

Property Tax Valuation Reporting Insights

REPORTING GUIDELINES FOR PERSONAL PROPERTY APPRAISAL REPORTS

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INTRODUCTION

Appraisal reports are important documents in ad valorem property tax assessment, appeal, and litigation proceedings. In these cases, the various parties to the property tax dispute (i.e., the taxpayer, the taxing authority, and the administrative/judicial finder of fact) are all interested in how to evaluate a personal property appraisal report.

For all parties with an interest in property tax appraisal reports, this discussion will summarize (1) the typical sections of a personal property appraisal report and (2) the factors to look for when evaluating a personal property appraisal report. These factors can be used as a checklist by property tax appraisers when preparing appraisal reports. And, these factors can be used as guidelines for both taxpayers and taxing authorities when evaluating appraisal reports.

THE APPRAISAL REPORT

The Uniform Standards of Professional Appraisal Practice (USPAP) defines the term report as follows: "any communication, written or oral, of an appraisal, appraisal review, or appraisal consulting service that is transmitted to the client upon completion of an assignment."¹

USPAP also presents the following definitions that are relevant to personal property appraisal reports:

Self-Contained Appraisal Report: a written report prepared under Standards Rule 8-2(a).

Summary Appraisal Report: a written report prepared under Standards Rule 8-2(b).

Restricted Use Appraisal Report: a written report prepared under Standards Rule 8-2(c).²

The selection of the appropriate type of report to prepare in any property tax appraisal assignment is influenced by (1) the specific instructions of the client, (2) the relevant statutory authority, judicial precedent, or administrative rules, and (3) the experience and judgment of the individual appraiser. For purposes of this discussion, we assume that the appraisal subject is personal property. We assume that the appraisal subject is a fee simple ownership interest in the subject property. Fee simple interest is the absolute ownership of a property unencumbered by any other interest or estate and subject only to

the powers of the government. And, this discussion assumes that the appraiser prepares a narrative written appraisal report.

PERSONAL PROPERTY APPRAISAL REPORT SUMMARY

Exhibit 1 presents an illustrative table of contents (or report outline) for a typical narrative personal property appraisal report. This table of contents is consistent with the USPAP requirements for a self-contained appraisal report—that is, a report prepared under Standards Rule 8-2(a).

Exhibit 1 Typical Narrative Personal Property Appraisal Report Illustrative Table of Contents

Item
General Introduction
1. Title Page
2. Letter of Transmittal
3. Table of Contents
4. Certification
5. Summary of Important Conclusions
6. Photographs
7. The Plant
8. The Layout
9. The Process
10. The Product
11. Type of Appraisal and Type of Appraisal Report
12. Extraordinary Assumptions and Limiting Conditions
13. General Assumptions and Limiting Conditions
Purpose and Objective of the Appraisal
14. Purpose and Intended Use of the Appraisal
15. Scope of the Appraisal
16. Definition of Value and Date of Value Opinion
Appraisal Data
17. Identification and Description of the Personal Property
18. Ownership and History
Analysis of Appraisal Data and Value Conclusion
19. Highest and Best Use Analysis
20. Cost Approach
21. Cost New
22. Physical Deterioration
23. Functional Obsolescence
24. External Obsolescence
25. Income Capitalization Approach
26. Sales Comparison Approach
27. Reconciliation and Opinion of Value
28. Professional Qualifications of the Appraiser
29. Addendum and Secondary Exhibits

PERSONAL PROPERTY APPRAISAL REPORT CONTENT

TITLE PAGE

The title page should clearly identify the appraisal report subject for all report users. The title page should identify (1) the subject personal property, (2) the location of the personal property, (3) the definition of value concluded, and (4) the “as of” valuation date.

LETTER OF TRANSMITTAL

The letter of transmittal typically includes the following information:

- date of letter and salutation,
- a brief description of the subject personal property,
- identification of the subject property ownership interest,
- statement that a property inspection and other necessary investigations and analyses were made by the appraiser,
- reference that the transmittal letter is an integral component of an accompanying appraisal report,
- identification of the type of appraisal and the type of appraisal report,
- standard (or definition) of value concluded in the appraisal report,
- “as of” date of the appraisal,
- opinion of value, and
- appraiser’s signature.

TABLE OF CONTENTS

The table of contents typically lists all of the sections of the appraisal report in the order in which they are presented. If there are major divisions with the report, they may also be presented in the table of contents.

CERTIFICATION

The certification is typically presented as a separate page in the introduction section of the appraisal report. However, the certification may be combined with the final value conclusion. In any event, the appraiser(s) will sign and date the certification.

If USPAP compliance is applicable to the subject property tax appraisal, the certification will indicate whether the appraiser personally conducted the appraisal in accordance with USPAP. According to USPAP Standards Rule 8-3, each written personal property appraisal report should contain a signed certification that is similar in content to that presented in Exhibit 2.

Exhibit 2 USPAP Standards Rule 8-3 Personal Property Appraisal Report 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 (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.
- I have no bias with respect to the 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 development or 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*.
- No one provided significant personal property appraisal assistance to the person signing this certification. (If there are exceptions, the name of each individual providing significant personal property appraisal assistance must be stated.)³

SUMMARY OF IMPORTANT CONCLUSIONS

The summary of important conclusions page, sometimes called the executive summary page, typically includes the following items:

- a brief identification of the subject personal property,
- typical ages of the subject personal property,
- value indication from the cost approach,
- value indication from the income capitalization approach,
- value indication from the sales comparison approach, and
- final estimate of the defined value.

The summary of important conclusions may be the most important page in the appraisal report. This page allows all parties to the property tax dispute to focus on (1) the summary description of the subject personal property and (2) the appraiser’s value conclusion regarding the subject personal property.

Exhibit 3 presents an illustrative summary of the important conclusions page.

PHOTOGRAPHS

One of the appraiser's responsibilities is to adequately acquaint the reader with the subject personal property. Particularly in a property tax appraisal, photographs help this process of acquainting the reader with the subject personal property.

THE PLANT

This section provides a summary description of the facility in which the personal property is located. This description needs to be adequate to provide the reader with an overview of the location and the condition of the personal property. Where appropriate, this description can include photographs, engineering drawings, plant diagrams and schematics, and so on.

THE LAYOUT

This section provides a summary description of the layout or configuration of the personal property. This description should familiarize the reader with (1) where the major equipment/processes are located within the plant and (2) where the major equipment/processes are located with respect to each other. Again, this description should provide the reader with an overview of the location and condition of the sub-

ject personal property. When appropriate, this description can include diagrams, schematics, engineering drawings, process/product flow charts, and so forth.

THE PROCESS

This section provides a summary description of the processes by which (1) the major property components operate together and (2) the subject product is converted from raw material to finished goods. This description should explain how the major property components are associated with each other, both physically and functionally. Ideally, this description will allow all parties to the property tax dispute to mentally "walk through" the plant, following the manufacturing/processing flow, from the raw materials receiving dock to the finished goods shipping dock. Product processing and/or manufacturing flow charts are often included in this section.

THE PRODUCT

This section provides a summary description of the goods produced by the personal property. The property tax appraisal subject is the tangible personal property, not the finished goods inventory. However, it is usually helpful for the reader to understand the end product produced/manufactured by the personal property. Product photographs, product descriptions, and product listings are often included in this section.

Exhibit 3 Illustrative Summary of Important Conclusions Personal Property Appraisal Report

Subject:	All tangible personal property at the Alpha Manufacturing Company plant and warehouse located at 123 Main Street, Barrington, Illinois, 60010		
Summary Description:	The subject personal property includes:		
	1.	manufacturing machinery and equipment,	average age of 20 years
	2.	tools, dies, jigs, and fixtures,	average age of 3 years
	3.	office and computer equipment,	average age of 5 years
	4.	warehouse and transportation equipment,	average age of 6 years
Ownership Interest Appraised:	Fee Simple Interest		
Value Indications:	As of January 1, 2005		
	Cost Approach		\$46,500,000
	Income Capitalization Approach		N/A
	Sales Comparison Approach		N/A
Final Estimate of Fair Market Value:	\$46,500,000		
Limiting Condition:	Due to (1) the type of the subject tangible personal property and (2) the quality and quantity of available data, the income capitalization and the sales comparison approaches were not applicable (N/A) in this appraisal.		

TYPE OF APPRAISAL AND TYPE OF APPRAISAL REPORT

USPAP defines two alternative types of appraisals: (1) complete appraisal and (2) limited appraisal. These two types of appraisals are defined as follows:

Complete Appraisal: the act or process of developing an opinion of value or an opinion of value developed without invoking the departure rule.

Limited Appraisal: the act or process of developing an opinion of value or an opinion of value developed under and resulting from invoking the departure rule.⁴

USPAP also defines the following three types of personal property appraisal reports:

Self-Contained Appraisal Report: a written report prepared under Standards Rule 8-2(a).

Summary Appraisal Report: a written report prepared under Standards Rule 8-2(b).

Restricted Use Appraisal Report: a written report prepared under Standards Rule 8-2(c).⁵

The appraisal report should clearly identify: (1) the type of appraisal performed and (2) the type of appraisal report prepared.

EXTRAORDINARY ASSUMPTIONS AND HYPOTHETICAL CONDITIONS

Hypothetical conditions or extraordinary assumptions that affect the value conclusion may be an important part of the appraisal report. Accordingly, such extraordinary assumptions and hypothetical conditions should be clearly stated. When a personal property value conclusion is subject to an extraordinary assumption or hypothetical condition (such as a pending sale agreement, atypical financing, or a known but not yet quantified environmental issue), the report should describe the condition so that its effect on the value conclusion is clear.

GENERAL ASSUMPTIONS AND LIMITING CONDITIONS

USPAP Standards Rule 8-2 lists the three alternative types of personal property appraisal reports as follows:

Each written personal property appraisal report must be prepared under one of the following three options and prominently state which option is used: Self-

Contained Appraisal Report, Summary Appraisal Report, or Restricted Use Appraisal Report.⁶

USPAP Standards Rule 8-2 requires the disclosure of assumptions and limiting conditions for all three types of reports (i.e., 8-2(a-viii) for self-contained reports, 8-2(b-iii) for summary reports, and 8-2(c-viii) for restricted reports). In fact, many property tax appraisers include a statement of limiting conditions with the initial engagement letter as well as with the appraisal report.

The general assumptions and limiting conditions are an integral part of the appraisal report. The reported conditions establish the framework for what the appraisal does—and does not—include. Appraisers should carefully prepare the statement of general assumptions and limiting conditions and, in particular, tailor the reported limiting conditions to the facts and circumstances of the particular assignment. Exhibit 4 presents an illustrative statement of general assumptions and limiting conditions.

PURPOSE AND INTENDED USE OF THE APPRAISAL

The purpose of the appraisal is the valuation question that the client and the appraiser seek to answer. A typical question in a litigation support appraisal is: What is the fair market value of the personal property as of the specified date? This purpose may be stated as follows: The purpose of this appraisal is to estimate the fair market value of the Client Manufacturing Company tangible personal property as of January 1, 2005. To avoid an unintended (and inappropriate) use of the appraisal report, the intended use and the intended user of the appraisal should be specified in the report. USPAP defines both terms “intended use” and “intended user” as follows:

INTENDED USE: the use or uses of an appraiser’s reported appraisal, appraisal review, or appraisal consulting assignment opinions and conclusions, as identified by the appraiser based on communication with the client at the time of the assignment.

INTENDED USER: the client and any other party as identified, by name or type, as users of the appraisal, appraisal review, or appraisal consulting report by the appraiser on the basis of communication with the client at the time of the assignment.⁷

SCOPE OF THE APPRAISAL

A clear and accurate description of the scope of the appraisal is useful to all parties to the property tax dispute. The scope of the appraisal refers to (1) the amount and type of information researched and (2) the analyses performed in the appraisal assignment. Professional standards impose a responsibility on

the appraiser to determine the appropriate scope of work in order to (1) conclude the value opinion and (2) prepare the appraisal report.

DEFINITION OF VALUE AND DATE OF VALUE OPINION

The definition of value (also called the standard of value) is the type of value that is estimated in an appraisal report. The premise of value is the hypothetical set of circumstances under which the parties described in the definition of value come together to consummate a transaction. In addition to the definition of value, the applicable premise of value should be

defined in the appraisal report. The date of the value opinion (also called the effective date of the appraisal) is the "as of" date to which the value opinion applies.

Fair market value is a common definition of value applicable to property tax appraisals. However, not all property tax appraisal assignments relate to fair market value. Some taxing jurisdictions require other definitions of value, such as true value, true cash value, full cash value, and others. Most of these alternative definitions of value are quite similar to fair market value. However, the appraiser should be aware of, and should consider, any subtle differences.

Exhibit 4 Illustrative Statement of General Assumptions and Limiting Conditions Personal Property Appraisal Report

This appraisal report was prepared with the following general assumptions:

1. No responsibility is assumed for the legal description provided or for matters pertaining to legal or title considerations. Title to the subject personal property is assumed to be good and marketable unless otherwise stated.
2. The personal property is appraised free and clear of any or all liens or encumbrances unless otherwise stated.
3. Responsible ownership and competent management are assumed.
4. The information furnished by others is believed to be reliable, but no warranty is given for its accuracy.
5. All engineering studies are assumed to be correct. The plant and process schematics and other illustrative material in this report are included only to help the reader visualize the subject personal property.
6. It is assumed that there are no hidden or unapparent conditions of the personal property that render it more or less valuable. No responsibility is assumed for such conditions or for obtaining the engineering studies that may be required to discover them.
7. It is assumed that the property is in full compliance with all applicable federal, state, and local environmental regulations and laws unless the lack of compliance is stated, described, and considered in the appraisal report.
8. It is assumed that the personal property conforms to all applicable zoning and use regulations and restrictions unless a nonconformity has been identified, described, and considered in this appraisal report.
9. It is assumed that all required licenses, permits, consents, and other legislative or administrative authority from any local, state, or national government or private entity or organization have been or can be obtained or renewed for any use on which the opinion of value contained in this appraisal report is based.
10. Unless otherwise stated in this appraisal report, the existence of hazardous materials was not observed by the appraiser. The appraiser has no knowledge of the existence of such materials that may affect personal property. The appraiser, however, is not qualified to detect such substances. The presence of substances such as asbestos, ureaformaldehyde foam insulation, and other potentially hazardous materials may affect the value of the personal property. The value estimated is predicated on the assumption that there is no such material present that would cause a loss in value. No responsibility is assumed for such conditions or for any expertise or engineering knowledge required to discover them. The intended user is urged to retain an expert in this field, if desired.

This appraisal report was prepared with the following general limiting conditions:

1. Possession of this report, or a copy thereof, does not carry with it the right of publication.
2. The appraiser, by reason of this appraisal, is not required to give further consultation or testimony or to be in attendance in court with reference to the property in question unless arrangements have been previously made.
3. Neither all nor any part of the contents of this report (especially any conclusions as to value, the identity of the appraiser, or the firm with which the appraiser is associated) may be disseminated to the public through advertising, public relations, news, sales, or other media without the prior written consent and approval of the appraiser.⁸

IDENTIFICATION AND DESCRIPTION OF THE PERSONAL PROPERTY

This section provides a detailed description of the tangible personal property. The personal property may be described (1) by asset type or category, (2) by financial accounting account code or category, (3) by production process (or location within the total manufacturing process), or (4) by physical location within the subject facility. In this section, the appraisal report both (1) identifies the specific subject property and (2) describes the condition of the specific subject property. Typically, this report section will refer to (and be supplemented by) detailed asset listings and/or inventories.

OWNERSHIP AND HISTORY

The appraisal report should discuss both (1) the current ownership of the subject personal property and (2) the history of recent sales of the subject personal property. Unlike in a real estate appraisal, this discussion is not a USPAP requirement. However, a discussion of the current ownership both (1) documents the personal property appraiser's due diligence investigation and (2) further describes the subject property for the property tax dispute finder of fact.

HIGHEST AND BEST USE ANALYSIS

The analysis of highest and best use is a USPAP requirement for personal property appraisals. The conclusion of highest and best use often influences the appraiser's selection of the appropriate premise of value for the subject appraisal. In a highest and best use analysis, the appraiser determines the use that fulfills the following four tests. The selected personal property highest and best use should be:

1. physically possible,
2. legally permitted,
3. economically feasible, and
4. maximally productive.

Each of these four areas of analysis is affected by the others. The amount of income that a particular use could generate is meaningless if legal approval for the use cannot be obtained. Likewise, not every legally permitted use will warrant the expenditure of funds required to bring it about. The appropriate combination of all four factors results in the single use that can be identified as the subject personal property highest and best use.

COST APPROACH

The cost approach is the most common personal property valuation approach. Accordingly, the cost approach section of the appraisal report should thoroughly explain the particular cost

approach methods and procedures used in the subject appraisal. In the appraisal report, all appraisal terminology should be identified and explained. For example, it is inappropriate to assume that the reader understands the subtle (but important) differences between (1) reproduction cost new less depreciation and (2) replacement cost new less depreciation. In particular, it will confuse the reader (1) if these two terms are used interchangeably in the appraisal report or (2) if these two terms are both abbreviated as RCNLD in the appraisal report.

The economic foundation of the cost approach is the principle of substitution: a prudent buyer will not pay more for a property than the cost of acquiring a substitute property of equivalent utility. The principle of substitution can be applied either to an individual asset or to an entire facility full of personal property. In its simplest form, the cost approach estimates the current cost (as if new) of the subject property less all forms of depreciation. In the cost approach, the appraiser identifies the subject personal property, develops a current replacement cost new estimate, and subtracts all depreciation that makes the property less desirable to own than if it were new.

The appraisal report should clarify the cost measure used as the starting point in the cost approach analysis: (1) replacement cost, (2) reproduction cost, or (3) some other defined measure of cost. *Valuing Machinery and Equipment* defines replacement cost and reproduction cost as follows:

It is essential that the appraiser understand the difference between replacement cost new and reproduction cost new. Replacement cost is the current cost of a similar new property having the nearest equivalent utility as the property being appraised, whereas reproduction cost is the current cost of reproducing a new replica of the property being appraised using the same, or closely similar, materials. In using the cost approach, the appraiser is comparing to the subject property the property that could actually replace it. The replacement property would be the most economical new property that could replace the service provided by the subject.⁹

The appraisal report should clearly identify (1) the measure (or type) of cost new estimated, (2) the method used to estimate cost new, and (3) the data sources used to estimate cost new.

Valuing Machinery and Equipment describes the alternative methods for estimating cost new as follows:

There are several methods of determining the current new cost of a property. The major ones are the detail method, trending, cost-to-capacity, and other engineering methods. . . .

The detail method, also known as the summation method, requires that a current new cost be assigned to each individual component of an asset or property. The property is itemized or "detailed" so that the sum of the components reflects the cost new of the whole.

All normal or typical direct and indirect costs should be included. Direct costs are those material, labor, and related expenditures normally and directly incurred in the purchase and installation of an asset, or group of assets, into functional use. . . .

Indirect costs are those expenditures that are normally required to purchase and install a property but which are not usually included in the vendor invoice.¹⁰

Trending is a method of estimating a property's reproduction cost new (not replacement cost new) in which an index or trend factor is applied to the property's historical cost to convert the known cost into an indication of current cost. Simply put, trending reflects the movement of price over time.

As used in this book, historical cost is the cost of a property when it was first placed into service by its first owner. This is to be distinguished from original cost, which is the actual cost of a property when acquired by its present owner, who may not be the first owner and who may have purchased at a price greater or less than the historical cost. Original cost may be the used cost of the property, whereas historical cost can never be a used cost. Obviously historical cost and original cost may be the same.¹¹

A third method of estimating cost new is commonly referred to as cost-to-capacity method. This methodology assumes that not all costs vary with size in a straight line. For example, if the cost of a 10,000-gallon tank is \$7,000, it does not necessarily mean that the cost of one twice as big is \$14,000. The cost-to-capacity method can be applied to many different items of equipment or to entire facilities. Cost-to-capacity analyses have been prepared for entire process facilities as well as components of facilities, including pumps, tanks, blenders, compressors, heat exchangers, and others. Studies indicate that although cost capacity factors average about 0.6 to 0.7, they vary depending on the property in question.¹²

Several other engineering methods may be used to estimate the cost of entire facilities or components of facilities; most of these methods are best used in chemical or petrochemical processing industries.¹³

There are several methods for estimating the current new cost of personal property. The common methods are the detail method, trending, cost-to-capacity, and other engineering methods. Of these four methods, the detail method and the trending method are more commonly used for property tax appraisals. The detail method, also known as the summation method, allows for a current new cost to be assigned to each individual component of a property. The subject personal property is itemized or "detailed" so that the sum of the components reflects the cost new of the whole. The trending method typically estimates the subject property's reproduction cost new (not replacement cost new). In the trending method, an index or trend factor is applied to the property's historical cost in order to convert the known historical cost into an estimation of current reproduction cost.

PHYSICAL DETERIORATION

Valuing Machinery and Equipment describes the types or causes of personal property depreciation as follows:

The three types of causes of appraisal depreciation traditionally recognized by appraisers are physical deterioration, functional obsolescence, and economic obsolescence. The traditional definitions of these terms are as follows:

Physical deterioration is the loss unit value or usefulness of a property due to the using up or expiration of its useful life caused by wear and tear, deterioration, exposure to various elements, physical stresses, and similar factors.

Functional obsolescence is the loss in value or usefulness of a property caused by inefficiencies or inadequacies of the property itself, when compared to a more efficient or less cost replacement property that new technology has developed. Symptoms suggesting the presence of functional obsolescence are excess operating cost, excess construction (excess capital cost), over-capacity, inadequacy, lack of utility, or similar conditions.

Economic obsolescence (sometimes called "external obsolescence") is the loss in value or usefulness of a property caused by factors external to the property, such as increased cost of raw materials, labor, or utilities (without an offsetting increase in product price); reduced demand for the product; increased competition; environmental or other regulations; inflation or high interest rates; or similar factors.¹⁴

The particular method used to estimate physical deterioration should be identified and defined. The specific procedures used by the appraiser (within the identified method) should be

explained. And, all significant data sources should be identified.

The three common methods for measuring personal property physical deterioration are: (1) the physical observation method, (2) the age/life method, and (3) the direct dollar measurement method. The appraisal report should adequately describe the method that was used and how it was used in the subject appraisal. All appraisal terminology should be identified and defined. This recommendation is particularly relevant to the age/life method. That depreciation method involves numerous nonintuitive "age" and "life" measures.

Valuing Machinery and Equipment presents the following summary description of these three common methods of estimating personal property physical deterioration:

Three methods of measuring physical deterioration that were discussed are observation, formula/ratio, and direct dollar measurement.

In the observation method, the appraiser makes a comparison based on the experience he or she has gained by looking at similar properties and comparing them to new properties.

In one variation of the formula/ratio method, physical deterioration is estimated based on a property's use. Use is a good indicator of physical deterioration when the requisite production statistics can be obtained.

The age/life variation of the formula/ratio method uses the ratio of a property's "age" to its "life" to measure physical deterioration. Although this is straight-line depreciation, it should not be confused with accounting depreciation, because the appraiser uses valuation concepts of age and life.¹⁵

FUNCTIONAL OBSOLESCENCE

The appraisal report should (1) describe the concept of functional obsolescence, (2) explain the method(s) used to identify and quantify functional obsolescence, and (3) describe the data sources used in the functional obsolescence analysis. *Valuing Machinery and Equipment* offers the following definitions of functional obsolescence (and of the related value decrement, technological obsolescence):

The next step in implementing the cost approach is to consider functional obsolescence. Functional obsolescence has been previously defined as the loss in value or usefulness of property caused by inefficiencies or inadequacies of the property itself, when compared to a more efficient or less costly replacement property that new technology has developed. Symptoms suggesting the presence of functional obsolescence

are excess operating (i.e., manufacturing), cost, excess construction (excess capital cost), over-capacity, inadequacy, lack of utility, or similar conditions.

Some appraisers draw a distinction between functional obsolescence and technological obsolescence. They define functional obsolescence as a loss in value resulting from differences in capability between a new machine and the appraised machine, and technological obsolescence as a loss in value resulting from the difference between design and materials of construction used in present-day machines compared with those used in the machine being appraised. There is a legitimate difference of opinion as to how appraisers apply the concepts to measure the functional and technological aspects affecting value. Regardless of the terms used, the important thing is for the appraiser to measure the various factors that contribute to functional obsolescence.¹⁶

The two common methods to quantify personal property functional obsolescence are:

1. analysis of excess capital costs and
2. analysis of excess operating costs.

Valuing Machinery and Equipment explains common instances of functional obsolescence. If applicable to the subject personal property, these instances should be noted in the appraisal report:

Functional obsolescence, particularly operating obsolescence, is typically found in the following situations:

1. Plants involved in the process industries.
2. Plants involved in industries that either use assets or manufacture products with a high degree of technology.
3. Older plants that have increased in size over time.
4. Plants in which there are a number of identical units.
5. Plants involved in industries which handle large volumes of material.
6. Plants with areas of inactive machinery.¹⁷

EXTERNAL OBSOLESCENCE

The appraisal report should describe (1) the factors considered in identifying external obsolescence, (2) the methods used to quantify external obsolescence, and (3) the specific data sources relied on in the external obsolescence analysis. Many

appraisers distinguish between two forms of external obsolescence: (1) economic obsolescence (where the subject property does not generate adequate income to provide a fair rate of return to the property owner) and (2) locational obsolescence (when the obsolescence is a result of the location of the subject property). Locational obsolescence affects real estate more often than it affects personal property. Nonetheless, if applicable, the appraisal report should distinguish between these two forms of external obsolescence.

INCOME CAPITALIZATION APPROACH

The income approach is particularly applicable to the types of personal property that are commonly leased. Examples include commercial aircraft, railroad locomotives and rolling stock, over-the-road tractor/trailers, and so on. The income approach converts the property's expected income or cash flow into a present value.

There are two categories of income capitalization methods: (1) direct capitalization and (2) yield capitalization. Direct capitalization methods rely on direct capitalization rates typically extracted from comparable sales. And, yield capitalization methods rely on yield capitalization rates that are typically derived as the internal rate of return required by the typical investor. Since tangible personal property has a limited life, yield capitalization is more commonly used than direct capitalization.

Value estimates may be calculated by applying an appropriate multiplier or capitalization rate to the personal property's expected income or cash-flow. The term *direct capitalization* is sometimes used to refer to the procedure of extracting income multipliers or capitalization rates from comparable sales. Capitalization rates and income multipliers derived from comparable sales do not explicitly address profitability. Rather, they are simply observed ratios of income to value. However, such market-derived capitalization rates can provide reliable estimates of value if:

1. the expected cash flow is a representative income projection and
2. the income multiplier or capitalization rate is derived from comparable sales with the same potential for future income.

The most common direct capitalization multiplier used for personal property is the gross income multiplier (GIM). The GIM is derived by (1) extracting GIMs from comparable personal property sales, (2) comparing the comparable property attributes (physical, functional, and financial) to the subject property, and (3) selecting an appropriate multiplier. When either calculating value or extracting multipliers, the appraiser should ensure that the income (however measured) is calculated on the same basis.

Personal property value may be estimated by dividing the one-period net operating income (NOI) by a capitalization rate. The rate is estimated by (1) extracting overall rates from comparable property sales, (2) comparing the comparable property attributes (physical, functional, and financial) to the subject property, and (3) selecting an appropriate capitalization rate.

Personal property value may also be estimated by projecting cash flow over a typical holding period and discounting the cash flow to a present value estimate using a discount rate. This valuation method is called yield capitalization (or a discounted cash flow analysis). The discount rate directly addresses the expected profitability of the subject personal property. The cash flow components include: (1) NOI and (2) the net proceeds from the property resale. The discount rate is sometimes called the yield capitalization rate.

SALES COMPARISON APPROACH

The comparability of the selected sale transactions is typically a controversial aspect of the sales comparison approach analysis. Therefore, market sale transactions should not be used unless the sale data have been confirmed by the appraiser or by a reliable delegate. And, this confirmation process should include inquiries into the circumstances causing the sale or affecting the transaction price.

In comparable sales, the importance of the relationship of the parties is not always self-evident. Unless the buyer and the seller deal on a reasonably objective and impersonal basis, little reliance can be placed on their transaction as representing typical attitudes of market buyers and sellers. Ideally, the selected comparable sales should be objective transactions between sellers and buyers who have bartered in an open market.

Transactions selected for the sales comparison approach analysis should be adjusted, if necessary, to compensate for the effect of economic forces that influenced the personal property market during the time interval elapsed between (1) the date of the comparable sale and (2) the appraisal date. Market prices move upward or downward with changes in supply and demand, variations in business cycles, and changes in the value of money.

Another controversial issue is the appraiser's adjustments to the comparable sales to account for differences between the comparable properties and the subject personal property. Any adjustments related to differences due to variations in age, features, and quality of comparable subject property should be identified and quantified in the appraisal report.

Market comparisons are based on an overall judgment as to the percentage-value adjustment called for in order to make each sale comparable with the subject property. The overall percentage applied to each property in turn is justified by the appraiser's explanation that the subject property is better, poorer, or the same in relation to its type, size, features, age

and condition. By adjusting the comparable sale prices upward or downward in accordance with the characteristics of the subject personal property, a market value estimate is derived.

The sales comparison approach is appropriate to situations where there are an adequate number of similar properties which have recently sold. In using these sales, the appraiser should try to verify each sale in order to confirm the relationship of the parties, date of sale, and any financing terms. In analyzing comparable sales, it may be necessary to adjust a price if prices have changed between (1) the time the comparable property sold and (2) the subject appraisal date.

Also, an adjustment is typically required if a comparable sale property's price was influenced by financing terms. The "cash equivalency" method is often used to adjust for this price influence. The purpose of this adjustment is to reveal the price that a comparable property would have brought without the influence of atypical financing.

RECONCILIATION AND OPINION OF VALUE

The final procedure is the reconciliation of the various value indications into final value opinion. For appraisals performed for some purposes, it is reasonable to conclude a range of values as the final value opinion. For property tax appraisals, however, it is more common to conclude a point estimate as the final value opinion. The nature of reconciliation procedure depends on: (1) the purpose and objective of the appraisal, (2) the individual valuation approaches and methods used, and (3) the appraiser's assessment of the reliability of each value indication derived.

PROFESSIONAL QUALIFICATIONS OF THE APPRAISER

The statement of the professional qualifications of the appraiser describes the appraiser's education and training, experience and expertise, and professional credentials and designations. This statement should emphasize the appraiser's: (1) experience in conducting appraisals for property tax purposes and (2) experience appraising properties like the subject personal property.

ADDENDUM AND SECONDARY EXHIBITS

This section of the appraisal report should include all exhibits, diagrams, schematics, flow charts, photographs, financial statements, legal documents, and other supplemental data not included in the narrative section of the report. It is a good idea to include a table of contents at the beginning of the addendum. This table of contents should list the contents of the appraisal report addendum.

SUMMARY AND CONCLUSION

The appraisal report is the culmination of the tangible personal property valuation process. The appraisal report is often an important part of the property tax assessment appeal, or litigation process. The report reader should be able to rely on the appraisal report to provide factual description and data, rigorous empirical research, comprehensive quantitative and qualitative analysis, and impartial conclusions. To meet professional standards, the appraiser should be impartial and unbiased. Particularly in a property tax dispute context, the appraisal report should be clear, convincing, and cogent.

This discussion summarized the topical components of a narrative personal property appraisal report. This discussion may be used as a checklist or guide (1) by the property tax appraiser, in the pre-issuance report review process and (2) by the parties to the property tax dispute, to evaluate the degree of reliance to assign to the appraisal report.

Notes:

1. *Uniform Standards of Professional Appraisal Practice (USPAP)*, 2004 edition (Washington, D.C.: The Appraisal Foundation, 2004), p. 4.
2. *Ibid.*
3. *Ibid.*, p. 72.
4. *Ibid.*, p. 1.
5. *Ibid.*, p. 4.
6. *Ibid.*, p. 64.
7. *Ibid.*, p. 3.
8. Adopted from *The Appraisal of Real Estate*, 12 ed. (Chicago: The Appraisal Institute, 2001), p. 619, Figure 26-5.
9. *Valuing Machinery and Equipment* (Washington, D.C.: American Society of Appraisers, 2000), p. 46.
10. *Ibid.*, p. 53.
11. *Ibid.*, p. 62.
12. *Ibid.*, p. 64.
13. *Ibid.*, p. 67.
14. *Ibid.*, pp. 69-70.
15. *Ibid.*, p. 109.
16. *Ibid.*, pp. 89-90.
17. *Ibid.*

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