INTRODUCTORY
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SECTION 1

2020 IOWA REAL PROPERTY APPRAISAL MANUAL

INTRODUCTION

The basis of real property assessment in Iowa is market value as defined in Iowa Code §441.21. Iowa Code §§ 421.17(17) and 441.21(h) provide that assessment jurisdictions follow the guidelines and rules in this manual to help achieve uniformity in assessments.

Assessors are encouraged to use the International Association of Assessing Officers' Standard on Mass Appraisal of Real Property in their mass appraisal practices. Estimating market value in mass appraisal involves accurately listing properties, developing a sales file that includes the primary influences on market value, and developing models for subsets of properties that share common market influences using recognized mass appraisal techniques.

The assessment of an individual property should not be based solely on the sale price. The Uniform Standards of Professional Appraisal Practice (USPAP) standard 5 states "In developing a mass appraisal, an appraiser must be aware of, understand, and correctly employ those recognized methods and techniques necessary to produce and communicate credible mass appraisals."

Accurate listing of property is the basis of a good mass appraisal program. On-site inspection and listing of property is essential in developing a good data base for revaluation. A physical review, including an on-site verification of property characteristics, should be conducted at least every four to six years. Land values should be reviewed every two years. Factors influencing the market of each property type should be identified and collected so that these factors can be considered in the mass appraisal model.

It is equally important to maintain the data once it is collected. Accessing local government permit systems should be a part of a good data maintenance program along with an inspection program. Current cadastral maps and geographical information systems (GIS) are tools that are integral in checking accuracy of listings and maintaining a comprehensive data base.

A mass appraisal program involves the three approaches to value; the cost approach, the sales comparison approach, and the income approach. The Code of Iowa reinforces this in §441.21:

> "Sale prices of the property or comparable property in normal transactions reflecting market value, and the probable availability or unavailability of persons interested in purchasing the property, shall be taken into consideration in arriving at its market value."

And

> "In the event market value of the property being assessed cannot be readily established in the foregoing manner, then the assessor may determine the value of the property using the other uniform and recognized appraisal methods including its productive and earning capacity, if any, industrial conditions, its cost, physical and functional depreciation and obsolescence and replacement cost, and all other factors which would assist in determining the fair and reasonable market value of the property but the actual value shall not be determined by use of only one such factor."

COST APPROACH

Contained in this manual are cost tables intended as a guide in estimating replacement cost new for structures. Local assessment jurisdictions are expected to conduct studies of local construction cost and adjust the appropriate schedule to reflect local cost.

The cost approach is applicable to practically all improved properties and is especially useful in appraising newer properties of standard design. Estimating accrued depreciation in older properties can be difficult.

Since Iowa is on a two year revaluation cycle the manual should be recalibrated every two years.

SALES COMPARISON APPROACH

The sales comparison approach in mass appraisal generally would use an automated statistical model with sales comparison, multiple regression analysis (MRA) or adaptive estimation procedure (feedback). The reliability of this approach is subject to the number and quality of sales that are available. The disadvantage of a traditional sales comparison approach with five or fewer comparables is the variation in value that occurs from year to year. The statistical approaches are generally more stable. Using some of the same sales in models from year to year improves the stability with all market methods.

INCOME APPROACH

The income approach should be considered when valuing investment properties. Iowa is a fee simple state, so establishing economic rent and stabilized vacancy and expenses are necessary. This requires collecting rent rolls and income and expense statements on the groups of properties where the income approach is to be considered.

Different income methods may be used for different types of property. For example gross income multipliers are common with small apartment complexes, whereas a complete income analysis is more common with strip malls. The reliability of the approach is dependent on collection and analysis of actual income and expense. Having actual income and expense history of properties that have sold is especially important in developing market multiplier or capitalization rates. It is appropriate to include the effective tax rate in the capitalization rate to remove the influence of the current property taxes.

LAND VALUATION

The sales comparison approach is the primary tool used in valuing land. Depending on the market, various units of valuation are appropriate; front foot, square foot, acre, and site value are commonly used units. Adjustments are usually made for size, topography, availability of utilities and, of course, location. Land values are influenced by the basic principles of value, and trends may vary considerably within a jurisdiction.

Agricultural land assessment is based on productivity. See Iowa Administrative Rule 701—71.12 Determination of aggregate actual values.

RECONCILIATION OF APPROACHES

The cost approach is applicable to practically all improved properties and is used in the manual as the basis for arriving at fair market value. The cost approach, when combined with a thorough analysis of land value as determined by the market, should result in a valuation consistent with the other approaches to value.

However this does not preclude the assessor from developing models using the income or sales comparison methods of value. Results should be tested and reconciled to produce the most accurate assessments possible.

Some types of properties are valued under jurisdictional exception. Agricultural land and section 42 properties are examples of property types where the Code of Iowa requires the use of an income approach with defined methodologies.

REPORTS AND RECORD KEEPING

Iowa Code 441.21(3) "The assessor and department of revenue shall disclose at the written request of the taxpayer all information in any formula or method used to determine the actual value of the taxpayer's property." Formulas and models used to develop assessments shall be documented and those records shall be retained until the taxes on the assessment are paid or five years after any litigation on values developed.

A well written mass appraisal report defines the properties that were appraised, the methodology that was used, the results that were achieved, and who performed the analysis. It provides an overview of the mass appraisal for the taxpayers, tax authorities, appeal boards, courts, and others who use assessment data.

ACKNOWLEDGMENTS

The success of any venture of this magnitude is dependent upon the cooperation of many individuals and groups. It would be impossible to list each individual who has helped, but we would like to acknowledge several groups:

- Vanguard Appraisals, Inc. for compiling the cost tables in this manual.
- The Manual Revision Committee of the Iowa State Association of Assessors for assistance in developing the manual and reviewing the cost tables.
- Assessment professionals with the Department of Revenue and with local jurisdictions for gathering data and reviewing the development of the manual.
- The many building material supply houses, property owners, architects, engineers, contractors and labor unions who have furnished the basic data used in the compilation of this manual.

Thank you,

Property Tax Division
Iowa Department of Revenue

WEIGHTS, MEASURES & MENSURATIONS

COMMON LINEAR MEASUREMENTS

1 link	=	7.92 inches
1 foot	=	12 inches
1 yard	=	3 feet, 36 inches
1 rod	=	16 ½ feet, 5.5 yards, 1 pole, 1 perch, 25 links
1 chain	=	66 feet, 4 rods, 100 links
1 furlong	=	660 feet, 40 rods, 10 chains
1 mile	=	5,280 feet, 1,760 yards, 320 rods, 8 furlongs

COMMON SQUARED MEASUREMENTS

1 sq. foot	=	144 sq. inches
1 sq. yard	=	9 sq. feet, 1,296 square inches
1 acre	=	43,560 sq. feet, 4,840 sq. yards, 160 sq. rods
1 sq. mile	=	640 acres

COMMON CUBIC MEASUREMENTS

1 cu. foot	=	1,728 cu. inches, 0.8036 bushels, 7.48 gallons
1 cu. yard	=	27 cu. feet, 202 gallons
1 bushel	=	1.2444 cu. feet
1 barrel (oil)	=	42 gallons
1 barrel (water)	=	31.5 gallons

INCHES IN DECIMALS & FRACTIONS OF 1 FOOT

Inches	Decimals	Fractions	Inches	Decimals	Fractions
1”	0.0833	1/12	7”	0.5833	7/12
2”	0.1667	1/6	8”	0.6667	2/3
3”	0.2500	1/4	9”	0.7500	3/4
4”	0.3333	1/3	10”	0.8333	5/6
5”	0.4167	5/12	11”	0.9167	11/12
6”	0.5000	1/2	12”	1.0000	1

BOARD MEASURE

1 board foot = 12” x 12” x 1”. Common lumber sizes and board feet contained in 1 linear foot.

2”	x	4”	=	0.667	4”	x	4”	=	1.333
2”	x	6”	=	1.000	4”	x	8”	=	2.667
2”	x	8”	=	1.333	6”	x	6”	=	3.000
2”	x	10”	=	1.667	8”	x	8”	=	5.333
2”	x	12”	=	2.000	10”	x	10”	=	8.333
2”	x	14”	=	2.333	12”	x	12”	=	12.000

WEIGHT MEASURE

16 Ounces	=	1 Pound
1,000 Pounds	=	1 Kip
2 Kips	=	1 Ton
2,000 Pounds	=	1 Ton

DRY MEASURE

2 Pints	=	1 Quart
4 Quarts	=	1 Gallon
2 Gallons	=	1 Peck
8 Quarts	=	1 Peck
4 Pecks	=	1 Bushel

WEIGHTS, MEASURES & MENSURATIONS (Continued)

SURVEYOR'S LINEAR MEASURE

7.92 Inch	=	1 Link
16.5 Feet	=	1 Rod
25 Links	=	1 Rod
4 Rods	=	1 Chain
66 Feet	=	1 Chain
100 Links	=	1 Chain
80 Chains	=	1 Mile

TEMPERATURE CONVERSION

(9/5 x °C) + 32	=	°F
5/9 (°F – 32)	=	°C

COMMONLY USED FORMULAS

AREAS (SQUARE CONTENT)

Squares and rectangles: Length x width
Triangles: 1/2 Base x altitude (Altitude is always calculated as a right angle to the base.)

TABLE OF REGULAR POLYGONS

To find the area of a polygon (all sides equal) multiply the length of one side by itself (squared) then multiply the result by the factor from the appropriate table below.
Example: An octagon with eight sides, each four foot long, would be calculated as follows:
4 x 4 = 16 x 4.828 = 77.25 square feet.

Number of Sides		
3	-	0.433
4	-	1.0
5	-	1.721
6	-	2.598
7	-	3.634
8	-	4.828
9	-	6.181
10	-	7.694
11	-	9.366
12	-	11.196

PROPERTIES OF A CIRCLE

Area	=	Diameter squared x 0.7854	Circumference	=	Diameter x 3.1416
	=	Radius squared x 3.1416		=	Radius x 6.283185
	=	Circumference squared x 0.07958			
Diameter	=	Radius x 2	Radius	=	Diameter divided by 2
	=	Circumference x 0.3183		=	Circumference x 0.159155

VOLUME

Rectangular Solids	V=	Length x width x height
Cylinders	V=	Radius squared x 3.1416 x height
Sphere	V=	Cube of the diameter x 0.5236
Pyramid	V=	Length (at base) x width (at base) x height ÷ 3 (or area of base x height ÷ 3)
Cone	V=	Radius squared x 3.1416 x height ÷ 3
Prisms	V=	Area at base x height

COMMONLY USED FORMULAS (Continued)

GRAIN BINS

To estimate the capacity of grain bins in bushels, square the radius x 3.1416 x height x 0.8036 (or ÷ 1.2444). Or use these approximate bushel capacities per foot of grain.

Diameter	Bushels Per Foot of Height	Diameter	Bushels Per Foot of Height
15	142.0	90	5,112.3
18	204.5	93	5,458.8
21	278.3	96	5,816.7
24	363.5	99	6,185.9
27	460.1	102	6,566.5
30	568.0	105	6,958.4
33	687.3	108	7,361.7
36	818.0	111	7,776.4
39	960.0	114	8,202.4
42	1,113.3	117	8,639.8
45	1,278.1	120	9,088.5
48	1,454.2	123	9,548.6
51	1,641.6	126	10,020.1
54	1,840.4	129	10,502.9
57	2,050.6	132	10,997.1
60	2,272.1	135	11,502.7
63	2,505.0	138	12,019.6
66	2,749.3	141	12,547.8
69	3,004.9	144	13,087.5
72	3,271.9	147	13,638.5
75	3,550.2	150	14,200.8
78	3,839.9	153	14,774.5
81	4,141.0	156	15,359.6
84	4,453.4	159	15,956.0
87	4,777.2	162	16,563.8

To determine the licensed bushel capacities of grain bins, add the following compaction factors to the calculated bushel capacity. (Bushel Capacity x Compaction Factor = Licensed Bushel Capacity)

Diameter	*Compaction Factor	Diameter	*Compaction Factor
15’	5.5%	27’	8.5%
18’	6.0%	30’	9.0%
21’	6.8%	33’	9.5%
24’	7.8%	36’ & Larger	10.0%

*Extrapolated from Federal Warehouse Examiners Handbook.

Note: The above formula does not allow for grain storage that heaps into the roofline of a bin. Therefore, the calculated licensed bushel capacity may vary from the actual licensed capacity calculated by the grain warehouse examiner.

ESTIMATING CONCRETE

To estimate the amount of concrete, in cubic yards, needed for a particular project use the following formula. Width, ft. x length, ft. x thickness, ft. divided by 27 = cubic yards.

Example: A 4 inch thick floor for a 30 x 90 building would require 30 x 90 x 0.33 divided by 27 = 33 cubic yards of concrete.

COMMONLY USED FORMULAS (Continued)

METRIC CONVERSION FACTORS

LENGTH

Millimeters	x	0.03937	=	Inches
Centimeter	x	0.3937	=	Inches
Centimeter	x	0.0328	=	Feet
Meters	x	39.37	=	Inches
Meters	x	3.28	=	Feet
Meters	x	1.094	=	Yards
Meter	x	0.0497	=	Chain
Meter	x	0.1988	=	Rod
Kilometers	x	0.6214	=	Miles

VOLUME

Cubic Centimeter	x	0.06102	=	Cubic Inches
Cubic Meters	x	35.3147	=	Cubic Feet
Cubic Meters	x	1.30795	=	Cubic Yards
Milliliters	x	0.033814	=	Fluid Ounces
Liters	x	0.353147	=	Cubic Feet
Liters	x	1.057	=	Quarts
Liters	x	0.26417	=	U.S. Gallon
Imperial Gallon	x	1.2009	=	U.S. Gallon

AREA

Sq. Millimeters	x	0.0016	=	Square Inches
Sq. Centimeters	x	0.1550	=	Square Inches
Square Meters	x	10.7639	=	Square Feet
Square Meters	x	1.19599	=	Square Yards
Square Meters	x	0.000247	=	Acre
Sq. Kilometers	x	247.104	=	Acre
Sq. Kilometers	x	0.3861	=	Square Miles

MASS AND WEIGHT

Grams	x	0.035274	=	Ounces
Kilograms	x	2.204623	=	Pounds
Kilograms	x	35.2734	=	Ounces
Kilograms	x	0.000984	=	Tons (long)
Kilograms	x	0.001102	=	Tons (short)
Tons (metric)	x	2204.62	=	Pounds
Tons (metric)	x	0.98421	=	Tons (long)
Tons (metric)	x	1.10231	=	Tons (short)

ABBREVIATIONS & SYMBOLS USED IN SCHEDULE

Acoustical	Acous.
Addition	Addn. or Add.
Adjusted	Adj.
Aluminum	Alum.
Apartments	Apts.
Asbestos	Asb.
Asphalt	Asph.
Asphalt Roll	Asph. Rl.
At	@
Attached	Att.
Attic	"A"
Average	Avg.
Balcony	Balc.
Basement	"B" or Bsmt.
Bathroom	Bath.
Bay Window	B.W.
Bedroom	Bdrm.
Block	Blk.
Breezeway	Brzy.
Brick	Brk.
Brick Veneer	Brk. Ven.
British Thermal Unit	B.T.U.
Building	Bldg.
Built-in	B.I.
Cabinets	Cabs.
Canopy	Can.
Carpet	Carp.
Ceiling	Clg.
Classification	Class.
Commercial	Comm.
Composition	Comp.
Concrete	C' or Conc.
Concrete Block	C'Blk.
Condition	Cond.
Construction	Const.
Conversion	Conv.
Cubic Foot	C.F.
Cubic Yard	C.Y.
Deck	Dk.
Decorative Concrete Block	Dec. C'Blk.
Depreciation	Depr.
Diameter	Dia.
Dining Room	Dng. Rm.
Dressed & Matched	D & M
Drywall	Drwl.
Dwelling	Dwlg.
Electric	Elec.
Electric Eye	EE
Enclosed Porch	EP
Enclosed	"E"
Equipment	Equip.
Equivalent	Equiv.
Estimate	Est.
Exterior	Ext.
Exterior Insulation and Facial System	EIFS

ABBREVIATIONS & SYMBOLS USED IN SCHEDULE (Continued)

Fiberglass	Fbrgls
Fireplace	F. Pl.
Field Price	F.P.
Finish	Fin.
Floor	Flr.
Floor and Stairs	Flr. & Strs.
Footer	Ftr.
Forced Hot Air	FHA
Foundation	Fdtn.
Frame	Fr.
Furnace	Furn.
Garage	Gar.
Hardwood	Hdwd.
Heating, Ventilation, Air Conditioning	HVAC
Improvement	Impr.
Includes	Incl.
Indicated	Indic.
Industrial	Ind.
Inside Diameter	I.D.
Interior	Int.
Janitor	Jan.
Joist	Jst.
Kitchen	Kit.
Linear (Lineal) Foot	L.F.
Linoleum	Lino.
Living Room	Lvg. Rm.
Lump Sum	L.S.
Manual	Man.
Manufactured Home	Mfd. Home
Maximum	Max.
Metal	Mtl.
Motorized	Mot.
No Charge	N.C.
No Value	N.V.
Obsolescence	Obsol.
On	/
On Center	o.c.
One Story	1s
One and one-half story	1½ s
Open	"O"
Open Porch	O.P.
Outside Diameter	O.D.
Overhang	O.H.
Overhead Door	O.H.D.
Paneling	Pan.
Partition	Prtn.
Patio	Pat.
Per	/
Per Linear (Lineal) Foot	P.L.F.
Per Square Foot	P.S.F.
Per Square Foot of Surface Area	P.S.F.S.A.
Percent	%
Plaster	Plas.
Plumbing	Plmg.
Pounds	# or Lbs.
Prefabricated	Prefab.
Price	Pr.

ABBREVIATIONS & SYMBOLS USED IN SCHEDULE (Continued)

Purchase	Pur. or Purch.
Quarters	Quar.
Railroad	R/R
Recreation Room	Rec. Rm.
Reinforced	Reinf.
Reinforced Concrete	R'Conc.
Remodel	Remod.
Roll Roofing	R.R.
Roof	Rf.
Screened	Scrn.
Semi-Improved	Semi-Impr.
Shingles	Shgls.
Simulated Stone	Sim. Stn.
Single Siding	S.S.
Softwood	Sftwd.
Sound Value	S.V.
Square Foot	S.F.
Square Foot Floor Area	S.F.F.A.
Square Foot Surface Area	S.F.S.A.
Square Foot Water Surface Area	S.F.W.S.A.
Stall Shower	St. Sh.
Steel	Stl.
Stone	Stn.
Stone Veneer	Stn. Ven.
Stoop	Stp.
Stoop with Rail	Stp./R.
Suspended	Susp.
Tar and Gravel	T&G
Tongue and Groove	Tng. & Grv.
Thousand	M
Two Story	2s
Unfinished	Unf.
Unimproved	Unimpr.
Vacant	Vac.
Veneer	Ven.
Wallboard	Wlbd.
Weight	Wt.
With	W/
Wood	Wd.
Wood Deck	Wd. Dk.
Wood Stoop	Wd. Stp.

ADDRESS ABBREVIATIONS

Avenue	Av. or Ave.
Boulevard	Bd. or Blvd.
Building	Bl. or Bldg.
Circle	Cr.
Court	Ct.
Drive	Dr.
Highway	Hy. or Hwy.
Lane	Ln.
Park	Pk.
Place	Pl.
Parkway	Py.
Plaza	Pz.
Road	Rd.
Street	St.
Trail	Tl.
Terrace	Tr.
Way	Wy.

INDUSTRIAL PRICING SHEET

Plant Name/Owner: _____
Property Location: _____
Identification No.: _____

Remarks and Computations

VERTICALS

	L/F	x	Height	x	Price		
Foot. & Fdtn.	_____	x	N/A	x	$ _____	= $	_____
Walls.....	_____	x	_____	x	_____	=	_____
	_____	x	_____	x	_____	=	_____
	_____	x	_____	x	_____	=	_____
Coping	_____	x	N/A	x	_____	=	_____
Interior Finish.....	_____	x	_____	x	_____	=	_____
Bldg. Front.....	_____	x	_____	x	_____	=	_____
Openings.....	_____	x	_____	x	_____	=	
						Total	$ _____

Total Verticals $ _____ ÷ _____ sq. ft. = $ _____ Vertical Unit Price

HORIZONTALS

Basement	$ _____
Roof	_____
Ceilings	_____
Floors	_____
Floor Cover	_____
Partitions	_____
Framing	_____
Heating	_____
Air Conditioning	_____
Electrical	_____
Sprinkler System	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	
Subtotal	$ _____

FINAL PRICING

Vertical Unit Price	$	_____
Horizontal Unit Price	+	_____
Total Unit Price	=	
Grade/Location Adj.		_____ %
Adjusted Unit Price	$	
Building Sq. Ft.	x	_____
Replacement Cost	= $	
Physical Depreciation		_____ %
Functional Obsolescence		_____ %
External Obsolescence		_____ %
Actual Value	$	

$ _____ x _____ sq. ft. =..... $ _____

Plumbing: _____	:	_____	.....	_____
_____	:	_____	.....	_____
_____	:	_____	.....	_____
_____	:	_____	.....	_____
_____	:	_____	.....	_____
_____	:	_____	.....	_____
_____	:	_____	.....	
			Total	$ _____

Total Horizontals $ _____ ÷ _____ sq. ft. = $ _____ Horizontal Unit Price

INCOME AND EXPENSE STATEMENT

Name: _____ *(LABEL)*

Address: _____

_____

Information received is confidential and not open to public inspection.

APARTMENT BUILDINGS	YEARS		
Gross Potential Income (Assumes 100% Occupied)			
Less Vacancy and Collection Loss			
Actual Income Received			
Other Income (Please explain)			

Rental Breakdown By Unit:

Date Effective: _____

Efficiencies:
#____@$_____per month #____@$_____per month #____@$_____per month

One Bedroom:
#____@$_____per month #____@$_____per month #____@$_____per month

Two Bedroom:
#____@$_____per month #____@$_____per month #____@$_____per month

Three Bedroom:
#____@$_____per month #____@$_____per month #____@$_____per month

Four Bedroom:
#____@$_____per month #____@$_____per month #____@$_____per month

Five Bedroom:
#____@$_____per month #____@$_____per month #____@$_____per month

Garages:
#____@$_____per month

1. Indicate (x) if rent payment includes: ☐ Gas? ☐ Electricity? ☐ Water?
2. Total number of garage stalls? ..... _____
3. Number of surfaced parking spaces (not including garages)? ..... _____

COMMERCIAL PROPERTIES	YEARS		
First Floor Gross Potential Income (Assumes 100% Occupied)			
Less Vacancy and Collection Loss			
Actual First Floor Income Received			
Upper Floors Gross Potential Income (Assumes 100% Occupied)			
Less Vacancy and Collection Loss			
Actual Upper Floors Income Received			
Other Income (Please explain)			

Rental Breakdown:

1. What is the total amount of:
   Gross leasable area First Floor _____ S.F. Net leasable area First Floor _____ S.F.
   Upper Floors _____ S.F. Upper Floors _____ S.F.
2. When determining annual rent, which of the leasable areas do you use? ☐ Gross ☐ Net
3. What is the gross potential rent per S.F. based on question #2? 1st floor _____ Upper floors_____
4. What expenses are the tenants responsible for: _____

(See reverse side for expense data)

EXPENSE INFORMATION

	YEARS		
Management			
Leasing Fees			
Salaries (other than mgmt. & owner compensation)			
Heating			
Electrical			
Water			
Telephone			
Garbage			
Janitor			
Parking Lot Maintenance & Lawn Care			
Elevator			
Insurance			
Taxes (Real Estate)			
Taxes (Other)			
Advertising			
Legal			
Accounting			
Others (Specify)			

COST INFORMATION

If you are the original owner of this property, please answer the following:	Date	Amount
Land Acquisition		
Building Construction Costs		
Paving, Landscaping, Etc., Costs		
Remodeling Costs		
If you have acquired this property as a unit, please answer the follow questions:		
Purchase		
Remodeling Since Purchase		

LEASE INFORMATION

Please give a brief description of the terms of the lease.

_____

_____

_____

_____

_____