's value, assessing officers must rely upon valuation equations, tables, and schedules developed through mathematical analysis of market data. Unless required by law, values for individual parcels should not be based solely on the sale price of a property; rather, valuation schedules and models should be consistently applied to property data that is correct, complete, and up-to-date.

Properly administered, the development, construction, and use of a computer-assisted mass appraisal system results in a valuation system characterized by accuracy, uniformity, equity, reliability, and low per-parcel costs

(see section 5.5). Except for unique properties, individual analyses and appraisals of properties are not practical for ad valorem tax purposes.

3. Collecting and Maintaining Property Data

Choose software wisely because it can limit the data that can be collected. The choice of data is largely dictated by the valuation software, whether it is programmed in house or supplied by a commercial service, a mass appraisal company, or a state agency.

3.1 Overview

Uniform and accurate valuation of property requires correct, complete, and up-to-date property data. Assessing offices must establish effective procedures for collecting and maintaining property data (that is, property ownership, location, size, use, physical characteristics, sales prices, rents, costs, and operating expenses). Such data are also used for performance audits, defense of appeals, public relations, and management information. The following sections recommend procedures for collecting these data.

3.2 Geographic Data

Assessors should maintain accurate, up-to-date cadastral maps (also known as assessment maps, tax maps, parcel boundary maps, and property ownership maps) covering the entire jurisdiction. At a minimum these maps should display a unique parcel number for each parcel. Such cadastral maps allow assessing officers to identify and locate all parcels, in both the field and the office. Maps become especially valuable in the mass appraisal process when a geographic information system (GIS) is used. A GIS permits graphic displays of sale prices, assessed values, inspection dates, work assignments, land uses, and much more. In addition, a GIS permits high-level analysis of nearby sales, neighborhoods, and market trends; when linked to a computer-assisted mass appraisal system, the results can be very useful. For additional information on cadastral maps, parcel identification systems, and GIS, see the *Standard on Manual Cadastral Maps and Parcel Identifiers* (IAAO 2004), *Standard on Digital Cadastral Maps and Parcel Identifiers* (IAAO 2003), and *Procedures and Standards for a Multipurpose Cadastre* (National Research Council 1983), and *GIS Guidelines for Assessors* (URISA/IAAO 1999).

3.3 Property Characteristics Data

The assessor should collect and maintain sufficient property characteristics data for classification, valua-

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ation, and other purposes. Accurate valuation of real property by any method requires descriptions of land and building characteristics.

3.3.1 Selection of Property Characteristics Data

Property characteristics to be collected and maintained should be based on the following:

- factors that influence the market in the locale in question
- requirements of the valuation methods that will be employed
- requirements of classification and property tax policy
- requirements of other governmental and private users
- marginal benefits and costs of collecting and maintaining each property characteristic

Determining what data on property characteristics to collect and maintain for a computer-assisted mass appraisal system is a crucial decision with long-term consequences. A pilot program is one means of evaluating the benefits and costs of collecting and maintaining a particular set of property characteristics. (See IAAO [1990, chapter 5] and Gloudemans [1999, chapter 2].) In addition, much can be learned from studying the data used in successful computer-assisted mass appraisals in other jurisdictions. Data collection and maintenance are usually the most costly aspects of a computer-assisted mass appraisal. Collecting data that are of little importance in the assessment process should be avoided unless another governmental or private need is clearly demonstrated.

The quantity and quality of existing data should be reviewed. If the data are sparse and unreliable, a major recanvass will be necessary. Data that have been confirmed to be reliable should be used whenever possible. New valuation programs or enhancements requiring major recanvass activity or conversions to new coding formats should be viewed with suspicion when the existing database already contains most major property characteristics and is of generally good quality. See Gloudemans (1999, chapter 2) and IAAO (1990, chapter 5) for characteristics of land, location, and improvements usually required for mass appraisal.

3.3.2 Data Collection

Collecting property characteristics data is a critical and expensive phase of reappraisal. A successful data collection program requires clear and standard coding and careful monitoring through a quality control program. The development and use of a data collection manual is essential in achieving accurate and consistent data collection. The data collection program should result in complete and accurate data.

3.3.2.1 Initial Data Collection

A physical inspection is necessary to obtain initial property characteristics data. This inspection can be performed either by appraisers or by specially trained data collectors. In a joint approach, experienced appraisers would make key subjective decisions, such as the assignment of construction quality class or grade, and data collectors would gather all other details. Depending on the data required, an interior inspection might be necessary. At a minimum, a comprehensive exterior inspection should be conducted.

3.3.2.2 Data Collection Format

Data should be collected in a prescribed format designed to facilitate both the collecting of data in the field and entry of the data into the computer system.

A logical arrangement of the collection format makes data collection easier. For example, all items requiring an interior inspection should be grouped together. The coding of data should be as objective as possible, with measurements, counts, and check-off items used in preference to items requiring subjective evaluations (such as “number of plumbing fixtures” versus “adequacy of plumbing: poor, average, good”). With respect to check-off items, the available codes should be exhaustive and mutually exclusive, so that exactly one code logically pertains to each observable variation of a building feature (such as type of room). The data collection format should promote consistency among data collectors, be clear and easy to use, and be adaptable to virtually all types of construction. Specialized data collection formats may be necessary to collect information on agricultural property, timberland, industrial parcels, and other property types.

3.3.2.3 Data Collection Manuals

A clear, thorough, and precise data collection manual is essential and should be developed, updated, and maintained. The written manual should explain how to collect and record each data item. Pictures, examples, and illustrations are particularly helpful. The manual should be simple yet complete, with a high degree of standardization for uniformity. Data collection staff should be trained in the use of the manual and related updates to maintain consistency. The manual should present guidelines for personal conduct during field inspections, and, if interior data are required, it should outline procedures to follow when the property owner has denied access or when entry might be risky.

3.3.2.4 Data Accuracy Standards

The following standards of accuracy for data collection are recommended.

- Continuous or area measurement data, such as living area and exterior wall height, should be accurate within one foot (rounded to the nearest foot) of the true dimensions or within 5% of the area. (One foot equates to approximately

30 centimeters in the metric system of measurement). If areas, dimensions, or volumes must be estimated, the property record should note where quantities are estimated.

- For each objective, categorical, or binary data field to be collected or verified, at least 95 percent of the coded entries should be accurate. Objective, categorical, or binary data characteristics include such attributes as exterior wall material, number of full bathrooms, and waterfront view. As an example, if a data collector captures 10 objective, categorical, or binary data items for 100 properties, at least 950 of the 1,000 total entries should be correct.
- For each subjective categorical data field collected or verified, data should be coded correctly at least 90 percent of the time. Subjective categorical data characteristics include data items such as quality grade, physical condition, and architectural style.

3.3.2.5 Data Collection Quality Control

A quality control program is necessary to ensure that data accuracy standards are achieved and maintained. Independent quality control inspections should occur immediately after the data collection phase begins and may be performed by jurisdiction staff, project consultants, auditing firms, or oversight agencies. The inspections should review random samples of completed work for completeness and accuracy and keep tabulations of items coded correctly or incorrectly, so that statistical tests can be used to determine whether accuracy standards have been achieved. Stratification by geographic area, property type, or individual data collector can help detect patterns of data error. Data that fails to meet quality control standards should be re-collected.

The accuracy of subjective data should be judged primarily by conformity with written specifications and examples in the data collection manual. Subjective data judgment calls should be substantiated by field notes.

3.3.3 Data Entry

To avoid duplication of effort, the data collection form should be able to serve as the data entry form. Data entry should be routinely audited to ensure accuracy.

Data entry accuracy should be as close to 100 percent as possible, and should be supported by a full set of range and consistency edits. These are error or warning messages generated in response to invalid or unusual data items. Examples of data errors include missing data codes and invalid characters. Warning messages should also be generated when data values exceed normal ranges (for example, more than eight rooms in a 1,200-square-foot residence). The warnings should appear as the data are entered. When feasible, action on the warnings should take place during data entry. Field data entry devices provide the ability to edit data as it

is entered and also eliminate data transcription errors.

3.3.4 Maintaining Property Characteristics Data

Property characteristics data should be continually updated in response to changes brought about by new construction, new parcels, remodeling, demolition, and destruction. There are several ways of doing this. The most efficient involves building permits. Ideally, strictly enforced local ordinances would require building permits for all significant construction activity, and the assessor would be given copies of the permits. This would allow the assessor to identify properties whose characteristics are likely to change, to inspect such parcels on a timely basis (preferably as close to the assessment date as possible), and to update the files accordingly.

Aerial photographs also can be helpful in identifying new or previously unrecorded construction and land use.

Some jurisdictions have used self-reporting, in which property owners are given the data in the assessor's records and asked to provide additions or corrections. Information derived from multiple listing sources and other third-party vendors can be used to update property records.

A system should be developed for making periodic field inspections to identify properties and ensure that property characteristics data are complete and accurate. Properties should be periodically revisited to ascertain that assessment records are accurate and current. Assuming that most new construction activity is identified through building permits or other ongoing procedures, a physical review at least every four to six years should be conducted, including an on-site verification of property characteristics. A reinspection should include partial remeasurement of the two most complex sides of improvements and a walk around the improvement to identify additions and deletions or independent review of the current measurements with specific requirements by an outside auditing firm or oversight agency. Photographs taken at previous physical inspections can help identify changes.

3.3.5 Alternative to Periodic On-Site Inspections

Provided that an initial physical inspection has been completed—and the requirements of a well-maintained data-collection and quality-management program (see sections 3.3.2.1 to 3.3.4) have been achieved, jurisdictions may employ a set of digital imaging technology tools to supplement field inspections with a computer-assisted office review. These imaging tools should include:

- Current high-resolution street-view images (at a sub-inch pixel resolution that enables quality grade and physical condition to be verified)

- Orthophoto images (minimum 6" pixel resolution in urban/suburban and 12" resolution in rural areas, updated every 2 years in rapid growth areas, or 6–10 years in slow growth areas).
- Low level oblique images capable of being used for measurement verification (four cardinal directions, minimum 6" pixel resolution in urban/suburban and 12" pixel resolution in rural areas, updated every 2 years in rapid growth areas or, 6–10 years in slow growth areas).

Effective tool sets validate CAMA data and incorporate change detection techniques that compare building dimension data (footprints) in the CAMA system to georeferenced imagery or remote sensing data from sources (such as LiDAR [light detection and ranging]) and identify potential CAMA sketch discrepancies for further investigation.

In addition, appraisers should visit assigned areas on an annual basis to observe changes in neighborhood condition, trends and property characteristics. An on-site physical review is recommended when significant construction changes are detected, a property is sold, or an area is affected by catastrophic damage. Building permits should be regularly monitored and affected properties that have significant change should be inspected when work is complete.

It is incumbent on assessment jurisdictions and oversight agencies to ensure that images meet expected quality standards. Standards required for vendor-supplied images should be spelled out in the RFP and contract for services, and images should be checked for compliance with specified requirements. For general guidance on preparing RFPs and contracting for vendor-supplied services, see the Standard on Contracting for Assessment Services [IAAO 2008].

3.4 Sales Data

States and provinces should seek mandatory disclosure laws to ensure comprehensiveness of sales data files. Regardless of the availability of such statutes, a file of sales data must be maintained. Sales data are required in all applications of the sales comparison approach, in the development of market-based depreciation schedules in the cost approach, and in the derivation of capitalization rates or discount rates. Refer to IAAO (1990, chapter 5) and Gloudemans (1999, chapter 2) for guidelines relating to the acquisition and processing of sales data.

3.5 Income and Expense Data

Income and expense data must be collected for income-producing property, as these data are required in the application of the income approach to value. (See section 4.4.) Refer to IAAO (1990, chapter 5) and Gloudemans (1999, chapter 2) for guidelines addressing the collection and processing of income and expense data.

3.6 Cost and Depreciation Data

Current cost and depreciation data adjusted to the local market are required for the cost approach (see section 4.2). Cost and depreciation manuals and schedules may be purchased from commercial services or created in-house. See Gloudemans (1999, chapter 4) for guidelines on creating manuals and schedules.

4. Valuation

4.1 Valuation Models

Any appraisal, whether single-property appraisal or mass appraisal, uses a model, that is, a representation in words or an equation of the relationship between value and variables representing factors of supply and demand. Mass appraisal models attempt to represent the market for a specific type of property in a specified area. Mass appraisers must first specify the model, that is, identify the variables (supply and demand factors) that influence value, for example, square feet of living area. Then, mass appraisers must calibrate the model, that is, determine the adjustments or coefficients that best represent the value contribution of the variables chosen, for example, the dollar amount the market places on each square foot of living area. Careful and extensive market analysis is required for both specification and calibration of a model that estimates values accurately. All three approaches to value—the cost approach, the sales comparison approach, and the income approach—are modeled for mass appraisal.

Geographic stratification is appropriate when the value of property attributes varies significantly among areas. It is particularly effective when housing types and styles are relatively uniform within areas. Separate models can be developed for market areas (also known as economic or model areas). Subareas or neighborhoods can serve as variables in modeling and can also be used in land value tables and selection of comparable sales. (See Gloudemans [1999, chapter 3].) Smaller jurisdictions may find it sufficient to develop a single residential model.

Commercial and income-producing properties should be stratified by property type. In general, separate models should be developed for apartment, warehouse/industrial, and retail properties. Large jurisdictions may be able to stratify apartment properties further by type or area or to develop multiple commercial models.

4.2 The Cost Approach

The cost approach is applicable to virtually all improved parcels and, if used properly, can produce highly accurate valuations. The cost approach is more reliable for newer structures of standard materials, design, and workmanship.

Reliable cost data are imperative in any successful application of the cost approach. The data must be complete, typical, and current. Current construction costs should be based on the cost of replacing a structure with one of equal utility, using current materials, design, and building standards. Costs of individual construction components and building items should also be included in order to adjust for features that differ from the base specifications. These costs should be incorporated into a construction cost manual and related computer software. The software can perform the valuation function, and the manual, in addition to providing documentation, can be used when nonautomated calculations are required.

Construction cost schedules can be developed internally, based on a systematic study of local construction costs, obtained from firms specializing in such information, or custom generated by a contractor. Cost schedules should be verified for accuracy by applying them to recently constructed improvements of known cost. Construction costs also should be updated before each assessment cycle.

One weakness in the cost approach tends to occur in the estimation of accrued depreciation. This estimate must be based on non-cost data (primarily sales) and can involve considerable subjectivity.

Depreciation schedules can be extracted from sales data in several ways. Methods for extracting depreciation can be found in IAAO (1990, chapter 8) and Gloudemans (1999, chapter 4).

Another key difficulty in use of the cost approach is determination of land value, which is estimated independently from sales (often from sales of improved property because sales of vacant land are scarce). Land values used in the cost approach must be current and consistent. Section 4.5 provides standards for land valuation in mass appraisal.

4.3 The Sales Comparison Approach

The sales comparison approach estimates the value of a subject property by statistically analyzing the sale prices of similar properties. This approach is usually the preferred approach for estimating values for residential and other property types with adequate sales.

Applications of the sales comparison approach include direct market models and comparable sales algorithms (See Gloudemans 1999, chapter 3 & 4, IAAO 1990, chapter 6 & 15, and IAAO 1999, and the IAAO Standard on Automated Valuation Models 2003). Comparable sales algorithms are most akin to single property appraisal applications of the sales comparison approach. They have the advantages of being familiar and easily explained and can compensate for less well specified or calibrated models, since the models are used only to make adjustments to the selected comparables. They can be problematic if the selected comparables are not

well validated or representative of market value. Because they predict market value directly, direct market models depend more heavily on careful model specification and calibration. Their advantages include efficiency and consistency, since the same model is directly applied against all properties in the model area.

Users of comparable sales algorithms should be aware that sales ratio statistics will be biased if sales used in the ratio study are used as comparables for themselves in model development. This problem can be avoided by (1) not using sales as comparables for themselves in modeling or (2) using holdout or later sales in ratio studies.

4.4 The Income Approach

In general, for income-producing properties the income approach is the preferred valuation approach when reliable income and expense data are available, along with well-supported income multipliers, overall rates, and required rates of return on investment. Successful application of the income approach requires the collection, maintenance, and careful analysis of income and expense data.

Mass appraisal applications of the income approach begin with collecting and processing income and expense data. (These data should be expressed on an appropriate per-unit basis; such as per square foot or per apartment unit.) Appraisers should then compute normal or “typical” gross incomes, vacancy rates, net incomes, and expense ratios. These figures can be used to judge the reasonableness of reported data for individual parcels and to estimate income and expense figures for parcels with unreported data. Alternatively, models for estimating gross or net income and expense ratios can be developed using actual income and expense data from a sample of properties and calibrated using multiple regression analysis. For an introduction to income modeling, see IAAO (1990, chapter 14) and Gloudemans (1999, chapter 3). The developed income figures can be capitalized into estimates of value in a number of ways. The most direct method involves the application of gross income multipliers, which express the ratio of market value to gross income. At a more refined level, net income multipliers or their reciprocals, overall capitalization rates, can be developed and applied. These multipliers and rates should always be extracted from actual income and sale price data obtained from properties that have recently been sold. Income multipliers and overall rates tend to provide reliable, consistent, and readily supported valuations when good sales and income data are available.

4.5 Land Valuation

State or local laws may require the value of an improved parcel to be separated into land and improvement components. When the sales comparison or income ap-

proach is used, an independent estimate of land value must be made and subtracted from the total property value to obtain a residual improvement value. Some computerized valuation techniques provide a separation of total value into land and building components.

Land values should be reviewed annually. At least once every four to six years the properties should be physically inspected and revalued. The sales comparison approach is the primary approach to land valuation and is always preferred when sufficient sales are available. In the absence of adequate sales, other techniques used in mass appraisal include allocation, abstraction, anticipated use, capitalization of ground rents, and land residual capitalization. (See IAAO [1990, chapter 7] and Gloudemans [1999, chapter 3].)

4.6 Considerations by Property Type

The appropriateness of each valuation approach varies with the type of property under consideration. Table 1 ranks the relative usefulness of the three approaches in the mass appraisal of major types of properties. The table assumes that there are no major statutory barriers to obtaining cost, sales, and income data. Again, although certain approaches tend to produce better results for a given type of property, the use of two or more approaches should produce greater accuracy.

4.6.1 Single-Family Residential Property

The sales comparison approach is the best approach for single-family residential property, including condominiums. Automated versions of this approach are highly efficient and generally accurate for the majority of these properties. The cost approach is a good supplemental approach and should serve as the primary approach when the sales data available are inadequate. The income approach is usually inappropriate for mass appraisal of single-family residential properties, because most of these properties are not rented.

4.6.2 Multifamily Residential Property

The sales comparison and income approaches are preferred in valuing multifamily residential property when sufficient sales and income data are available. Multiple

regression analysis and related techniques have been successfully used in valuing this property type. Income multipliers can also be highly effective. As with other residential property, the cost approach is useful in providing supplemental valuations and can serve as the primary approach when good sales and income data are not available.

4.6.3 Commercial and Industrial Property

The income approach is the most appropriate method to apply when valuing commercial and industrial property if sufficient income data are available. Direct sales comparison models can be equally effective in large jurisdictions with sufficient sales. When a sufficient supply of sales data and income data is not available, the cost approach should be applied. However, values generated should be periodically checked against available sales data. Cost factors, land values, and depreciation schedules must be kept current through periodic review.

4.6.4 Non-Agricultural Land

The sales comparison approach is the preferred approach for non-agricultural land. Application of the sales comparison approach to vacant land involves the collection of sales data, the posting of sales data on maps, the calculation of standard unit values (such as value per square foot, per front foot, or per parcel) by area and type of land use, and the development of land valuation maps or computer-generated tables, in which the pattern of values is displayed. When vacant land sales are not available or are few, additional benchmarks can be obtained by subtracting the replacement cost new less depreciation of improvements from the sales prices of improved parcels. The success of this technique requires reliable cost data and tends to work best for relatively new improvements, for which depreciation is minimal.

If neither vacant-parcel nor improved-parcel sales data are available, the assessor will need to apply allocation methods or use valuation methods that provide separate land and building values. Sometimes income approach applications can also be used.

Table 1. Rank of typical usefulness of the three approaches to value in the mass appraisal of major types of property

	Cost approach	Sales comparison approach	Income approach
Single-family residential	2	1	3
Multifamily residential	3	1,2	1,2
Commercial	3	2	1
Industrial	1,2	3	1,2
Non-agricultural land	—	1	2
Agricultural*	—	2	1
Special-purpose**	1	2,3	2,3

*Includes farm, ranch, and forest properties.

**Includes institutional, governmental, and recreation properties

4.6.5 Agricultural Property

If adequate sales data are available and agricultural property is to be appraised at market value, the sales comparison approach would be preferred. However, nearly every state or province provides for use-value assessment (and usually appraisal), which significantly understates the market value for agricultural property, so the sales comparison approach is usually not applicable. Because of this limitation, it is imperative to obtain good income data and to use the income approach for agricultural land. Land rents are often available, sometimes permitting the development and application of overall capitalization rates. This method, of course, also entails the estimation of normal land rents for unrented parcels. When agricultural parcels include improvements, the cost approach or sales comparison models that provide separate building values may be used to determine their value.

4.6.6 Special-Purpose Property

The cost approach tends to be most appropriate in the appraisal of special-purpose properties, due to the distinctive nature of such properties and the general absence of adequate sales or income data.

4.7 Frequency of Reappraisals

Section 4.2.2 of the *Standard on Property Tax Policy* (IAAO 2004) states that current market value implies annual assessment of all property. Annual assessment does not necessarily mean, however, that each valuation must be reviewed or recomputed individually. Instead, trending factors based on criteria such as property type, location, size, and age can be developed and applied to groups of properties. These factors should be derived from ratio studies or other market analyses.

Analysis of ratio study data can suggest groups or strata of properties in need of physical review. In general, trending factors can be highly effective in maintaining equity when appraisals are uniform within strata. However, such factors are not a substitute for physical reviews and individual reappraisals, which are required to correct lack of uniformity within strata.

Although assessment trending can be effective for short periods, properties should be physically reviewed and individually reappraised at least every four to six years. This can be accomplished in at least three ways:

- reappraising all property at periodic intervals (that is, every four to six years)
- reappraising properties on a cyclical basis (for example, one-fourth or one-sixth each year)
- reappraising on a priority basis as indicated by ratio studies or other considerations while still ensuring that all properties are physically reviewed at least every sixth year

5. Managerial Considerations

5.1 Overview

Mass appraisal requires human, computing, and other resources to be well managed and appropriate appraisal and analytical methods need to be employed. In this section certain key managerial considerations are discussed.

5.2 Staffing

A successful in-house appraisal program requires a sufficiently large staff composed of persons skilled in general administration and supervision, appraisal, mapping and drafting, data processing, and secretarial and clerical functions. Typical staffing sizes and patterns for jurisdictions of various sizes are illustrated in *Property Appraisal and Assessment Administration* (IAAO 1990, chapter 16).

Unless efficiency or practical concerns dictate otherwise, persons performing the various mass appraisal functions should be employees of the assessor. When these functions are not performed by assessment staff, it is imperative that they be adequately provided by other departments, an oversight agency, a service bureau, a qualified contractor, or another source. Strong lines of communication must be established between the assessor's staff and the designated support groups.

5.3 Data Processing Support

Computer-assisted mass appraisals require considerable data processing support. (See the *Standard on Facilities, Equipment, Computers, and Supplies* [IAAO 2003].)

5.3.1 Hardware

The hardware should be powerful enough to permit computerization of appropriate applications of the cost, sales comparison, and income approaches, as well as providing word processing, data inquiry, and activity summaries. The requirements for efficient running of desired software should be established before the acquisition of hardware. Computer equipment can be purchased, leased, rented, or shared with other jurisdictions. If the purchase option is chosen, the equipment should be easy to upgrade so that technological developments can be taken advantage of without purchasing an entirely new system.

5.3.2 Software

Computer software can be developed internally, adapted from software developed by other public agencies, or purchased (in whole or in part) from private vendors. (Inevitably there will be some tailoring needed to adapt externally developed software to the requirements of the user's environment.) Each alternative has advantages and disadvantages. The software should be designed so that it can be easily modified; it should also

be well documented, at both the appraiser/user and programmer levels.

Security measures should exist to prevent unauthorized use and to provide backup in the event of accidental loss or destruction of data.

5.4 Contracting for Appraisal Services

5.4.1 Overview

Reappraisal contracts can include mapping, data collection, data processing, and other services, as well as valuation. They offer the potential of acquiring professional skills and resources quickly. Often these skills and resources are not available internally. Contracting for these services can permit the jurisdiction to maintain a modest staff and to budget for reappraisal on a periodic basis, but also makes the assessor less likely to develop in-house expertise. (See the *Standard on Contracting for Assessment Services* [IAAO 2002].)

5.4.2 In-House Staff

The assessor's staff must have confidence in the appraisals and be able to explain and defend them. This confidence begins with application of reliable appraisal techniques, generation of appropriate valuation reports, and review of preliminary values. It may be helpful to have reports that list each parcel, its characteristics, and its calculated value. Parcels with unusual characteristics, extreme values, or extreme changes in values should be identified for subsequent individual review. Equally important, summary reports should show average values, value changes, and ratio study statistics for various strata of properties. These should be reviewed to ensure the overall consistency of values for various types of property and various locations. (See the *Uniform Standards of Professional Appraisal Practice*, Standards Rule 6-7, for reporting requirements for mass appraisals [The Appraisal Foundation, Appraisal Standards Board 2008–2009].)

The staff should also be prepared to support individual valuations as required, preferably through comparable sales. At a minimum, staff should be able to produce a property record and explain the basic approach (cost, sales comparison, or income) used to estimate the value of the property. A property owner should never merely be told that “the computer” or “the system” produced the appraisal. Generally, the staff should tailor the explanation to the taxpayer’s knowledge and expertise. Equations converted to tabular form can be used to explain the basis for valuation. Cost tables can be used to explain values based on the cost approach.

In all cases, the assessor’s staff should be able to produce sales or appraisals of similar properties in order to support (or at least explain) the valuation of the property in question. Comparable sales can be obtained from reports that list sales by such features as type of property, area, size, and age. Alternatively, interactive programs

can be obtained or developed that identify and display the most comparable properties.

Assessors should notify property owners of their valuations in sufficient time for property owners to discuss their appraisals with the assessor and appeal the value if they choose to do so (*Standard on Public Relations* [IAAO 2001]). Statutes should provide for a formal appeals process beyond the assessor’s level (*Standard on Assessment Appeal* [IAAO 2001]).

5.5 Benefit-Cost Considerations

5.5.1 Overview

The object of mass appraisal is to produce equitable valuations at low costs. Improvements in equity generally require increased expenditures.

Benefit-cost analysis in mass appraisal involves two major issues, one of policy and the other of administration.

5.5.2 Policy Issues

An assessment jurisdiction requires a certain expenditure level simply to inventory, list, and value properties. Beyond that point, additional expenditures make possible rapid improvements in equity initially, but marginal improvements in equity diminish as expenditure increases. At a minimum, jurisdictions should budget to meet statutory standards of equity. Refer to the *Standard on Ratio Studies* (IAAO 2007) for a listing of performance standards.

5.5.3 Administrative Issues

Maximizing equity per dollar of expenditure is the primary responsibility of assessment administration. The assessor must provide leadership, make decisions, and get results by planning, budgeting, organizing, and controlling within all social, economic, and governmental limits (IAAO 1990, chapter 16). The computer-assisted mass appraisal system selected must be designed and used to evaluate appraisal performance and ensure compliance with laws, regulations, and policies.

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Glossary

Abstraction Method—Method of land valuation in the absence of vacant land sales, whereby improvement values obtained from the cost model are subtracted from sales prices of improved parcels to yield residual land value estimates. Also called land residual technique.

Accrued Depreciation—(1) The amount of depreciation, from any and all sources, that affects the value of the property in question on the effective date of the appraisal. (2) In accounting, the amount reserved each year or accumulated to date in the accounting system for replacement of a building or other asset. When depreciation is recorded as a dollar amount, it may be deductible from total plant value or investment to arrive at the rate base for public utilities. See also Depreciation.

Acquisition Value—An assessed value based on the cost of acquiring the property; increases in this value are usually limited until the next qualifying sale.

Adaptive Estimation Procedure (AEP)—A computerized, iterative, self-referential procedure using properties for which sales prices are known to produce a model that can be used to value properties for which sales prices are not known. Also called “feedback.”

Adjusted Sale Price—The sale price that results from adjustments made to the stated sale price to account for the effects of time, personal property, financing, or the like.

Adjustments—Modifications in the reported value of a variable, such as sale price or gross income. For example, adjustments can be used to estimate market value in the sales comparison approach by adjusting the sale price of the comparable for differences between comparable and subject properties.

Ad Valorem Tax—A tax levied in proportion to the value of the thing(s) being taxed.

Aerial Photograph—A photograph of a part of the earth’s surface taken by an aircraft-supported camera.

Agricultural Property—Improved or unimproved land devoted to or available for the production of crops or other agricultural products, livestock, and agricultural support buildings.

Allocation Method—A method used to value land, in the absence of vacant land sales, by using a typical ratio of land to improvement value. Also called land ratio method.

Appraisal Foundation, The—The organization authorized by the United States Congress as the source of appraisal standards and appraiser qualifications.

Appraisal Ratio—(1) The ratio of the appraised value to an indicator of market value. (2) By extension, an estimated fractional relationship between the appraisals and market values of a group of properties. See also Level of Appraisal.

Appraisal Ratio Study—A ratio study using independent expert appraisals as indicators of market value.

Arm's-Length Sale—A sale between two unrelated parties, both seeking to maximize their positions from the transaction.

Assessment Cycle—A legally sanctioned reappraisal period generally ranging from one to ten years.

Assessment Date—The status date for tax purposes. Appraised values reflect the status of the property and any partially completed construction as of this date.

Assessment Equity—The degree to which assessments bear a consistent relationship to market value.

Assessment Level—The common, or overall, ratio of assessed values to market values.

Assessment Maps—See Cadastral Map.

Assessment Ratio—(1) The fractional relationship an assessed value bears to the market value of the property in question. (2) By extension, the fractional relationship the total of the assessment roll bears to the total market value of all taxable property in a jurisdiction. See Level of Assessment.

Assessment Ratio Study—An investigation intended to determine the assessment ratio and assessment equity.

Assessment Ratio—(1) The fractional relationship an assessed value bears to the market value of the property in question. (2) By extension, the fractional relationship the total of the assessment roll bears to the total market value of all taxable property in a jurisdiction. See Level of Assessment.

Assessment Ratio Study—An investigation intended to determine the assessment ratio and assessment equity.

Audit—A systematic investigation or appraisal of procedures or operations for the purpose of determining conformity with specifically prescribed criteria.

Audit, Performance—An analysis of an organization to determine whether or not the quantity and quality of work performed meets standards. Ratio studies are an important part of performance audits of an assessing organization.

Audit, Procedural—An examination of an organization to determine whether established or recommended procedures are being followed.

Audit Program—The procedures undertaken or particular work done by an accountant in conducting an examination.

Audit Trail—A set of records of the changes made to another set of records.

Automated Valuation Model—A computer program for property valuation that analyzes data using an automated process. See also Computer-assisted Mass Appraisal.

Base Year Value—In a nonmarket-value assessment system, the assessed value established as of a specific year.

Benchmark—(1) A term used in land surveying to mean a known point of reference. (2) In property appraisal, a property of known value and of known effective age and replacement cost. (3) By extension, a model property to be used in determining by comparison the grade or quality class of other properties.

Cadastral Map—A scale map displaying property ownership boundaries and showing the dimensions of each parcel with related information such as parcel identifier, survey lines, and easements.

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

CAMA—See Computer-assisted Mass Appraisal.

Capitalization Rate—Any rate used to convert an estimate of future income to an estimate of market value; the ratio of net operating income to market value.

Capitalization of Ground Rents—A method of estimating land value in the absence of comparable sales; applicable where there is an income stream; for example, to farmland and commercial land leased on a net basis.

Class—A set of items defined by common characteristics. (1) In property taxation, property classes such as residential, agricultural, and industrial may be defined. (2) In assessment, building classification systems based on type of building design, quality of construction, or structural type are common. (3) In statistics, a pre-defined category into which data may be put for further analysis. For example, ratios may be grouped into the following classes: less than 0.500, 0.500 to 0.599, 0.600 to 0.699, and so forth.

Coding—(1) The act of reducing a description of a unique object, such as a parcel of real estate, to a set of one or more measures or counts of certain of its characteristics, such as square footage, number of bathrooms, and the like. (2) Encoding, a related term, is usually used to refer to the act of translating coded descriptions useful to human beings into a form that can be processed by computers. (3) Coding is sometimes also used to refer to the writing of instructions that direct the processing done by computers.

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 aY , a is the coefficient of Y. (2) A dimensionless statistic, useful as a measure of change or relationship; for example, correlation coefficient.

Commercial Property—Generally, any nonindustrial, nonresidential realty of a commercial enterprise. Includes realty used as a retail or wholesale establishment, hotel or motel, service station, commercial garage, warehouse, theater, bank, nursing home, and the like.

Comparable Sales; Comparables—(1) Recently sold properties that are similar in important respects to a property being appraised. The sale price and the physical, functional, and locational characteristics of each of the properties are compared to those of the property being appraised in order to arrive at an estimate of value. (2) By extension, the term “comparables” is sometimes used to refer to properties with rent or income patterns comparable to those of a property being appraised.

Comparative Unit Method—(1) A method of appraising land parcels in which an average or typical value is estimated for each stratum of land. (2) A method of estimating replacement cost in which all the direct and indirect costs of a structure (except perhaps architect's fees) are aggregated and specified with reference to a unit of comparison such as square feet of ground area or floor area, or cubic content. Separate factors are commonly specified for different intervals of the unit of comparison and for different story heights, and separate schedules are commonly used for different building types and quality classes.

Computer-assisted Assessment System—A system for assessing real and personal property with the assistance of a computer. A computer may be used, for example, in the appraisal process, in keeping track of ownership and exemption status, in printing the assessment roll, in coordinating the work load of real property appraisers and personal property appraisers with respect to the assessment of commercial and industrial properties, and in a number of other areas.

Computer-assisted Mass Appraisal (CAMA)—A system of appraising property, usually only certain types of real property, that incorporates computer-supported statistical analyses such as multiple regression analysis and adaptive estimation procedure to assist the appraiser in estimating value.

Cost—The money expended in obtaining an object or attaining an objective; generally used in appraisal to mean the expense, direct and indirect, of constructing an improvement.

Cost Approach—(1) One of the three approaches to value, the cost approach is based on the principle of substitution—that a rational, informed purchaser would pay no more for a property than the cost of building an acceptable substitute with like utility. The cost approach seeks to determine the replacement cost new of an improvement less depreciation plus land value. (2) The method of estimating the value of property by (a) estimating the cost of construction based on replacement or reproduction cost new or trended historic cost

(often adjusted by a local multiplier), (b) subtracting depreciation, and (c) adding the estimated land value. The land value is most frequently determined by the sales comparison approach.

Cost Schedules—Charts, tables, factors, curves, equations, and the like intended to help estimate the cost of replacing a structure from a knowledge of some other factors, such as its quality class and number of square feet.

Data—The general term for masses of numbers, codes, and symbols. “Data” is the plural of datum, one element of data.

Data Edit—The process of examining recorded data to ensure that each element of data is reasonable and is consistent with others recorded for the same object, such as a parcel of real estate. Data editing, which may be done by persons or by computer, is essentially a mechanical process, distinct from verifying the correctness of the recorded information by calling or writing property owners.

Data Management—The human (and sometimes computer) procedures employed to ensure that no information is lost through negligent handling of records from a file, that all information is properly supplemented and up-to-date, and that all information is easily accessible.

Depreciation—Loss in value of an object, relative to its replacement cost new, reproduction cost new, or original cost, whatever the cause of the loss in value. Depreciation is sometimes subdivided into three types: physical deterioration (wear and tear), functional obsolescence (suboptimal design in light of current technologies or tastes), and economic obsolescence (poor location or radically diminished demand for the product). See also Accrued Depreciation.

Depreciation Schedules—Tables used in mass appraisal that show the typical loss in value at various ages or effective ages for different types of properties.

Discount Rate—The rate of return on investment; the rate an investor requires to discount future income to its present worth.

Economic Area—A geographic area, typically encompassing a group of neighborhoods, defined on the basis that the properties within its boundaries are more or less equally subject to a set of one or more economic forces that largely determine the value of the properties in question.

Equity—(1) In assessment, the degree to which assessments bear a consistent relationship to market value. Measures include the coefficient of dispersion, coefficient of variation, and price-related differential. (2) In popular usage, a synonym for tax fairness. (3) In ownership, the net value of property after liens and other charges have been subtracted.

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Expense Ratios—The ratio of expenses to gross income.

Factor—(1) An underlying characteristic of something (such as a house) that may contribute to the value of a variable (such as its sale price), but is observable only indirectly. For example, construction quality is a factor defined by workmanship, spacing of joists, and materials used. Factor definition and measurement may be done subjectively or by a computer-assisted statistical algorithm known as factor analysis. (2) Loosely, any characteristic used in adjusting the sales prices of comparables. (3) The reciprocal of a rate. Assessments may be equalized by multiplying them by a factor equal to the reciprocal of the assessment ratio, and value can be estimated using the income approach by multiplying income by a factor equal to the reciprocal of the discount rate.

Feedback—See Adaptive Estimation Procedure.

Front Foot—The unit or standard of linear measure used in measuring frontage.

Geographic Information System (GIS)—(1) A database management system used to store, retrieve, manipulate, analyze, and display spatial information. (2) One type of computerized mapping system capable of integrating spatial data (land information) and attribute data among different layers on a base map.

Gross Income—The payments to an owner that a property can generate before expenses are deducted.

Gross Income Multiplier—A capitalization technique that uses the ratio between the sale price of a property and its potential gross income or its effective gross income.

Improvements—Buildings, other structures, and attachments or annexations to land that are intended to remain so attached or annexed, such as sidewalks or sewers.

Income Approach—One of the three approaches to value, based on the concept that current value is the present worth of future benefits to be derived through income production by an asset over the remainder of its economic life. The income approach uses capitalization to convert the anticipated benefits of the ownership of property into an estimate of present value.

Industrial Property—Generally, any property used in a manufacturing activity, such as a factory, wholesale bakery, food processing plant, mill, mine, or quarry.

Integrity—The quality of a data element or program being what it says it is; usually distinguished from validity, the quality of its being what it should be in terms of some ultimate purpose. After data are edited and encoded and programs are prepared, their integrity is ensured by safeguards that prevent accidental or unauthorized tampering with them.

Land—(1) In economics, the surface of the earth and all the natural resources and natural productive powers over which possession of the earth's surface gives man control. (2) In law, a portion of the earth's surface, together with the earth below it, the space above it, and all things annexed thereto by nature or by man. See also Improvements.

Land Residual Technique—See Abstraction Method.

Legal Description—A delineation of dimensions, boundaries, and relevant attributes of a real property parcel that serve to identify the parcel for all purposes of law. The description may be in words or codes, such as metes and bounds or coordinates. For a subdivided lot, the legal description would probably include lot and block numbers and subdivision name.

Level of Appraisal—The common, or overall, ratio of appraised values to market values. Three concepts are usually of interest: the level required by law, the true or actual level, and the computed level, based on a ratio study.

Level of Assessment; Assessment Ratio—The common or overall ratio of assessed values to market values. Compare Level of Appraisal. Note: The two terms are sometimes distinguished, but there is no convention determining their meanings when they are. Three concepts are commonly of interest: what the assessment ratio is legally required to be, what the assessment ratio actually is, and what the assessment ratio seems to be, on the basis of a sample and the application of inferential statistics. When level of assessment is distinguished from assessment ratio, "level of assessment" usually means either the legal requirement or the true ratio, and "assessment ratio" usually means the true ratio or the sample statistic.

Linear Regression—A kind of statistical analysis used to investigate whether a dependent variable and a set of one or more independent variables share a linear correlation and, if they do, to predict the value of the dependent variable on the basis of the values of the other variables. Regression analysis of one dependent variable and only one independent variable is called simple linear regression, but it is the word simple (not linear) that distinguishes it from multiple regression analysis with its multiple independent variables.

Location—The numerical or other identification of a point (or object) sufficiently precise so the point can be situated. For example, the location of a point on a plane can be specified by a pair of numbers (plane coordinates) and the location of a point in space can be specified by a set of three numbers (space coordinates). However, location may also be specified in other terms than coordinates. A location may be specified as being at the intersection of two specific lines by identifying it with some prominent and known feature (for example, "on top of Pikes Peak" or "at the junction of the Potomac and Anacostia Rivers").

Map—A conventional representation, usually on a plane surface and at an established scale, of the physical features (natural, artificial, or both) of a part or the whole of the earth's surface. Features are identified by means of signs and symbols, and geographical orientation is indicated.

Map, Tax—A map drawn to scale and delineated for lot lines or property lines or both, with dimensions or areas and identifying numbers, letters, or names for all delineated lots or parcels.

Market—(1) The topical area of common interest in which buyers and sellers interact. (2) The collective body of buyers and sellers for a particular product.

Market Adjustment Factors—Market adjustment factors, reflecting supply and demand preferences, are often required to adjust values obtained from the cost approach to the market. These adjustments should be applied by type of property and area and are based on sales ratio studies or other market analyses. Accurate cost schedules, condition ratings, and depreciation schedules will minimize the need for market adjustment factors.

Market Analysis—A study of real estate market conditions for a specific type of property.

Market Area—See Economic Area.

Market Value—Market value is the major focus of most real property appraisal assignments. Both economic and legal definitions of market value have been developed and refined. A current economic definition agreed upon by agencies that regulate federal financial institutions in the United States is:

The most probable price (in terms of money) which 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:

The buyer and seller are typically motivated;

Both parties are well informed or well advised, and acting in what they consider their best interests;

A reasonable time is allowed for exposure in the open market;

Payment is made in terms of cash in United States dollars or in terms of financial arrangements comparable thereto;

The 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.

Market-Value Standard—A requirement of law or practice that the assessment ratio of all properties be equal to one. Two issues are implicit here: that fractional assessment levels be avoided and that all property be assessed on the basis of its market value and not on the basis of its value in some particular use—for example, agriculture—unless that use is the only use to which the property can legally be put (in which case its use value would be equal to its market value).

Mass Appraisal—The process of valuing a group of properties as of a given date, using standard methods, employing common data, and allowing for statistical testing.

Mass Appraisal Model—A mathematical expression of how supply and demand factors interact in a market.

Model—(1) A representation of how something works. (2) 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 Area—See Economic Area.

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, Multiple Regression Analysis (MRA)—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. When two or more variables are used, the procedure is called multiple regression analysis. See Linear Regression.

Neighborhood—(1) The environment of a subject property that has a direct and immediate effect on value. (2) A geographic area (in which there are typically fewer than several thousand properties) defined for some useful purpose, such as to ensure for later multiple regression modeling that the properties are homogeneous and share important locational characteristics.

Net Income—The income expected from a property after deduction of allowable expenses.

Net Income Multiplier—A factor expressing the relationship between value and net operating income; the reciprocal of the overall rate.

Objective—The quality of being definable by specific criteria without the need for judgment.

Open Market—A freely competitive market in which any buyer or seller may trade and in which prices are determined by competition.

Overall Rate (OAR)—A capitalization rate that blends all requirements of discount, recapture, and effective tax rates for both land and improvements; used to convert annual net operating income into an indicated overall property value.

Parcel—A contiguous area of land described in a single legal description or as one of a number of lots on a plat; separately owned, either publicly or privately; and capable of being separately conveyed.

Parcel Identifier—A code, usually numerical, representing a specific land parcel's legal description. The purpose of parcel identifiers is to permit reference to legal descriptions by using a code of uniform and manageable size, thereby facilitating record-keeping and handling. Also called parcel identification number.

Personal Property—Consists of every type of property that is not real property. Personal property is movable without damage to itself or the real estate and is subdivided into tangible and intangible.

Price, Adjusted Sale—The sale price that results from adjustments made to the stated sale price to account for the effects of time, personal property, atypical financing, and the like.

Price, Market—The value of a unit of goods or service, expressed in terms of money, as established in a free and open market. Note: This term is sometimes distinguished from "market value" on the ground that the latter term assumes that buyers and sellers are informed, but this assumption is also implied by the phrase "free and open market." Compare Price, Sale.

Price, Sale—(1) The actual amount of money exchanged for a unit of goods or services, whether or not established in a free and open market. An indicator of market value. (2) Loosely used synonymously with "offering" or "asked" price. Note: The sale price is the "selling price" to the vendor and the "cost price" to the vendee.

Property—(1) An aggregate of things or rights to things. These rights are protected by law. There are two basic types of property: real and personal. (2) The legal interest of an owner in a parcel or thing.

Property Record Card (Form)—An assessment document with blanks for the insertion of data for property identification and description, for value estimation, and for property owner satisfaction. The basic objectives of

property record forms are, first, to serve as a repository of most of the information deemed necessary for identifying and describing a property, valuing a property, and assuring property owners that the assessor is conversant with their properties, and, second, to document property appraisals. Use of properly designed property record forms permits an organized and uniform approach to amassing a property inventory.

Ratio, Assessment—See Assessment Ratio.

Ratio Study—A study of the relationship between appraised or assessed values and market values. Indicators of market values may be either sales (sales ratio study) or independent "expert" appraisals (appraisal ratio study). Of common interest in ratio studies are the level and uniformity of the appraisals or assessments. See also Level of Appraisal and Level of Assessment.

RCN—Replacement cost new or reproduction cost new.

RCNLID—Replacement cost new less depreciation or reproduction cost new less depreciation.

Real Estate—The physical parcel of land and all improvements permanently attached. Compare Real Property.

Real Property—Consists of the interests, benefits, and rights inherent in the ownership of land plus anything permanently attached to the land or legally defined as immovable; the bundle of rights with which ownership of real estate is endowed. To the extent that "real estate" commonly includes land and any permanent improvements, the two terms can be understood to have the same meaning. Also called "realty."

Reappraisal—The mass appraisal of all property within an assessment jurisdiction accomplished within or at the beginning of a reappraisal cycle (see below, sense 2). Also called revaluation or reassessment.

Reappraisal Cycle—(1) The period of time necessary for a jurisdiction to have a complete reappraisal. For example, a cycle of five years occurs when one-fifth of a jurisdiction is reappraised each year and also when a jurisdiction is reappraised all at once every five years. (2) The maximum interval between reappraisals as stated in laws.

Reassessment—(1) The relisting and revaluation of all property, or all property of a given class, within an assessment district by order of an authorized officer or body after a finding by such an officer or body that the original assessment is too faulty for correction through the usual procedures of review and equalization. (2) The revaluation of all real property by the regularly constituted assessing authorities, as distinguished from assessment on the basis of valuations most or all of which were established in some prior year. See also Revaluation.

Reciprocal—The result obtained when 1 is divided by a given number.

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 Analysis—See Multiple Regression Analysis.

Reliability—The degree to which measures are free from random error and therefore yield consistent results; the extent to which a procedure yields consistent results on repeated trials.

Replacement Cost; Replacement Cost New—The cost, including material, labor, and overhead, that would be incurred in constructing an improvement having the same utility to its owner as a subject improvement, without necessarily reproducing exactly any particular characteristics of the subject. The replacement cost concept implicitly eliminates all functional obsolescence from the value given; thus, only physical depreciation and economic obsolescence need to be subtracted to obtain replacement cost new less depreciation (RCNLD).

Replacement Cost New Less Depreciation (RCLD)—In the cost approach, replacement cost new less physical incurable depreciation.

Reproduction Cost; Reproduction Cost New—The cost of constructing a new property, reasonably identical (having the same characteristics) with the given property except for the absence of physical depreciation, using the same materials, construction standards, design, and quality of workmanship, computed on the basis of prevailing prices and on the assumption of normal competency and normal conditions.

Residential Property—Property used for housing such as single-family residences, duplexes, or apartment buildings.

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

Residual Technique—A method of arriving at the unknown value of a property component by subtracting the known values of other components from a known overall value.

Revaluation—A reappraisal of property; especially a complete reappraisal of real property after assessment for one or more years on valuations most (or all) of which were established in some prior year. Compare Reassessment and Reappraisal.

Review—(1) Consideration by a board of appeals, a board of equalization, a board of review, or a court, of

individual, property class, or district assessments, whether for the purpose of adding omitted taxable property, removing exempt property, or equalizing the valuations placed on listed property. (2) The act or process of critically studying a report, such as an appraisal, prepared by another.

Sale, Arm's-Length—A sale in the open market between two unrelated parties, each of whom is reasonably knowledgeable of market conditions and under no undue pressure to buy or sell.

Sale Price—See Price, Sale; Price, Adjusted Sale.

Sales Comparison Approach—One of three approaches to value, the sales comparison approach estimates a property's value (or some other characteristic, such as its depreciation) by reference to comparable sales.

Sales Data—(1) Information about the nature of the transaction, the sale price, and the characteristics of a property as of the date of sale. (2) The elements of information needed from each property for some purpose, such as appraising properties by the direct sales comparison approach.

Sales File—A file of sales data.

Sales Ratio Study—A ratio study that uses sales prices as proxies for market values.

Schedules—Tables, equations, or some other means of presenting the relationship between the values of two or more variables that are functionally related. For example, cost schedules present the relationship between cost per square foot and living area for a number of quality classes, building heights, and other characteristics.

Single-Property Appraisal—Systematic appraisal of properties one at a time.

Site—The location of a person, thing, or event.

Site Characteristics—(1) Characteristics of (and data that describe) a particular property, especially land size, shape, topography, drainage, and so on, as opposed to location and external economic forces.

Software—(1) Computer programs. (2) Those parts of a computer system that are not machinery or circuits; procedures and possibly documentation are included along with programs.

Special-Purpose Property—A property adapted for a single use.

Standard 6—See *Uniform Standards of Professional Appraisal Practice*.

Stratify—To divide, for purposes of analysis, a sample of observations into two or more subsets according to some criterion or set of criteria.

Stratum, Strata (pl.)—A class or subset that results from stratification.

Subclass—A group of properties within a class, smaller than the class, usually (although not necessarily) defined by stratification rather than by sampling.

Subject Property—The property being appraised.

Subjective—Having the quality of requiring judgment in arriving at an appropriate answer of value of a variable (such as the quality class of a structure).

Three Approaches to Value—A convenient way to group the various methods of appraising a property. The cost approach encompasses several methods for estimating replacement cost new of an improvement less depreciation plus land value. The sales comparison approach estimates values by comparison with similar properties for which sales prices are known. The methods included in the income approach are based on the assumption that value equals the present worth of the rights to future income.

Time-adjusted Sale Price—The price at which a property sold, adjusted for the effects of price changes reflected in the market between the date of sale and the date of analysis.

Trending—Adjusting the values of a variable for the effects of time. Usually used to refer to adjustments of assessments intended to reflect the effects of inflation and deflation and sometimes also, but not necessarily, the effects of changes in the demand for microlocational goods and services.

Trending Factor—A figure representing the increase in cost or selling price over a period of time. Trending accounts for the relative difference in the value of a dollar between two periods.

Uniformity—The equality of the burden of taxation in the method of assessment.

Uniform Standards of Professional Appraisal Practice—Annual publication of the Appraisal Standards Board of The Appraisal Foundation: “These Standards deal with the procedures to be followed in performing an appraisal, appraisal review, or appraisal consulting service and the manner in which an appraisal, appraisal review, or appraisal consulting service is communicated. ... Standard 6 establishes requirements for the development and reporting of mass appraisals of a universe of properties for ad valorem tax purposes or any other intended use” (The Appraisal Foundation, Appraisal Standards Board 2002, Preamble, p. 6).

Unit of Comparison—A property as a whole or some smaller measure of the size of the property used in the sales comparison approach to estimate a price per unit.

Use Class—(1) A grouping of properties based on their use rather than, for example, their acreage or construction. (2) One of the following classes of property: single-family residential, multifamily residential, agricultural, commercial, industrial, vacant land, and institutional/exempt. (3) Any subclass refinement of the above—for example, townhouse, detached single-family condominium, house on farm, and so on.

Use Value—(1) The value of property in a specific use. (2) Property entirely used for a specific purpose or use that may entitle the property to be assessed at a different level than others in the jurisdiction. Examples of properties that may be assessed at use value under the statutes include agricultural land, timberland, and historical sites.

USPAP—See *Uniform Standards of Professional Appraisal Practice*.

Valuation—(1) The process of estimating the value—market, investment, insured, or other properly defined value—of a specific parcel or parcels of real estate or of an item or items of personal property as of a given date. (2) The process or business of appraising, of making estimates of the value of something. The value usually required to be estimated is market value.

Valuation Date—The specific date as of which assessed values are set for purposes of property taxation. This date may also be known as the “date of finality.” See also Assessment Date.

Valuation Model—A representation in words or in an equation that explains the relationship between value or estimated sale price and variables representing factors of supply and demand.

Value—(1) The relationship between an object desired and a potential owner; the characteristics of scarcity, utility, desirability, and transferability must be present for value to exist. (2) Value may also be described as the present worth of future benefits arising from the ownership of real or personal property. (3) The estimate sought in a valuation. (4) Any number between positive infinity and negative infinity. See also Market Value.

Variable—An item of observation that can assume various values, for example, square feet, sales prices, or sales ratios. Variables are commonly described using measures of central tendency and dispersion.

Verify—To check the accuracy of something. For example, sales data may be verified by interviewing the purchaser of the property, and data entries may be verified by check digits.

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Assessment Standards of the International Association of Assessing Officers

Guide to Assessment Administration Standards

Standard on Assessment Appeal

Standard on Automated Valuation Models

Standard on Contracting for Assessment Services

Standard on Digital Cadastral Maps and Parcel Identifiers

Standard on Facilities, Computers, Equipment, and Supplies

Standard on Manual Cadastral Maps and Parcel Identifiers

Standard on Mass Appraisal of Real Property

Standard on Oversight Agency Responsibilities

Standard on Professional Development

Standard on Property Tax Policy

Standard on Public Relations

Standard on Ratio Studies

Standard on Valuation of Personal Property

Standard on Valuation of Property Affected by Environmental Contamination

Standard on Verification and Adjustment of Sales

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Standard on Ratio Studies

Approved January 2010

INTERNATIONAL ASSOCIATION OF ASSESSING OFFICERS

The assessment standards set forth herein represent a consensus in the assessing profession and have been adopted by the Executive Board of the International Association of Assessing Officers. The objective of these standards is to provide a systematic means by which concerned assessing officers can improve and standardize the operation of their offices. The standards presented here are advisory in nature and the use of or compliance with such standards is purely voluntary. If any portion of these standards is found to be in conflict with the Uniform Standards of Professional Appraisal Practice (USPAP) or state laws, USPAP and state laws shall govern.

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Appendix B—B.1

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Standard on Ratio Studies

Part 1. Guidance for Local Jurisdictions

This standard comprises two major parts. Part 1 focuses on the needs of local assessors. Part 2 presents guidelines for oversight agencies that use ratio studies for equalization and appraisal performance monitoring. The Definitions section explains the terms used in this standard. The appendixes present many technical issues in greater detail. More information on many topics addressed in this standard can be found in *Property Appraisal and Assessment Administration* (IAAO 1990, chapter 20) and in Gloude-mans (1999, chapter 5).

1. Scope

This part of the standard provides recommendations on the design, preparation, interpretation, and use of ratio studies for the real property quality assurance operations of an assessor's office. Quality assurance/control measures include data integrity review, assessment level and uniformity analysis, and computer-assisted mass appraisal (CAMA) system performance testing, among others.

Assessors may have the opportunity to utilize ratio study information at a greater depth than oversight agencies. These internal studies can help improve appraisal methods or identify areas within the jurisdiction that need attention. External ratio studies conducted by oversight agencies (Part 2) focus more upon testing the assessor's past performance in a few broad property categories.

2. Overview

For local jurisdictions, *ratio study* is used as a generic term for sales-based studies designed to evaluate appraisal performance. The term is used in preference to the term *assessment ratio study* because use of assessments can mask the true level of appraisal and confuse the measurement of appraisal uniformity when the legal assessment level is other than 100 percent of fair market value.

2.1 The Concepts of Market Value and Appraisal Accuracy

Market value is the major focus of most mass appraisal assignments. The major responsibility of assessing officers is estimating the market value of properties based on legal requirements or accepted appraisal definitions. The viability of the property tax depends largely on the accuracy of such value estimates. The accuracy of appraisals made for assessment purposes is therefore of concern, not only to assessors but also to taxing authorities, property taxpayers, and elected representatives. Appraisal accuracy refers to the degree to which properties are appraised at

market value, as defined by professional standards (see *Glossary for Property Appraisal and Assessment* [IAAO 1997]) and legal requirements. While a single sale may provide an indication of the market value of the property in question, it cannot form the basis for a ratio study, which provides information about the market values of groups of properties. Dividing the appraised value by the sale price forms the ratios. The ratio can be multiplied by 100 and expressed as a percentage.

Market value is a concept in economic theory and cannot be observed directly. However, market values can be represented in ratio studies by sales prices (market prices) that have been confirmed, screened, and adjusted as necessary (see Appendix A, "Sales Validation Guidelines"). Sales prices provide the most objective estimates of market values and under normal circumstances should provide good indicators of market value.

2.2 Aspects of Appraisal Performance

There are two major aspects of appraisal accuracy: level and uniformity. Appraisal level refers to the overall ratio of appraised values to market values. Level measurements provide information about the degree to which goals or certain legal requirements are met. Uniformity refers to the degree to which properties are appraised at equal percentages of market value.

2.3 Uses of Ratio Studies

Key uses of ratio studies are as follows:

- measurement and evaluation of the level and uniformity of mass appraisal models
- internal quality assurance and identification of appraisal priorities
- determination of whether administrative or statutory standards have been met
- determination of time trends
- adjustment of appraised values between reappraisals

Assessors, appeal boards, taxpayers, and taxing authorities can use ratio studies to evaluate the fairness of funding distributions, the merits of class action claims, or the degree of discrimination (see Appendix F). However, ratio study statistics cannot be used to judge the level of appraisal of an *individual* parcel. Such statistics can be used to adjust assessed values on appealed properties to the common level.

2.4 Applicability

Local jurisdictions should use ratio studies as a primary mass appraisal testing procedure and their most important performance analysis tool. The ratio study can assist such jurisdictions in providing fair and equitable assessment of all property. Ratio studies provide a means for testing and evaluating mass appraisal valuation models to ensure that value estimates meet attainable standards of accuracy; see *Uniform Standards of Professional Appraisal Practice* (USPAP) Standard Rule 6-6 (Appraisal Foundation 2010-2011). Ratio study reports are typically included as part of the written documentation used to communicate results of a mass appraisal and to comply with *Standard Rule 6-7(b)*. Ratio studies also play an important role in judging whether constitutional uniformity requirements are met. Compliance with state or provincial performance standards should be verified by the local jurisdiction before value notices are sent to property owners.

3. Steps in Ratio Studies

Ratio studies generally involve the seven basic steps listed below.

1. define the purpose, scope and objectives
2. design
3. stratification
4. collection and preparation of market data
5. matching of appraisal and market data
6. statistical analysis
7. evaluation and use of results

3.1 Definition of the Purpose, Scope, and Objectives

The first step in any ratio study is to determine and state clearly the reasons for the study. This crucial step of identifying the purpose of the study determines the specific goals, scope, content, depth, and required flexibility.

3.2 Design

In the design of the study the assessor must consider the quantity of sale data and the resources available for conducting the ratio study. Although absolute accuracy cannot be ensured, all reasonable, cost-effective steps should be taken to maximize reliability.

The assessor should identify the following factors:

- the groups or classes of properties to be included in the study
- important legal, physical, and economic characteristics of the properties selected for study
- the quantity and quality of data available

- the values being tested and sales period being used
- available resources, such as the number and expertise of staff, computer hardware and software applications, and additional limiting conditions

3.2.1 Level of Sophistication and Detail

A basic design principle is to keep the study as simple as possible while consistent with its purpose. Ratio studies are not all alike and should be tailored to an intended use.

Data analysis has been made easier through computerization. Although every study does not require the same level of statistical detail, each ratio study should include measures of appraisal level, appraisal uniformity, and statistical reliability. Graphs, charts, or other pictorial representations can be useful tools for showing distributions and patterns in the data. There is no model ratio study design that can serve all jurisdictions or all situations equally well. Informed, reasoned judgment and common sense are required in the design of ratio studies.

3.2.2 Sampling

A ratio study is a form of applied statistics, because the analyst draws conclusions about the appraisal of the population (the entire jurisdiction) of properties based only on those that have sold during a given time period. The sales ratios constitute the sample that will be used to draw conclusions or inferences about the population.

To determine the accuracy of appraisals with absolute certainty, it would be necessary for all properties in the population to have been sold in arm's-length, open-market transfers near the appraisal date. Since this is not possible, ratio studies must use samples and draw inferences or conclusions about the population from these samples.

The number of parcels in the population (the jurisdiction or stratum) is not an important determinant of a statistically valid and reliable sample.

3.2.2.1 Limitations of Sale Samples

Users of sales ratio studies should be aware of the following cautions associated with use of sale samples:

- Sales are not “randomly selected” from the population, in the strict technical sense (see section 4.5, Sample Representativeness).
- Value-related characteristics of a sale sample may not represent all the value-related characteristics of the population.
- Adjustments to sale prices may be difficult to support or may be subjective.

3.2.2.2 Data Accuracy and Integrity

The findings of a ratio study can only be as accurate as the

data used in the study. Personnel involved in collecting, screening, and adjusting sales data or making appraisals should be familiar with real estate conveyance practices in their region. They also should be proficient in the principles and practices of real estate appraisal and understand local market conditions.

Accuracy and integrity of data entered into or transferred through computer systems must be ensured. Design of computer programs should make it easy to verify data accuracy. Query tools should be accessible to users, so that data can be verified easily. Methods for checking the accuracy of assigned strata (such as school district, city, neighborhood, and category) as well as of assessed or appraised value, sale price, parcel identifier, and other fields must be established to reduce these and other nonsampling errors.

3.3 Stratification

Stratification divides all the properties within the scope of the study into two or more groups or strata. Stratification facilitates a more complete and detailed picture of appraisal performance and can enhance sample representativeness.

Each type of property subject to a distinct level of assessment could constitute a stratum. Other property groups, such as neighborhoods and age and size ranges, could constitute additional strata.

When the purpose of the study is to evaluate appraisal quality, flexibility in stratification is essential. The general goal is to identify areas in which the assessment levels are too low or lack uniformity and property groups for which additional reappraisal work may be required. In such cases, it also is highly desirable to stratify on the basis of more than one characteristic simultaneously.

Stratification can help identify differences in level of appraisal between property groups. In large jurisdictions, stratification by geographic areas is generally more appropriate for residential properties, while stratification of commercial properties by either geographic area or property subtypes (e.g., office, retail, and warehouse/industrial) can be more effective.

3.4 Collection and Preparation of Market Data

The reliability of a ratio study depends in part on how well the sales used in the study reflect market values. The underlying principle for review of sales data is to optimize the sample size, but at the same time to exclude sales that provide invalid indicators of market value. A ratio study sample with fewer than five sales tends to have exceptionally poor reliability and is not very useful.

3.5 Matching of Appraisal and Market Data

The physical and legal characteristics of each property

used in the ratio study must be the same as when sold. This implies two essential steps. First, the appraiser must ascertain whether the property descriptions match. If a parcel is split between the appraisal date and the sale date, a sale of any of its parts should not be used in the ratio study.

Second, the appraiser must ascertain whether the property rights transferred, the permitted use, and the physical characteristics of the property on the date of assessment are the same as those on the date of sale. If the physical characteristics of the property have changed since the last appraisal, adjustments may be necessary before including the property in a ratio study. Properties with significant differences in these factors should be excluded from the ratio study.

When statutory constraints are imposed on appraisal methods, the resulting assessment may be less than market value. In such cases a sales ratio study may not provide useful performance information. Constraints typically apply to land that qualifies for agricultural use value, subsidized housing, mineral land, and timberland.

Sales may include property of a type other than the type for which the ratio study analysis is intended. However, sales including more than minimal values of secondary categories are unlikely to be representative, even with adjustment.

For example, a property that is predominantly commercial may include residential components. This sale can be included as representative of the commercial category. In this case, the numerator in the ratio calculation would be the total appraised value including the value of both the commercial and residential components.

In a second example, for a ratio study of vacant land, the numerator in the ratio should reflect only the appraised value of the land. The sale price should be adjusted for the contributory value of the improvements or the sample should be excluded from further analysis.

3.6 Statistical Analysis

After a ratio is computed for each parcel in the study, measures of appraisal level, uniformity, and reliability for the entire jurisdiction and each group or stratum should be computed. The sample also could undergo exploratory data analysis to reveal patterns or features of the data (Hoaglin, Mosteller, and Tukey 1983).

3.7 Evaluation and Use of Results

A properly designed ratio study is a powerful tool for analyzing appraisal performance, evaluating CAMA system models, and suggesting strategies for improvement. A ratio study also can identify weaknesses in appraisal system performance. Unexpected study results may indicate a need to respecify or recalibrate an appraisal model

or to reevaluate the data elements used in the valuation process. However, users of ratio studies should recognize the inherent limitations of this tool, as follows:

1. A ratio study cannot provide perfect information about appraisal performance. Lack of sufficient sales or overrepresentation of one geographic area or type of property can distort results.
2. Ratio study validity requires that sold and unsold parcels be appraised at the same level and in the same manner. Violation of this condition seriously undermines the validity of the study.
3. Findings should be used only in ways that are consistent with the intended use(s) for which the study was designed.
4. Ratio study data are subject to statistical sampling errors and other processing (nonsampling) errors (see Lessler and Kalsbeek), but these limitations do not invalidate their use for informed decision-making.

4. Timing and Sample Selection

4.1 Data Requirements and Availability

The availability of data influences the design of the study and can call for revisions in the objectives of the study, limit the usefulness of the calculated statistics, or both.

4.1.1 Nature of the Population

The type of properties, market conditions, and composition of the population in terms of age, size, and value range are essential to the proper design of the study and interpretation of the results. Very large properties that rarely sell (e.g., a large power plant) can be ignored in a ratio study designed to evaluate local appraisal performance.

4.1.2 Assessment Information

Appraised values are the numerators in the ratios used in a ratio study. Information about appraisal dates, legal requirements concerning reappraisals, the dates on which the appraisals were originally set, and the period they remained in effect is required for establishing the date of analysis.

4.1.3 Indicators of Market Value

Sale price, as an indicator of market value, is the denominator in the calculation of the ratio. Specific information about the date, amount, terms, and conditions of a sale is required for proper analysis.

4.1.4 Property Characteristics

Information on property characteristics is crucial for determining whether property that was assessed is essentially the same as what was sold. Data for both sold and unsold

properties should be current, relevant, and collected in a consistent manner.

4.2 Frequency of Ratio Studies

The purpose of a ratio study dictates how often it should be conducted. Regardless of the reappraisal cycle, ratio studies made by assessors should be conducted at least annually. This frequency enables potential problems to be recognized and corrected before they become serious.

When there is a revaluation, assessors should conduct at least four ratio studies to establish the following:

1. a baseline of current appraisal performance
2. preliminary values so that any major deficiency can be corrected
3. values used in assessment notices sent to taxpayers
4. final values after completion of the first, informal phase of the appeals process

The final study can be used in planning for the following year. In addition, ratio studies can be conducted as needed to evaluate appraisal procedures, investigate a discrimination complaint, or answer a specific question.

4.3 Date of Analysis

The date of analysis depends on the purpose of the study, but generally is the assessment date of the tax year being studied, which can be the current, the next, or a past year. The assessment date of the next tax year should be used when the purpose of the study is to evaluate preliminary values in a reappraisal.

4.4 Period from Which Sales Are Drawn

This period depends on the purpose of the study and on sales activity. In general, the period should be as short as possible and, ideally, no more than one year. A longer period may be required to produce a representative sample for some strata within a jurisdiction.

To develop an adequate sample size, the sales used in ratio studies can span a period of as long as five years provided there have been no significant economic shifts or changes to property characteristics and sales prices have been adjusted for time as necessary.

4.5 Sample Representativeness

In general, a ratio study is valid to the extent that the sample is sufficiently *representative* of the population.

The distribution of ratios in the population cannot be ascertained directly and appraisal accuracy can vary from property to property. By definition, a ratio study sample would be representative when the distribution of ratios of properties in the sample reflects the distribution of ratios of properties in the population. Representativeness

is improved when the sample proportionately reflects major property characteristics present in the population of sold and unsold properties. As long as sold and unsold parcels are appraised in the same manner and the sample is otherwise representative, statistics calculated in a sales ratio study can be used to infer appraisal performance for unsold parcels.

However, if parcels that sell are selectively reappraised based on their sale prices and if such parcels are in the ratio study, uniformity inferences will not be accurate (appraisals appear more uniform than they are). In this situation, measures of appraisal level also will not be supportable unless similar unsold parcels are appraised by a model that produces the same overall percentage of market value (appraisal level) as on the parcels that sold (see Appendix D, "Sales Chasing Detection Techniques"). Assessing officials must incorporate a quality control program; including checks and audits of the data, to ensure that sold and unsold parcels are appraised at the same level.

Operationally, representativeness is improved when the following occur:

1. Appraisal procedures used to value the sample parcels are similar to procedures used to value the corresponding population
2. Accuracy of recorded property characteristics data for sold property does not differ substantially from that of unsold property,
3. Sample properties are not unduly concentrated in certain areas or types of property whose appraisal levels differ from the general level of appraisal in the population
4. Sale prices provide valid indicators of market value.

The first requirement generally is met unless sampled parcels are valued or updated differently from nonsampled parcels, or unless appraisals of sample parcels were done at a different time than appraisals of nonsampled parcels. For example, it is unlikely that the sample is representative of unsold parcels when the sample consists mostly of new construction, first-time sales of improved properties, condominium conversions, or newly platted lots.

The second requirement is met only if value-related property characteristics are updated uniformly for all property in a class as opposed to being updated only upon sale.

The third requirement relates to the extent to which appraisal performance for the sample reflects appraisal performance for the population.

The fourth requirement generally is met when the sales to be used in the sample are properly screened, adjusted if necessary, and validated.

4.6 Acquisition and Validation of Sales Data

Sales data are important in ratio studies and play a crucial role in any credible and efficient mass appraisal system. In some instances, it may be necessary to make adjustments to sales prices so they are more representative of the market. When there is more than one sale of the same property during a study period, only one of the transactions should be used in the ratio study. For guidelines on sales validation see Appendix A.

5. Ratio Study Statistics and Analyses

Once data have been properly collected, reviewed, assembled, and adjusted, outlier handling and statistical analysis can begin. This process involves the following steps.

1. A ratio should be calculated for each observation in the sample by dividing the appraised (or assessed) value by the sale price.
2. Graphs and exhibits can be developed that show the distribution of the ratios.
3. Exploratory data analysis, including outlier labeling/identification, and tests of the hypotheses of normality may be conducted.
4. Ratio study statistics of both appraisal level and uniformity should be calculated.
5. Reliability measures should be calculated.

An example of a ratio study statistical analysis report is given in table 1-1.

5.1 Data Displays

Displays or exhibits that provide a profile or picture of ratio study data are useful for illustrating general patterns and trends, particularly to nonstatisticians. The particular form of the displays, as well as the data used (e.g., sales prices, sales ratios, and property characteristics) depends on the purposes of the particular display. Types of displays useful in ratio studies are arrays, frequency distributions, histograms, plots, and maps (Gloudemans 1999).

Graphic displays can be used to

- indicate whether a sample is sufficiently representative of the properties in a stratum
- indicate the degree of nonnormality in the distribution of ratios
- depict the overall level of appraisal
- depict the degree of uniformity
- depict the degree of value bias (regressivity or progressivity)
- compare the level of appraisal or degree of uniformity among strata
- detect outlier ratios

Table 1-1. Example of Ratio Study Statistical Analysis

Data Analyzed

Rank of ratio of observation	Appraised value (\$)	Sale Price (\$)	Ratio (AV/SP)
1	48,000	138,000	0.348
2	28,800	59,250	0.486
3	78,400	157,500	0.498
4	39,840	74,400	0.535
5	68,160	114,900	0.593
6	94,400	159,000	0.594
7	67,200	111,900	0.601
8	56,960	93,000	0.612
9	87,200	138,720	0.629
10	38,240	59,700	0.641
11	96,320	146,400	0.658
12	67,680	99,000	0.684
13	32,960	47,400	0.695
14	50,560	70,500	0.717
15	61,360	78,000	0.787
16	47,360	60,000	0.789
17	58,080	69,000	0.842
18	47,040	55,500	0.848
19	136,000	154,500	0.880
20	103,200	109,500	0.942
21	59,040	60,000	0.984
22	168,000	168,000	1.000
23	128,000	124,500	1.028
24	132,000	127,500	1.035
25	160,000	150,000	1.067
26	160,000	141,000	1.135
27	200,000	171,900	1.163
28	184,000	157,500	1.168
29	160,000	129,600	1.235
30	157,200	126,000	1.248
31	99,200	77,700	1.277
32	200,000	153,000	1.307
33	64,000	48,750	1.313
34	192,000	144,000	1.333
35	190,400	141,000	1.350
36	65,440	48,000	1.363

Note: Due to rounding, totals may not add to match those on following table, which reports results of statistical analysis of above data.

Results of statistical analysis

<u>Statistic</u>	<u>Result</u>
Number of observations in sample	36
Total appraised value	\$3,627,040
Total sale price	\$3,964,620
Average appraised value	\$100,751
Average sale price	\$110,128
Mean ratio	0.900
Median ratio	0.864
Weighted mean ratio	0.915
Price-related differential (PRD)	0.98
Coefficient of dispersion (COD)	29.8%
95% median two-tailed confidence interval	(0.684, 1.067)
95% weighted mean two-tailed confidence interval	(0.806, 1.024)
Normal distribution of ratios (0.05 level of significance)	Reject – D'Agostino Pearson K^2 & Shapiro-Wilk W 9/99/9999
Date of analysis	9/99/9999
Category or class being analyzed	Residential

- identify specific opportunities to improve mass appraisal performance
- track performance measures over time

5.2 Outlier Ratios

Outlier ratios are very low or high ratios as compared with other ratios in the sample. The validity of ratio study statistics used to make inferences about population parameters could be compromised by the presence of outliers that distort the statistics computed from the sample. One extreme outlier can have a controlling influence over some statistical measures. However, some statistical measures, such as the median ratio, are resistant to the influence of outliers and trimming would not be required. Although the coefficient of dispersion (COD) is affected by extreme ratios, it is affected to a lesser extent than the coefficient of variation (COV) and the mean. The price-related differential (PRD) and weighted mean are sensitive to sales with high prices even if the ratios on higher priced sales do not appear unusual relative to other sales.

Outlier ratios can result from any of the following:

1. an erroneous sale price
2. a nonmarket sale
3. unusual market variability
4. a mismatch between the property sold and the property appraised
5. an error in the appraisal of an individual parcel
6. an error in the appraisal of a subgroup of parcels
7. any of a variety of transcription or data handling errors

In preparing any ratio study, outliers should be

1. identified
2. scrutinized to validate the information and correct errors
3. trimmed if necessary to improve sample representativeness

For guidelines on outlier identification and trimming, see Appendix B, “Outlier Trimming Guidelines.”

5.3 Measures of Appraisal Level

Estimates of appraisal level are based on measures of central tendency. They should be calculated for each stratum and for such aggregations of strata as may be appropriate. Several common measures of appraisal level (central tendency) should be calculated in ratio studies, including the median ratio, mean ratio, and weighted mean ratio. When one of these measures is calculated on the data in a sample, the result is a point estimate, which is accurate for the sample but is only one indicator of the level of

appraisal in the population. Confidence intervals around the measures of level provide indicators of the reliability of the sample statistics as predictors of the overall level of appraisal of the population. Note that noncompliance with appraisal level standards cannot be determined without the use of confidence intervals or hypothesis tests.

5.3.1 Median

The median ratio is the middle ratio when the ratios are arrayed in order of magnitude. If there is an even number of ratios, the median is the average of the two middle ratios.

The median always divides the data into two equal parts and is less affected by extreme ratios than the other measures of central tendency. Because of these properties, the median is the generally preferred measure of central tendency for evaluating overall appraisal level, determining reappraisal priorities, or evaluating the need for a reappraisal.

5.3.2 Arithmetic Mean

The arithmetic mean (aka mean or average) ratio is the average of the ratios. It is calculated by summing the ratios and dividing by the number of ratios. In a normal distribution the mean equals the median. In a distribution skewed to the right (typical of ratio study data), the mean is greater than the median. The mean is affected more by extreme ratios than the median.

5.3.3 Weighted Mean

The weighted mean ratio is the value-weighted average of the ratios in which the weights are proportional to the sales prices. The weighted mean also is the ratio of the average assessed value to the average sales price value. The weighted mean gives equal weight to each dollar of value in the sample, whereas the median and mean give equal weight to each parcel. The weighted mean is an important statistic in its own right and also is used in computing the PRD, a measure of uniformity between high- and low-value properties.

The weighted mean also can be calculated by (1) summing the appraised values, (2) summing the sales prices, and (3) dividing the first result by the second. The weighted mean also is called the *aggregate ratio*.

5.3.4 Contrasting Measures of Appraisal Level

Because it gives equal weight to each ratio and is unaffected by extreme ratios, the median is the preferred measure of central tendency for evaluating appraisal performance. Although the mean ratio is also a parcel-based measure, it can be affected appreciably by extreme ratios and can be relied upon only if the sample is of adequate size and contains few outliers.

5.4 Measures of Variability

Measures of dispersion or variability relate to the uniformity of the ratios and should be calculated for each stratum in the study. In general, the smaller the measure, the better the uniformity, but extremely low measures can signal one of the following:

acceptable causes

- extremely homogeneous properties
- very stable markets

unacceptable causes

- lack of quality control
- calculation errors
- poor sample representativeness
- sales chasing

Note that as market activity changes or as the complexity of properties increases, the measures of variability usually increase, even though appraisal procedures may be equally valid.

5.4.1 Coefficient of Dispersion

The most generally useful measure of variability or uniformity is the COD. The COD measures the average percentage deviation of the ratios from the median ratio and is calculated by the following steps:

1. subtract the median from each ratio
2. take the absolute value of the calculated differences
3. sum the absolute differences
4. divide by the number of ratios to obtain *the average absolute deviation*
5. divide by the median
6. multiply by 100

The COD has the desirable feature that its interpretation does *not* depend on the assumption that the ratios are normally distributed. In general, more than half the ratios fall within one COD of the median. The COD should not be calculated about the mean ratio.

5.4.2 Other Measures of Variability

Other useful measures of variability or the distribution of ratio study data are as follows:

- range
- percentiles
- quartiles
- interquartile range
- median absolute deviation (MAD)

- median percent deviation
- coefficient of concentration
- standard deviation
- coefficient of variation (COV)
- weighted coefficient of dispersion
- weighted coefficient of variation

See *Property Appraisal and Assessment Administration* (IAAO 1990, chapter 20) and Gloudemans (1999, chapter 5) for further discussion on these statistical measures.

Note that the typical percentage error is not the COD, but is expressed by the median percentage deviation statistic. Also, it is the interquartile range, not the COD, that brackets the middle 50 percent of the assessment ratios.

5.5 Measures of Reliability

Reliability, in a statistical sense, concerns the degree of confidence that can be placed in a calculated statistic for a sample. (For example, how precisely does the sample median ratio approximate the population median appraisal ratio?) The primary measure of importance to the local assessor is the confidence interval. A confidence interval consists of two numbers (upper and lower limits) that bracket a calculated measure of central tendency for the sample; there is a specified degree of confidence that the calculated upper and lower limits bracket the true measure of central tendency for the population. See Appendix 20-4 in *Property Appraisal and Assessment Administration* (IAAO 1990) and Appendix C for guidelines on calculating small-sample confidence intervals.

New computer-intensive statistical methods, such as the “bootstrap” (Efron and Tibshirani 1993), now enable the development of confidence interval estimates for any statistic of interest, including measures of level and uniformity.

Measures of reliability explicitly take into account the errors inherent in a sampling process. In general, these measures are tighter (better) when samples are relatively large and the uniformity of ratios is relatively good.

Measures of reliability indicate whether there is a desired degree of confidence that a given level of appraisal has *not* been achieved. This does not mean that an appraiser should tolerate measures of central tendency that fail to meet goals whenever measures of reliability are wide due to small samples, poor uniformity, or both. Such cases require either additional data for proper analysis or alternative action, such as a reappraisal, if poor uniformity is the cause. Such correction might include reappraisal, trending of strata, and respecifying or recalibrating mass appraisal models (see section 9 in this part for a discussion of ratio study standards).

5.6 Vertical Inequities

The measures of variability discussed in section 5.4 relate to “horizontal,” or random, dispersion among the ratios in a stratum, regardless of the value of individual parcels. Another form of inequity can be systematic differences in the appraisal of low- and high-value properties, termed “vertical” inequities. When low-value properties are appraised at greater percentages of market value than high-value properties, assessment *regressivity* is indicated. When low-value properties are appraised at smaller percentages of market value than high-value properties, assessment *progressivity* is the result. Appraisals made for tax purposes of course should be neither regressive nor progressive.

An index statistic for measuring vertical equity is the PRD, which is calculated by dividing the mean ratio by the weighted mean ratio. This statistic should be close to 1.00. Measures considerably above 1.00 tend to indicate assessment regressivity; measures below 1.00 suggest assessment progressivity. When samples are small or the weighted mean is heavily influenced by several extreme sales prices, the PRD may not be a sufficiently reliable measure of vertical inequities. A scatter plot of ratios versus appraised values or sale prices is a useful diagnostic tool. A downward (or upward) trend to the data indicates systematic regressivity (or progressivity). Assuming representativeness, high PRDs generally indicate low appraisals on high-priced properties. If not sufficiently representative, extreme sales prices can be excluded in calculation of the PRD. Similarly, when samples are very large, the PRD may be too insensitive to show small pockets in which there is significant vertical inequity. Standards for evaluating the PRD are given in section 9.2.7 in this part. In addition, more powerful statistical tests for vertical inequities are available and should be employed to determine the significance of the indication provided by the PRD (see section 5.7 in this part and Twork, Everly and Downing [1989]).

When these tests show vertical inequities, such inequities should be addressed through reappraisal or other corrective actions. In some cases, additional stratification can help isolate the problem. Measures of level computed for value strata should not be compared as a way of determining vertical inequity because of a boundary effect that is most pronounced in the highest and lowest strata (Schultz 1996).

5.7 Tests of Hypotheses

An appropriate test should be used whenever the purpose of a ratio study is implicitly or explicitly to test a hypothesis. A hypothesis is essentially a tentative answer to a question, such as, Are residential and commercial properties appraised at equal percentages of market value? A test is a statistical means of deciding whether the answer “yes” to such a question can be rejected at a given level

of confidence. In this case, if the test leads to the conclusion that residential and commercial properties are not appraised at equal percentages of market value, some sort of corrective action on the part of assessing officials is clearly indicated.

Tests are available to determine whether the

- level of appraisal of a stratum fails to meet an established standard
- meaningful differences exist in the level of appraisal between two or more strata
- high-value properties are appraised at a different percentage of market value than low-value properties

Appropriate tests are listed in table 1-2 and discussed in Gloudemans (1999), *Property Appraisal and Assessment Administration* (IAAO 1990), and *Improving Real Property Assessment* (IAAO 1978, 137–54).

5.8 The Normal Distribution

Many conventional statistical methods assume the sample data conform to the shape of a bell curve, known as the normal (or Gaussian) distribution. Performance measures based on the mean or standard deviation can be misleading if the study sample does not meet the assumption of normality. As a first step in the analysis, the distribution of sample ratios should be examined to reveal the shape of the data and uncover any unusual features. Although ratio study samples typically do not conform to the normal distribution, graphical techniques and numerical tests can be used to explore the data thoroughly. Traditional choices are the binomial, chi-square, and Lilliefors tests. Newer and more powerful procedures are the Shapiro-Wilk W , the D'Agostino-Pearson K^2 , and the Anderson-Darling A^2 tests (D'Agostino and Stephens 1986).

5.9 Parametric and Distribution-Free (Nonparametric) Statistics

For every problem that might be solved by using statistics, there is usually more than one measure or test. These measures and tests can be divided into two broad categories: parametric and distribution-free (nonparametric). Parametric statistics assume the population data conform to a known family of probability distributions (such as the normal distribution). When the mean, weighted mean, and standard deviation are used in this context, they tend to be more meaningful. Distribution-free statistics make less restrictive assumptions and do not require knowledge about the shape of the underlying population distribution. Given similar distribution of ratios in the underlying populations, distribution free tests, such as the Mann-Whitney test, can determine the likelihood that the level of assessment of property groups differ (Hart 2001). Distribution-free statistics are the median and the COD.

6. Sample Size

6.1 Importance of Sample Size

There is a general relationship between statistical reliability and the number of observations in a sample. The larger the sample size, the greater the reliability.

6.2 Adequacy of a Given Sample Size

The adequacy of a given sample size can be evaluated by computing measures of reliability. If the confidence interval is sufficiently narrow, the sample is large enough. If the confidence interval is too wide, the assessor must either accept less precision or enlarge the sample, if possible.

6.3 Required Sample Size

Formulas are available to compute the minimum sample size necessary to produce selected margins of error at a specified level of confidence. Such formulas depend crucially on the estimated variability of the ratios (Cochran 1977).

Table 1-2. Tests of Hypotheses

Null Hypothesis	Nonparametric Test	Parametric Test
1. Ratios are normally distributed.	Shapiro-Wilk W test D'Agostino-Pearson K^2 test Anderson-Darling A^2 test Lillifores Test	N/A
2. The level of appraisal meets legal requirements.	Binomial test	t-test
3. Two property groups are appraised at equal percentages of market value.	Mann-Whitney test	t-test
4. Three or more property groups are appraised at equal percentages of market value.	Kruskal-Wallis test	Analysis of Variance
5. Low- or high-value properties are appraised at equal percentages of market value.	Spearman Rank test	Correlation or regression analysis
6. Sold and unsold parcels are treated equally.	Mann-Whitney test	t-test

6.4 Remedies for Inadequate Samples

Small samples should be enlarged if the assessor desires to increase the reliability of statistical measures. Inadequate sample sizes are typically indicated by unacceptably wide confidence intervals. The following alternatives should be considered:

- 1. Restratiification.** If levels of appraisal are similar or properties are homogenous, broader strata containing larger samples can be created by combining existing strata or by stratifying on a different basis.
- 2. Extending the period from which sales are drawn.** This is often the most practical and effective approach. Sales from prior years can be used; however, adjusting the sale price for time may be necessary and significant property characteristics must not change.
- 3. Enlarging the sample by validating previously rejected sales.** Sales previously excluded from the analysis, because it was not administratively expedient to confirm them or to make adjustments, can be reevaluated.
- 4. Imputing appraisal performance.** Ratio study statistics for strata with no or few sales can sometimes be imputed from the results obtained for other strata. These strata should be as similar as possible. Procedures and techniques used to appraise properties in the strata also should be similar.

6.5 Other Sample Size-Related

Representativeness Problems

Sales from areas or substrata in which the number of sales is disproportionately large can distort ratio study results by weighting level and uniformity indicators toward whatever conditions exist in the overrepresented area. To alleviate this problem and create better representativeness, large samples can be further stratified by

- randomly selecting sales to be removed
- isolating the overrepresented groups into substrata
- redefining the time period for the overrepresented groups
- weighting the data

7. Reconciliation of Ratio Study

Performance Measures

An important objective of a ratio study conducted by a local jurisdiction is the evaluation of model performance. This is a USPAP requirement in the reconciliation of a mass appraisal. Assessing officials must incorporate a quality control program, including checks and audits of the data,

to ensure that sold and unsold parcels are appraised at the same level. This also requires characteristic data for both sold and unsold properties to be current, appropriate, relevant, and collected in a consistent manner.

8. Presentation of Findings, Documentation, and Training

The findings of a ratio study should be sufficiently detailed and documented to meet the needs of the users of the study. Documentation for internal ratio studies can be less detailed than for reports prepared for external uses. The following documentation should be provided in conjunction with any published ratio study.

8.1 Text

A brief text describing the purpose and the methods used should accompany a ratio study. This information can be incorporated in the report of the findings or be contained in a separate memorandum. The text should contain the statistics presented and outline the major procedural steps in completing the study. The text also should describe any rules for eliminating sales or extreme ratios and acknowledge any significant limitations in the data.

8.2 Exhibits

The body of the ratio study report should include for each stratum the statistical results intended to be used for decision-making purposes. All reports should contain the following information:

- date and tax year of the appraisals being evaluated
- number of parcels in each stratum
- number of sales
- number of sales trimmed from the study
- measures of central tendency (appraisal level)
- measures of uniformity (variability) and price-related biases
- confidence interval (measures of reliability) about the measures of central tendency
- summary of adjustments made to sales prices

In addition, there should be a description of the steps taken to ensure that sold and unsold properties were valued and described consistently. If the sold and unsold properties were not treated identically, the documentation should characterize the differences discovered between them.

8.3 Analyses and Conclusions

An objective statement of the results of the ratio study should be prepared. If the study is one in a series, a comparison of the results with those of previous studies can be helpful.

8.4 Documentation

Ratio study procedures should be documented thoroughly. This documentation should take three forms. First, a general guideline should explain the design of the study. This guideline should be updated whenever procedures are changed. Second, all software applications should be documented so that the program logic can be reviewed and modified as needed. Third, a user's manual should explain how to execute the study or run the software.

8.5 Training and Education

The effectiveness of ratio studies can be improved through education and training. Assessment supervisors should conduct seminars or workshops for the appraisal staff to explain how to interpret reports, how ratio studies can be used to improve appraisal performance, and how the results will be used in-house.

9. Ratio Study Standards

Each local jurisdiction should have ratio study performance standards. Local standards should be consistent with state or provincial standards. The standards summarized in table 1-3 are suggested for jurisdictions in which current market value is the legal basis for assessment. In general, when these standards or other local standards are not met, reappraisal or other corrective measures should be taken.

All standards recommended in this section are predicated on the assumption that steps have been taken to maximize representativeness and validity in the underlying ratio study.

9.1 Level of Appraisal

In analyzing appraisal level, ratio studies attempt to measure statistically how close appraisals are to market

value (or to a required statutory constraint that can be expressed as a percentage of market value) on an overall basis. While the theoretically desired level of appraisal is 1.00, an appraisal level between 0.90 and 1.10 is considered acceptable for any class of property. However, each class of property must be within 5 percent of the overall level of appraisal of the jurisdiction (see Section 9.2.1 in this part). Both criteria must be met. By themselves, the calculated measures of central tendency provide only an indication, not proof, of whether the level meets the appropriate goal. Confidence intervals and statistical tests should be used to determine whether it can be reasonably concluded that appraisal level differs from the established goal in a particular instance. Additionally, when uniformity measures show considerable variation between ratios, level measurements may be less meaningful.

9.1.1 Purpose of Level-of-Appraisal Standard

Jurisdictions that follow the IAAO recommendation of annual revaluations (*Standard on Property Tax Policy* [IAAO 2010] and *Standard on Mass Appraisal of Real Property* [IAAO 2008]) and comply with USPAP standard rules should be able to develop mass appraisal models that maintain an overall ratio level of 100 percent (or very near thereto). However, the local assessor may be compelled to follow reappraisal cycles defined by a legal authority or public policy that can extend beyond one year. During extended cycles the influence of inflation or deflation can shift the overall ratio.

The purpose of a performance standard that allows reasonable variation from 100 percent of market value is to recognize uncontrollable sampling error and the limiting conditions that may constrain the degree of accuracy that is possible and cost-effective within an assessment

Table 1-3. Ratio Study Uniformity Standards indicating acceptable general quality*

Type of property—General	Type of property—Specific	COD Range**
Single-family residential (including residential condominiums)	Newer or more homogeneous areas	5.0 to 10.0
Single-family residential	Older or more heterogeneous areas	5.0 to 15.0
Other residential	Rural, seasonal, recreational, manufactured housing, 2–4 unit family housing	5.0 to 20.0
Income-producing properties	Larger areas represented by large samples	5.0 to 15.0
Income-producing properties	Smaller areas represented by smaller samples	5.0 to 20.0
Vacant land		5.0 to 25.0
Other real and personal property		Varies with local conditions

These types of property are provided for guidance only and may not represent jurisdictional requirements.

* Appraisal level for each type of property shown should be between 0.90 and 1.10, unless stricter local standards are required.

PRD's for each type of property should be between 0.98 and 1.03 to demonstrate vertical equity.

PRD standards are not absolute and may be less meaningful when samples are small or when wide variation in prices exist. In such cases, statistical tests of vertical equity hypotheses should be substituted (see table 1-2).

** CODs lower than 5.0 may indicate sales chasing or non-representative samples.

jurisdiction. Further, the effect of performance standards on local assessors must be considered in light of public policy and resources available.

9.1.2 Confidence Intervals in Conjunction with Performance Standards

The purpose of confidence intervals and similar statistical tests is to determine whether it can be reasonably concluded that the appraisal level differs from the established performance standard in a particular instance. A conclusion of noncompliance requires a high degree of confidence; thus, a 90 percent (two-tailed) or 95 percent (one-tailed) confidence level should be used, except for small or highly variable samples. The demonstration ratio study report in table 1-4 presents 95% two-tailed confidence interval estimates for the mean, median, and weighted mean ratio.

9.2 Appraisal Uniformity

Assuming the existence of an adequate and sufficiently representative sample, if the uniformity of appraisal is unacceptable, model recalibration and/or reappraisal should be undertaken. It is important to recognize that the COD is a point estimate and, especially for small samples, should not be accepted as proof of assessment uniformity problems. Proof can be provided by recognized statistical tests, including bootstrap confidence intervals.

In unusually homogeneous strata, low CODs can be anticipated. In all other cases, CODs less than 5 percent should be considered suspect and possibly indicative of nonrepresentative samples or selective reappraisal of selling parcels.

Table 1-4. Demonstration Ratio Study Report

Rank	Parcel #	Appraised value	Sale price*	Ratio	Statistic	Result
1	9	\$87,200	138,720	0.629	Number (n)	17
2	10	38,240	59,700	0.641	Total appraised value	\$1,455,330
3	11	96,320	146,400	0.658	Total sale price	\$1,718,220
4	12	68,610	99,000	0.693	Avg appraised value	\$85,608
5	13	32,960	47,400	0.695	Avg sale price	\$101,072
6	14	50,560	70,500	0.717		
7	15	61,360	78,000	0.787	Mean ratio	0.827
8	16	47,360	60,000	0.789	Median ratio	0.820
9	17	56,580	69,000	0.820	Weighted mean ratio	0.847
10	18	47,040	55,500	0.848		
11	19	136,000	154,500	0.880		
12	20	98,000	109,500	0.895	Price-related differential	0.98
13	21	56,000	60,000	0.933	Coefficient of dispersion	14.5
14	22	159,100	168,000	0.947		
15	23	128,000	124,500	1.028	95% conf. int. mean (two-tailed)	0.754 to 0.901
16	24	132,000	127,500	1.035	95% conf. int. median (two-tailed)	0.695 to 0.933
17	25	160,000	150,000	1.067	95% conf. int. wtd. mean (two-tailed)	0.759 to 0.935

Date: 0/0/00. No outlier trimming

* or adjusted sale price

9.2.1 Uniformity among Strata

Although the goal is to achieve an overall level of appraisal equal to 100 percent of the legal requirement, ensuring uniformity in appraisal levels among strata also is important. The level of appraisal of each stratum (class, neighborhood, age group, market areas, and the like) should be within 5 percent of the overall level of appraisal of the jurisdiction. For example, if the overall level of appraisal of the jurisdiction is 1.00, but the appraisal level for residential property is 0.93 and the appraisal level for commercial property is 1.06, the jurisdiction is not in compliance with this requirement. This test should be applied only to strata subject to compliance testing. It can be concluded that this standard has been met if 95 percent (two-tailed) confidence intervals about the chosen measures of central tendency for each of the strata fall within 5 percent of the overall level of appraisal calculated for the jurisdiction. Using the above example, if the upper confidence limit for the level of residential property is 0.97 and the lower confidence limit for commercial property is 1.01, the two strata are within the acceptable range.

9.2.2 Uniformity among Single-Family Residential Properties

The COD for single-family homes and condominiums in older or more heterogeneous areas should be between 5.0 and 15.0. In areas of newer or fairly similar residences, it should be between 5.0 and 10.0.

9.2.3 Uniformity among Income-Producing Properties

The COD should be between 5.0 and 20.0. In larger, urban market areas, it should be between 5.0 and 15.0.

9.2.4 Uniformity among Unimproved Properties

The COD for vacant land should be between 5.0 and 20.0. The upper limit for an acceptable COD for vacant rural residential or seasonal land may be 25.0.

9.2.5 Uniformity among Rural Residential and Seasonal Properties, Manufactured Housing, and Multifamily Dwellings

The COD for heterogeneous rural residential property, recreational or seasonal homes, manufactured housing, and multifamily dwellings (2-4 units) should be between 5.0 and 20.0.

9.2.6 Uniformity among Other Properties

Target CODs for special-purpose real property and personal property should reflect the nature of the properties involved, market conditions, and the availability of reliable market indicators.

9.2.7 Vertical Equity

PRDs should be between 0.98 and 1.03. The reason this range is not centered on 1.00 relates to an inherent upward bias in the arithmetic mean (numerator in the PRD) that does not equally affect the weighted mean (denominator in the PRD). When samples are small, have high dispersion, or include properties with extreme values, the PRD may not provide an accurate indication of assessment regressivity or progressivity. Similar considerations apply to special-purpose real property and to personal property. It is good practice to perform an appropriate statistical test for price-related biases before concluding that they exist (see table 1-2).

9.2.8 Alternative Uniformity Standards

The above standards may not be applicable to properties in unique, depressed, or rapidly changing markets. In such cases, assessment administrators may be able to develop

target standards based on an analysis of past performance or results in similar markets elsewhere. Such an analysis can be based on ratio study results for the past five years or more.

9.3 Natural Disasters and Ratio Study Standards

Natural disasters such as earthquakes, floods, and hurricanes can have a substantial impact on the interpretation and use of ratio studies. In particular, they

- increase the difficulty of accurately identifying the physical and economic characteristics of property on the dates of sale and appraisal
- increase the difficulty of producing sufficiently reliable appraised values
- decrease the availability of usable sales and other market data
- disrupt the supply and demand equilibrium in the neighborhood community or region

As a result of these potential problems, a number of unreliable sample properties may need to be excluded and sample sizes may be unavoidably reduced. All these factors should be considered when ratio study standards are being applied to study results from areas substantially affected by disasters. Such consideration must not result in unwarranted relaxation of applicable standards. When faced with such situations, assessors must use informed, reasoned judgment and common sense to produce a sufficiently reliable ratio study, based upon the best information available.

10. Personal Property Ratio Studies

Studies can be done by local assessors to determine the quality of assessments of personal property in their jurisdictions. For guidelines on conducting personal property ratio studies, see section 12 in Part 2.

Standard on Ratio Studies

Part 2. Equalization and Performance Monitoring

1. Scope

This part of the standard provides guidance and supplementary information to oversight agencies that perform ratio studies. Oversight or equalization ratio studies are designed to examine the overall degree of accuracy of assessments within or among categories of property, market areas, assessment jurisdictions or political subdivisions, such as school districts, municipalities, counties, states or provinces.

2. Oversight Ratio Studies

Oversight agencies are often required to monitor appraisal performance and take corrective actions when necessary. Equalization is a common tool used by oversight agencies to address problems associated with appraisal level. Reappraisal orders can be used to correct uniformity problems.

2.1 Monitoring of Appraisal Performance

Oversight agencies usually perform sales ratio studies, which can include independent appraisals, to monitor local assessment performance. The findings can serve as the basis for enforcement actions, such as reappraisal or equalization orders. State/provincial agencies also often perform ratio studies to advise assessors and the public about local appraisal conditions. Many state or provincial oversight agencies have a dual role. One role is to advise and assist local appraisal offices, and the other role is to measure local appraisal performance. These two roles can create a conflict of interest, which should be minimized.

2.2 Equalization

Oversight agencies can use the results of ratio studies to equalize, directly or indirectly, appraisals or assessments in taxing jurisdictions. Direct equalization is accomplished by an oversight agency which alters locally determined assessments by ordering appraisals within jurisdictions or property classes to be adjusted to market value or to the legally required level of assessment. Direct equalization can also involve adjusting appraisals of centrally assessed properties. When indirect equalization is used, appraisals are not adjusted. Instead, indirect equalization involves an oversight agency estimating total taxable value, given the legally required level of assessment or market value. Indirect equalization allows proper distribution of intergovernmental transfer payments between state or provincial and local governments despite different levels of appraisal among

jurisdictions or property classes. Equalization is not an appraisal or a substitute for reappraisal.

When equalization is based on ratio study samples, sampling error must be taken into account. When confidence intervals include an acceptable range, equalization cannot be supported statistically. When confidence intervals *fail* to bracket official requirements, equalization actions are supported (see section 6.5, “Measures of Reliability,” and section 11.1, “Level of Appraisal”).

Legal aspects of ratio studies, many of which relate to equalization, are discussed in Appendix F.

2.2.1 Direct Equalization

Many states and provinces have authority and specific procedures for direct equalization. The advantage of direct equalization is that it can be applied to specified strata, such as property classes, geographic areas, and political subdivisions that fail to meet appraisal level performance standards (Dornfest [Journal of Property Tax Assessment and Administration, 2004]). Direct equalization also produces results that are generally more visible to the taxpayer and more clearly reduces perceived inequities between classes (*Standard on Property Tax Policy* [IAAO 2010]). For example, direct equalization allows proper and equal application of debt and tax rate limits and equitable partial exemptions.

Direct equalization involves use of adjustment factors, which produce effects mathematically identical to those derived through the application of “trending” or “index” factors, which are commonly used for value updating by local assessing jurisdictions. The most significant differences typically are the level of the jurisdiction originating the adjustments and the stratification of property to which the factors are applied. Local jurisdictions with primary assessment responsibility can develop value adjustment factors as an interim step between complete reappraisals. Such factors commonly are applied to properties by property type, location, size, age and other characteristics (see *Property Appraisal and Assessment Administration* [IAAO 1990, p. 310]). It is rare for equalization factors developed by oversight agencies to be applied to strata more specific than property class or broad geographic area. Often such factors are applied jurisdiction-wide.

States and provinces that employ direct equalization techniques should understand that such equalization is not a substitute for appraisal or reappraisal. Direct equalization

applied at the stratum level improves equality in effective tax rates between strata and lessens the effect of assessment practices that improperly favor one stratum over another. For example, assuming that all classes of property are to be assessed at 100% of market value, without such equalization, in a case where residential property is assessed at a median of 80% of market value, while commercial property is assessed at a median of 90% of market value, residential property will pay 80% of its proper tax share and commercial property will pay 90% of its proper tax share. Other classes that may be assessed at 100% will pay more than their proper tax shares. Direct equalization mitigates this problem. However, such equalization cannot improve uniformity between properties within a given stratum. So, in the previous example, the median level of assessment for residential property can be adjusted from 80% to 100% of market value, assessment disparities between individual residential properties will not be addressed. For this reason, reappraisal orders should be considered as the primary corrective tool for uniformity problems, and direct equalization should be considered appropriate only if time or other constraints preclude such an approach.

2.2.2 Indirect Equalization

The most common use of indirect equalization is to enable proper funding distribution, particularly for school districts. Such equalization provides an estimation of the proper tax base (acknowledging statutory constraints such as agricultural use value) despite appraisals that are higher or lower than legally required levels in certain jurisdictions. For example, if the assessed value of residential property in a jurisdiction is \$750 million, but a residential ratio study shows an assessment level of 75 percent, while the legally required level of assessment is 100 percent, an equalized value of \$1,000 million could be computed ($\$750\text{ million}/0.75$). This adjusted or equalized value would then be used to apportion payments or requisitions between the state or province and associated local governments.

Indirect equalization results in fairer funding apportionment because the overall appraisal levels of the taxing jurisdictions tend to vary. If there were no equalization, the extent that a jurisdiction under- or overestimated its total tax base would result in over- or under-apportionment of funds. Indirect equalization does not correct under- or overvaluation between classes of property within a jurisdiction. It adjusts only a portion of the tax or sometimes only intergovernmental payments, is less visible to taxpayers, and often lacks checks and balances associated with direct equalization (see *Standard on Property Tax Policy* [IAAO 2010]). By adjusting governmental payments, tax rates, or partial exemptions, indirect equalization encourages taxing jurisdictions to keep their overall tax bases close to the required level.

Whether used to equalize shared funding or tax rates, the degree of equalization of the property tax is more limited than with direct equalization. Indirect equalization generally is applied to or affects only a portion of the funding or property tax levy (perhaps the school general levy or city levy). Indirect equalization usually is applied to the jurisdiction, rather than to a stratum, and therefore resolves interjurisdictional discrepancies in assessment level. In addition, properties in strata with poor uniformity are affected disproportionately. For this reason, indirect equalization also is not a substitute for reappraisal.

3. Steps in Ratio Studies

Ratio studies conducted by oversight agencies generally follow the basic steps described for the assessor's office in Part 1, except that it is more important to adopt uniform procedures and be consistent in their application.

3.1 Definition of the Purpose, Scope, and Objectives

The first step in any ratio study is to determine and state clearly the reasons for the study. This crucial step of identifying the purpose of the study determines the specific goals, scope, content, depth, and required flexibility.

3.2 Design of Study

The most important design consideration is that the study sample be sufficiently representative of the population of properties or the distribution of values in the jurisdiction under review. For direct equalization the level of appraisal for property classes or strata subject to such equalization is the primary area of interest and the sample must be designed accordingly. Indirect equalization seeks to estimate the overall dollar value of the population, so the sample must be representative of that overall value and must reflect the disproportionate influences of high value properties. Performance monitoring is concerned with both level and uniformity, but typically involves sample design similar to that required in direct equalization.

3.2.1 Level of Sophistication and Detail

A basic design principle is to keep the study as simple as possible consistent with its purpose. Ratio studies are not all alike and should be tailored to an intended use.

Data analysis has been made easier through computerization. Although every study does not require the same level of statistical detail, each ratio study should include measures of appraisal level, appraisal uniformity, and statistical reliability. Graphs, charts, or other pictorial representations can be useful tools for showing distributions and patterns in the data. There is no model ratio study design that can serve all jurisdictions or all situations equally well. Informed, reasoned judgment and common sense are required in the design of ratio studies.

3.2.2 Sampling

A ratio study is a form of applied statistics, because the analyst draws conclusions about the appraisal of the universe (the entire jurisdiction) of properties based only on those that have sold during a given time period or appraisals selected for a random sample. The ratios constitute the sample that will be used to draw conclusions or inferences about the population.

To determine the accuracy of appraisals within a jurisdiction with absolute certainty, it would be necessary for all properties in the population to have been sold in arm's-length, open-market transfers near the appraisal date or all properties would need to be appraised independently by the oversight agency. Since this is not possible, ratio studies must use samples and draw inferences or conclusions about the population from these samples.

The number of parcels in the population (the jurisdiction or stratum) is not an important determinant of a statistically valid and reliable sample.

3.2.3 Determining the Composition of Samples

In the design stage, the oversight agency must decide whether the ratio study sample should comprise sales (or asking prices when appropriate), independent appraisals, or a combination of the two. Each sample type has its advantages and disadvantages, as described below.

3.2.3.1 Sale Samples

The advantages of using sale samples include the following:

- Properly validated sales provide more objective indicators of market value than independent appraisals.
- Using sales is much less expensive than producing independent appraisals.

The disadvantages include the following:

- Difficulty in collecting sales data in jurisdictions without disclosure documents
- The oversight authority may not have control over the sales data collection and validation process
- Influence of sales chasing can be difficult to detect or prevent
- Samples of sales may not adequately represent the population of properties
- An adequate sample size may not be achieved if sales data are scarce
- Time adjustments are more critical when supplemental sales are included

3.2.3.2 Independent Appraisal Samples

Independent appraisals also can be used instead of or in addition to sales for ratio study samples. (See section 8, "Appraisal Ratio Studies," in this part.)

3.2.3.3 Samples Combining Sales and Independent Appraisals

The oversight agency can design and conduct ratio studies using samples comprised of sales and independent appraisals. In this approach, the combined advantages of sale samples and appraisal samples are realized. However, the disadvantage of combining sales and independent appraisals is the possible existence of some of the disadvantages of sale samples and/or appraisal samples (see Section 8.7).

3.3 Collection and Preparation of Market Data

The reliability of a ratio study depends in part on how accurately the sales or independent appraisals used in the study reflect market values. For sales-based studies, oversight agencies should conduct an independent sales verification and screening program if resources permit. Alternatively, oversight agencies should develop audit criteria to review data submitted to qualify sales, corroborate representativeness and confirm adequate sample size. Audit decisions should accommodate needs of the agency and resources available. Independent appraisals used in ratio studies must comply with the appropriate sections of the *Uniform Standards of Professional Appraisal Practice* (USPAP; Appraisal Foundation 2010–2011), and reflect market values as of the date being studied. Most oversight agencies use property data collected by the local jurisdiction to develop their independent appraisals. In order to produce credible appraisals, the oversight agency must be certain that the local jurisdiction accurately recorded the appropriate value-related property characteristics for each property it is independently appraising. Steps must be taken to ensure that errors in the database made by the local jurisdiction do not materially or significantly affect the conclusions or opinions of value developed by the oversight agency.

3.4 Stratification

Stratification divides all the properties within the scope of the study into two or more groups or strata. Stratification facilitates a more complete and detailed picture of appraisal performance and can enhance sample representativeness

Each type of property subject to a distinct level of assessment could constitute a stratum. Other property groups, such as market areas, school districts and tax units, could constitute additional strata.

Strata should be chosen to be consistent with factors in the mass appraisal model. When the purpose of the study is to evaluate appraisal quality, flexibility in stratification

is essential. The general goal is to identify areas in which the assessment levels are too low or lack uniformity and property groups for which additional reappraisal work may be required. In such cases, it also is highly desirable to stratify on the basis of more than one characteristic simultaneously.

Stratification can help identify differences in level of appraisal between property groups. In large jurisdictions, stratification by market areas is generally more appropriate for residential properties, while stratification of commercial properties by either geographic area or property subtypes (e.g., office, retail, and warehouse/industrial) can be more effective.

3.5 Matching Appraisal Data and Market Data

The physical and legal characteristics of each property used in the ratio study must be the same when appraised for tax purposes and when sold. This implies two essential steps. First, the property description for the sold parcel must match the appraised parcel. If a parcel is split between the appraisal date and the sale date, a sale of any of its parts should not be used in the ratio study.

Second, the property rights transferred, permitted use, and physical characteristics of the property on the date of assessment must be the same as those on the date of sale. Properties with significant differences in these factors should be excluded from the ratio study.

When statutory constraints are imposed on appraisal methods, the resulting assessment may be less than market value. In such cases a sales ratio study may not provide useful performance information. Constraints typically apply to land that qualifies for agricultural-use value, subsidized housing, mineral land, and timberland.

Sales may include property of a type other than the type for which the ratio study analyses is intended. However, sales including more than minimal values of secondary categories are unlikely to be representative, even with adjustment.

For example, a property that is predominantly commercial may include residential components. This sale can be included as representative of the commercial category. In this case, the numerator in the ratio calculation would be the total appraised value including the value of both the commercial and residential components.

In a second example, for a ratio study of vacant land, the numerator in the ratio should reflect only the appraised value of the land. The sale price should be adjusted for the contributory value of the improvements or the sample should be excluded from further analysis.

3.5.1 Stratification for Equalization Studies

Oversight agencies generally should define the strata prior to acquiring and compiling data for the ratio study.

Predefined stratification is more transparent and enhances cooperation between the oversight agency and the jurisdiction appraising the property subject to equalization. In general, oversight agencies should not redefine the strata once they have been defined for equalization purposes, especially in the case of direct equalization. It is appropriate, however, to collapse strata to compensate for otherwise inadequate samples sizes. In addition, a reappraisal or equalization order can be targeted for specific problem areas that cause noncompliance at a broader level of aggregation. If value stratification is necessary, predefined strata may not be practical.

3.5.2 Stratification for Direct Equalization

Strata should be chosen consistent with operational requirements for the required level of equalization. Statistical issues in the determination of strata include the size of the population and resulting strata and the likely variability of the ratios in each stratum. Care must be taken not to over-stratify, that is, to create strata that are too small to achieve statistical reliability (see section 6, "Sample Size" in part 1 and Sherrill and Whorton [1991]). No conclusion about stratum level or uniformity should be made from stratum samples that are unreliable small (resulting in unacceptably large margins of error). Ultimately, the degree of stratification is determined largely by available sales data, unless it is cost-effective and practical to add sufficient independent appraisals. If sufficient sales or appraisals are not available for a given stratum, it should be combined with similar strata. When strata are combined, provided there is no reason to suspect dissimilar ratios as evidenced by different level or uniformity measures, such combinations permit broader applicability of ratio study results and prevent ratio study analysis from becoming too focused on substrata with few sales or appraisals. When jurisdiction or category wide equalization actions are required, reliability of component strata is not an issue.

3.5.3 Stratification for Indirect Equalization

Indirect equalization develops an estimate of full market value, but assessed values of individual properties are not altered. Such studies can use a substantially different approach to stratification than ratio studies intended for performance evaluation or direct equalization. The purpose of stratification in this case is to minimize distortions due to different assessment levels, which can vary by property type, value range, geographic area, and other factors. If stratification creates a more representative sample, equalization decisions may be based on results from individual stratum. . If the overall sample is representative of the population then equalization decisions should be based on overall sample results. A reasonable number of strata with small samples and larger margins of error can increase overall representativeness and may reduce the margin of error for the overall jurisdiction-wide sample.

The primary level of stratification should ordinarily be by major property type (e.g., residential, commercial, and vacant land). If circumstances permit, a secondary level of stratification also is recommended. When relying on the weighted mean, the secondary level of stratification (substrata) should normally be value range. Higher-value properties can sell with a different frequency than low-value properties, and appraisal levels can vary between high and low-value properties. As a result, high-value properties can be oversampled (or undersampled) and, because of their high value, can exert a disproportionate influence on the weighted mean and resulting estimated value. Value stratification reduces distortion of the weighted mean caused by over or under-representation of value strata with different levels of appraisal. To properly develop and use value strata, the oversight agency needs each individual assessment in the study universe. If detailed value information is not available, the oversight agency should work with local taxing jurisdictions to obtain sufficient information. At a minimum, a questionnaire can be used to request the total value and number of parcels in predetermined value categories or quantiles (each range contains the same amount of value).

In situations in which value stratification information is not available, or where property ratios are not significantly value-influenced, substrata can be created based on property subtype, geographic area, or other appropriate criteria. Stratification by these criteria corrects for differences in level of appraisal between substrata. In large jurisdictions, substratification by geographic areas generally is more appropriate for residential properties while sub-stratification by either geographic area or property subtypes (e.g., office, retail, and warehouse/industrial) can be appropriate for income-producing properties.

When relying on the median and when sample sizes permit, it is appropriate to stratify within property class by whichever property characteristic is most likely to capture differences in appraisal levels. This characteristic can be geographic area, property subtype, or value range. Substratification by value range helps capture value-related differences in assessment levels, which (unlike the weighted mean) are not reflected in the median.

3.6 Statistical Analysis

When ratio studies are conducted for equalization purposes, confidence intervals and statistical tests can be used to determine whether it should be concluded at a given confidence level that appraisal performance or level requirements in a stratum (or jurisdiction) being tested meets or falls outside of mandated standards. Statistical tests can be used for comparisons among strata, provided the sample sizes are large enough that meaningful differences are not missed (see section 6, “Ratio Study Statistics and Analyses”).

3.7 Evaluation and Use of Results

Lack of independence between locally determined values and sale prices (sales chasing) or independent appraisals can subvert attempts to improve equity (direct equalization) and result in incorrect distribution of funds between states or provinces and local jurisdictions (indirect equalization). To guard against these possibilities, oversight agencies should ensure that sold and unsold properties are appraised similarly. Also, appraisals used as substitutes for sales must reflect market value, and the oversight agency must take remedial measures in instances in which they do not (see section 9, “Estimating Performance of Unsold Properties”, and Appendix D, “Sales Chasing Detection Techniques”).

4. Timing and Sample Selection

Ratio studies made by oversight and equalization agencies should be conducted at least annually. Where possible, ratio studies conducted by equalization agencies should use final values established at the local level, inclusive of changes made by local appeal boards up to that time. However, if local appraisers or boards “chase sales” or set values in a manner that is dissimilar to the way other property values have been set, the sample may not be sufficiently representative and should not be used without careful investigation and necessary adjustment.

4.1 Date of Analysis

The date of analysis is a past year when appraisals from past years are being evaluated to avoid the effects of sales chasing. When prior-year assessments are used to gauge current performance (to avoid sales chasing), the results should be adjusted for any reappraisal activity or assessment changes that occurred in the population (net of new construction) between the prior and current years. Sale prices also should be adjusted to the assessment date to account for time trending.

If the purpose of the study is equalization, using sales after the appraisal date (adjusted for time as necessary) helps ensure the independence of appraisals and sales prices. A sales period spanning the appraisal date can be used if measures are taken to ensure the independence of appraisals made after the earlier sales. This approach has the advantage of reducing the importance of time adjustments.

4.2 Representativeness of Samples

The design and conduct of ratio studies requires decisions that maximize representativeness within the constraints of available resources.

In many kinds of statistical studies, samples are selected randomly from the population and from within each stratum to maximize representativeness. Ratio study samples based on independent appraisals can be randomly selected. Because sales are convenience samples and do not repre-

sent true random samples, care must be taken to maximize the representativeness of sales samples.

A ratio study sample is considered sufficiently representative for direct equalization and mass appraisal performance evaluation when the distribution of ratios of properties in the sample reflects the distribution of ratios of properties in the population. A ratio study is considered sufficiently representative for indirect equalization when the distribution of ratios of dollars of property value in the samples reflects the distribution of ratios of dollars of property value in the population.

Sales from areas or substrata in which the number of sales is disproportionately large can distort ratio study results by weighting level and uniformity indicators toward whatever conditions exist in the overrepresented area. To alleviate this problem and create better representativeness, large samples can be further stratified by

- randomly selecting sales to be removed
- isolating the overrepresented groups into substrata
- redefining the time period for the overrepresented groups
- weighting the data

4.2.1 Maximizing Representativeness with Independent Appraisals

For independent appraisal-based ratio studies, the application of random sampling techniques can help ensure that appraisal procedures used for the sampled properties are similar to the corresponding population. A well-designed random sampling plan also can help ensure that properties selected for independent appraisals are not concentrated in areas of high sales activity or associated with property types with higher turnover rates in the market.

The USPAP competency rule requires appraisers to have both knowledge and experience required to perform specific appraisals. Independent single-property appraisals must be developed in compliance with Standard 1, must be reported in compliance with Standard 2, and must be reviewed in compliance with Standard 3 of USPAP. Most importantly, care must be taken to ensure that independent appraisals reflect market value as of the appraisal date. Independent mass appraisals must be developed and reported in compliance with Standard 6 of *USPAP*.

4.2.2 Very High-Value Properties

Assessment jurisdictions often contain unique, very-high-value properties (for example, properties that constitute more than 10 percent of the value of a property class) that cannot reasonably be combined with other properties for purposes of the ratio study. For indirect equalization, high-value parcels are especially important to maximize representativeness. For instance, consider a population

consisting of 1,000 properties, 999 of which range in value from \$20,000 to \$750,000, and one that is valued at \$1 billion (e.g., a power plant). If the intended use of the ratio study is to estimate the general level and uniformity of appraisal in regard to the typical property, the stratified population of parcels need not include the \$1 billion property. If the intended use of the ratio study is to estimate the total market value in the jurisdiction, however, exclusion of the power plant can distort the study.

Very high-value properties should not be ignored or assumed to be appraised at the legal or general level for indirect equalization studies. An equalization agency should place very high-value property in a separate stratum to prevent distortion of the overall weighted mean or total estimated value. To value the property for ratio study purposes the equalization agency should use a recent properly adjusted sales price if available. If a recent sale is not available the agency should conduct an appraisal of such properties (this is the preferred option) or audit and adjust as necessary the values developed by the local jurisdiction.

5. Acquisition and Analysis of Sales Data

The highest level of independence and objectivity in an equalization or performance monitoring ratio study requires independent sales validation. If resources are not available to achieve this level of sophistication, then a comprehensive audit program should be developed to review the validation and screening work of the local jurisdiction (see Appendix A, “Sales validation Guidelines”).

5.1 Sale Adjustments for Statutorily Imposed Value Constraints

Most states and provinces require appraisal of certain classes of property using statutorily prescribed methods of appraisal that are intended to produce a constrained value that is less than market value. The most common class of property to which such constraints apply is farmland and rangeland that qualifies for agricultural-use valuation. However, constraints may also apply to subsidized housing, mineral land, and other classes. When the purpose of the ratio study is direct or indirect equalization, sales prices must be adjusted as if the selling parcel were subject to the same constraints. If this cannot be done, independent appraisals, which employ the required constraints, should be used to determine the level of appraisal in a manner consistent with the statutory constraints. For example, assume that statutory restrictions require a fixed or artificially high capitalization rate to be used in determining farmland value. If unadjusted farmland sales were to be used, the resulting ratios would be low and could lead to improper equalization decisions. Instead, independent appraisals using the required capitalization rate should be done. These appraisals would lead to ratios that would correctly allow for the statutory constraint.

Use of constrained values produces ratio study results that do not provide information on the true level of appraisal in relation to market value. Use of constrained values is appropriate for equalization. However, when the purpose of the ratio study is to determine the overall quality of assessments or the amount of benefit being awarded by a given statutory constraint on appraised value, the unadjusted sale price or independent market value appraisal must be used. Often, procedural audits can be used as adjuncts to more traditional ratio studies. These audits can be particularly effective when the purpose is to judge overall appraisal quality and when precise, quantitative statistical measures are not obtainable.

5.2 Outlier Ratios

Oversight agencies should consider the extent of sales verification when developing guidelines for trimming limits. In practice, this means that if an oversight agency derives sales data from assessing jurisdictions that may have already removed outliers from the sample, additional trimming may not be necessary (see Appendix B, "Outlier Trimming Guidelines").

5.2.1 Value Outliers

When the weighted mean is used for indirect equalization, a method that identifies high-value *influential* sales is recommended. Since an influential sale may not have an unusually low or high ratio relative to the rest of the sample, the definition of distortion is based on the principle that the point estimate calculated from the sample should not be statistically significantly different whether the suspect observation is in the sample or not.

To test for an influential sale, one approach is to remove it from the sample and compute the weighted mean and associated confidence interval. If the weighted mean of the sample lies outside the confidence interval calculated without the influential sale, then the sale is truly influential and is a candidate for further scrutiny, isolation in a separate stratum, or possible trimming.

This procedure is intended to test the presence of individual influential sales and is not intended to be used successively after deletion of a sale, but can be applied to more than one apparent outlier at a time by leaving all other sales in the comparison group. Note, however, that the presence of multiple influential sales can indicate the start of a trend. Presence of influential sales is often associated with high price-related differential (PRD) values, which could be the result of systematic regressivity or progressivity.

5.2.2 Outlier Trimming

Statistics calculated from trimmed distributions, obviously, cannot be compared to those from untrimmed distributions or interpreted in the same way. This is especially problematic when making interjurisdictional

comparisons. For this reason, oversight agencies may wish to promulgate uniform trimming procedures, based on sound statistical principles. Regardless of the chosen procedure, trimming of outliers must not occur more than once for any sample.

6. Ratio Study Statistics and Analyses

Ratio study measures covered in Part 1 are equally applicable to equalization ratio studies based upon sales or independent appraisals. See section 5.3, "Measures of Appraisal Level," and section 5.4, "Measures of Variability," in Part 1.

6.1 Measures of Appraisal Level

The median is the generally preferred measure of central tendency for direct equalization, monitoring of appraisal performance, or evaluation of the need for a reappraisal. The mean should not be used for indirect equalization if there are measurable differences in appraisal level of high- and low-value properties (see table 2-2). In data commonly containing outliers, the trimmed mean can be substituted for the mean (Gloudemans 1999, chapter 3). See Appendix B for outlier-trimming procedures. Because of its dollar-weighting feature, the weighted mean is most appropriately used in indirect equalization, when estimating the total dollar value of the jurisdiction. When relying on the measure, however, outliers should be carefully reviewed (and deleted if appropriate), since they can strongly affect the weighted mean, particularly when they occur for high-value properties and in small samples.

6.2 Overall Ratio for Combined Strata

For purposes of oversight monitoring of overall appraisal performance and direct equalization, the generally preferred approach is to weight the median ratio of each stratum on the basis of the relative number of properties in the stratum. For indirect equalization, the weight assigned to a measure of central tendency of a stratum should be proportional to the share of that stratum's total estimated market value. Because the number of parcels bears only a loose relationship to dollar value, weighting by number of parcels is not appropriate for indirect equalization.

For indirect equalization, the preferred method of calculating the overall market value of a jurisdiction is as follows:

1. Divide the total appraised (or assessed) value of each stratum by the stratum sample's measure of central tendency (see section 6.3, "Contrasting Measures of Appraisal Level," in this part) to obtain an estimate of the total market value of taxable property in the stratum.
2. Sum the estimates of total stratum market value to obtain an estimate of the total market value

Table 2-1. Illustration of Combining Measures of Central Tendency (Example shown is for indirect equalization)

Data for properties in the study					
Stratum (1)	Total sample assessed value (2)	Total sample sale price (3)	Weighted mean (2)/(3) (4)	Total assessed value of stratum (5)	Indicated market value of stratum (6)
Residential	\$3,000,000	\$4,000,000	0.750	\$600,000,000	\$800,000,000
All other	950,000	1,000,000	0.950	400,000,000	421,000,000
Total				\$1,000,000,000	\$1,221,000,000

Overall ratio = \$1,000,000,000/\$1,221,000,000 = 0.819

Table 2-2. Preferred Estimators

	Indirect Equalization	Direct Equalization	Monitoring Performance
Median	—	X	X
Mean	—	—	—
Weighted Mean	X*	—	—

* Caution should be exercised when the sample contains value outliers or indicates value bias based on the PRD

of taxable property in the jurisdiction or class of property.

- To obtain an overall weighted level of assessment (or ratio), divide the total appraised (or assessed) value of the jurisdiction or class of property by the estimated total market value (table 2-1 contains a simplified example).

6.3 Contrasting Measures of Appraisal Level

Table 2-2 summarizes the preferred measures of central tendency for the three broad purposes of indirect equalization, direct equalization, and the general monitoring of appraisal performance.

For indirect equalization, the preferred measure is the weighted mean (the measure used in table 2-1), because it gives equal weight to each dollar. This helps achieve an accurate estimate of total dollar value, the goal of indirect equalization. However, there are implicit difficulties in obtaining sales samples that are representative of all significant groups of properties with different ratios. The weighted mean can be disproportionately influenced by high-value properties, particularly in a small sales sample. A disproportionate influence of high-value properties can be reduced through value stratification within the property class. Such value stratification helps capture value-related ratio differences, as well as improve representativeness, regardless of which measure of central tendency is used. If there are provable value-related ratio differences within strata, the weighted mean must be used since the median is incapable of capturing value-related differences. In cases in which value stratification is not practicable, equalization agencies may stratify by some proxy for value, such as neighborhood or property sub-class. If results appear distorted by non-representative high-value sales, outlier identification methods described in Appendix B should be employed.

While not conceptually preferred, the median can be used to prevent the disproportionate influence of high-value properties with outlier ratios. To be clear, although the median is not the conceptually appropriate measure, it nonetheless has the desirable property of smaller sampling variance and, in cases in which assessment regressivity/progressivity has not been found to be a significant concern, can provide an acceptable substitute for the weighted mean.

If samples are known to be reasonably representative through outlier trimming, the use of stratification or selection of random appraisals, the weighted mean would be the (only) correct measure. In cases which sample representativeness is a concern due to small samples or outliers, the median can reasonably be used as long as the equalization agency has checked to ensure that there are no significant price-related biases within the strata used in the study.

6.4 Measures of Variability

Measures of dispersion or variability relate to the uniformity of the ratios and should be calculated for each stratum in the study. In general, the smaller the measure, the better the uniformity, but extremely low measures can signal one of the following:

acceptable causes

- extremely homogeneous properties
- very stable markets

unacceptable causes

- lack of quality control
- calculation errors
- poor sample representativeness
- sales chasing

Note that as market activity changes or as the complexity of properties increases, the measures of variability usually increase, even though appraisal procedures may be equally valid.

6.5 Measures of Reliability

It is good practice to calculate measures of reliability whenever the results of a ratio study are used for equaliza-

tion. Measures of reliability will indicate whether there is a desired degree of confidence that a given level of appraisal has not been achieved. The most commonly used measure of ratio study sample reliability is the confidence interval. This interval brackets the unknown population parameter for any sample statistic with a specified (chosen) degree of confidence. When the interval includes a desired assessment level or a performance standard range around the desired level (see section 11 and Table 2-4), equalization adjustments are not warranted. Similarly, when the interval includes a maximum allowable COD (see Table 2-3), reappraisal or other action to correct poor uniformity is not warranted.

6.6 Vertical Inequities

The measures of variability discussed in section 6.4 relate to “horizontal,” or random, dispersion among the ratios in a stratum, regardless of the value of individual parcels. Another form of inequity can be systematic differences in the appraisal of low- and high-value properties, termed “vertical” inequities. When low-value properties are appraised at greater percentages of market value than high-value properties, assessment *regressivity* is indicated. When low-value properties are appraised at smaller percentages of market value than high-value properties, assessment *progressivity* is the result. Appraisals made for tax purposes should be neither regressive nor progressive.

An index statistic for measuring vertical equity is the PRD, which is calculated by dividing the mean ratio by the weighted mean ratio. This statistic should be close to 1.00. Measures considerably above 1.00 tend to indicate assessment regressivity; measures below 1.00 suggest assessment progressivity. When samples are small or the weighted mean is heavily influenced by several extreme sales prices, however, the PRD may not be a sufficiently reliable measure of vertical inequities. A scatter plot of ratios versus appraised values or sale prices is a useful diagnostic tool. A downward (or upward) trend to the data indicates systematic regressivity (or progressivity). If not sufficiently representative, extreme sales prices can be excluded in calculation of the PRD. Similarly, when samples are very large, the PRD may be too insensitive to show small pockets in which there is significant vertical inequity. Standards for evaluating the PRD are given in section 9.2.7 in this part. In addition, more powerful statistical tests for vertical inequities are available and should be employed to determine the significance of the indication provided by the PRD (see section 5.7 in this part and Tward, Everly and Downing [1989]).

When these tests show vertical inequities, such inequities should be addressed through reappraisal or other corrective actions. In some cases, additional stratification can help isolate the problem. Measures of level computed for value strata should not be compared as a way of determining vertical inequity because of a boundary effect

that is most pronounced in the highest and lowest strata (Schultz 1996).

6.7 Tests of Hypotheses

An appropriate test should be used whenever the purpose of a ratio study is implicitly or explicitly to test a hypothesis. A hypothesis is essentially a tentative answer to a question, such as, Are residential and commercial properties appraised at equal percentages of market value? A test is a statistical means of deciding whether the answer “yes” to such a question can be rejected at a given level of confidence. In this case, if the test leads to the conclusion that residential and commercial properties are not appraised at equal percentages of market value, some sort of corrective action on the part of assessing officials is clearly indicated. Appropriate tests are listed in table 1-2 and discussed in Gloudemans (1999), *Property Appraisal and Assessment Administration* (IAAO 1990), and *Improving Real Property Assessment* (IAAO 1978, 137–54)

6.8 The Normal Distribution

Many conventional statistical methods assume the sample data conform to the shape of a bell curve, known as the normal (or Gaussian) distribution. Performance measures based on the mean or standard deviation can be misleading if the study sample does not meet the assumption of normality. As a first step in the analysis, the distribution of sample ratios should be examined to reveal the shape of the data and uncover any unusual features. Although ratio study samples typically do not conform to the normal distribution, graphical techniques and numerical tests can be used to explore the data thoroughly. Traditional choices are the binomial, chi-square, and Lilliefors tests. Newer and more powerful procedures are the Shapiro-Wilk W , the D’Agostino-Pearson K^2 , and the Anderson-Darling A^2 tests (D’Agostino and Stephens 1986).

7. Sample Size

7.1 Importance of Sample Size

If it is desirable to create narrow, uniform margins of error in jurisdictions without sufficient sales, independent appraisals may be added.

7.2 Adequacy of a Given Sample Size

The adequacy of a given sample size can be evaluated by computing measures of reliability. If the confidence interval is sufficiently narrow, the sample is large enough. If the confidence interval is too wide, the oversight authority must either accept less precision or enlarge the sample, if possible.

7.3 Required Sample Size

Because designing for sampling objectives and planning for resource allocation in ratio studies must occur well

before final ratio data sets are available and ratio study statistics are calculated, decisions on critical input variables must be made well before their true values are known. For example, the sample size formulas (Cochran 1977; Sherrill and Whorton 1991; and Gloudemans 1999) used to plan for specific margins of error and/or specific levels of confidence theoretically require, as input variables, the actual variation within the final ratio data sets (usually measured by the coefficient of variation). However, the actual variation in final ratio data sets is not known during the design and planning stage and, thus, the desired sample size must be projected based upon the best information available at the time of design and planning. This projection results in unavoidable forecast error and can result in the production of a higher or lower sample size than needed to reach sampling objectives. This issue is an accepted part of conducting ratio studies when it is necessary and important to attain a predetermined or uniform degree of precision. In other cases, it may be acceptable to use all available qualified sales. When predetermination of sample size is important, the variation in the ratio data set from the most recent time period available can provide a reasonable estimate for the time period under analysis.

7.4 Remedies for Inadequate Samples

In addition to recommendations discussed in section 6.4, “Remedies for Inadequate Samples,” in Part 1, supplemental independent appraisals can be combined with sales (also see section 8.7, “Combining of Sales and Appraisals,” in this part).

7.5 History of Sales Reporting

Oversight agencies that develop ratio studies from sales provided by local assessment jurisdictions should track the number of transfers obtained in different study periods. Quality control techniques can be used to measure market activity or to determine whether an assessor is fully reporting sales information.

8. Appraisal Ratio Studies

Appraisal ratio studies are conducted by using appraised values for a random sample of parcels. Such sampling plans can be designed to be more representative of the population in terms of property characteristics than a sales sample of the same size but require adequately trained appraisers and are comparatively expensive. Few ratio studies are based solely on independently conducted appraisals, which then are compared to values determined by assessing officials. Many equalization or oversight agencies, however, do ratio studies in which both sales and appraisals are combined. Furthermore, it may be possible to develop sales driven models for use in appraising a particular population of properties (excluding those not adequately represented in the underlying model) or randomly selected parcels for ratio study purposes (see

Standard on Automated Valuation Models, [IAAO 2003]). Estimates of value developed for use in appraisal ratio studies are considered appraisal services and must comply with *USPAP* Standards 1 and 2 or Standard 6.

8.1 Rationale

Independent appraisals can be used as indicators of market value. Independent appraisals are appraisals performed by appraisers who are not employees of the appraisal agency that is the subject of the study. Such appraisal ratio studies are particularly useful for property classes with limited sale data, such as commercial and industrial real property and personal property (see *Property Appraisal and Assessment Administration* IAAO 1990, appendix 1-1] and Gloudemans [1999, chapter 6]). In addition, appraisal ratio studies can be used for agricultural or other properties not appraised on an ad valorem basis. In this case, the appraisals should reflect the use value or other statutory basis on which the properties are appraised.

8.2 Advantages and Disadvantages

Appraisal ratio studies have both advantages and disadvantages. The advantages of appraisal ratio studies are

- the ability to sample from areas or property types with insufficient sales information
- a high degree of control in sample size that enables the analyst to treat jurisdictions equally, regardless of the availability of market information
- the avoidance of nonrepresentativeness stemming from the use of sales samples that may not represent the property population.
- the size of the sample can be specified and
- the initial sample can be randomly drawn, thus helping to maximize representativeness.

If objectivity can be maintained, the appraisal ratio study avoids potential distortions due to systematic differences between appraisals of sampled and unsampled properties. In addition, independent appraisals can be used to test for systematic differences between appraisals of sold and unsold properties.

A disadvantage of appraisal ratio studies is the extra time and cost involved with the independent appraisal process. The subject and any comparables should be physically inspected and the appraisals documented according to appropriate standards. Applicable *USPAP* guidelines should be followed. Independent single-property appraisals should be developed in compliance with *Standard 1*, should be reported in compliance with *Standard 2*, and should be reviewed in compliance with *Standard 3* of *USPAP*. Independent appraisals done with a mass appraisal model should be developed and reported in compliance with *Standard 6* of *USPAP*. Another disadvantage is that appraisals are an

opinion of value. Accordingly, they should be documented and tested against the market. However, this becomes difficult when sales data are scarce. To reduce this disadvantage, appraisal ratio study analysts should ensure that appraisals are carefully reviewed and allow local appraisers to submit appraisal information that may affect the value conclusion (see *Standard on Administration of Monitoring and Compliance Responsibilities* [IAAO 2003]). Where adequate sales are available, independent appraisals should be checked for consistency with sales.

8.3 Sample Selection and Resource Requirements

Sample selection and resource planning in appraisal ratio studies require knowledge of statistical sampling, estimation principles, and available resources. Judgment must be used, because the determination of an adequate sample can require more information than is available during the design and planning phase, such as the actual variation within the final ratio data sets (see section 6.2, “Adequacy of a Given Sample Size,” in Part 1). Moreover, the cost of the study increases with the size of the sample. Therefore, the value of more reliable information must be balanced against the costs of obtaining that information.

In determining the size of the sample for each stratum, the following should be taken into consideration:

1. the required precision (typically measured by the margin of error) of the estimate of the appraisal level, for example, ± 0.05
2. the required confidence level, for example, 95 percent
3. the amount of dispersion expected in the final ratio data set
4. the wastage associated with properties that cannot be efficiently appraised or appraisals that cannot be used for one reason or another (see Gloudemans [1999, chapter 6] for sample size formulas and required input variables; also see Sherrill and Whorton [1991]).

Once the desired size of an appraisal sample has been determined, the individual properties that will constitute the sample should be selected using a statistically valid sampling plan. Stratified random sampling is preferred.

If value stratification is used, sample properties selected from value groups during resource planning can shift into other value groups before completion of the study, thus reducing the ultimate representativeness of the sample. Some appraisal parcels may need to be removed from the sample when anomalous conditions are discovered such as environmental contamination (sufficiently reliable valuations may be prohibitively difficult or resource intensive) or when the independent appraiser is not allowed access

to the property. Any sample parcels that are voided or that shift from a stratum because of value changes should be replaced if possible.

Appraisal ratio studies, as with sales ratio studies, require informed, reasoned judgment to maximize sample representativeness and statistical reliability.

8.4 Data Requirements and Appraisal Techniques

The appraisal techniques selected for an appraisal ratio study should be consistent with accepted appraisal principles and practices. The appraisals should reflect the appraisal date in question and should be well documented. Statistical software should be used as much as possible to expand analytical capabilities and perform calculations.

The appraisals used in appraisal ratio studies can be based on CAMA and automated valuation model (AVM) techniques (see *Standard on Automated Valuation Models*, [IAAO 2003]). The models used must be developed independently from those used for assessment purposes. Adequate market data and property characteristic data are required to develop reliable and defensible model estimates. If available, sales from a later period can be used to expand sample size. However, as in sales-based ratio studies, sales derived from primary assessing jurisdictions should be reviewed to ensure accuracy and validity. CAMA and AVM models have the advantage of reducing costs, permitting the use of larger, more representative samples. CAMA and AVM models developed for equalization must focus on the adequacy of overall, not individual, value or level of assessment estimates.

Because the purpose of the appraisal is to make an *independent* value estimate, not audit the assessor’s work, the appraisals should be made without knowledge of the assessor’s value. Appraisers should *not* be supplied with copies of the assessor’s appraisal work sheets or model information. Supervisors should spot-check and review the work of staff appraisers to ensure that the required independence is maintained. When the purpose of the ratio study is equalization or performance measurement, rather than internal quality assurance, the appraisals should not be revealed to the assessor until the assessor’s values are final.

8.5 Appraisal Chasing

Appraisal chasing can take two forms, either of which reduces or destroys the validity of the ratio study. The first occurs when an independent appraiser knows the local appraised value and either consciously or unconsciously biases the independent appraised value towards the local appraised value. Independent appraisers should not have access to the local appraiser’s values or appraisal work papers prior to completing their appraisals. Also, independent appraisals should be reviewed and tested against the market.

The second form of appraisal chasing occurs when the local appraisal jurisdiction knows which properties are in the ratio study appraisal sample and adjusts local appraised values on some or all of these properties to achieve better ratios without making similar adjustments to unsampled properties. This form of appraisal chasing is similar to sales chasing and has similar consequences (see Appendix D, “Sales Chasing Detection Techniques”). Ratio study analysts should guard against this form of appraisal chasing by withholding the release of sample information until the local appraisal office’s values are final. If this form of appraisal chasing occurs, the oversight agency can use local values prior to adjustment to provide a more accurate representation of the population ratios.

8.6 Reviewing of Appraisals

Appraisal supervisors should review appraisal models or individual single-property appraisals to ensure that USPAP and the agency’s standards are met. It also is good practice to include some recently sold properties in the sample being appraised as a check on the validity of the methods being applied. In addition, the assessor must be afforded an opportunity to review the appraisals along with supporting documentation and to submit information supporting different value conclusions. If different value conclusions or factual information would materially affect the outcome of the study, a procedure for resolving conflicts, for example, by an independent review body, should be established.

8.7 Combining of Sales and Appraisals

Appraisals can be combined with valid sales in a ratio study. Using available sales adds objectivity to the study and reduces the required number of appraisals. On the other hand, combining sales and appraisals mixes two market indicators. If sales and appraisals are combined, an analysis should be performed to test the consistency of measures of central tendency derived from the sales ratios compared to the same measures derived from the appraisal ratios. A Mann-Whitney test comparing values per unit or comparing ratios based on sales with those based on appraisals is appropriate for this purpose. Significant differences can result from several of the following conditions:

1. Sales have been chased.
2. Sales and appraisals came from different geographic areas with different markets and different levels of appraisal (maximize representativeness by stratifying).
3. Sales and appraisals have different property characteristics that cause different levels of appraisal.
4. All or some of the sales are invalid.
5. Outlier ratios are causing sale/appraisal ratio differences.

6. All or some of the appraisals are inaccurate.

If none of the first five conditions listed above apply, the appraisals should be tested against the market and revised as necessary (see Wooten, 2003).

Variability measures computed on sales used in the sample should not be expected to be similar to variability measures computed on appraisals. Sales ratios reflect the vagaries of the marketplace. Appraisal ratios, on the other hand, come from comparing the results of one appraisal model (the oversight agency’s) to the results of another (the assessing office’s). If both parties use mass appraisal procedures, differences in appraisals between the two models should be less than when compared with sales; thus, variability measures based on appraisal ratios can be expected to be lower than those based on sales ratios as long as they represent properties with similar characteristics and similar degrees of appraisal difficulty.

8.8 Average Unit Value Comparisons

In addition to a traditional ratio study, “expert” appraisals can take the form of average unit values and be compared against the assessor’s average unit value for the same parcels. In this technique, parcels are stratified into homogeneous groups, as they would be for appraisal purposes. Appropriate units of comparison are identified for each group, and average unit values are determined through an analysis of available sales, cost, and income data. The assessor’s average unit values for the same strata are then calculated and the two averages are compared. Average unit value comparisons is well-rooted in mass appraisal theory and offers an alternative to the time and expense associated with the selection and appraisal of individual parcels.

9. Estimating Performance for Unsold Properties

The objective of a ratio study is to determine appraisal performance for the population of properties. As long as sold and unsold parcels are appraised in the same manner and the data describing them are coded consistently, statistics calculated in a sales ratio study can be used to infer appraisal performance for unsold parcels. However, if parcels that sell are selectively reappraised or recoded, based on their sale prices or some other criterion (such as listing price) and if such parcels are in the ratio study, sales ratio study uniformity inferences will not be accurate (appraisals will appear more uniform than they are). In this situation, measures of appraisal level will also be unsupported unless similar unsold parcels were appraised by a model that produces the same overall percentage of market value (appraisal level) as the parcels that sold.

Oversight agencies must ensure that sold and unsold parcels are appraised at the same level. Several techniques are available for determining whether assessors are selectively appraising sold parcels (see Appendix D, “Sales Chasing De-

tection Techniques,” or *Property Appraisal and Assessment Administration* [IAAO 1990, appendix 20-2] and Gloudemans [1999, chapter 6] for a more detailed discussion).

If unsold properties within a properly specified group are not appraised consistently with sold properties within the same group and according to applicable guidelines, unadjusted sales ratio results cannot be used. The oversight agency will have to adjust calculated results or conduct an alternative study.

Once it is determined that *sales chasing* probably has occurred and probably is reducing the validity of ratio study statistical measures of level or uniformity, it is necessary to redo the ratio study to establish valid measures before any other recommendations, such as reappraisal or equalization action, can be made. If feasible, probably the best approach is to select a sample period that effectively precludes sales chasing. For example, when the lien or appraisal date is January 1, many jurisdictions use sales occurring before that date to make valuation decisions. To test the resulting valuations, it would be appropriate to use sales occurring after January 1 (or after the last date for changing assessments for the year in question), provided such data are time-adjusted (when necessary) backward to match the appraisal date. As a slight variation on this principle, earlier sales could be used, except when sales chasing is detected, in which case it is appropriate to switch to a later, post-appraisal-date sales period.

Legal or practical constraints can prevent use of optimal sample periods in many cases. In these situations, it is important to determine the exact cause of the sales

chasing. For example, if a large proportion of selling properties are appealed and if appeal boards typically adjust to sale price, the result is the same as sales chasing by the assessor. One solution is to use appraised values prior to the action of the appeal board, provided that the appeal adjustment is not merely the result of an atypical clerical or other error. Another approach is to use current sales prices and prior-year values, adjusted for reappraisal activity or assessment value changes in the population. The percentage increase or decrease in the prior-year’s appraised values for the population (net of new construction) should be used to adjust the prior-year’s values for the sample (Gloudemans 1999).

10. Presentation of Findings, Documentation, and Training

Oversight agencies should produce ratio studies in a manner that is transparent in all stages to all stakeholders.

(See section 8, Part 1.)

11. Ratio Study Standards

Each state and province should have ratio study performance standards. These standards, summarized in table 2-3, are suggested for jurisdictions in which current market value is the legal basis for assessment. In general, when state and provincial standards are not met, reappraisal or other corrective measures should be taken or equalization procedures can be imposed. When an oversight agency orders such actions, the burden of proof should be on the agency to show that the standards have not been achieved.

Table 2-3. Ratio study uniformity standards indicating acceptable general quality*

General Property Class	Jurisdiction Size /Profile /Market Activity	COD Range
Residential improved (single family dwellings, condominiums, manuf. housing, 2-4 family units)	Very large jurisdictions / densely populated / newer properties / active markets	5.0 to 10.0
	Large to mid-sized jurisdictions / older & newer properties / less active markets	5.0 to 15.0
	Rural or small jurisdictions / older properties / depressed market areas	5.0 to 20.0
Income-producing properties (commercial, industrial, apartments,)	Very large jurisdictions / densely populated / newer properties / active markets	5.0 to 15.0
	Large to mid-sized jurisdictions / older & newer properties / less active markets	5.0 to 20.0
	Rural or small jurisdictions / older properties / depressed market areas	5.0 to 25.0
Residential vacant land	Very large jurisdictions / rapid development / active markets	5.0 to 15.0
	Large to mid-sized jurisdictions / slower development / less active markets	5.0 to 20.0
	Rural or small jurisdictions/ little development / depressed markets	5.0 to 25.0
Other (non-agricultural) vacant land	Very large jurisdictions / rapid development / active markets	5.0 to 20.0
	Large to mid-sized jurisdictions / slower development / less active markets	5.0 to 25.0
	Rural or small jurisdictions/ little development / depressed markets	5.0 to 30.0

These types of property are provided for general guidance only and may not represent jurisdictional requirements.

*The COD performance recommendations are based upon representative and adequate sample sizes, with outliers trimmed and a 95% level of confidence.

*Appraisal level recommendation for each type of property shown should be between 0.90 and 1.10.

*PRD's for each type of property should be between 0.98 and 1.03 to demonstrate vertical equity.

PRD standards are not absolute and may be less meaningful when samples are small or when wide variation in prices exist. In such cases, statistical tests of vertical equity hypotheses should be substituted.

*CODs lower than 5.0 may indicate sales chasing or non-representative samples.

All standards recommended in this section are predicated on the assumption that all practicable steps necessary to maximize representativeness and validity in the underlying ratio studies have been conducted.

11.1 Level of Appraisal

The calculated measures of central tendency are point estimates and provide only an indication, not proof, of whether the level meets the appropriate goal. Confidence intervals and statistical tests should be used to determine whether the appraisal level differs from the established goal in a particular instance.

A decision by an oversight agency to take some action (direct equalization, indirect equalization, reappraisal) can have profound consequences for taxpayers, taxing jurisdictions, and other affected parties. This decision should not be made without a high degree of certainty that the action is warranted. Conversely, a decision not to take action when action is needed can have equally profound consequences. Oversight agencies should weigh all the options and consider the issues discussed below when developing or revising a level-of-appraisal standard, and when developing equalization or other appraisal oversight procedures.

11.1.1 Purpose of Level-of-Appraisal Standard

Jurisdictions that follow the IAAO recommendation of annual reassessments and comply with USPAP standards should be able to develop mass appraisal models that maintain an overall ratio level of 100 percent (or very near thereto). The local assessor may be required to observe reappraisal cycles defined by a legal authority or public policy that can extend beyond one year. During extended cycles inflation or deflation can influence the overall ratio.

The purpose of a performance standard that allows reasonable variation from 100 percent of market value is to recognize uncontrollable sampling error and the limiting conditions that may constrain the degree of accuracy that is possible and cost-effective within an assessment jurisdiction. Further, the effect of performance standards on local assessors must be considered in light of expectations of public policy and resources available. For these reasons, states or oversight agencies may adopt performance standards for appraisal level that allow some variance from the 100 percent goal of market value.

11.1.2 Recommended Appraisal Level Standards for Direct and Indirect Equalization

The performance standard adopted by an oversight agency should be a range around the legally required level of appraisal in a property class or an overall jurisdiction. This range should be 90 to 110 percent of the legally required level of appraisal for direct equalization or reappraisal, or 95 to 105 percent for indirect equalization. A smaller maximum range for indirect equalization is justified

because taxpayers are not as comprehensively affected. Oversight agencies should adopt performance standards that are as close to the legally required level as can be justified given the local situation and taking into account the factors discussed herein.

In addition to the above appraisal level standards, each class of property for which appraisal level standards have been defined must be within 5 percent of the overall level of appraisal of the jurisdiction (see section 11.2.3, “Uniformity among Strata,” in this part). Both criteria must be met.

11.1.3 Confidence Intervals in Conjunction with Performance Standards

By themselves, the calculated measures of central tendency provide only an indication, not proof, of whether the appraisal level meets the performance standard. So, the purpose of confidence intervals and similar statistical tests is to determine whether the appraisal level differs from the established performance standard in a particular instance. A conclusion of noncompliance requires a high degree of confidence, thus a 90 percent (two-tailed) or 95 percent (one-tailed) confidence interval should be used, except for small or highly variable samples as described in section 11.1.5, “Adjustment for High Variability and Small Samples,” in this part.

11.1.4 Decision Model

The oversight agency should determine whether the estimate is outside the acceptable range around the legal level of appraisal with a specified degree of statistical significance. The chosen interval should overlap the performance standard range of 90 percent to 110 percent in the case of direct equalization or measuring appraisal performance. For indirect equalization the chosen interval should overlap the performance standard range of 95 percent to 105 percent. If the confidence interval does not overlap any portion of the appropriate range, equalization is performed or reappraisal orders are issued. See table 2-4 for an example of the direct equalization or appraisal performance decision making process.

11.1.5 Adjustments for High Variability and Small Samples

High variability, small sample size, or a combination of these factors often causes confidence intervals to become quite wide. Wide confidence intervals reflect the imprecision of the underlying statistic and can decrease the usefulness of performance measures. Also, wide confidence intervals can cause an inequitable situation in which jurisdictions with small samples and large variability are never subject to equalization or reappraisal orders, while jurisdictions with larger samples and much less variability are more likely to be subject to such orders even though their appraisal performance may be arguably better.

For these reasons, oversight agencies should consider expanding sample sizes by taking steps to increase the number of sales or by making independent appraisals (see section 7.4 part 2). If the sample size cannot be increased, two options may be considered when the point estimate fails to achieve compliance but the confidence interval overlaps the range of compliance:

- If a particular point estimate does not meet the standard for the current study cycle the oversight agency may reduce the level of confidence by 5% the following year. This may be followed by an annual stepwise reduction of 5%. Such a reduction may continue to a 70 percent level of confidence if the point estimate fails to meet the compliance threshold over this period of time. Corrective action would be imposed when a given year's confidence interval fails to include the performance standard range.
- The oversight agency may examine statistical point estimates over several study cycles. A jurisdiction that fails to meet a particular point standard for 5 consecutive years has a probability of less than 5% that compliance has been achieved, even if the confidence interval overlaps the compliance threshold every year. In such cases the oversight agency would impose corrective decisions based upon the point estimate.

11.1.6 Calculating Equalization Adjustments

If noncompliance with either direct or indirect equalization standards is indicated, the appropriate point estimate (statistic) measuring appraisal level should be used to calculate adjustment factors, by dividing it into 100 percent.

11.2 Appraisal Uniformity

Assuming the existence of an adequate and sufficiently representative sample, if the uniformity of appraisal is unacceptable, reappraisal should be undertaken regardless of the level of appraisal. The oversight agency should recognize that the COD is a point estimate and cannot be accepted as proof of assessment uniformity problems without an appropriate degree of statistical confidence. Such proof can be provided by recognized statistical tests, including bootstrap confidence intervals. If the data are normally distributed, the COV and confidence intervals around this measure also

can be determined. Then the COV can be mathematically converted into an equivalent COD.

11.2.1 Oversight Uniformity Standards

Oversight agencies should establish uniformity standards for local assessment jurisdictions. Any COD performance standards applied to strata within a particular jurisdiction should be related to the overall size, profile of property characteristics (type, age, condition, and obsolescence) and market activity. In general, tighter uniformity standards can be applied to larger jurisdictions with newer construction and active markets. And generally, less stringent uniformity standards should be applied to older, economically depressed or less densely developed areas with less efficient markets. Standards should also be relaxed in jurisdictions that experience economic instability due to sudden changes in supply or demand factors. In developing uniformity standards, oversight agencies should consider reasonable tolerance ranges in making compliance decisions.

11.2.2 Multi-level Uniformity Standards

The uniformity standards presented in table 2-3 are defined in terms of the COD (point estimate) measure and are intended to apply to ratio studies based on sales, not those based on independent appraisals in which lower CODs often are typically observed. If reliability measures are not employed, sample size will play a critical role in setting the maximum acceptable COD. In addition, in unusually homogeneous or restrictive markets or for properties subject to use-value or similar constrained value assessment, low CODs also can be anticipated. In all other cases, CODs less than 5 percent should be considered unusual and possibly indicative of nonrepresentative samples or the selective reappraisal of sold parcels. The COD standards in table 2-3 may not be applicable to property strata in unique, depressed, or rapidly changing markets. In such cases, assessment administrators may be able to develop target standards based on an analysis of past performance or results in similar markets elsewhere. Such an analysis can be based on ratio study results for the past five years or more.

11.2.3 Uniformity among Strata

Although the goal is to achieve an overall level of appraisal equal to 100 percent of the legal requirement, ensuring uniformity in appraisal levels among strata is also important.

Table 2-4. Ratio Study Standards and Decision Making—Direct Equalization or Appraisal Performance Using Median 90%–110% Standard

Example demonstrating application of standard at a 95% level of confidence

Case	Point Estimate	Confidence Interval (CI) Width (95%)	CI Overlaps Performance Standard Range	Point Estimate in Performance Standard Range	Equalization Action or Reappraisal Order
1	92%	86% to 101%	yes	yes	no
2	88%	81% to 95%	yes	no	no
3	84%	79% to 88%	no	no	yes

The level of appraisal of each stratum (class, neighborhood, age group, market areas, and the like) should be within 5 percent of the overall level of appraisal of the jurisdiction. For example, if the overall level of appraisal of the jurisdiction is 1.00, but the appraisal level for residential property is 0.93 and the appraisal level for commercial property is 1.06 the jurisdiction is not in compliance with this requirement. This test should be applied only to strata subject to compliance testing. The oversight agency can conclude that this standard has been met if 95 percent (two-tailed) confidence intervals about the chosen measures of central tendency for each of the stratum fall within 5 percent of the overall level of appraisal calculated for the jurisdiction. Using the above example, if the upper confidence limit for the level of residential property is 0.97 and the lower confidence limit for commercial property is 1.01, the two strata are within the acceptable range.

11.2.4 Vertical Equity

PRDs should be between 0.98 and 1.03. The reason this range is not centered on 1.00 relates to an inherent upward bias in the arithmetic mean (numerator in the PRD) that does not equally affect the weighted mean (denominator in the PRD). When samples are small, have high dispersion, or include properties with extreme values, the PRD may not provide an accurate indication of assessment regressivity or progressivity. Similar considerations apply to special-purpose real property and to personal property. It is good practice to perform an appropriate statistical test for price-related biases before concluding that they exist (see table 1-2 in Part 1).

11.3 Natural Disasters and Ratio Study Standards

Natural disasters such as earthquakes, floods, and hurricanes can have a substantial impact on the conduct of ratio studies and the interpretation and use of the results, and in general, they:

- increase the difficulty of accurately identifying the physical and economic characteristics of property on the dates of sale/lease and the date of appraisal
- increase the difficulty of producing sufficiently reliable appraised values (numerators)
- decrease the availability of usable sales and other market data
- increase the difficulty of identifying and obtaining such usable data
- increase the difficulty of producing sufficiently reliable independent appraisals
- increase the difficulty of accurately matching the characteristics of numerators with those of denominators

These potential problems can result from extraordinary changes in market conditions and in the physical and economic characteristics of property between the dates of sale/lease and the date of appraisal. As a result of these potential problems, a number of unreliable sample properties may need to be voided and usable sample sizes can be reduced significantly. All of these factors should be considered when ratio study standards are applied to ratio study results from areas substantially affected by natural disasters, but such consideration must not result in unwarranted relaxation of applicable standards. When faced with such situations, oversight agencies must use informed, reasoned judgment and common sense to produce a sufficiently reliable ratio study, based upon the best information available.

12. Personal Property Studies

Most personal property ratio studies performed by oversight agencies are performed for equalization purposes. Because indirect equalization in particular requires overall estimation of value, it is imperative for these ratio studies to focus on large accounts.

Horizontal equity requires similar levels of appraisal between real and personal property. Sales data for personal property are difficult to obtain and analyze because markets for personal property are generally less visible and more difficult to follow than real property markets. Therefore, performance reviews and appraisal ratio studies should be used in place of sales ratio studies to determine the quality of appraisal of personal property. The performance review does not quantify assessment conditions but can determine general assessment quality. The appraisal ratio study can be used to determine the level and uniformity of assessment for personal property.

12.1. The Performance Review

The performance review is an empirical study that evaluates the assessment method used and the ability of the jurisdiction to meet its legal requirement in the assessment of personal property. This type of study can be used to allocate tax dollars in multijurisdictional funding calculations or equalization by assuming that jurisdictions passing the performance review are assessing personal property at the general level of other classes of property analyzed with ratio studies.

12.1.1. Discovery

The jurisdiction must have the ability to discover the owners or users of taxable personal property within the jurisdiction. This is accomplished using phone books, business/occupational licenses, listings, sales tax rolls, and field reviews (see IAAO Course 500, “The Assessment of Personal Property,” and *Standard on Valuation of Personal Property* [IAAO 2005] for a complete list).

12.1.2. Valuation

Personal property is valued by using acceptable schedules and methods including depreciation schedules published by nationally recognized valuation firms, market data from published valuation guides, and other generally accepted valuation methods and acceptable adjustments (see Standard on Valuation of Personal Property).

12.1.3. Verification

Inclusiveness of personal property returns and reports should be verified by an audit program. The audit program should focus on larger and complex accounts; however, it also should include randomly selected accounts. The audit program should provide coverage of the entire tax base regardless of the jurisdiction's reappraisal cycle.

12.1.4 Forms and Renditions

Comprehensive forms supplied by the assessment authority should allow the taxpayer to disclose fully all assessable personal property. The tax laws should require mandatory compliance, with meaningful penalties for noncompliance.

12.2. Appraisal Ratio Studies for Personal Property

The appraisal ratio study produces an estimate of the level of assessment of personal property by developing a ratio for property that is on the tax roll through the use of appraisals. The level of assessment determined in this way can be adjusted downward to account for property that has not been assessed.

12.2.1 Assessment Ratio for Personal Property

Personal property market values are usually derived from appraisals using a replacement cost new less depreciation (RCNLD) approach (see IAAO Course 500). A comparison of the depreciation schedules in use to nationally accepted schedules would enable the calculation of a ratio for property on the roll. A statistically sound process should be used to select a sample that is representative of personal property on the tax rolls. Such a sample can be parcel- or value-based depending on the intended use of the ratio study in indirect or direct equalization.

12.2.2 Stratification

Proper stratification of personal property accounts should be done for greater statistical accuracy. Strata should be based on the type and value of personal property accounts.

Stratification by type of account should occur first. Personal property accounts can be divided into residential

(motor vehicles, boats, aircraft, and the like), agriculture, and business accounts. Further stratification can occur in residential and agricultural accounts but is necessary in business or commercial accounts. Business accounts are usually stratified by size into a minimum of four groups. Value ranges for these groups should be derived from the value ranges in the local market. One example would be small (less than \$250,000), medium (\$250,000 to \$1 million), moderate (\$1-\$5 million), and large (greater than \$5 million). Individual size of account can be determined by value on the prior-year personal property roll.

12.2.3 Property Escaping Assessment

Personal property is particularly prone to escaping assessment. Some determination should be made about the portion of taxable personal property not on the assessment roll. However, estimates based on national averages are less meaningful at the local jurisdictional level.

12.2.3.1 Identifying Personal Property Owners and Users Not on the Roll

Discovery tools can be used to determine accounts not on the roll for a sample area or group. Once the extent of the problem is identified, a projection can be made of the percentage of personal property not identified on the assessment roll.

12.2.3.2 Identifying Personal Property Not Included in Taxpayer Returns/Reports

The accepted method of determining the property omitted in taxpayer returns/reports is to audit the account (see IAAO workshops on auditing). The audit results are applied back to the account value. The resulting fraction is property that is escaping taxation within that particular personal property account. If appropriate sampling techniques are used in selecting the accounts for audit, the resulting ratio is applied to the total roll to help determine the percentage of personal property escaping assessment within the jurisdiction.

12.2.4 Computing the Level of Appraisal

The overall ratio is then determined by reducing the valuation ratio by the percent of property wholly or partially escaping taxation. For example, if the appraisal level is found to be 90 percent and it is determined that 5 percent of personal property is escaping assessment, then the corrected level of assessment is the appraisal level times the percentage of personal property assessed: $0.90 \times (1 - 0.05) = 0.855$. For indirect equalization, this calculation would result in a higher equalized value.

Standard on Ratio Studies

Definitions

Absolute value. The value of a number (or variable) regardless of its sign. For example, 3 and –3 (minus 3) both have an absolute value of 3. The mathematical symbol for absolute value is one vertical bar on each side of the number in question, for example, $|3|$.

Accuracy. The closeness of a measurement, computation, or estimate to the true, exact, or accepted value. Accuracy also can be expressed as a range about the true value. *See also precision and statistical accuracy.*

Adjusted sale price. The sale price that results from adjustments made to the stated sale price to account for the effects of time, personal property, financing, or the like.

Appraisal. “The act or process of developing an opinion of value; an opinion of value” (USPAP 1999). The act of estimating the money value of property. The money value of property as estimated by an appraiser.

Appraisal date. The date as of which a property’s value is estimated. *See also assessment date.*

Appraisal ratio. (1) The ratio of the appraised value to an indicator of market value. (2) By extension, an estimated fractional relationship between the appraisals and market values of a group of properties. *See also level of appraisal.*

Appraisal ratio study. A ratio study using independent expert appraisals as indicators of market value.

Appraisal-sale price ratio. The ratio of the appraised value to the sale price (or adjusted sale price) of a property; a simple indication of appraisal accuracy.

Appraised value. The estimate of the value of a property before application of any fractional assessment ratio, partial exemption, or other adjustments.

Arithmetic mean. A measure of central tendency. The result of adding all the values of a variable and dividing by the number of values. For example, the arithmetic mean of 3, 5, and 10 is 18 divided by 3 or 6.

Array. An ordered arrangement of data, such as a listing of sales ratios, in order of magnitude.

Assessed value. (1) A value set on real estate and personal property by a government as a basis for levying taxes. (2) The monetary amount at which a property is put on the assessment roll for purposes of computing the tax levy. Assessed values differ from the assessor’s estimate of actual (market) value for four major reasons: fractional assessment ratios, partial exemptions, preferential assessments, and decisions by assessing officials to override market value.

Assessment. (1) In general, the official acts of determining the amount of the tax base. (2) As applied to property taxes, the official act of discovering, listing, and appraising property, whether performed by an assessor, a board of review, or a court. (3) The value placed on property in the course of such act.

Assessment-appraisal ratio. The ratio of the assessed value of a property to an independent appraisal.

Assessment date. The status date for tax purposes. Appraised values reflect the status of the property and any partially completed construction as of this date.

Assessment progressivity (regressivity). An appraisal bias such that high-value properties are appraised higher (or lower) than low-value properties in relation to market values. *See also price-related differential.*

Assessment ratio. (1) The fractional relationship of an assessed value to the market value of the property in question. (2) By extension, the fractional relationship of the total of the assessment roll to the total market value of all taxable property in a jurisdiction. *See also level of assessment.*

Assessment-sale price ratio. The ratio of the assessed value to the sale price (or adjusted sale price) of a property.

Assessor. (1) The head of an assessment jurisdiction. Assessors can be either elected or appointed. In this standard the term is sometimes used collectively to refer to all assessment officials charged with administering the assessment function. (2) The public officer or member of a public body whose duty it is to make the original assessment.

Average deviation. The arithmetic mean of the absolute deviations of a set of numbers from a measure of central tendency such as the median. Taking absolute values is generally understood without being stated. The average deviation of the numbers 4, 6, and 10 about their median (6) is $(2 + 0 + 4) \div 3 = 2$. The average deviation is used in computing the coefficient of dispersion (COD).

Bias. A type of nonsampling error in which a calculated statistic differs systematically from the population parameter. A process is biased if it produces results that vary systematically with some factor that should be irrelevant. In assessment administration, assessment progressivity (regressivity) is one kind of possible bias.

Bootstrap. A computer-intensive method of statistical inference that is based on a repeated resampling of data to provide more information about the population characteristics. The bootstrap is a data-driven procedure that is

particularly useful for confidence interval approximation when no traditional formulas are available or the sample has been drawn from a population that does not conform to the normal distribution.

CAMA. *See computer-assisted mass appraisal*

Central tendency. (1) The tendency of most kinds of data to cluster around some typical or central value, such as the mean or median. (2) By extension, any or all such statistics. Some kinds of data, however, such as the weights of cars and trucks, may cluster about two or more values, and in such circumstances the meaning of central tendency becomes unclear. This may happen in ratio studies in which two or more classes of property are combined.

Class. A set of items defined by common characteristics. (1) In property taxation, property classes such as residential, agricultural, and industrial may be defined. (2) In assessment, building classification systems based on type of building design, quality of construction, or structural type are common. (3) In statistics, a predefined category into which data may be put for further analysis. For example, ratios may be grouped into the following classes: less than 0.500, 0.500 to 0.599, 0.600 to 0.699, and so forth.

COD. *See coefficient of dispersion.*

Coefficient of concentration. The percentage of observations falling within a specified percentage (say, 15 percent) of a measure of central tendency.

Coefficient of dispersion (COD). 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.

Coefficient of variation (COV). A standard statistical measure of the relative dispersion of the sample data about the mean of the data; the standard deviation expressed as a percentage of the mean.

Computer-assisted mass appraisal (CAMA). A process that uses a system of integrated components and software tools necessary to support the appraisal of a universe of properties through the use of mathematical models that represent the relationship between property values and supply/demand factors.

Confidence interval. A range of values, calculated from the sample observations, that are believed, with a particular probability, to contain the true population parameter (mean, median, COD). The confidence interval is not a measure of precision for the sample statistic or point estimate, but a measure of the precision of the sampling process (see **reliability**).

Confidence level. The degree of probability associated with a statistical test or confidence interval, commonly 90, 95, or 99 percent. For example, a 95 percent confidence interval implies that were the estimation process repeated

again and again, then 95 percent of the calculated intervals would be expected to contain the true population measure (such as the median, mean, or COD).

Contributory value. The amount a component of a property contributes to the total market value. For improvements, contributory value must be distinguished from costs.

COV. *See coefficient of variation.*

Date of sale (date of transfer). The date on which the sale was consummated. This is considered to be the date the deed, or other instrument of transfer, is signed. The date of recording can be used as a proxy if it is not unduly delayed as it would be in a land contract.

Direct equalization. The process of converting ratio study results into adjustment factors (trends) and changing locally determined appraised or assessed values to more nearly reflect market value or the legally required level of assessment. *See also equalization and indirect equalization.*

Dispersion. The degree to which data are distributed either tightly or loosely around a measure of central tendency. Measures of dispersion include the range, average deviation, standard deviation, coefficient of dispersion, and coefficient of variation.

Distribution-free statistics. A set of robust nonparametric methods whose interpretation or reliability does not depend on stringent assumptions about the distribution of the underlying population from which the sample has been drawn. *See also parametric statistics.*

Equalization. The process by which an appropriate governmental body attempts to ensure that property under its jurisdiction is assessed at the same assessment ratio or at the ratio or ratios required by law. Equalization can be undertaken at many different levels. Equalization among use classes (such as agricultural and industrial property) can be undertaken at the local level, among properties in a school district and a transportation district; equalization among counties is usually undertaken by the state to ensure that its aid payments are distributed fairly. *See also direct equalization and indirect equalization.*

Exploratory data analysis. That part of statistical practice concerned with reviewing the data set to isolate structures, uncover patterns, or reveal features that may improve the confirmatory analysis.

Fixture. An asset that has become part of real estate through attachment in such a manner that its removal would result in a loss in value to either the asset or the real estate to which the asset is affixed.

Fractional assessments. Assessments that by law or by practice have assessment ratios different from 1. Usually the assessment ratio is less than 1, and if assessment biases are present, different classes of property may have different fractional ratios.

Frequency distribution. A table or chart showing the number or percentage of observations falling in the boundaries of a given set of classes. Used in ratio studies to summarize the distribution of the individual ratios. *See also class and histogram.*

Histogram. A bar chart or graph of a frequency distribution in which the frequencies of the various classes are indicated by horizontal or vertical bars whose lengths are proportional to the number or percentage of observations in each class.

Hypothesis. A statement in inferential statistics, the truth of which the analyst is interested in determining.

Independent appraisal. An estimate of value using a model different from that used for assessment purposes. Independent appraisals are used to supplement sales in sales ratio studies or in appraisal ratio studies.

Indirect equalization. The process of computing hypothetical values that represent the oversight agency's best estimate of taxable value, given the legally required level of assessment or market value. Indirect equalization allows proper distribution of intergovernmental transfer payments between state or provincial and local governments despite different levels of appraisal between jurisdictions or property classes. *See also equalization and direct equalization.*

Interquartile range (IQR). The result obtained by subtracting the first quartile from the third quartile. By definition 50 percent of the observations fall within the IQR.

Land contract. An executor's contract for the purchase of real property under the terms of which legal title to the property is retained by the vendor until such time as all conditions stated in the contract have been fulfilled; commonly used for installment purchase of real property.

Level of appraisal. The common, or overall, ratio of appraised values to market values. Three concepts are usually of interest: the level required by law, the true or actual level, and the computed level based on a ratio study.

Level of assessment. The common or overall ratio of assessed values to market values. *See also level of appraisal.*
Note: The two terms are sometimes distinguished, but there is no convention determining their meanings when they are. Three concepts are commonly of interest: what the assessment ratio is legally required to be, what the assessment ratio for the population actually is, and what the assessment ratio for the population seems to be, on the basis of a sample and application of inferential statistics. When level of assessment is distinguished from assessment ratio, *level of assessment* usually means either the legal requirement or the true ratio, and *assessment ratio* usually means the true ratio or the sample statistic.

Margin of error. A measure of the uncertainty associated with statistical estimates of a parameter. It is typically linked to consumer surveys or political poll questions. A margin of

error is a key component of a confidence interval. It reports a "plus or minus" percentage or proportion quantity in a confidence interval at a specified level of probability (typically 95 percent). *See also confidence interval.*

Market value. The major focus of most real property appraisal assignments. Both economic and legal definitions of market value have been developed and refined. A current economic definition agreed upon by agencies that regulate federal financial institutions in the United States is: The most probable price (in terms of money) which 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: The buyer and seller are typically motivated; Both parties are well informed or well advised, and acting in what they consider their best interests; A reasonable time is allowed for exposure in the open market; Payment is made in terms of cash in United States dollars or in terms of financial arrangements comparable thereto; The 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. (See USPAP for additional comments.)

Mass appraisal. The process of valuing a universe of properties as of a given date using standard methodology, employing common data, and allowing for statistical testing (see *USPAP*)

Mean. *See arithmetic mean.*

Median. A measure of central tendency. The value of the middle item in an uneven number of items arranged or arrayed according to size; the arithmetic average of the two central items in an even number of items similarly arranged.

Median absolute deviation. The median of the absolute deviations from the median. In a symmetrical distribution, the measure approximates one-half the IQR.

Median percent deviation. The median of the absolute percent deviations from the median; calculated by dividing the median absolute deviation by one-hundredth of the median.

Nonparametric statistics. *See distribution-free statistics.*

Nonsampling error. The error reflected in ratio study statistics from all sources other than sampling error. While nonsampling error is unavoidable due to the inefficiencies inherent in real property markets, the imperfections of the appraisal process, and the imperfections of conducting ratio studies, all practicable steps must be taken to minimize nonsampling error in ratio studies.

Normal distribution. A theoretical distribution often approximated in real world situations. It is symmetrical and bell-shaped; 68 percent of the observations occur within one standard deviation of the mean and 95 percent within two standard deviations of the mean.

Observation. One recording or occurrence of the value of a variable, for example, one sale ratio among a sample of sales ratios.

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

Parameter. Numerical descriptive measure of the population, for example, the arithmetic mean or standard deviation. Parameters are generally unknown and estimated from statistics calculated from a sample of the population.

Parametric statistics. Statistics whose interpretation or reliability depends on the distribution of the underlying data. *See also distribution-free statistics.*

Percentile. The values that divide a set of data into specified percentages when the data are arrayed in ascending order. The tenth percentile includes the lowest 10 percent of the values, the twentieth percentile includes the lowest 20 percent of the values, and so forth.

Personal property. *See property.*

Plottage value. The excess of the value of a large parcel of land formed by assemblage over the sum of the values of the unassembled parcels.

Point estimate. A single numerical value that can be used to estimate a population parameter. It is calculated on the basis of information collected from a sample. Point estimates are generally constructed to provide the best unbiased estimate of the population parameter consistent with the sample data. However, the point estimate is only an estimate, and is unlikely to have the same value as the population parameter. (*See Confidence interval and Reliability* for discussion of precision of the sampling process.)

Points. Prepaid interest on a loan; one point is equal to 1 percent of the amount of the loan. It is common to deduct points in advance of the loan, so that an individual pays interest on 100 percent of the loan but gets cash on, say, only 99 percent.

Population. All the items of interest, for example, all the properties in a jurisdiction or neighborhood; all the observations in a data set from which a sample may be drawn.

Precision. The level of detail in which a quantity or value is expressed or represented. It can be characterized as the number of digits used to record a measurement. A high level of represented precision may be used to imply a greater level of accuracy; however, this relationship may not be true. Precision also relates to the quality of an operation or degree of refinement by which results are obtained.

A method of measurement is considered precise if repeated measurements yield the same or nearly the same numeric value. *See also accuracy and statistical precision.*

PRD. *See price-related differential.*

Price. The amount asked, offered, or paid for a property. (See USPAP [2004] for additional comments.)

Price-related differential. The mean divided by the weighted mean. The statistic has a slight bias upward. Price-related differentials above 1.03 tend to indicate assessment regressivity; price-related differentials below 0.98 tend to indicate assessment progressivity.

Progressivity. *See assessment progressivity (regressivity).*

Property. An aggregate of things or rights to things. These rights are protected by law. There are two basic types of property: real and personal. Real property consists of the interests, benefits, and rights inherent in the ownership of land plus anything permanently attached to the land or legally defined as immovable; the bundle of rights with which ownership of real estate is endowed. To the extent that “real estate” commonly includes land and any permanent improvements, the two terms can be understood to have the same meaning. Also called *realty*. Personal property is defined as those items that generally are movable or all items not specifically defined as real property. Many states include as personal property the costs associated with placing personal property in service, such as sales tax, freight, and installation. Installation items include, but are not limited to, wiring, foundations, hookups, and attachments. Two commonly used tests for distinguishing real and personal property are (1) the intent of the parties and (2) whether the item may be removed from the real estate without damage to either.

Qualified sale. A property transfer that satisfies the conditions of a valid sale and meets all other technical criteria for inclusion in a ratio study sample. If a property has undergone significant changes in physical characteristics, use, or condition in the period between the assessment date and sale date, it would not technically qualify for use in ratio study.

Quartiles. The values that divide a set of data into four equal parts when the data are arrayed in ascending order. The first quartile includes the lowest quarter of the data, the second quartile, the second lowest quarter, and so forth.

Random sample. A sample of n items selected from a population in such a way that each sample of the same size is equally likely. This also includes the case in which each element in the sample has an equal chance of being selected.

Range. (1) The maximum value of a sample minus the minimum value. (2) The difference between the maximum and minimum values that a variable may assume.

Ratio study. A study of the relationship between appraised or assessed values and market values. Indicators of market values may be either sales (sales ratio study) or independent “expert” appraisals (appraisal ratio study). Of common interest in ratio studies are the level and uniformity of the appraisals or assessments. *See also level of appraisal and level of assessment.*

Real property. *See property.*

Regressivity. *See assessment progressivity (regressivity).*

Regressivity index. *See price-related differential.*

Reliability. In a sampling process, the extent to which the process yields consistent population estimates. Ratio studies typically are based on samples. Statistics derived from these samples may be more or less likely to reflect the true condition in the population depending on the reliability of the sample. Representativeness, sample size, and sample uniformity all contribute to reliability. Formally, reliability is measured by sampling error or the width of the confidence interval at a specific confidence level relative to the central tendency measure.

Representative sample. A sample of observations from a larger population of observations, such that statistics calculated from the sample can be expected to represent the characteristics of the population being studied.

Sale price. (1) The actual amount of money exchanged for a unit of goods or services, whether or not established in a free and open market. An indicator of market value. (2) Loosely used synonymously with “offering” or “asking price.”

Sale ratio. The ratio of an appraisal (or assessed) value to the sale price or adjusted sale price of a property.

Sales chasing. Sales chasing is the practice of using the sale of a property to trigger a reappraisal of that property at or near the selling price. If sales with such appraisal adjustments are used in a ratio study, the practice causes invalid uniformity results and causes invalid appraisal level results, unless similar unsold parcels are reappraised by a method that produces an appraisal level for unsold properties equal to the appraisal level of sold properties. (2) By extension, any practice that causes the analyzed sample to misrepresent the assessment performance for the entire population as a result of acts by the assessor’s office. A subtle, possibly inadvertent, variety of sales chasing occurs when the recorded property characteristics of sold properties are differentially changed relative to unsold properties. Then the application of a uniform valuation model to all properties results in the recently sold properties being more accurately appraised than the unsold ones.

Sales ratio study. A ratio study that uses sales prices as proxies for market values.

Sample. A set of observations selected from a population. If the sample was randomly selected, basic concepts of probability may be applied.

Sampling error. The error reflected in ratio study statistics that results solely from the fact that a sample of the population is used rather than a census of the population.

Scatter diagram or scatter plot. A graphic means of depicting the relationship or correlation between two variables by plotting one variable on the horizontal axis and one variable on the vertical axis. Often in ratio studies it is informative to determine how ratios are related to other variables. A variable of interest is plotted on the horizontal axis and ratios are plotted on the vertical axis.

Significance. A measure of the probability that an event is attributable to a relationship rather than merely the result of chance.

Skewed. The quality of a frequency distribution that makes it asymmetrical. Distributions with longer tails on the right than on the left are said to be skewed to the right or to be positively skewed. Distributions with longer tails to the left are said to be skewed to the left or to be negatively skewed.

Standard deviation. The statistic calculated 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, the percentage of observations can be calculated within any number of standard deviations of the mean from normal probability tables. When the data are not normally distributed, the standard deviation is less meaningful and the analyst should proceed cautiously.

Standard error. A measure of the precision of a measure of central tendency; the smaller the standard error, the more reliable the measure of central tendency. Standard errors are used in calculating a confidence interval about the arithmetic mean and the weighted mean. The standard error of the sample mean is the standard deviation divided by the square root of the sample size.

Statistical accuracy. The closeness between the statistical estimate and the true (but unknown) population parameter value it was designed to measure. It is usually characterized in terms of error or the potential significance of error and can be decomposed into sampling error and nonsampling error components. Accuracy can be specified by the level of confidence selected for a statistical test. *See also accuracy.*

Statistical precision. A reference to how closely the survey results from a sample can reproduce the results that would be obtained from the entire population (a complete census). The amount by which a sample statistic can vary from the true population parameter is due to error. Even

if all the sample data are perfectly accurate, random (sampling) error affects statistical precision (measured by the standard error or standard deviation). The dispersion of ratios in the population and the sample size have a controlling influence over the precision of any statistical estimate. When the reliability of a statistical measure is being evaluated, narrower confidence intervals have greater precision. *See also precision.*

Statistics. Numerical descriptive data calculated from a sample, for example, the median, mean, or COD. Statistics are used to estimate corresponding measures, termed parameters, for the population.

Stratify. To divide, for purposes of analysis, a sample of observations into two or more subsets according to some criterion or set of criteria.

Stratum, strata (pl.). A class or subset that results from stratification.

Time-adjusted sale price. The price at which a property sold adjusted for the effects of price changes reflected in the market between the date of sale and the date of analysis.

Trimmed mean. The arithmetic mean of a data set identified by the proportion of the sample that is trimmed from each end of the ordered array. For example, a 10 percent trimmed mean of a sample of size ten is the average of the eight observations remaining after the largest and smallest observations have been removed.

Value. (1) The relationship between an object desired and a potential owner; the characteristics of scarcity, utility, desirability, and transferability must be present for value to exist. (2) Value may also be described as the present worth of future benefits arising from the ownership of real or personal property. (3) The estimate sought in a valuation. (4) Any number between positive infinity and negative infinity.

Variable. An item of observation that can assume various values, for example, square feet, sales prices, or sales ratios. Variables are commonly described by using measures of central tendency and dispersion.

Weighted mean; weighted average. An average in which each value is adjusted by a factor reflecting its relative importance in the whole before the values are summed and divided by their number.

Weighted mean ratio. Sum of the appraised values divided by the sum of the sales prices (or independent estimates of market value), which weights each ratio in proportion to the sale price (or independent estimate of market value).

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- Additional readings on ratio studies can be found at LibraryLink, IAAO's online catalog of resources, and <http://www.iaao.org>. Many Web sites offer good information on statistics. Because Web site addresses change frequently, they are not listed here.

Appendix A. Sales Validation Guidelines

A.1 Sources of Sales Data

The best sources of sales data are copies of deeds or real estate transfer affidavits containing the full consideration and other particulars of the sale. Assessing officers in jurisdictions without laws mandating full disclosure of sales data to assessing officials work under a severe handicap and should seek legislation that provides for such disclosure.

1. *Real estate transfer documents.* These documents are (1) copies of deeds and land contracts, (2) copies of real estate transfer affidavits, and (3) closing statements.
2. *Buyers and sellers.* Buyers and sellers of real property can be contacted directly to secure or confirm sales data. Means of contact include sales questionnaires, telephone interviews, and personal interviews.
3. *Third-party sources.* Third-party sources include multiple listing agencies, real estate brokers and agencies, government and private fee appraisers, attorneys, appraisal organizations, and others. Of particular value are those individuals or agencies that publish lists of sales or provide sales in an electronic format.

A.2 Information Required

The following data are needed to make any necessary adjustments to sales prices, compute sales ratios, and update ownership information.

1. *Full consideration involved.* This is the total amount paid for the property, including the cash down payment and amounts financed. The sale price is the most essential item of information concerning the sale, and its accuracy must be carefully scrutinized. In many jurisdictions it is common practice in deeds of conveyance to state considerations in such terms as “one dollar plus other due and just consideration.” These amounts are rarely the actual selling price and should be ignored in favor of information from the buyer and seller or other reliable source.
2. *Names of buyer and seller.* This information permits the assessor to maintain a current record of the owners of all property in the jurisdiction. Transfer documents often refer to the buyer as the grantee or transferee and to the seller as the grantor or transferor.

3. *Addresses, phone numbers, and other contact information of buyer and seller or their legal designee.* This information helps to identify more positively the parties to the sale. If the buyer will not reside at the property, the buyer’s address may be needed for future correspondence. If the seller has established a new address, this information will aid the assessor in contacting the seller regarding the sale.
4. *Relationship of buyer and seller.* It is important to know whether the buyer and seller are related individuals or corporate affiliates because such sales often do not reflect market value.
5. *Legal description, address, and parcel identifier.* If each parcel is assigned a unique parcel identifier and if this number is noted on the document at the time it is recorded, then the assessor can locate the parcel in the files directly. If not, the legal description or street address is essential to locate the parcel.
6. *Type of transfer.* It is crucial to identify whether or not a sale is an “arm’s-length” transfer. Therefore, if the sources of sales data do not include copies of deeds, the type of deed should be specifically required.
7. *Time on the market.* Sales that have been exposed to the open market too long, not long enough, or not at all may not represent market value.
8. *Interest transferred.* The appraiser must identify whether or not the entire bundle of rights (fee simple) to the property has transferred. For example, in some transactions, only a life tenancy (“life estate”) may be conveyed, or the seller may retain mineral or other rights to the property. Similarly, the sale price of a property encumbered by a long-term lease may not reflect the market value of the fee simple estate in the property.
9. *Type of financing.* In analyzing the sale, it is helpful to know the amount of down payment; the type, remaining amount, and interest rates of notes secured by mortgages or deeds of trust assumed by the buyer; and the value of any stocks, bonds, notes, or other property passed to the seller. It is also important to know whether the sale conveys title to the property or that it is a land contract, in which title is not conveyed until some time in the future, typically several years.
10. *Personal property.* A sales ratio study requires knowledge of the amount paid for the real

property. The sale document ideally would note the type and value of any significant personal property items included in the transaction.

11. *Date of transfer.* This is the date on which the sale was closed or completed. The date the deed or other transfer document was recorded can be used as a surrogate, provided there was no undue delay in the recording. If there has been a delay in recording, the date of the deed or transfer instrument should be used.
12. *Instrument number.* This number, as well as the record or deed book and page, indicates where the deed is located in the official records and thus can be important in researching sales or leases and identifying duplication.

The data noted above should be maintained in a separate data file or the sale history file component of a CAMA system. In addition, the file should include additional information useful for stratification and other analytical purposes. Sales data files should reflect the physical characteristics of the property when sold. If significant legal, physical, or economic changes have occurred between the sale date and the assessment date, the sale should not be used for ratio studies. (The sale may still be valid for mass appraisal modeling by matching the sale price against the characteristics that existed on the date of sale.)

A.3 Confirmation of Sales

A.3.1 Importance of Confirmation

The usefulness of sales data is directly related to the completeness and accuracy of the data. Sales data should be routinely confirmed or verified by contacting buyers, sellers, or other knowledgeable participants in the transaction. In general, the fewer the sales in a stratum, the less common or more complex the type of property, and the more atypical the sale price, the greater the effort should be to confirm the particulars of the sale. With larger sample sizes, it may be sufficient to confirm single-family residential sales by audit or exception.

A.3.2 Methods of Confirmation

In general, the completeness and accuracy of sales data are best confirmed by requesting the particulars of a sale from parties to the sale. If a transfer document is not required, questionnaires after the sale can be used. A sales questionnaire, which requests the type of information listed in Section A.2, is one practical means of confirming sales. Telephone or personal interviews can be more comprehensive than mailed questionnaires. Forms with space to record the same types of information should be used for such interviews. Appendix G contains a model sale confirmation questionnaire (additional sample sales questionnaires and interview forms can be found in *Improving Real Property Assessment* [IAAO 1978, 95–104]).

Mailed sales questionnaires should be as concise as possible and should include

- a postage-paid return envelope
- official stationery
- purpose of the questionnaire
- contact person
- authorized signature

Forms designed for telephone interviews should include the name and phone number of the contact person. Such forms also should include the date and name of the person conducting the interview along with the number of attempts made to contact a party to the sale.

A.4 Screening Sales

Sales used in a ratio study must be screened to determine whether they reflect the market value of the real property transferred. Specific objectives of sales screening are as follows:

- to ensure that sales prices reflect to the maximum extent possible only the market value of the real property transferred and not the value of personal property, financing, or leases
- to ensure that sales that occurred only during the period of analysis are used
- to ensure that sales are excluded from the ratio study only with good cause (e.g., when they compromise the validity of the study)

Every arm's-length, open-market sale that appears to meet the conditions of a market value transaction should be included in the ratio study unless one of the following occurs:

- Data for the sale are incomplete, unverifiable, or suspect.
- The sale fails to pass one or more specific tests of acceptability.
- A sufficiently representative sample of sales that occurred during the study period can be randomly selected to provide sufficiently reliable statistical measures.

The sales reviewer should take the position that all sales are candidates as valid sales for the ratio study unless sufficient and compelling information can be documented to show otherwise. If sales are excluded without substantiation, the study may appear to be subjective. Reason codes can be established for invalid sales.

No single set of sales screening rules or recommendations can be universally applicable for all uses of sales data or under all conditions. Sales screening guidelines and procedures should be consistent with the provisions of the

value definition applicable to the jurisdiction. Appraisers must use their judgment, but should not be arbitrary. To help analysts make wise and uniform judgments, screening procedures should be in writing. Each sales analyst should be thoroughly familiar with these procedures as well as with underlying real estate principles (Tomberlin 2001).

A.4.1 Sales Generally Invalid for Ratio Studies

The following types of sales are often found to be invalid for ratio studies and can be automatically excluded unless a larger sample size is needed and further research is conducted to determine that sales are open-market transactions.

1. *Sales involving government agencies and public utilities.* Such sales can involve an element of compulsion and often occur at prices higher than would otherwise be expected.
2. *Sales involving charitable, religious, or educational institutions.* A sale to such an organization can involve an element of philanthropy, and a sale by such an organization can involve a nominal consideration or restrictive covenants.
3. *Sales involving financial institutions.* A sale in which the lienholder is the buyer can be in lieu of a foreclosure or a judgment and the sale price can equal the loan balance only.
4. *Sales between relatives or corporate affiliates.* Sales between relatives are usually non-open-market transactions and tend to occur at prices lower than would otherwise be expected.
5. *Sales settling an estate.* A conveyance by an executor or trustee under powers granted in a will may not represent fair market value, particularly if the sale takes place soon after the will has been filed and admitted to probate in order to satisfy the decedent's debts or the wishes of an heir.
6. *Forced sales.* Such sales include those resulting from a judicial order. The seller in such cases is usually a sheriff, receiver, or other court officer.
7. *Sales of doubtful title.* Sales in which title is in doubt tend to be below market value. When a sale is made on other than a warranty deed, there is a question of whether the title is merchantable. Quit claim deeds and trustees' deeds are examples.

A.4.2 Sales with Special Conditions

Sales with special conditions can be open-market sales but must be verified thoroughly and used with caution in ratio studies.

1. *Trades.* In a trade, the buyer gives the seller one or more items of real or personal property as all or part of the full consideration. If the sale is a pure trade with the seller receiving no money or securities, the sale should be excluded from analysis. If the sale involves both money and traded property, it may be possible to include the sale in the analysis if the value of the traded property is stipulated, can be estimated with accuracy, or is small in comparison to the total consideration. However, transactions involving trades should be excluded from the analysis whenever possible, particularly when the value of the traded property appears substantial.

2. *Partial interests.* A sale involving the conveyance of less than the full interest in a property should be excluded from the analysis unless several sales of partial interests in a single property take place at the same time and the sum of the partial interests equals the fee-simple interest. Then the sum of the sales prices of the partial interests can sometimes be assumed to indicate the sale price of the total property. At other times, however, the purchase of such partial interests is analogous to plottage value in which a premium may have been paid.
3. *Land contracts.* Land contracts and other installment purchase arrangements in which title is not transferred until the contract is fulfilled require careful analysis. Deeds in fulfillment of a land contract often reflect market conditions several years in the past, and such dated information should be excluded from analysis. Sales data from land contracts also can reflect the value of the financing arrangements. In such instances, if the transaction is recent, the sale price should be adjusted for financing (see section A.5.2).
4. *Incomplete or unbuilt common property.* Sales of condominium units and of units in planned unit developments or vacation resorts often include an interest in common elements (for example, golf courses, clubhouses, or swimming pools) that may not exist or be usable on the date of sale or on the assessment date. Sales of such properties should be examined to determine whether prices might be influenced by promises to add or complete common elements at some later date. Sales whose prices are influenced by such promises should be excluded from the analysis, or the sales prices should be adjusted to reflect only the value of the improvements or amenities in existence on the assessment date.

5. *Auctions.* In general, auction sales of real property tend to be at the lower end of the price spectrum. Auction sales that have been well-advertised and well-attended may be valid for consideration in ratio studies. The seller also must have the option to set a minimum bid on the property or the right of refusal on all bids (*with reserve*) in order for the sale to be considered valid.

A.4.3 Multiple-Parcel Sales

A multiple-parcel sale is a transaction involving more than one parcel of real property. These transactions present special considerations and should be researched and analyzed before being used in ratio studies.

If the appraiser needs to include multiple-parcel sales, he or she should first determine whether the parcels are contiguous and whether the sale comprises a single economic unit or multiple economic units. Regardless of whether the parcels are contiguous, any multiple-parcel sale that also involves multiple economic units generally should not be used in ratio studies because of the likelihood that these sales include some plottage value or some discount for economies of scale, unless adequate adjustments for these factors can be made to the sale price.

A.4.4 Acquisitions or Divestments by Large Property Owners

Acquisitions or divestments by large corporations, pension funds, or real estate investment trusts (REITs) that involve multiple parcels typically should be rejected for ratio study purposes.

A.4.5 IRS 1031 Exchanges

Internal Revenue Service (IRS) Regulation 1031 stipulates that investment properties can be sold on a tax-deferred basis if certain requirements are met. Sale transactions that represent Section 1031 exchanges should be analyzed like any other commercial transaction and, absent conditions that would make the sale price unrepresentative of market value, should be regarded as valid.

A.4.6 Internet Marketing

Property that sells on the Internet and meets the criteria of being an open-market, arm's-length transaction should be included as a valid transaction in a ratio study. Brokerage and realty firms are using the Internet as an additional method to advertise and market their inventory of property.

A.4.7 Inaccurate Sale Data

Sale information should never be considered absolutely trustworthy. Jurisdictions can reduce the problem by requiring a sale verification questionnaire (see Appendix

G). There should be statutory penalties for persons who falsify information.

A.5 Adjustments to Sale Prices

Sale prices used in ratio studies may need to be adjusted for financing, assumed long-term leases, personal property, gift programs, and date of sale. This is especially true for nonresidential properties. The real property tax is based on the market value of real property alone as of a specific date. This value may not be the same as investment value (that is, the monetary value of a property to a particular investor) and does not include the value of personal property or financing arrangements.

If adjustments for more than one purpose are to be made, they should be made in the following order:

1. adjustments that convert the price to a better representation of the market value as of the date of sale (These include adjustments for financing and assumed long-term leases.)
2. adjustments that develop or isolate the price paid for taxable real property (These include adjustments for personal property received by the buyer, property taken in trade by the seller, the combination of partial interest sales, and incomplete or unbuilt common property.)
3. adjustments for differences in market value levels between the date of sale and the date of analysis

Procedures for adjusting sales prices should be documented and the adjustment factors supported by market data. These requirements imply an ongoing study of local real estate prices, interest rates, and financing practices. Unsubstantiated or blanket adjustments can jeopardize the acceptance accorded a ratio study by making it appear subjective.

A.5.1 Adjustments for Financing

When financing reflects prevailing market practices and interest rates, sales prices require no adjustment for financing. Adjustments should be considered in the following instances:

1. The seller and lender are the same party and financing is not at prevailing market rates.
2. The buyer assumes an existing mortgage at a non-market interest rate. As with personal property, the preferred means of adjusting for financing is by individual parcel. In this instance and no. 1 above, downward adjustments are warranted when (1) the loan appears to be well secured and the contract interest rate is less than the market interest rate, or (2) the loan appears not to be well secured and the contract interest

rate is lower than that required by the market for a loan of equal risk. The amount of adjustment can be computed by capitalizing the difference between monthly payments based on the required market interest rate and those based on the actual interest rate. Market analysis using paired sales (sales of similar properties, some with and some without conventional financing) or statistical techniques can correct for such factors.

3. The seller pays “points” (a percentage of the loan amount). (*Points paid by the borrower are part of the down payment and do not require adjustment.*) When the seller pays points, the sale price should be adjusted downward by the value of the points.
4. The property is sold under a gift program. Gift programs are a type of creative financing for qualified buyers by certain lending institutions that provide the buyer with additional monies to use as part of a down payment or for property improvements. This program is typically associated with low-value properties and can be difficult to discover without a validation questionnaire and/or telephone interview. The gift amount is added to the actual sale price of the property; however, the seller is never in receipt of the gift amount. This gift amount must be deducted from the actual sale price of the real estate prior to statistical analysis.

Adjustments for financing require data on actual and market interest rates, the amount of the loan, and the term and amortization provisions of the loan. Obtaining and properly analyzing such data, as well as estimating the extent to which the market actually capitalizes non-market financing, are difficult and time-consuming and require specialized skills.

A.5.2 Adjustments for Assumed Leases

The sale price of a property encumbered by a long-term lease of at least three years should be adjusted as follows:

- If the contract rent differs significantly from market rent, then the sales price should be adjusted by the difference between the present worth of the two income streams.
- If the contract rent exceeds market rent, the present worth of the difference in the two income streams should be subtracted from the sale price.
- If the contract rent is less than current market rent, the present worth of the difference in the two income streams should be added to the sale price.

A.5.3 Adjustments for Personal Property

Sales screening includes determining the contributory value of any significant personal property included in the sale. Personal property includes such tangibles as machinery, furniture, and inventories and such intangibles as franchises, licenses, and non-compete agreements. Ordinarily, it is not necessary to consider goodwill, going-concern value, business enterprise value, or the like, unless the value of these intangible assets has been itemized in a sales contract or a formal appraisal has been prepared by either party.

It is necessary to decide whether each item included in the sale should be classified as real or personal property. (See *Standard on Valuation of Personal Property* [IAAO 2005], which provides guidance on classification of property as real or personal.)

Sale prices should be adjusted by subtracting the contributory value of personal property received by the buyer. Ordinary window treatments, outdated models of free-standing appliances, and common-grade used furniture included with residential property do not usually influence the sale price of real property and do not require an adjustment unless the items were specifically broken out in the contract as personal property included in the sale price.

If the value of personal property appears to be substantial (10 percent for residential, 25 percent for commercial), the sale should be excluded as a valid sale in statistical analysis unless the sample size is small.

A.5.4 Adjustments for Time

There should be a program to track changes in price levels over time and adjust sale prices for time as required. This step is an important component of a ratio study. Time adjustments must be based on market analysis and supported with appropriate documentation.

Valid time-adjustment techniques are as follows:

- tracking sales and appraisal ratios over time
- including date-of-sale as a variable in regression or feedback models
- analyzing re-sales
- comparing per-unit values over time in homogeneous strata, such as a subdivision or condominium complex
- isolating the effect of time through paired sales analysis
- statistically supported time trend analysis studies

These techniques are discussed in Gloudemans (1990; 1999), *Property Appraisal and Assessment Administration* (IAAO 1990, Appendix 5-3), and *Improving Real Property Assessment* (IAAO 1978, section 4.6). If sales

prices have generally been rising, ratios for sales that occurred after the assessment date tend to underestimate the overall level of appraisal. Similarly, sales ratios for sales that occurred before the assessment date tend to overstate the level of appraisal. If prices are generally declining, an opposite pattern results. When tracking ratios over time (using the inverse ratio technique) for determining time adjustments, it is important that ratios for chased sales be excluded, since there is no correlation of such sales ratios with the date of sale.

Changes in price levels should be monitored and time adjustments made by geographic area and type of property, because different segments of the market tend to change in value at different rates.

Oversight agencies can make any appropriate time adjustments after making all other adjustments.

A.5.5 Other Adjustments

Adjustments to sales prices should not be made for real estate sales and brokerage commissions; closing costs, such as attorney's fees, transfer taxes, and title insurance; and current or delinquent property taxes. Exceptions to this general rule occur when the buyer agrees to pay real estate commissions and delinquent property taxes, in which case the amounts of the payments should be added to the sale

price if not already included in the sale amount. Other exceptions occur when the seller agrees to pay expenses normally paid by the buyer. Such expenses include loan origination fees and repair allowances. Loan origination fees paid by the seller should be deducted from the sale price. Repair allowances should be deducted from the sales price only if the property was in an unrepairs state on the appraisal date, but sold at a higher price reflecting the value of the repairs. If the sale occurred before the appraisal date and the repairs were made prior to that date, no adjustment should be made (Knight, Miceli, and Sirmans 2000).

A.5.6 Special Assessments

Special assessments are used to finance capital improvements or provide services adjacent to the properties they directly benefit. Typically, the property owner is obligated to make annual payments of principal and interest to a local unit of government over a specified number of years. The sale price of a property encumbered by a special assessment can require adjustment if the current balance of the defrayed amount is significant. The sale price can be adjusted upward to account for this lien. If the effect on market value is significant and can be ascertained, an adjustment should be made.

Appendix B. Outlier Trimming Guidelines

B.1 Identification of Ratio Outliers

It is first necessary to determine a procedure to identify outliers. Outlier identification based on the interquartile range (IQR) uses order statistics (see table B-1) and has been shown to be robust for a wide variety of distributions (Iglewicz and Hoaglin 1993; Barnett and Lewis 1994). The term outlier is often associated with ratios that fall outside 1.5 multiplied by the IQR. A factor of 3.0 X IQR often is chosen to identify extreme outliers. Other outlier identification procedures are found in statistical literature and can be used. Outlier identification and trimming must not be a part of the sales validation process and should follow this process.

The example in table B-1 demonstrates the use of the 1.5 X IQR procedure to identify outlier ratios. The distribution of ratios often is skewed to the right; therefore, it may be preferable to apply appropriate transformations to the ratios prior to applying the IQR method. For example, the use of logarithmic transformations tends to identify fewer high and more low ratios as outliers.

B.2 Scrutiny of Identified Outliers

The preferred method of handling an outlier ratio is to subject it to additional scrutiny to determine whether the sale is a non-market transaction or contains an error in fact. If an error can be corrected (for example, data entry), the property should be left in the sample. If the error cannot be corrected or inclusion of the identified outlier would reduce sample representativeness, the sale should be excluded.

B.3 Outlier Trimming

Once outliers have been identified and scrutinized and any errors resolved, the next step is to exclude those that may unduly influence calculated statistical measures. For this reason, it is acceptable to trim outliers identified by recognized procedures (for cautionary notes on trimming small samples, see Tomberlin [2001] and Hoaglin, Mosteller, and Tukey [1983]. An example of such trimming is found in Table B-2. However, trimming of outliers using arbitrary limits, for example, eliminating all ratios less than 50 percent or greater than 150 percent, tends to distort results and should not be employed.

Detected outliers should be reported and can be treated in a variety of ways, including trimming (D'Agostino and Stephens 1986). If outliers are to be considered for removal, the analyst can select a procedure to trim all or just the extreme or influential outliers (see table B-2). If a trimming method has been used to reject ratios from the sample, this fact must be stated in the resulting statistical

Table B-1. A Distribution-Free Method for Locating Outliers
(*The following procedure identifies outlier ratios that fall more than 1.5 times beyond the range of the middle 50 percent of the arrayed sample.*)

Locating trim boundaries

Data set before trimming

Rank	Ratio (A/S)
1	0.611
2	0.756
3	0.762
4	0.853
5	0.867
6	0.909
7	0.925
8	0.944
9	1.014
10	1.052
11	1.178
12	1.367
13	1.850
14	2.500
Median ratio	0.935
COD	32.271

Steps to locate trim boundaries

1. Locate the first quartile point

Formula to locate the first quartile:

$$(0.25 \times \text{number of ratios}) + 0.25$$

$$(0.25 \times 14 \text{ ratios}) + 0.25 = 3.75$$

3.75 is three-quarters between the third and fourth ranked ratios.

$$\text{Ratio 3} = 0.762$$

$$\text{Ratio 4} = 0.853$$

$$\text{Three-quarters between} = (0.853 - 0.762) \times 0.75 = 0.068$$

$$\text{The first quartile point} = 0.762 + 0.068 = 0.830$$

2. Locate the third quartile point

Formula to locate the third quartile

$$(0.75 \times \text{number of ratios}) + 0.75$$

$$(0.75 \times 14 \text{ ratios}) + 0.75 = 11.25$$

11.25 is one-quarter between the eleventh and twelfth ranked ratios.

$$\text{Ratio 11} = 1.178$$

$$\text{Ratio 12} = 1.367$$

$$\text{One-quarter between} = (1.367 - 1.178) \times 0.25 = 0.047$$

$$\text{The third quartile point} = 1.178 + 0.047 = 1.225$$

3. Compute the interquartile range

The distance between the first and third quartile = interquartile range

$$1.225 - 0.830 = 0.395$$

4. Establish the lower boundary

Lower trim point = first quartile - (interquartile range \times 1.5 or 3.0)
 $0.830 - (0.395 \times 1.5) = 0.238$,

5. Establish the upper boundary

Upper trim point = (interquartile range \times 1.5 or 3.0) + third quartile
 $(0.395 \times 1.5) + 1.225 = 1.818$

Outliers identified:

1.850

2.500

Table B-2. Effects of Outlier Trimming
Outliers identified in Table B-1 trimmed

After 1.5x trimming

Rank Ratio (A/S)

1	0.611
2	0.756
3	0.762
4	0.853
5	0.867
6	0.909
7	0.925
8	0.944
9	1.014
10	1.052
11	1.178
12	1.367

Median ratio 0.917

COD15.649

analysis. Outlier trimming is not mandatory; however, if outlier-trimming procedures are not used, sales with extreme or influential ratios must be thoroughly validated and determined to be highly trustworthy observations because they can play a pivotal role in the ratio study outcome.

B.4 Trimming Limitations

For some distributions, such as when the sample exhibits a high clustering around a specific ratio, the IQR outlier identification method is not appropriate. In such cases the IQR could be quite narrow, leading to the calculation of lower and upper boundaries for outliers and extremes that are quite close to the middle of the data. In such cases, ratios beyond those boundaries should not be automatically excluded, but instead reasonable judgment should be applied to exclude only true outliers or extremes. As one safeguard, analysts can refrain from automatically

deleting any “outliers” or “extremes” inside the boundaries where 95 percent (two standard deviations) of the observations would be expected to lie, assuming a normal distribution of data.

It is also appropriate to set maximum trimming limits. For small samples, no more than 10 percent (20 percent in the most extreme cases) of the ratios should be removed. For larger samples, this threshold can be lowered to 5 to 10 percent depending on the distribution of the ratios and the degree to which sales have been screened or validated. Trim limits should be developed in consideration of the extent of sales verification.

In general, IQR-based outlier identification should be undertaken in instances in which sample sizes are sufficient to preclude the aberrant results that can be expected when this procedure is applied to small, highly variable samples.

B.5 Analytical Use of Identified Outliers

After identification, scrutiny, and correction of errors associated with outliers, the procedure can be run again to identify any remaining apparent outliers. If outlier ratios tend to be concentrated in certain areas or other subsets of the sample, they can point directly to systematic errors in the appraisal process and should be stratified and reanalyzed if they are sufficiently representative.

B.6 Reporting Trimmed Outliers and Results

Ratio study reports or accompanying documentation should clearly state the basis for excluding outlier ratios. Statistics calculated from trimmed distributions, obviously, cannot be compared to those from untrimmed distributions or interpreted in the same way.

Appendix C.

Median Confidence Interval Tables for Small Samples

For small samples, tables C-1 and C-2 demonstrate use of a formula based upon the binomial distribution (Clapp 1989) to develop the lower and upper median confidence interval estimates. R_i is the ratio in an array ranked from the lowest ($i = 1$) to the highest (sorted in ascending order). Each confidence interval boundary typically falls between two ratios in the array. The interpolation factor is multiplied by the ratio value and the two are added together to obtain a weighted average. This method should be used for small samples with up to 30 observations (see tables C-1 and C-2). For larger samples the method found in *Property Appraisal and Assessment Administration* (IAAO 1990, p 609) may be used.

Example

Using data from table 1-4 (n = 17 ratios) and a 95 percent confidence interval in table C-2:

Lower bound:

$$[0.695 (\text{Ratio}_5) \times 0.9899] + [0.717 (\text{Ratio}_6) \times 0.0101] = \mathbf{0.695}$$

Upper bound:

$$[0.933 (\text{Ratio}_{13}) \times 0.9899] + [0.895 (\text{Ratio}_{12}) \times 0.0101] = \mathbf{0.933}$$

Therefore, the 95% median ratio confidence interval in table 1-4 is from .695 to .933.

Table C-1. 90% Confidence Interval Table

n	Lower Bound	Upper Bound
5	.8800xR ⁴ +.1200xR ²	.8800xR ⁵ +.1200xR ⁴
6	.6333xR ⁴ +.3667xR ²	.6333xR ⁶ +.3667xR ⁵
7	.2286xR ⁴ +.7714xR ²	.2286xR ⁷ +.7714xR ⁶
8	.8643xR ⁴ +.1357xR ²	.8643xR ⁸ +.1357xR ⁶
9	.5667xR ² +.4333xR ³	.5667xR ⁸ +.4333xR ⁷
10	.1067xR ² +.8933xR ³	.1067xR ⁹ +.8933xR ⁸
11	.7855xR ⁴ +.2145xR ⁴	.7855xR ⁹ +.2145xR ⁸
12	.4282xR ⁴ +.5718xR ⁴	.4282xR ¹⁰ +.5718xR ⁹
13	.9558xR ⁴ +.0442xR ⁵	.9558xR ¹⁰ +.0442xR ⁹
14	.6511xR ⁴ +.3489xR ⁵	.6511xR ¹¹ +.3489xR ¹⁰
15	.2217xR ⁴ +.7783xR ⁵	.2217xR ¹² +.7783xR ¹¹
16	.8261xR ⁵ +.1739xR ⁶	.8261xR ¹² +.1739xR ¹¹
17	.4603xR ⁵ +.5397xR ⁶	.4603xR ¹³ +.5397xR ¹²
18	.9735xR ⁴ +.0265xR ⁷	.9735xR ¹³ +.0265xR ¹²
19	.6480xR ⁶ +.3520xR ⁷	.6480xR ¹⁴ +.3520xR ¹³
20	.2072xR ⁴ +.7928xR ⁷	.2072xR ¹⁵ +.7928xR ¹⁴
21	.8084xR ⁷ +.1952xR ⁸	.8084xR ¹⁵ +.1952xR ¹⁴
22	.4156xR ⁷ +.5844xR ⁸	.4156xR ¹⁶ +.5844xR ¹⁵
23	.9413xR ⁸ +.0587xR ⁹	.9413xR ¹⁶ +.0587xR ¹⁵
24	.5884xR ⁸ +.4116xR ⁹	.5884xR ¹⁷ +.4116xR ¹⁶
25	.1203xR ⁸ +.8797xR ⁹	.1203xR ¹⁸ +.8797xR ¹⁷
26	.7371xR ⁹ +.2629xR ¹⁰	.7371xR ¹⁸ +.2629xR ¹⁷
27	.3161xR ⁹ +.6839xR ¹⁰	.3161xR ¹⁹ +.6839xR ¹⁸
28	.8687xR ¹⁰ +.1313xR ¹¹	.8687xR ¹⁹ +.1313xR ¹⁸
29	.4831xR ¹⁰ +.5169xR ¹¹	.4831xR ²⁰ +.5169xR ¹⁹
30	.9876xR ¹¹ +.0124xR ¹²	.9876xR ²⁰ +.0124xR ¹⁹

From **Table 1-4.** Demonstration Ratio Study Report

Rank	Parcel #	Appraised value	Sale price*	Ratio
1	9	\$87,200	138,720	0.629
2	10	38,240	59,700	0.641
3	11	96,320	146,400	0.658
4	12	68,610	99,000	0.693
5	13	32,960	47,400	0.695
6	14	50,560	70,500	0.717
7	15	61,360	78,000	0.787
8	16	47,360	60,000	0.789
9	17	56,580	69,000	0.820
10	18	47,040	55,500	0.848
11	19	136,000	154,500	0.880
12	20	98,000	109,500	0.895
13	21	56,000	60,000	0.933
14	22	159,100	168,000	0.947
15	23	128,000	124,500	1.028
16	24	132,000	127,500	1.035
17	25	160,000	150,000	1.067

Date: 0/0/00. No outlier trimming

* or adjusted sale price

Table C-2. 95% Confidence Interval Table

n	Lower Bound	Upper Bound
6	.9000 x R ¹ + .1000 x R ²	.9000 x R ⁶ + .1000 x R ⁵
7	.6857 x R ¹ + .3143 x R ²	.6857 x R ⁷ + .3143 x R ⁶
8	.3250 x R ¹ + .6750 x R ²	.3250 x R ⁸ + .6750 x R ⁷
9	.9222 x R ² + .0778 x R ³	.9222 x R ⁸ + .0778 x R ⁷
10	.6756 x R ² + .3244 x R ³	.6756 x R ⁹ + .3244 x R ⁸
11	.2873 x R ² + .7127 x R ³	.2873 x R ¹⁰ + .7127 x R ⁹
12	.8936 x R ³ + .1064 x R ⁴	.8936 x R ¹⁰ + .1064 x R ⁹
13	.6056 x R ³ + .3944 x R ⁴	.6056 x R ¹¹ + .3944 x R ¹⁰
14	.1659 x R ³ + .8341 x R ⁴	.1659 x R ¹² + .8341 x R ¹¹
15	.8218 x R ⁴ + .1782 x R ⁵	.8218 x R ¹² + .1782 x R ¹¹
16	.4827 x R ⁴ + .5173 x R ⁵	.4827 x R ¹³ + .5173 x R ¹²
17	.9899 x R ⁵ + .0101 x R ⁶	.9899 x R ¹³ + .0101 x R ¹²
18	.7076 x R ⁵ + .2924 x R ⁶	.7076 x R ¹⁴ + .2924 x R ¹³
19	.3059 x R ⁵ + .6941 x R ⁶	.3059 x R ¹⁵ + .6941 x R ¹⁴
20	.8835 x R ⁶ + .1165 x R ⁷	.8835 x R ¹⁵ + .1165 x R ¹⁴
21	.5479 x R ⁶ + .4521 x R ⁷	.5479 x R ¹⁶ + .4521 x R ¹⁵
22	.0697 x R ⁶ + .9303 x R ⁷	.0697 x R ¹⁷ + .9303 x R ¹⁶
23	.7381 x R ⁷ + .2619 x R ⁸	.7381 x R ¹⁷ + .2619 x R ¹⁶
24	.3373 x R ⁷ + .6627 x R ⁸	.3373 x R ¹⁸ + .6627 x R ¹⁷
25	.8958 x R ⁸ + .1042 x R ⁹	.8958 x R ¹⁸ + .1042 x R ¹⁷
26	.5481 x R ⁸ + .4519 x R ⁹	.5481 x R ¹⁹ + .4519 x R ¹⁸
27	.0677 x R ⁸ + .9323 x R ⁹	.0677 x R ²⁰ + .9323 x R ¹⁹
28	.7221 x R ⁹ + .2779 x R ¹⁰	.7221 x R ²⁰ + .2779 x R ¹⁹
29	.3063 x R ⁹ + .6937 x R ¹⁰	.3063 x R ²¹ + .6937 x R ²⁰
30	.8709 x R ¹⁰ + .1291 x R ¹¹	.8709 x R ²¹ + .1291 x R ²⁰

Appendix D. Sales Chasing Detection Techniques

As long as sold and unsold parcels are appraised in the same manner and the data describing them are coded consistently, statistics calculated in a sales ratio study can be used to infer appraisal performance for unsold parcels. However, if parcels that sell are selectively reappraised or recoded based on their sale prices or some other criterion (such as listing price) and if such parcels are in the ratio study, sales ratio study uniformity inferences will not be accurate (appraisals will appear more uniform than they are). In this situation, measures of appraisal level also will be unsupportable unless similar unsold parcels were appraised by a model that produces the same overall percentage of market value (appraisal level) as on the parcels that sold based on consistently coded descriptive and locational data.

Assessors and oversight agencies do not need to employ all the detection techniques described in this appendix, but should consider implementing at least one procedure. In some cases, access to assessment information for all properties is necessary to perform the suggested techniques. Agencies that do not have access to these data are at a disadvantage, but should still implement detection techniques, such as those described in sections D.3 and D.4, which do not require such comprehensive assessment information.

D.1 Comparison of Average Value Changes

If sold and unsold properties within a specified group are appraised in the same way, their appraised values should reflect similar average percentage changes from year to year. Accordingly, changes in appraised values for sold and unsold parcels can be compared to determine whether sold parcels have been selectively appraised. Alternatively, the average percent change in value for sample parcels can be compared to that for the population of properties within a specified group or stratum for an indication of selective reappraisal.

For example, if sold parcels are considered representative of a stratum and appraised values increased an average of 10 percent while appraised values for unsold parcels in the same stratum increased an average of only 2 percent, “sales chasing” is a likely conclusion. At a more sophisticated level, the distribution of value changes for sold and unsold parcels can be compared, or statistical tests can be used to determine whether the distributions are different at a given level of confidence.

Statistical significance in the absence of practical significance may be moot. In large samples, small differences in the magnitude of assessed value changes on sold and unsold parcels can be proven to be statistically significant,

yet the actual differences may be slight. Therefore, it is prudent to establish some reasonable tolerance, such as 3 percentage points (e.g., a change of 6 percent for sold properties and 3 percent for unsold properties), before concluding that a meaningful problem exists. Such tolerance applies to other detection techniques discussed below.

D.2 Comparison of Average Unit Values

If sold and unsold parcels are appraised equally, average unit values (for example, value per square foot) should be similar. An appropriate test (Mann Whitney or t-test) can be conducted to determine whether differences are significant.

D.3 Split Sample Technique

In this technique, two ratio studies are performed, one using sales that occurred before the appraisal date and one using sales after the appraisal date, both adjusted for date of sale as appropriate. Except for random sampling error and any error in time adjustments, results of the two studies should be similar. Sales chasing is indicated if the results of the first study are consistently better than those from the second. In such a case, the second study is still valid; the first study should be rejected.

D.4 Comparison of Observed versus Expected Distribution of Ratios

Assuming the ratio studies are based on sales that have been properly adjusted for time and other factors, a strong indication of the likelihood of “sales chasing” can be obtained by computing the proportion of ratios that would be expected to fall within a particular narrow range of the mean given the lowest likely standard deviation (although this depends somewhat on the assumption of a normal distribution). For example, with a standard deviation of 5 percent given a normal distribution, about 32 percent of the ratios would be expected to fall within ± 2 percent of the mean (for example, between 98 and 102 percent, given a mean of 100 percent). Except in highly constrained or well-behaved real estate markets, many appraisers consider such a low standard deviation, corresponding approximately to a COD of 4 percent, to be unachievable. Regardless of the distribution of the ratios, the likelihood is extremely low that there would be a sufficiently representative sample with more than this proportion of ratios in such a narrow range. If such is the case, “sales chasing” is a likely conclusion. Sometimes other processes through which adjustments to assessments on selling parcels are more pronounced than on the population as a whole mimic the effect of sales chasing, such as more intensive reviews of sales than non-sales. Regardless of the practice, the

representativeness of the ratio study is called into question and additional tests should be instituted.

Although samples may not be normally distributed, in which case equivalently precise proportions of expected ratios around the median cannot be determined, the 32 percent concentration is very conservative. Finding such a high concentration of ratios around any measure of central tendency is a strong indicator of sales chasing or of a non-representative ratio study. In addition, when the distribution of ratios is bimodal or multimodal, similar significant concentrations of ratios around these modes can indicate selective reappraisal or sales chasing.

Table D-1 demonstrates the conservative nature of the 32 percent concentration. If the minimum achievable COD is, in fact, higher than 4 percent for the strata or property class being analyzed, then even lower concentrations could indicate sales chasing, and previously discussed investigative procedures should be instituted. One disadvantage to this procedure is that it can be misleading when applied to small samples. Therefore the method should not be employed for sample sizes less than 30.

Even when critical proportions of ratios shown in table D-1 are exceeded, further investigation should be conducted before concluding that sales chasing has occurred.

D.5 Mass Appraisal Techniques

Provided sales are sufficient in number, oversight agencies can develop mass appraisal models to apply to a random sample of unsold properties or to the population

of properties that are represented by the sold properties. An independent multiple regression or other automated calibration techniques can be used to develop the models. An appraisal ratio study is then conducted for the unsold parcels by using values predicted by the independent models as indicators of market values. This approach has the following advantages:

- It is objective and rooted in the market.
- The models can be reviewed for sufficient reliability before being applied to the unsold parcels.
- The technique yields measures of central tendency, which can be compared against those produced by the sales ratio study and tested for compliance with standards for the level of appraisal.
- The technique takes the form of an appraisal ratio study but avoids the time and expense of single-property appraisals.

Reliability of this method depends on the accuracy and independence of the mass appraisal models used to generate the value estimates. The models must be consistent with appraisal theory and reviewed for sufficient reliability by examining goodness-of-fit statistics. The models should be independent of those used for assessment purposes.

Table D-1. Example of critical ratio concentrations indicative of sales chasing or similar practices

Minimum achievable COD	Standard deviation assuming normal distribution and mean ratio of 100%	Critical proportion of ratios*	z score based on $\pm 2\%$ range (Absolute value)	Expected proportion of ratios below 0.98	Expected proportion of ratios below 1.02	Expected proportion between 0.98 and 1.02 (within $\pm 2\%$ of central tendency)
1.6%	2.00%	69	1.0000	0.1587	0.8413	0.6826
4.0%	5.00%	32	0.4000	0.3446	0.6554	0.3108
5.0%	6.25%	26	0.3200	0.3745	0.6255	0.2510
6.0%	7.50%	22	0.2667	0.3949	0.6051	0.2102
7.0%	8.75%	19	0.2286	0.4110	0.5896	0.1801
8.0%	10.00%	16	0.2000	0.4207	0.5793	0.1586
10.0%	12.50%	13	0.1600	0.4364	0.5636	0.1272
12.0%	15.00%	11	0.1333	0.4467	0.5530	0.1063
14.0%	17.50%	10	0.1143	0.4545	0.5455	0.0910
16.0%	20.00%	8	0.1000	0.4602	0.5398	0.0796

* Given the assumption that the COD shown represents the minimum achievable COD for the property type, class, or strata being analyzed with the ratio study, sales chasing (or a similar distortive procedure) is very likely if the concentration of ratios with $\pm 2\%$ of a measure of central tendency, such as the median or a mode, or 100%, equals or exceeds this value. This proportion is based on values of the standard normal distribution function and assumption that sample size is greater than 30. The critical number equals the integer immediately exceeding the expected proportion.

Appendix E. Alternative Uses for Ratio Study Statistics

In addition to the use of statistical measures to determine underlying assessment level and uniformity, comparisons between measures can provide useful information about sample representativeness, the distribution of the ratios, and the influence of outliers. For example, by comparing the mean and weighted mean, even without determining the PRD, the analyst should be aware that a large difference between these two measures indicates probable influence of atypical ratios on high-priced properties. This in turn could mean that outliers are still present in the sample and that the sample is not representative. Alternatively, it could indicate systematic appraisal error in the appraisal of properties within a particular price range. The geometric mean-to-mean relationship can provide similar information, especially about the presence of very low ratios, which have a greater influence on the geometric

mean. The relationship between the COD and COV can provide similar additional guidance. This standard chooses the COD as the primary recommended measure of uniformity. This choice reflects the expectation of non-normal distributions of ratios. Despite this consideration, it is useful to recognize that, in a normal distribution, the COV is approximately 1.25 times the COD. When the COV/COD ratio exceeds 1.25, the likely cause is a small number of very high ratios, which may again be non-representative.

It is incumbent on the analyst to review the ratio study sample to attempt to provide a representative sample. Comparisons of statistics, such as those given in this appendix, provide an additional tool to help the analyst in this regard.

Appendix F. Legal Aspects of Ratio Studies

Property taxation is governed by federal, state, and provincial constitutions, statutes, and administrative rules or regulations, many of which require uniform treatment of property taxpayers. Ratio studies play an important role in judging whether uniformity requirements are met. Relevant Canadian Federal statutes based on the Constitution Acts of 1867–1975 provide that municipal councils cannot discriminate between taxpayers of the same class within municipalities.

Relevant United States federal provisions include the Bill of Rights, the commerce clause of the United States Constitution, the Fourteenth Amendment, and the Tax Injunction Act (28 U.S.C. § 1341). Together they guarantee basic protections and due process while still granting states the authority to classify property and grant reasonable exemptions. Many constitutions have clauses that require uniformity in the assessment and taxation of property, although some jurisdictions, either by constitution or statute, permit certain differences between classes. Ratio studies provide a gauge of whether uniformity requirements are being met.

A key U.S. federal statute relating to ratio studies is the U.S. Railroad Revitalization and Regulatory Reform Act (“4-R Act”) of 1976 (49 U.S.C. § 11501). The 4-R Act requires that rail transportation property be assessed for tax purposes at no more than 105 percent of the assessment level of other commercial and industrial property in the same taxing jurisdiction. Similar federal statutes relate to air transportation property, motor carriers, and bus lines (49 U.S.C. §§14502 and 40116).

The 4-R Act provides that ratio studies be used to measure alleged discrimination. In such cases, as in any ratio study, the purpose of the study must be clearly defined and the study must be conducted so that it accurately evaluates the issues at hand. Important issues in ratio studies conducted pursuant to the 4-R Act include the proper definition of “other” commercial and industrial property, screening and adjustments to sales data, proper measures of the level of appraisal, and the combining and weighting of centrally valued and locally assessed properties.

Appendix G. Sales Validation Questionnaire

Parcel Identification Number _____	Instrument Number _____										
Instrument Type _____	<input type="checkbox"/> Multi Parcel Sale <input type="checkbox"/> Split Sale Recording Date _____										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Seller (Grantor) Name _____</td> <td style="width: 50%;">Buyer (Grantee) Name _____</td> </tr> <tr> <td>Mailing _____</td> <td>Mailing _____</td> </tr> <tr> <td>City/ST/ZIP _____</td> <td>City/ST/ZIP _____</td> </tr> <tr> <td>Phone _____</td> <td>Phone _____</td> </tr> <tr> <td>E-mail address _____</td> <td>E-mail address _____</td> </tr> </table>		Seller (Grantor) Name _____	Buyer (Grantee) Name _____	Mailing _____	Mailing _____	City/ST/ZIP _____	City/ST/ZIP _____	Phone _____	Phone _____	E-mail address _____	E-mail address _____
Seller (Grantor) Name _____	Buyer (Grantee) Name _____										
Mailing _____	Mailing _____										
City/ST/ZIP _____	City/ST/ZIP _____										
Phone _____	Phone _____										
E-mail address _____	E-mail address _____										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Brief Legal Description _____ _____ _____</td> <td style="width: 50%;">Property/Situs Address _____ Name and Mailing Address for Tax Statements _____ _____</td> </tr> </table>		Brief Legal Description _____ _____ _____	Property/Situs Address _____ Name and Mailing Address for Tax Statements _____ _____								
Brief Legal Description _____ _____ _____	Property/Situs Address _____ Name and Mailing Address for Tax Statements _____ _____										

PLEASE ANSWER THE FOLLOWING QUESTIONS:

1. Special factors:
 - Sale between immediate family members:
SPECIFY THE RELATIONSHIP
 - Sale involved corporate affiliates belonging to the same parent company
 - Sale of convenience (correct defects in title; create a joint or common tenancy, etc.)
 - Auction Sale
 - Deed transfer in lieu of foreclosure or repossession
 - Forced sale or sheriff's sale
 - Sale by judicial order (guardian, executor, conservator)
 - Sale involved a government agency or public utility
 - Buyer (new owner) is a religious, charitable, or benevolent organization, school or educational association
 - Land contract or contract for deed
 - Sale of only a partial interest in the real estate
 - Sale involved a trade or exchange of properties
 - NONE OF THE ABOVE**
 2. Check use of property at the time of sale:

<input type="checkbox"/> Single Family Residence	<input type="checkbox"/> Agricultural Land
<input type="checkbox"/> Farm/Ranch with Residence	<input type="checkbox"/> Vacant Lot
<input type="checkbox"/> Condominium Unit	<input type="checkbox"/> Commercial/Industrial
<input type="checkbox"/> Other: (Specify) _____	
 3. Was the property rented or leased at the time of sale? Yes No
 4. Did the sale price include an existing business? Yes No
 5. Was any personal property (such as furniture, equipment, machinery, livestock, crops, business franchise or inventory, etc.) included in the sale price? Yes No
If yes, please describe _____
 - Estimated value of all personal property items included in the sale price \$ _____
 6. Any recent changes to the property? Yes No

<input type="checkbox"/> New Construction	<input type="checkbox"/> Demolition
<input type="checkbox"/> Remodeling	<input type="checkbox"/> Additions

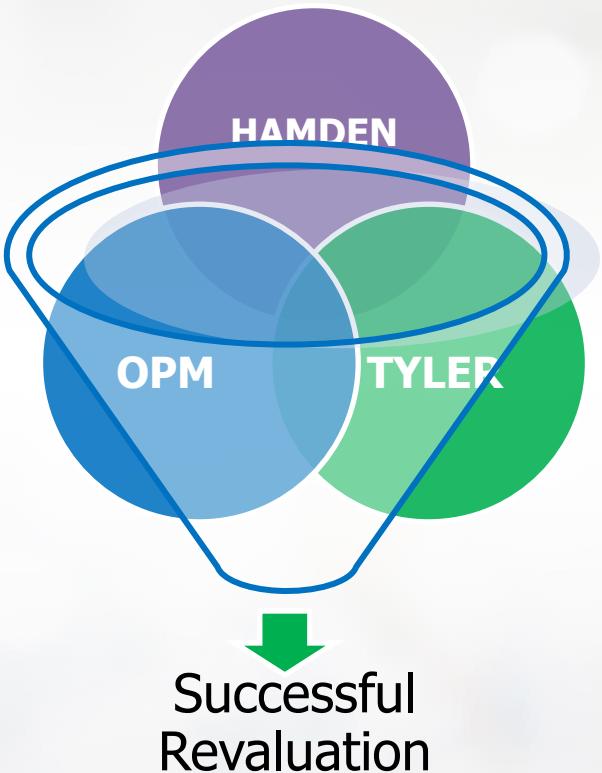
 Was the work performed by a professional? Yes No
Date Completed _____ / _____ / _____
Estimated cost of labor and materials? \$ _____
 7. Was there a change in use? Yes No
If yes, please explain: _____
 8. Does the buyer hold title to any adjoining property? Yes No
 9. Was there an appraisal made on the property? Yes No
10. Were any **delinquent** taxes assumed by the purchaser?
 Yes—Amount \$ _____ No
 11. Were the **delinquent** taxes included in the sale price?
 Yes No NA
 12. How property was marketed (check all that apply):
 - Listed with real estate agent
 - Displayed a "For Sale" sign
 - Advertised in the newspaper
 - Offered by word of mouth
 13. Was the property made available to other potential purchasers?
 Yes No
If not, explain _____
 14. How long was the property on the market? _____
 15. What was the asking price? _____
 16. Date sales price was agreed upon _____ / _____ / _____
 17. Method of financing (check all that apply):
 - New loan(s) from a Financial Institution
 Name of lending institution: _____
 Cash down payment \$ _____
 Amount \$ _____ Interest rate _____ % Term _____
 - Assumption of Existing Loan(s)
 Amount \$ _____ Interest rate _____ % Term _____
 - Seller Financing
 Amount \$ _____ Interest rate _____ % Term _____
 - Trade of Property: Estimated Value \$ _____
 Describe Traded Property _____
 - All Cash
 - Not Applicable
 18. **Total Sale Price \$ _____**
 19. Was the sale influenced by any unusual circumstances?
 Yes No
If yes, please explain _____
 20. Is the total sale price a fair reflection of the market value for the real estate on the sale date? Yes No If no, please explain _____
- PRINT NAME - _____
- SIGNATURE _____
- | | |
|---|---------------------------------|
| <input type="checkbox"/> GRANTOR (SELLER) | Daytime Phone No. (_____) _____ |
| <input type="checkbox"/> GRANTEE (BUYER) | Daytime Phone No. (_____) _____ |
| <input type="checkbox"/> AGENT | Daytime Phone No. (_____) _____ |



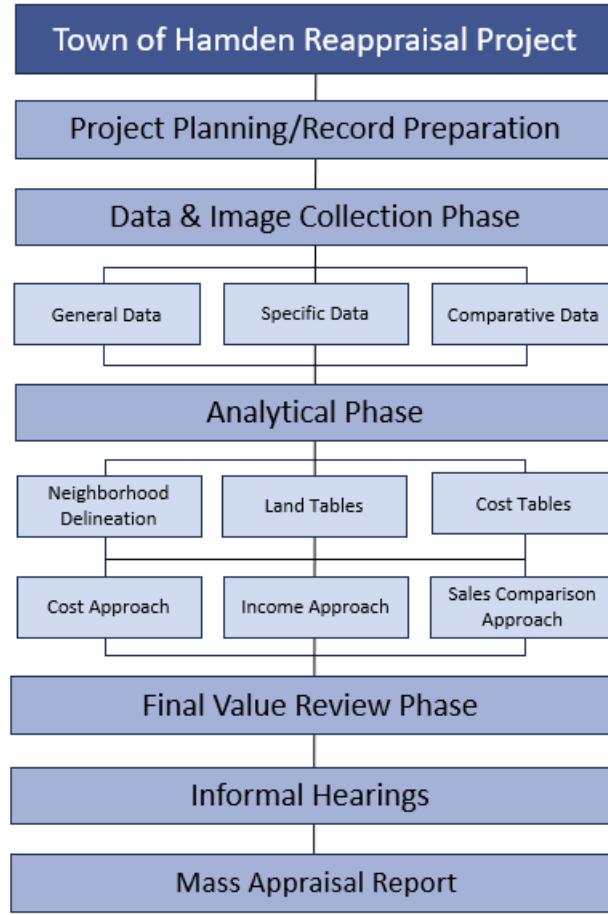
Hamden Revaluation

Date of Value – Oct 1, 2024

Collaboration



The Appraisal Process ¹



1: Adapted from the Property Assessment Valuation manual, Second Edition, Copyright 1996 by the IAAO

Revaluation Goals

- Implement new assessments for all properties to reflect 70% fair market value as of Oct 1, 2024 using best professional practices
- Meet or exceed the Office of Policy & Management (OPM) Standards
- Meet or exceed the Uniform Standards of Professional Appraisal Practice (USPAP)
- Meet or exceed the “Standard on Mass Appraisal” - International Association of Assessing Officers (IAAO)
- Target and optimize Reappraisal Methods and Resources to focus on appraisal needs while addressing the uniqueness of the Town of Hamden.

Date of Value

Market Value and Market Conditions as of
October 1, 2024

Market Value must be between 90%
and 100% of the median of all valid
sales as of the Date of Value

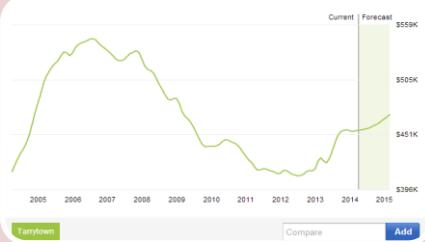
Assessments levels must be between
63% and 70% of the median of all
valid sales as of the Date of Value

USPAP Market Value Definition

Market value is:

*"the **most probable price** which 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**.*

Schedule of Revaluation

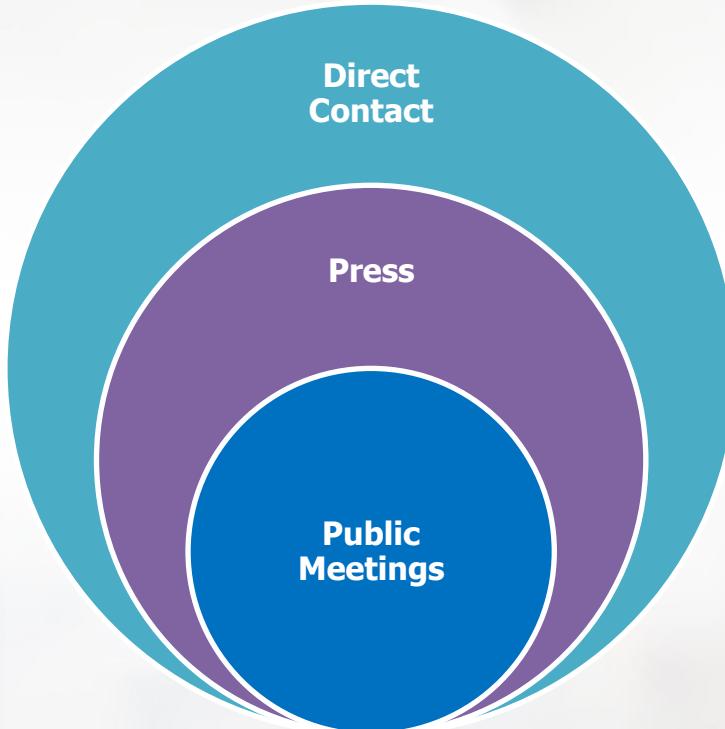


Data Collection
August 2023
to
April 2024

Data Analysis
May 2024
to
October 2024

Valuation Review
& Informal
Meetings
October 2024
to
December 2024

Public Information Approach



Stages of Hamden Revaluation

Data Collection

Exterior Measurements –
Digital Imagery

Data Mailers and Quality
Control



Data Mailers

*A basement or attic is considered finished if any combination of the following three of four items exists:

1. Finished walls such as paneling or sheetrock, etc.
 2. Finished flooring such as carpet, tile or vinyl.
 3. Finished ceilings such as sheetrock, drop-tile etc.
 4. Heat, including wood stoves or mini splits.

Please note: the finished lower level of a Raised Ranch or Split Level home is also considered "Finished Basement".



Stages of Hamden Revaluation

Data Analysis

Sales Validation, Analysis and
Income/Expense Evaluation

Neighborhood Delineation

Valuation Modeling



Stages of Hamden Reassessment

Valuation Review & Informal Hearings

Final Valuation Review

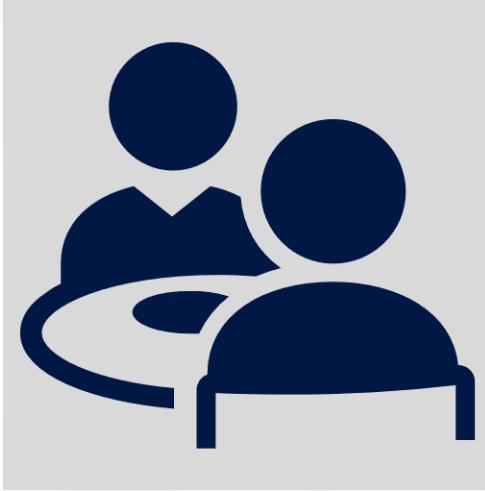
Statistical Testing

Documentation

Informal Hearings

Statistical Measures

	MEDIAN ASR	COD	PRD	PRB
Town	0.95	6.20	0.99	0.004
IAAO Standards	0.90 - 1.10	15.00 or less	0.98-1.03	-.050 to .050
Results	Meets Standards	Meets Standards	Meets Standards	Meets Standards



BAA Appeal Process

- One on one meetings with property owners
- Collect new information
- Decision to Change



Questions & Discussion



Hamden Detailed Reassessment Presentation 2024

Meeting **agenda**



- Sales Approach
- Cost Approach
- Property Record Card



Hamden Reassessment

Date of Value – Oct 1, 2024

Equity, Accuracy and Fairness

Date of Value

Market Value and Market Conditions as of
October 1, 2024

Market Value must be between 90%
and 100% of the median of all valid
sales as of the Date of Value

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63% and 70% of the median of all
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sale, the buyer and seller, each **acting
prudently and knowledgeably**, and assuming
the price is **not affected by undue stimulus**.*

USPAP Market Value Definition

*Implicit in this definition are the consummation of a sale as of a **specified date** and the passing of title from seller to buyer under conditions whereby:*

- ✓ *Buyer and seller are **typically motivated**;*
- ✓ *Both parties are **well informed or well advised**, and acting in what they consider their own best interests;*
- ✓ *A reasonable time is allowed for **exposure in the open market***
- ✓ ***Payment is made in terms of cash** in U.S. dollars or in terms of financial arrangements comparable thereto; and*
- ✓ *The 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. “*



Approaches to value

SALES COMPARISON APPROACH

Statistical Measures

	MEDIAN ASR	COD	PRD	PRB
Town	0.94	8.19	1.01	0.004
IAAO Standards	0.90 - 1.10	15.00 or less	0.98-1.03	-.050 to .050
Results	Meets Standards	Meets Standards	Meets Standards	Meets Standards

Stratification by Style

Style	Average of SP/SF	Average of Appraised Land	Average of Appraised Building	Average of Appraised Total	Average of New to Old Land	Average of New to Old Building	Average of New to Old Total Value
Bungalow	\$266.31	\$109,650	\$195,325	\$304,975	1.52	1.82	1.67
Cape Cod	\$239.95	\$86,952	\$230,539	\$317,491	1.68	1.66	1.66
Colonial	\$223.50	\$113,986	\$346,159	\$460,145	1.56	1.54	1.54
Contemporary	\$200.69	\$114,429	\$384,214	\$498,643	1.49	1.49	1.50
Multi Family	\$164.16	\$69,526	\$309,674	\$379,200	1.85	1.61	1.62
Old Style	\$226.63	\$77,458	\$217,067	\$294,524	1.71	1.84	1.76
Raised Ranch	\$216.96	\$90,590	\$277,986	\$368,576	1.52	1.65	1.61
Ranch	\$253.22	\$89,589	\$241,929	\$331,517	1.53	1.66	1.62
Split-Level	\$217.00	\$89,584	\$268,374	\$357,958	1.54	1.59	1.58
Tudor	\$262.62	\$112,140	\$351,280	\$463,420	1.56	1.72	1.66
Grand Total	\$228.49	\$94,489	\$279,563	\$374,052	1.61	1.63	1.61

Stratification by Year Built

Year Built	Average of SP/SF	Average of Appraised Land	Average of Appraised Building	Average of Appraised Total	Average of New to Old Land	Average of New to Old Building	Average of New to Old Total Value
1800-1900	\$198.91	\$81,787	\$241,327	\$323,113	1.66	1.68	1.65
1901-1939	\$224.15	\$107,961	\$295,117	\$403,078	1.74	1.68	1.68
1940-1960	\$239.92	\$89,618	\$238,967	\$328,586	1.62	1.64	1.63
1961-1975	\$224.76	\$88,693	\$278,949	\$367,642	1.46	1.62	1.58
1976-1990	\$220.61	\$91,833	\$293,820	\$385,653	1.53	1.58	1.57
1991-2000	\$211.40	\$88,563	\$421,044	\$509,606	1.40	1.53	1.50
2001-2020	\$183.91	\$111,536	\$481,200	\$592,736	1.38	1.28	1.30
2020-2024	\$231.56	\$75,767	\$395,467	\$471,233	1.46	1.30	1.33
Grand Total	\$228.49	\$94,489	\$279,563	\$374,052	1.61	1.63	1.61

Median Sale Price by Neighborhood (\$260,000 to \$880,000)



Statistics by Neighborhood

	MEDIAN ASR	COD	PRD	PRB
Town	0.94	8.19	1.01	0.004
IAAO Standards	0.90 - 1.10	15.00 or less	0.98-1.03	-.050 to .050
Results	Meets Standards	Meets Standards	Meets Standards	Meets Standards

NBD	SALE COUNT	MEDIAN ASR	COD	PRD
10	3	0.96	11.02	1.01
20	7	0.96	4.52	1.00
25	13	0.88	9.50	1.01
30	30	0.92	9.69	1.02
33	8	0.95	10.69	1.02
35	22	0.94	12.11	1.02
40	8	0.95	4.95	1.02
41	2	1.00	2.57	1.00
50	33	0.94	6.99	1.01
58	9	0.89	6.85	1.01
60	10	0.94	4.80	1.00
63	9	0.94	13.55	1.02
64	2	0.88	8.17	1.00
65	28	0.95	6.54	1.01
70	50	0.97	6.74	1.01
75	31	0.95	6.50	1.01
80	26	0.91	9.18	1.02
90	3	1.13	10.17	1.02
100	52	0.93	6.68	1.00
110	47	0.94	7.53	1.01
120	14	0.96	9.49	1.02
130	12	0.82	11.93	1.01
133	1	1.00	0.00	1.00
140	28	0.94	9.92	0.98
150	4	0.91	6.70	1.00
R	2	0.99	0.02	1.00
T	1	0.91	0.00	1.00
T2	1	1.08	0.00	1.00
W	10	0.95	3.99	1.00
Combined	466	0.94	8.19	1.01



Approaches to value

COST APPROACH

Replacement Cost [RCN]



Less Depreciation = [RCNLD]



Plus Land Value

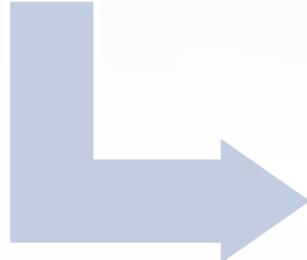


Market Value

Base Cost [RCN]

\$263/SF X
1,000 SF

- \$263,000



Depreciation -
10%

- (\$26,300)

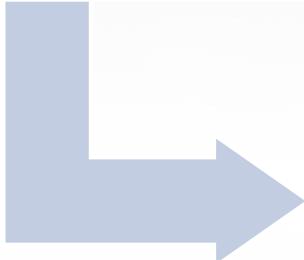


Building Value
[RCNLND]

- \$236,700

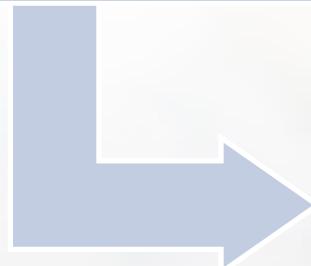
Building Value [RCNLD]

- \$236,700



Land Value

- \$250,000

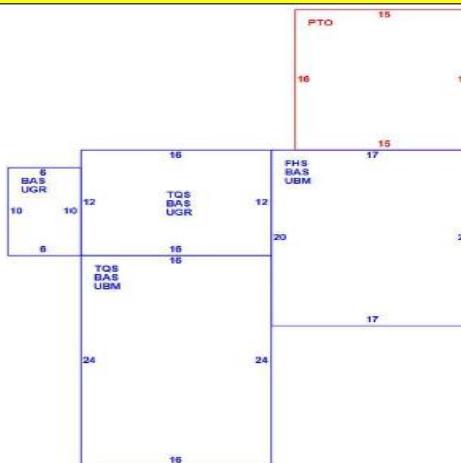


Market Value

- \$486,700

CURRENT OWNER			TOPO		UTILITIES		STR / ROAD		LOCATION		CURRENT ASSESSMENT				6062 HAMDEN, CT									
			1 Level	2 Public Water	1 Paved	2 Suburban	Description	Code	Appraised	Assessed														
HAMDEN CT 06517			3 Public Sewer			RES LAND DWELLING	1-1 1-3	225,400 348,100	157,780 243,670															
			8 Gas/Electric			Total	573,500	401,450																
SUPPLEMENTAL DATA																								
Alt Prcl ID Unit Numb I & E IESuppFor Deed Type WDS Inspect Zo 9 GIS ID 3886										ZONE Subdiv Na File Map Devel # Census Tr 165400 Assoc Pid#														
RECORD OF OWNERSHIP										BK-VOL/PAGE	SALE DATE	OU	VII	SALE PRICE	VC	PREVIOUS ASSESSMENTS (HISTORY)								
+14% Compounded (3 Years)										5185 288	06-21-2024	Q	I	579,000	00	Year	Code	Assessed	Year	Code	Assessed V	Year	Code	Assessed
										4850 0288	06-21-2021	Q	I	390,000	00	2023	1-1 1-3	63,490 102,900	2022	1-1 1-3	63,490 102,900	2021	1-1 1-3	63,490 102,900
										4427 0128	06-19-2017	Q	I	380,000	00	Total	166,390	Total	166,390	Total	166,390			
										4352 0212	09-29-2016	U	I	1	29									
										4154 0073	07-03-2014	Q	I	345,000	00									
										Total	0.00													
EXEMPTIONS										OTHER ASSESSMENTS														
Year	Code	Description		Amount		Code	Description		Number	Amount		Comm Int	This signature acknowledges a visit by a Data Collector or Assessor											
										Total	0.00													
ASSESSING NEIGHBORHOOD										APPRAISED VALUE SUMMARY														
Nbhd	Sub	Nbhd Name		B		Tracing		Batch		Appraised Bdg. Value (Card)														
40	A									343,700														
NOTES										Appraised Xf (B) Value (Bldg)														
										4,400														
										Appraised Ob (B) Value (Bldg)														
										0														
										Appraised Land Value (Bldg)														
										225,400														
										Special Land Value														
										0														
										Total Appraised Parcel Value														
										573,500														
										Valuation Method														
										C														
										Total Appraised Parcel Value														
										573,500														
BUILDING PERMIT RECORD										VISIT / CHANGE HISTORY														
Permit Id	Issue Date	Type	Description		Amount	Insp Date	% Comp	Date Comp	Comments		Date	Id	Type	Is	Cd	Purpose/Result								
58428	11-18-2014	BTH	Bathroom		5,500	06-18-2015	100	04-27-2015	NEW 1/2 BATH		07-25-2024	KLR				Sales review								
											12-09-2023	IFR				Measure/Entry Ref								
											10-01-2020	MVS	06	6		DM-Undeliverable								
											10-01-2015	VG				Reassessment Project								
											09-18-2015	SB				Reval Review								
											08-11-2015	SB	27			Sales review								
											06-22-2015	DO				CO Inspection								
LAND LINE VALUATION SECTION																								
B	Use Code	Description		Zone	Land Type	Land Units	Unit Price	Size Adj	Site Index	Cond.	Nbhd.	Nbhd. Adj	Notes		Location Adjustment		Adj Unit P	Land Value						
1	1010	Single Fam M01		R4		0.320 AC	98,769.00	2.50225	5	1.00	40	2.850					1.0000		225,400					
						0.320 AC	Parcel Total	Land Area	0.32									Total Land Value	225,400					
FOR ASSESSMENT PURPOSES ONLY, VISIT BUILDING AND/OR ZONING DEPTS.																								

CONSTRUCTION DETAIL			CONSTRUCTION DETAIL (CONTINUED)		
Element	Cd	Description	Element	Cd	Description
Style:	06	Old Style			
Model:	01	Residential			
Grade:	06	B			
Stories:	1.75	1 3/4 Stories			
Occupancy	1		CONDO DATA		
Exterior Wall 1	17	Stucco on Mason	Parcel Id	C	Owner 0.0
Exterior Wall 2				B	S
Roof Structure:	03	Gable	Adjust Type	Code	Description Factor%
Roof Cover:	11	Slate	Condo Flr		
Interior Wall 1	03	Plastered	Condo Unit		
Interior Wall 2					
Interior Flr 1	12	Hardwood	COST / MARKET VALUATION		
Interior Flr 2	14	Carpet	Building Value New	395,002	
Heat Fuel:	02	Oil	Year Built	1926	
Heat Type:	05	Hot Water	Effective Year Built		
AC Type:	03	Central	Depreciation Code	A+	
Total Bedrooms	03	3 Bedrooms	Remodel Rating	MJ	
Total Bthrms:	1		Year Remodeled	2023	
Total Half Baths	1		Depreciation %	13	
Total Xtra Fixtrs			Functional Obsol	0	
Total Rooms:	6	6 Rooms	External Obsol	0	
Bath Style:	03	Modern	Trend Factor	1	
Kitchen Style:	03	Above Average	Condition		
Whirlpool			Condition %		
			Percent Good	87	
			Cns Sect Rcnld	343,700	
			Dep % Ovr		
			Dep Ovr Comment		
			Misc Imp Ovr		
			Misc Imp Ovr Comment		
			Cost to Cure Ovr		
			Cost to Cure Ovr Comment		



BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value
BAS	First Floor	976	976	976	213.97	208,832
FHS	Half Story, Finished	238	340	170	106.98	36,374
PTO	Patio	0	240	24	21.40	5,135
TQS	Three Quarter Story	490	576	432	160.48	92,434
UBM	Basement, Unfinished	0	724	145	42.85	31,025
UGR	Garage Under	0	252	76	64.53	16,261
Ttl Gross Liv / Lease Area		1,704	3,108	1,823	390,061	

FOR ASSESSMENT PURPOSES ONLY, VISIT BUILDING AND/OR ZONING DEPTS IF NEEDED.

COST MODEL ENGINE

Section #1

Section Use: Single Fam M01

Base Rate: 152.00

Size Adjustment: 0.77020

Effective Area: 2991

Adjusted Base Rate = $(152.00 + -1.5200000000) * 0.77020$

Adjusted Base Rate: 115.90

RCN = $((115.90 * 2991 + 15200.000) * 1.850) + 0$

RCN: 669435

*****Base Rate Adjustments*****

FLOOR COVER 1 12 = 0.7600000000 + BaseRate

FLOOR COVER 2 06 = -2.2800000000 + BaseRate

*****Units Value Additions*****

EXTRA HALF BATHS = 3800.000 + RCN

FULL BATHROOMS = 11400.000 + RCN

*****Factor Adjustments*****

GRADE ADJUSTMENT 08 = 1.850 x RCN

*****Depreciation Adjustments*****

REMODEL RATING = 1 x Depreciation

Actual Year Built: 1925

Effective Age = 22

Percent Good = 93

RCNLID * Trending = 622575 * 1

RCNLID: 622600

COST MODEL ENGINE

OUTPUT FROM NEW COST MODELING ENGINE
REPORT GENERATED ON 05-Nov-2024 AT 13:01

*****Building #1 Calc Start*****

Cost Calculation for pid, bid = 1654, 1654

Account Number =

Use Code = 1010

Cost Rate Group = SIN

Model ID: = P01

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REMODEL RATING = 1 x Depreciation

Actual Year Built: 1925

Effective Age = 22

Percent Good = 93

RCNLDD ~ Trending = 622575 * 1

RCNLDD: 622600

STYLE	PARCEL COUNT	MEDIAN RCN/SF	M&S ANALYSIS PRICE/SF
Bungalow	148	\$192	
Cape Cod	3,233	\$199	
Colonial	4,220	\$183	\$186
Contemporary	231	\$173	
Cottage	9	\$35	
Duplex	50	\$130	
Multi Family	959	\$153	
Old Style	620	\$196	
Raised Ranch	1,065	\$179	\$193
Ranch	3,356	\$216	\$176
Split-Level	732	\$213	
Tudor	99	\$241	
Grand Total	14,722	\$192	

Building Base Rate Changes

STYLE	PRIOR BASE RATE	NEW BASE RATE	% CHANGE
RANCH	\$95	\$151	59%
SPLIT-LEVEL	\$110	\$176	60%
COLONIAL	\$100	\$152	52%
CAPE COD	\$98	\$156	59%
BUNGALOW	\$74	\$136	84%
OLD STYLE	\$90	\$156	73%
CONTEMPORARY	\$100	\$146	46%
RAISED RANCH	\$97	\$154	59%
MULTI FAMILY	\$90	\$140	56%
DUPLEX	\$75	\$116	55%
COTTAGE	\$44	\$68	55%
TUDOR	\$108	\$168	56%

CURRENT OWNER			TOPO		UTILITIES		STR / ROAD		LOCATION		CURRENT ASSESSMENT				6062 HAMDEN, CT				
			1 Level	2 Public Water	1 Paved	2 Suburban	Description	Code	Appraised	Assessed									
HAMDEN CT 06517			3 Public Sewer				RES LAND DWELLING	1-1 1-3	225,400 348,100	157,780 243,670									
			8 Gas/Electric				Total	573,500	401,450										
SUPPLEMENTAL DATA																			
Alt Prcl ID Unit Numb I & E IESuppFor Deed Type WDS Inspect Zo 9 GIS ID 3886										ZONE Subdiv Na File Map Devel # Census Tr 165400 Assoc Pid#									
RECORD OF OWNERSHIP			BK-VOL/PAGE	SALE DATE	OU	VII	SALE PRICE	VC	PREVIOUS ASSESSMENTS (HISTORY)										
			5185 288	06-21-2024	Q	I	579,000	00	Year	Code	Assessed	Year	Code	Assessed V	Year	Code	Assessed		
			4850 0288	06-21-2021	Q	I	390,000	00	2023	1-1 1-3	63,490 102,900	2022	1-1 1-3	63,490 102,900	2021	1-1 1-3	63,490 102,900		
			4427 0128	06-19-2017	Q	I	380,000	00											
			4352 0212	09-29-2016	U	I	1	29											
			4154 0073	07-03-2014	Q	I	345,000	00	Total	166,390	Total	166,390	Total	166,390					
EXEMPTIONS										OTHER ASSESSMENTS									
Year	Code	Description		Amount		Code	Description		Number	Amount	Comm Int	This signature acknowledges a visit by a Data Collector or Assessor							
Total			0.00																
ASSESSING NEIGHBORHOOD																			
Nbhd	Sub	Nbhd Name	B		Tracing		Batch		APPRaised VALUE SUMMARY										
40	A																		
NOTES																			
BUILDING PERMIT RECORD																			
Permit Id	Issue Date	Type	Description	Amount	Insp Date	% Comp	Date Comp	Comments				Date	Id	Type	Is	Cd	Purpose/Result		
58428	11-18-2014	BTH	Bathroom	5,500	06-18-2015	100	04-27-2015	NEW 1/2 BATH				07-25-2024 12-09-2023 10-01-2020 10-01-2015 09-18-2015 08-11-2015 06-22-2015	KLR IFR MVS VG SB SB DO		06	6	27 08 36 95 29 27 20	Sales review Measure/Entry Ref DM-Undeliverable Reassessment Project Reval Review Sales review CO Inspection	
LAND LINE VALUATION SECTION																			
B	Use Code	Description	Zone	Land Type	Land Units	Unit Price	Size Adj	Site Index	Cond.	Nbhd.	Nbhd. Adj	Notes			Location Adjustment		Adj Unit P	Land Value	
1	1010	Single Fam M01	R4		0.320 AC	98,769.00	2.50225	5	1.00	40	2.850						1.0000		225,400
		Total Card	Land Units	0.320 AC	Parcel Total	Land Area	0.32										Total Land Value		225,400
FOR ASSESSMENT PURPOSES ONLY, VISIT BUILDING AND/OR ZONING DEPTS.																			

LAND CALCULATIONS

LAND LINE VALUATION SECTION													00-22-2019	DU	LAW FEE INFORMATION	
B	Use Code	Description	Zone	Land Type	Land Units	Unit Price	Size Adj	Site Index	Cond.	Nbhd.	Nbhd. Adj	Notes	Location Adjustment	Adj Unit P	Land Value	
1	1010	Single Fam M01	R4		0.320 AC	98,769.00	2.50225	5	1.00	40	2.850			1.0000		225,400
		Total Card	Land Units		0.320 AC		Parcel Total	Land Area	0.32					Total Land Value		225,400

LAND CALCULATIONS				
ACRES	UNIT PRICE/ACRE	SIZE	NEIGHBORHOOD	LAND VALUE
0.32	\$98,769	2.50225	2.85	\$225,400

Land Curve – Size Adjustment

LAND CURVE TABLE				
AREA (AC)	PRICE (PRIOR)	PRICE (NEW)	PRICE/SF	OTN
0.01	\$32,400	\$50,868	\$116.78	57%
0.05	\$35,100	\$55,107	\$25.30	57%
0.15	\$43,200	\$67,824	\$10.38	57%
0.25	\$48,438	\$76,048	\$6.98	57%
0.50	\$55,350	\$86,900	\$3.99	57%
0.75	\$59,130	\$92,834	\$2.84	57%
1.00	\$62,910	\$98,769	\$2.27	57%

SOLVE FOR NEIGHBORHOOD ADJUSTMENT

SOLVE FOR NEIGHBORHOOD ADJUSTMENT - RESIDUAL TECHNIQUE

SALE PRICE	\$579,000
RCNLD	\$348,100
LAND VALUE	\$230,900

ACRE	0.32
UNIT PRICE	\$98,769
SIZE FACTOR	2.50025
VALUE BEFORE NEIGHBORHOOD ADJUSTMENT	\$79,023
LAND VALUE	\$230,900

IMPUTED NEIGHBORHOOD ADJUSTMENT

IMPUTED LAND VALUE/VALUE BEFORE NEIGHBORHOOD ADJUSTMENT

2.92

SOLVE FOR NEIGHBORHOOD ADJUSTMENT

NEIGHBORHOOD ADJUSTMENT - PROOF

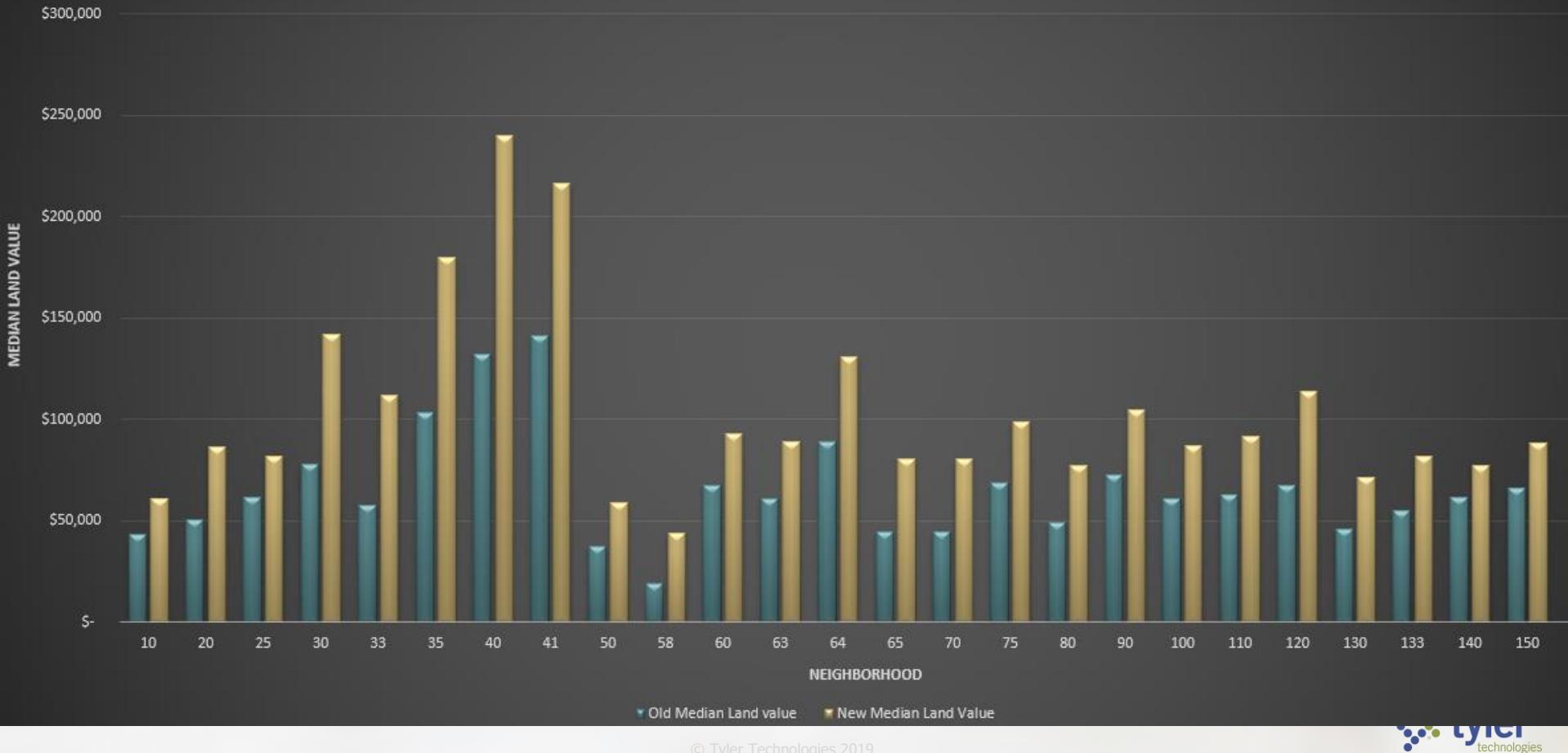
SALE PRICE	\$579,000
RCNLD	\$348,100
LAND VALUE	\$225,400

ACRE	0.32
UNIT PRICE	\$98,769
SIZE FACTOR	2.50025
VALUE BEFORE NEIGHBORHOOD ADJUSTMENT	\$79,023
LAND VALUE	\$225,400

IMPUTED NEIGHBORHOOD ADJUSTMENT	
IMPUTED LAND VALUE/VALUE BEFORE NEIGHBORHOOD ADJUSTMENT	2.85

NBD ↑	PARCEL COUNT	NBD FACTOR (PRIOR)	MEDIAN LAND VALUE (PRIOR)	NBD FACTOR (NEW)	MEDIAN LAND VALUE (NEW)	MEDIAN LAND VALUE OTN
10	169	1.00	\$ 43,200	0.90	\$ 61,000.00	41%
20	370	1.15	\$ 50,900	1.25	\$ 86,800.00	71%
25	483	1.30	\$ 61,600	1.10	\$ 81,800.00	33%
30	758	1.60	\$ 77,900	1.85	\$ 142,300.00	83%
33	357	1.42	\$ 57,900	1.75	\$ 112,000.00	93%
35	479	2.40	\$ 103,700	2.65	\$ 179,700.00	73%
40	188	2.60	\$ 132,400	2.85	\$ 239,900.00	81%
41	102	?	\$ 141,600	2.75	\$ 216,300.00	53%
50	1,558	0.90	\$ 37,400	0.90	\$ 58,800.00	57%
58	411	0.45	\$ 19,100	0.65	\$ 44,100.00	131%
60	370	1.60	\$ 67,800	1.40	\$ 93,200.00	37%
63	398	1.40	\$ 61,200	1.30	\$ 89,200.00	46%
64	55	?	\$ 88,950	1.80	\$ 131,000.00	47%
65	682	1.00	\$ 44,800	1.15	\$ 80,800.00	80%
70	1,308	1.00	\$ 44,800	1.15	\$ 80,800.00	80%
75	855	1.20	\$ 68,800	1.10	\$ 99,000.00	44%
80	765	1.00	\$ 49,300	1.00	\$ 77,100.00	56%
90	29	0.90	\$ 72,800	0.90	\$ 105,100.00	44%
100	1,994	1.10	\$ 61,200	1.00	\$ 87,400.00	43%
110	1,159	1.30	\$ 63,300	1.20	\$ 91,800.00	45%
120	435	1.40	\$ 67,800	1.50	\$ 114,100.00	68%
130	435	0.82	\$ 45,800	0.82	\$ 71,800.00	57%
133	131	0.75	\$ 55,300	0.75	\$ 81,750.00	48%
140	734	1.00	\$ 61,850	0.80	\$ 77,500.00	25%
150	114	1.05	\$ 66,100	0.90	\$ 88,700.00	34%

LAND VALUE CHANGES



Neighborhood Change

Overall Mean Change 54.4%

Neighborhood	Mean Change
10	56.5%
20	58.1%
25	63.5%
30	50.2%
33	52.5%
35	44.9%
40	61.2%
41	63.9%
50	49.9%
58	57.3%
60	26.7%
63	50.2%
64	51.2%
65	59.8%
70	52.6%
75	40.7%
80	37.5%
90	24.0%
100	59.6%
110	48.0%
120	55.1%
130	68.6%
133	59.6%
140	49.9%
150	41.0%
R	57.5%
T	54.1%
T2	49.7%
W	59.5%

Neighborhood Mean Change



QUESTIONS?





Hamden Reassessment 2024

Your **Tyler** team



John Valente ASA OPM: Project Manager

Salim Serdah OPM: Project Manager

Drew Manlove OPM: Residential and Commercial Appraiser

James Steiner OPM: Residential and Commercial Appraiser

David Boast OPM: Data Collection/ Residential Appraiser

Matt Smoragiewicz: Data Entry

Meeting **agenda**



- What is Reassessment?
- Reassessment Process
- Change Notice and Hearings



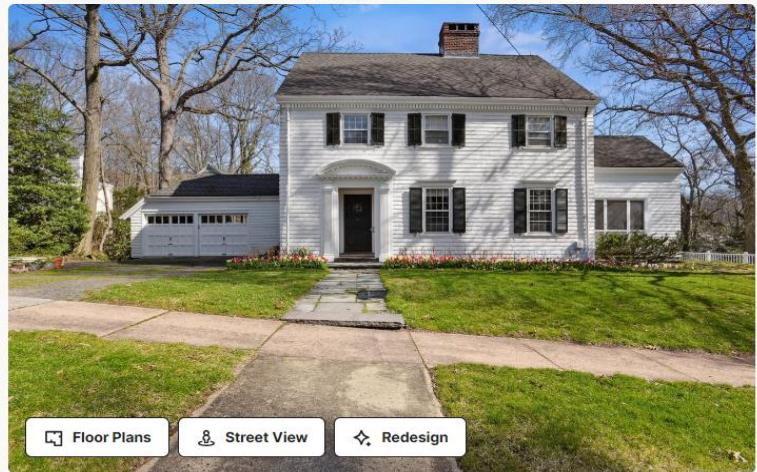
Hamden Reassessment

Date of Value – Oct 1, 2024

Equity, Accuracy, and Fairness

Why do we need reassessment?

1. Values have inconsistently changed over 4 years
2. Unequal assessments
3. State Tax law mandates fair and equitable assessments (Law 12-62)
4. Correct and Collect missing data



Listed by Betsy Grauer • Betsy Grauer Realty, Inc. Bought with Betsy Grauer Realty, Inc.

• SOLD ON JUN 3, 2024
27 Laurel Rd, Hamden, CT 06517

\$925,000
Sold Price **4**
Beds **3.5**
Baths **2,435**
Sq Ft



Challenges and Fear...



- **Pay more in taxes**
- **Discover hidden improvements**
- **Governments will spend more**
- **Shift in tax base**

Fears Dispelled

1. Pay taxes based on equitably established values
2. Collecting hidden improvements provides foundation for fairness
3. Any shift that may occur in assessment by class promotes greater fairness
4. No causal evidence that Governments spend more after a reassessment
5. Revenue Neutral



Revaluation Goals

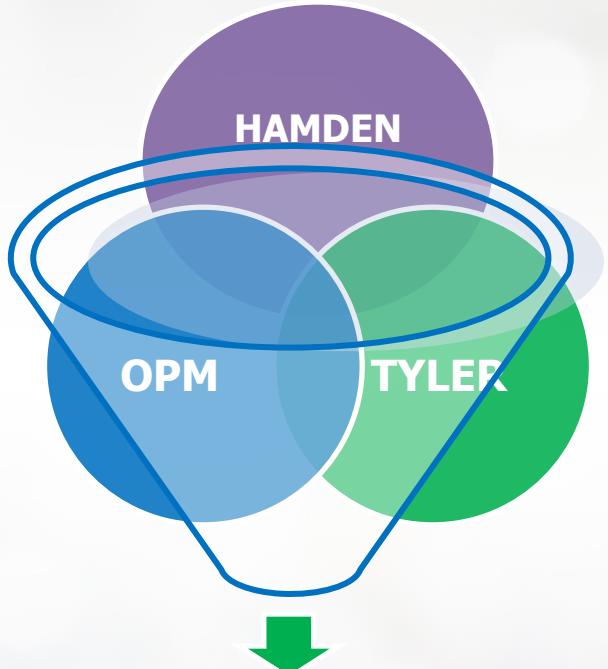
- Implement new assessments for all properties to reflect 70% fair market value as of Oct 1, 2024 using best professional practices
- Meet or exceed the Office of Policy & Management (OPM) Standards
- Meet or exceed the Uniform Standards of Professional Appraisal Practice (USPAP)
- Meet or exceed the “Standard on Mass Appraisal” - International Association of Assessing Officers (IAAO)
- Target and optimize Reappraisal Methods and Resources to focus on appraisal needs while addressing the uniqueness of the Town of Hamden community

Date of Value

Market Value and Market Conditions as of
October 1, 2024

Market Value must be between 90%
and 100% of the median of all valid
sales as of the Date of Value

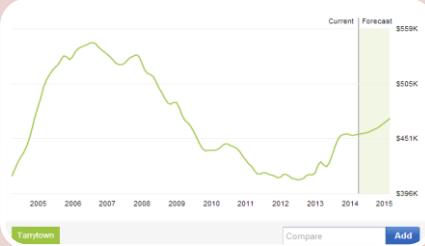
Assessments levels must be between
63% and 70% of the median of all
valid sales as of the Date of Value



Successful
Reassessment



Phases of Revaluation



Data Collection
Data Mailers
August 2023
to
April 2024

Data Analysis
July 2024
to
October 2024

Valuation Review
& Informal
Meetings
November 2024
to
December 2024

USPAP Market Value Definition

Market value is:

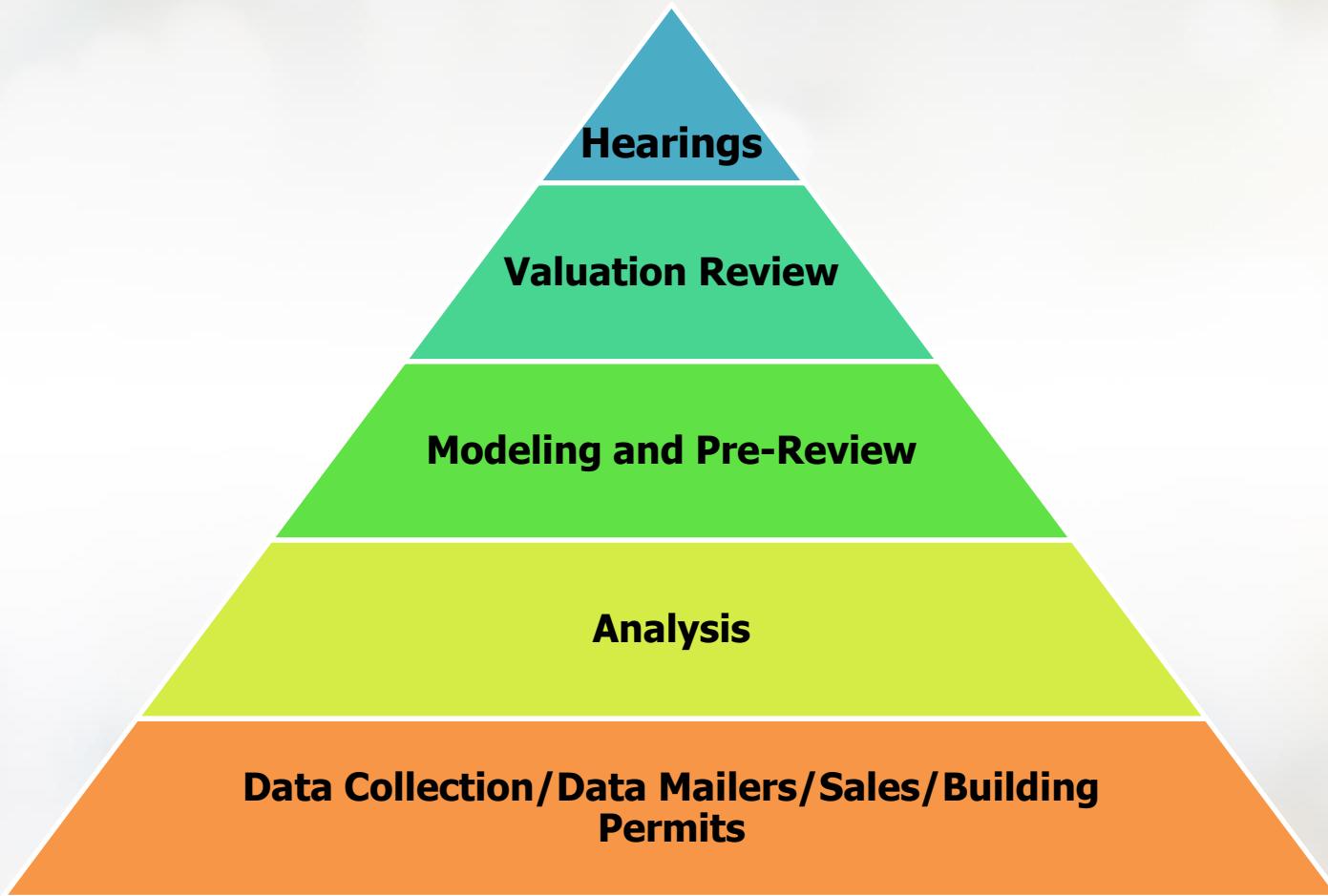
*"the **most probable price** which a property
should bring in a **competitive and open
market** under all conditions requisite to a fair
sale, the buyer and seller, each **acting
prudently and knowledgeably**, and assuming
the price is **not affected by undue stimulus**.*

USPAP Market Value Definition

*Implicit in this definition are the consummation of a sale as of a **specified date** and the passing of title from seller to buyer under conditions whereby:*

- ✓ *Buyer and seller are **typically motivated**;*
- ✓ *Both parties are **well informed or well advised**, and acting in what they consider their own best interests;*
- ✓ *A reasonable time is allowed for **exposure in the open market***
- ✓ ***Payment is made in terms of cash** in U.S. dollars or in terms of financial arrangements comparable thereto; and*
- ✓ *The 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.“*

REASSESSMENT PROCESS



Data Mailers



Kindly sign and return this entire form within 10 days to:

TYLER TECHNOLOGIES
ASSESSOR'S OFFICE
Hamden Government Center
2750 Dixwell Avenue
Hamden, CT 06518

June 7, 2024

PO Box 340
BUFFALO NY 14240

Parcel ID# 370
Property Location: 95 FAIRVIEW AVE
Neighborhood: 50

Revaluation 2024 Residential Data Verification Report

The Town of Hamden is in the process of its State Mandated Revaluation for October 1, 2024 and has hired, Tyler Technologies, to assist the Hamden Assessor's office with this project. Recent property inspections and existing town records have been compiled as a means to accurately reflect your current overall property characteristics.

ALL FORMS NEED TO BE RETURNED. Please review your property data (listed on the back) of this letter and verify everything is correct.

You can make any necessary corrections on this form by crossing out the incorrect information and providing the correct data. Please sign and return the completed form within 10 days. Even if no changes are made, please sign, and return this entire form within 10 days. Please use the postage paid return envelope. If you have any questions concerning this mailer, please contact Tyler Technologies (Hamden Town contact) at (203) 672-2061 or email Reval@hamden.com. Your cooperation is greatly appreciated and helps ensure your assessment is based on the most accurate information available.

Changes cannot be made by telephone as a signed form is required for our records.

Place an 'X' next to the statement that describes the accuracy of the data. Choose one.

The data listed from my property is correct and no changes are required.

Changes were made to the data, and I understand an interior inspection may be required.

Signature

Email

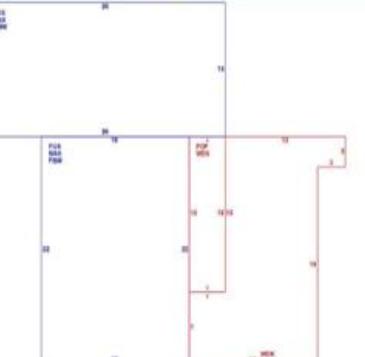
Printed Name/Title

Telephone

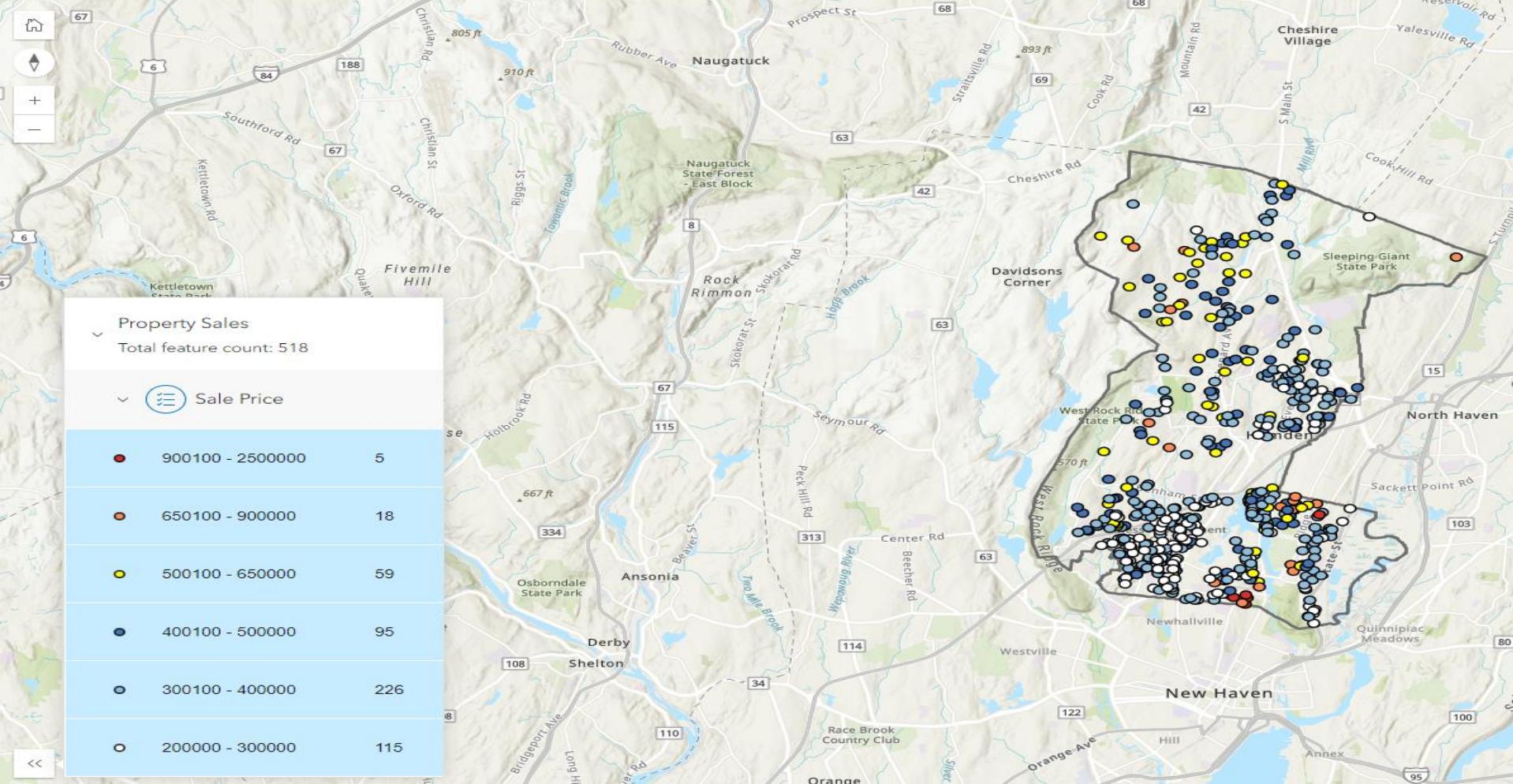
Date

Office of the Assessor | 2750 Dixwell Ave, Hamden, CT 06518

Property Location 95 FAIRVIEW AVE Vision ID 370		Map ID 2124/017// Blog # 1	Blog Name Sec # 1 of 1	Card # 1 of 1	Print Date 5/29/2024 4:04:26 PM	
CONSTRUCTION DETAIL		COST / MARKET VALUATION				
Element	CD	Description	Year Built	1930		
Style:	06	Old Style				
Model:	01	Residential				
A334-BB-BW-2-N-015-009-000						
Neigh	Sub	Name	B	Tracing	Batch	
SD	A					
BUILDING SUB-AREA SUMMARY SECTION						
Code	Description	Living Area				
BAL	First Floor	650				
FBM	Basement, Finished	0				
FOP	Porch, Open	0				
FUS	Upper Story, Finished	650				
UBM	Basement, Unfinished	0				
WOK	Deck, Wood	0				
Total Rooms:	7	7 Rooms				
OUTBUILDING / BUILDING EXTRA FEATURES						
Code	Description	Units				
FPL1	Fireplace Av/G	1				
SOL1	Solar - Roof					
*A basement or attic is considered finished if any combination of the following three of four items exists:						
1. Finished walls such as paneling or sheetrock, etc.						
2. Finished flooring such as carpet, tile or vinyl.						
3. Finished ceilings such as sheetrock, drop-tile etc.						
4. Heat, including wood stoves or mini splits.						
Please note: the finished lower level of a Raised Ranch or Split Level home is also considered "Finished Basement"						



Hamden Property Sales October 2023 to October 2024



RESIDENTIAL VALUE CHANGE

09/2/2020 \$195,000

07/29/2024 \$330,000

1.69 TIMES

69% INCREASE



Street View

Redesign

Listed by Carolyn Augur • Coldwell Banker Realty. Bought with RE/MAX Heritage.

SOLD ON JUL 26, 2024

53 Morse St, Hamden, CT 06517

\$330,000

Sold Price

3

Beds

2

Baths

1,530

Sq Ft



RESIDENTIAL VALUE CHANGE

9/22/2020 \$94,000

12/22/2023 \$165,000

1.76 TIMES

76% INCREASE

\$165,000

Sold | Closed | Condo | 1 Bed | 1 Full Bath | 741 Sq. Ft.

1 Photo Map & Location



© Tyler Technologies 2019

RESIDENTIAL VALUE CHANGE

05/18/2021 \$ 359,000

07/01/2024 \$520,000

1.45 TIMES

45% INCREASE



Sold on June 28, 2024

Just Sold

Last sold for

\$520,000

3 bed 2.5 bath 1,953 sqft 0.33 acre lot

261 Blake Rd, Hamden, CT 06517

Single Family
Property type

1950
Year built

\$520K in 2024
Last sold



RESIDENTIAL VALUE CHANGE

05/05/2021 \$210,000

09/17/2024 \$320,000

1.52 TIMES

52% INCREASE



Sold on September 13, 2024

Just Sold

Last sold for

\$320,000

3 bed 1.5 bath 1,443 sqft 6,098 sqft lot

35 High Top Cir E, Hamden, CT 06514

Single Family
Property type

1978
Year built

\$320K in 2024
Last sold



RESIDENTIAL VALUE CHANGE

06/21/2021 \$390,000

06/21/2024 \$579,000

1.48 TIMES

48% INCREASE



Sold on June 20, 2024

Just Sold

Last sold for

\$579,000

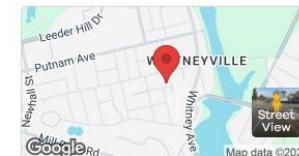
3 bed 1.5 bath 1,704 sqft 0.32 acre lot

5 Heloise St, Hamden, CT 06517

Single Family
Property type

1926
Year built

\$579K in 2024
Last sold



RESIDENTIAL VALUE CHANGE

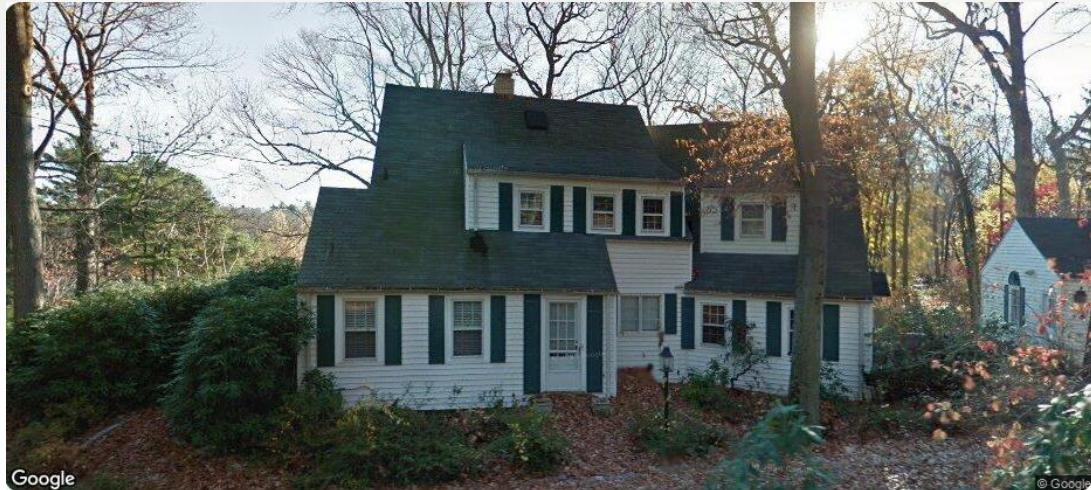
03/03/2021 \$487,000

12/01/2023 \$750,000

1.54 TIMES

54% INCREASE

updated Kitchen



Off Market

4 bed 2.5 bath 2,728 sqft 0.62 acre lot

10 Deepwood Dr, Hamden, CT 06517

Single Family
Property type

1926
Year built

\$750K in 2023
Last sold

\$275

2 Car



RESIDENTIAL VALUE CHANGE

06/29/2020 \$530,000

05/14/2024 \$780,000

1.47 TIMES

47% INCREASE



Sold on May 9, 2024

Just Sold

Last sold for

\$780,000

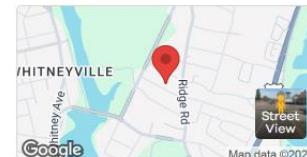
5 bed 5.5 bath 3,132 sqft 0.45 acre lot

56 Mulberry Hl, Hamden, CT 06517

Single Family
Property type

1940
Year built

\$780K in 2024
Last sold



RESIDENTIAL VALUE CHANGE

12/29/2020 \$190,000

02/06/2024 \$320,000

1.68 TIMES

68% INCREASE

Updated kitchen



Off Market

3 bed 1.5+ bath 1,032 sqft 0.43 acre lot

39 Curry Rd, Hamden, CT 06517

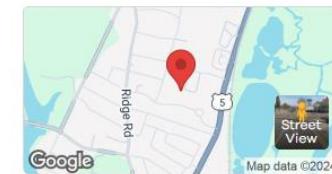
Single Family
Property type

1957
Year built

\$320K in 2024
Last sold

\$310

2 Car



COMMERCIAL VALUATION



Commercial Property Valuation

The **income capitalization approach** involves the estimation of the present worth of anticipated future benefits of an income producing property.

This approach is a valuation technique that **capitalizes the earning capability of a property.**



Income and Expense

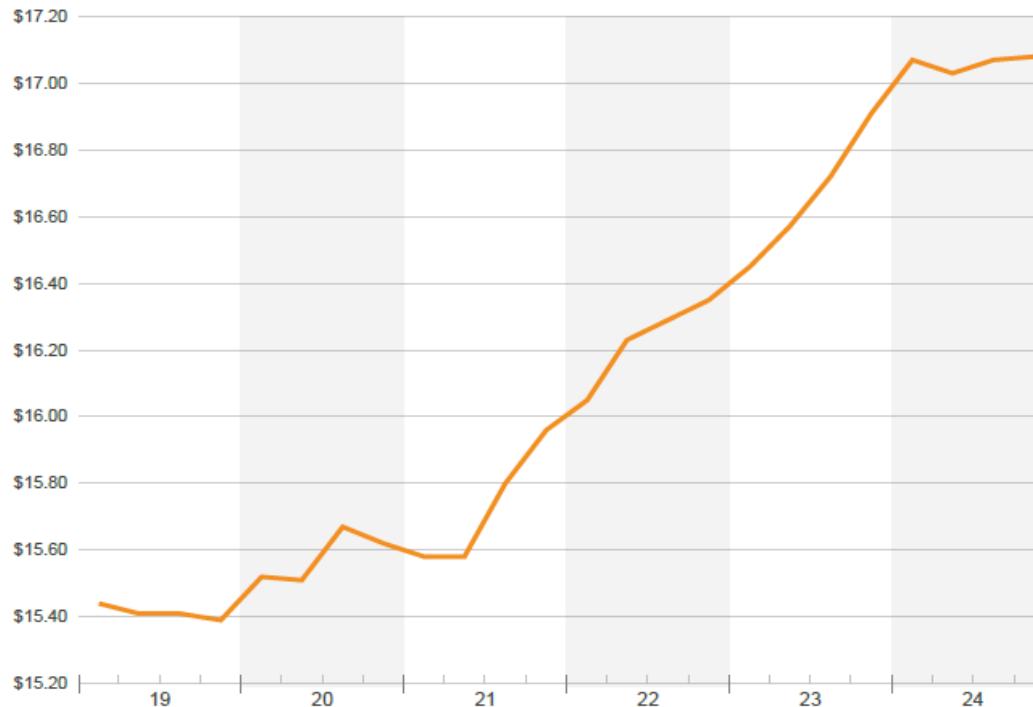
INCOME & EXPENSE DATA WORKSHEET INSTRUCTIONS	
Enter	Enter Property Address
Annual Income and Expense Statement for the year ending: _____	
PROPERTY ADDRESS: _____	
PROPERTY USE (check all that apply): <input type="checkbox"/> Apartment <input type="checkbox"/> Office <input type="checkbox"/> Retail <input type="checkbox"/> Mixed Use <input type="checkbox"/> Shopping Center <input type="checkbox"/> Industrial <input type="checkbox"/> Other	
CHECK HERE IF ANY PART OF THIS PROPERTY IS OWNER OCCUPIED: <input type="checkbox"/>	
It is critical to check this box if you are using all or part of the property yourself	
1. Total gross building area (Including owner-occupied space) _____ Sq. Ft. 2. Owner-occupied area _____ Sq. Ft. 3. Net Leasable area _____ Sq. Ft. 4. Number of rental units, including owner-occupied	
Enter Net Sq Ft excluding common areas	
ACTUAL GROSS INCOME * 9. Apartment Rents (From Schedule A) 10. Office Rents (From Schedule B) 11. Retail Rents (From Schedule B) 12. Mixed Rents (From Schedule B) 13. Shopping Center Rents (From Schedule B) 14. Industrial Rents (From Schedule B) 15. Other Rents (From Schedule B) 16. Parking Rents 17. Other Misc income (e.g. CAM, INS or TAX Reimbursement) 18. TOTAL ACTUAL GROSS INCOME = 19. Less, losses from vacancy and credit collection 20. EFFECTIVE GROSS ANNUAL INCOME =	
LESS, ACTUAL EXPENSES 21. Heating fuel 22. Gas and electricity 23. Water and sewer 24. Other utilities 25. Payroll (do not include management) 26. Supplies 27. Management 28. Insurance 29. Common Area Maintenance 30. Leasing Fees/Commissions/Advertising 31. Legal and Accounting 32. Elevator maintenance 33. Tenant improvements 34. General repairs 35. Other (specify) _____ 36. Other (specify) _____ 37. Other (specify) _____ 38. Reserves 39. Security 40. TOTAL ACTUAL EXPENSES = 41. NET OPERATING INCOME = <small>DO NOT INCLUDE TAXES, DEPRECIATION OR MORTGAGE PAYMENTS AS AN EXPENSE</small>	
This is how much income your property would rent for if fully occupied and leased Subtract Line 19 from Line 18: Typically, this amount would match income reported on IRS Form 8825 or Schedule E Enter all losses due to vacancy and credit	
Subtract Line 40 from Line 20	

Map ID: [PARID] Property Location: [LOCATION]

1

COMMERCIAL VALUATION

4 Year Increase in Commercial Market Rents +10%



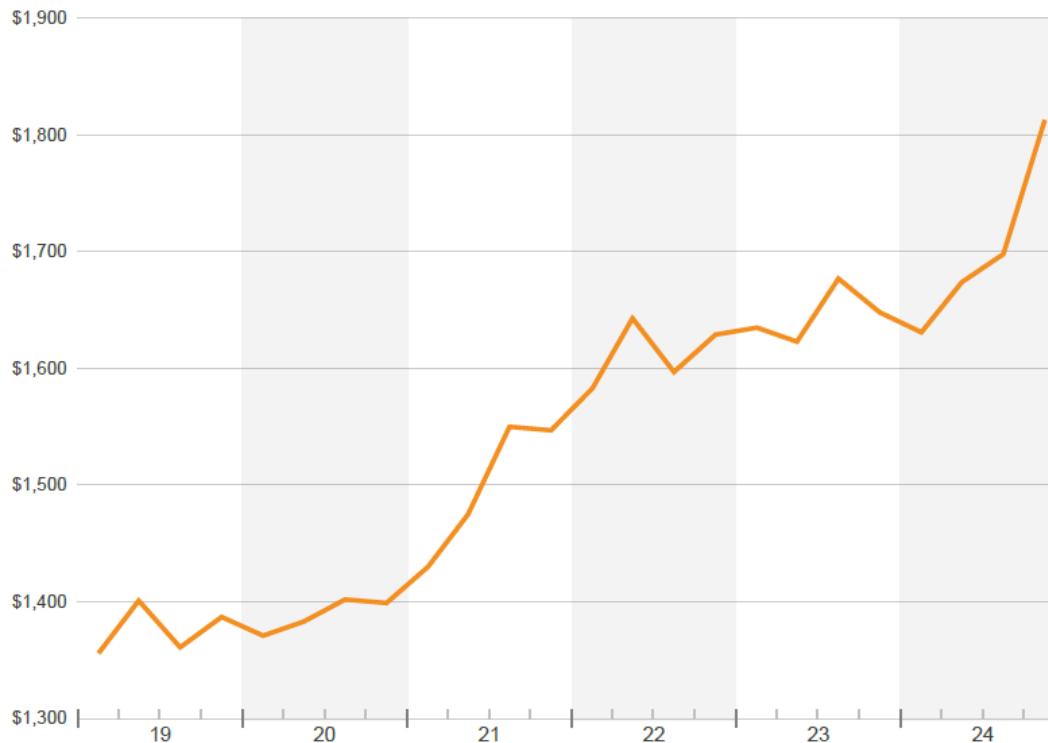
COMMERCIAL VALUATION

4 Year Increase in Commercial Sale Price/SF +14%

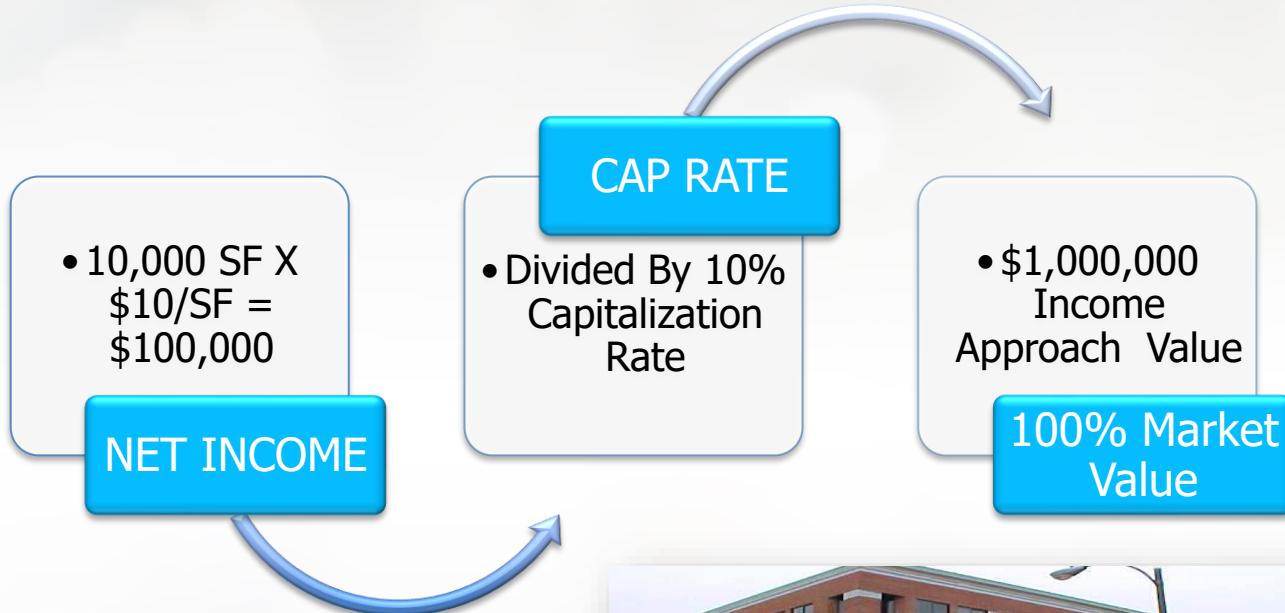


COMMERCIAL VALUATION

4 Year Increase in Apartment Market Rents +29%



Commercial Property Valuation



Date of Value

Market Value and Market Conditions as of
October 1, 2024

Market Value must be between 90%
and 100% of the median of all valid
sales as of the Date of Value

Assessments levels must be between
63% and 70% of the median of all
valid sales as of the Date of Value

Statistical Measures

	MEDIAN ASR	COD	PRD	PRB
Town	0.95	8.20	1.01	0.004
IAAO Standards	0.90 - 1.10	15.00 or less	0.98-1.03	-.050 to .050
Results	Meets Standards	Meets Standards	Meets Standards	Meets Standards

Change Notice



TOWN OF HAMDEN
ASSESSOR'S OFFICE
HAMDEN GOVERNMENT CENTER
2750 DIXWELL AVENUE
HAMDEN, CT 06518



To: <>OWNER1>>
<>OWNER2>>
<>ADDRESS1>>
<>ADDRESS2>>
<>CITY>>, <>STATE>> <>ZIP>>

Parcel ID: <>PARID>>
Property class: <>PROP CLASS>>
Parcel Location: <>PROP LOCATION>>

Date:

NOTICE OF TAX ASSESSMENT REVALUATION

In accordance with 12-55 & 12-62 of the Connecticut General Statutes

THIS IS NOT A BILL

Dear Hamden Property Owner:

The town-wide revaluation of all real estate in the Town of Hamden is now complete. Please find your updated property assessment below. This new assessment, which reflects 70% of the fair market value of your property as of October 1, 2024, was based on a State of Connecticut mandated revaluation per Public Act No. 22-74. Future revaluations will follow at five-year intervals. You may review your assessment data in more detail at: <https://gis.vgsi.com/hamdenct/> If you have any questions regarding your new assessment or wish to discuss your property, please schedule an informal hearing with Tyler Technologies – our revaluation company. During your telephone meeting, their appraiser will discuss your property's market value and make any necessary changes to the assessment data listed on your property record card; they will not be able to discuss taxes or estimated tax bills because the mill rate will not be set until the Spring of 2025. Please note that all hearings will be conducted by telephone. In-person hearings will be on a limited basis for special circumstance provided by request. For more information regarding the 2024 Revaluation or the appeal process, please visit the link on the Hamden Assessor's website. Any information you wish the revaluation company to consider can be dropped off at the Assessor's Office at the Hamden Government Center or emailed to reval@hamden.com no less than three days before your telephone appointment. Informal hearings will be scheduled during the month of December, including some evenings and Saturdays. Please refer to the Parcel ID number appearing at the top of this notice when scheduling your hearing.

Appointments can be scheduled online at www.tylertech.com/hamden or by calling Tyler Technologies at (866) 645-9066 between 8:30 AM and 4 PM, Monday – Friday. Please note that the deadline for scheduling a hearing is Tuesday, December 17, 2024, at 4PM.

The October 1, 2024, assessment shown on this statement will be used for July 1, 2025, and January 1, 2026, tax bills. Note that the mill rate for these bills will not be set until the spring of 2025. PLEASE DO NOT USE THE CURRENT MILL RATE TO ESTIMATE YOUR TAXES FOR THESE PAYMENTS.

Taxpayers may also appeal their assessment with the Hamden Board of Assessment Appeals (BAA) pursuant to Connecticut General Statute (C.G.S.) §12-111. Applications for the BAA will be available on the Town's website beginning on Feb 1, 2025, or by calling (203) 287-7128. Appeals to the BAA must be in writing and received by the Assessor's office no later than February 20, 2025. The BAA meets in March 2025 and will send applicants a written notice as to the location, date, and time of their hearings.

CURRENT ASSESSED VALUE (Based on October 1, 2020, Revaluation)	NEW ASSESSED VALUE (Based on October 1, 2024, Revaluation)
\$XXX,XXX	\$XXX,XXX

Please note that the new assessed value DOES NOT include exemptions or credits.

Four Questions to help you decide if your assessment is correct

1. Can I sell my property for that amount?
2. Are the property characteristics accurate?
3. How much are similar properties in my neighborhood selling for?
4. How much have similar properties in my neighborhood been assessed for?

What if I want to appeal my assessment?

- Request a phone hearing if you think the value is inaccurate (In-person hearing upon request)
- Email documents before hearing
- Notices mailed November 22nd (Tentative)
- Deadline to Schedule a hearing is December 17th
- Hearings Start December 2nd
- Hearing results at the end of January
- Board of Assessment Appeals filing between Feb 01 and February 20th

Hearings

- One on One phone meeting
- Be able to supply and discuss
 - Appraisals
 - Purchase and Sale Agreements
 - Closing Statements
 - Recent income and expense data
 - Tax returns
 - Leases
 - Comparable Sales
- Post hearings submissions are also accepted and welcomed



2024 RESIDENTIAL REVALUATION TIMETABLE

Revaluation by Tyler Technologies

Data Collection and Market Analysis: August 2023 - October 2024

Valuation Review: November 2024 - December 2024

Effective Date of Revaluation: October 1, 2024

Notices of New Values Mailed: November 22, 2024 (Tentative)

Informal Hearings by Tyler: December 2024

Results of Informal Hearings Mailed: Last week of January 2025

2024 RESIDENTIAL REVALUATION TIMETABLE

Board of Assessment Appeals (BAA) Appeals will be delayed by a month if GL extended

BAA Application Period: February 1 - February 20, 2025

BAA Hearings March 2025

BAA Decisions Mailed: March 2025

Superior Court Appeal Filing: April - May 2025

Budgeting by Finance Department and Town Council

Town Budget Process: March 2025 - May 2025

Mill Rate Established: May - June 2025

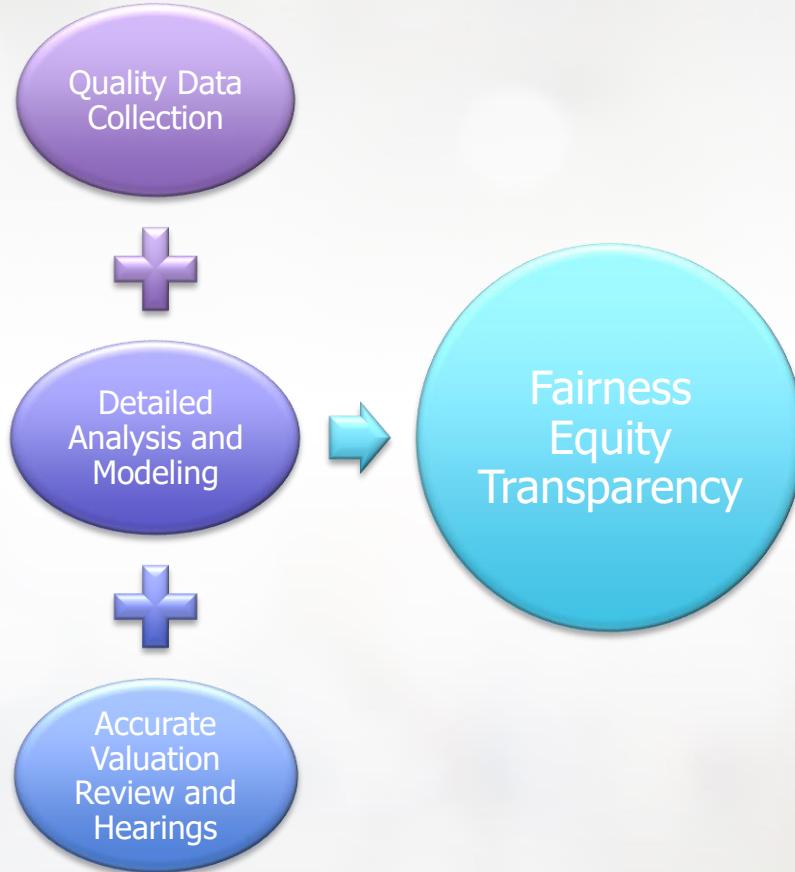
Tax Collector's Office - Tax Bills Based on New Values

New Tax Bills Mailed: June 30, 2025

Tax Bills Due and Payable: July 1, 2025

Last Day to Pay Tax With no Interest: August 1, 2025

Quality-Driven Process = Quality Results



QUESTIONS?

